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AGILITY, SPEED, ENDURANCE AND POWER: IMPACT OF PRANAYAMA PRACTICES ON SEDENTARY MALES

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Abstract

Aim. The ancient Indian science of Yoga makes use of voluntary regulation of the breathing to make respiration rhythmic, and to calm the mind. This practice is called Pranayama. It is believed that Pranayama practices can do a lot on the different physical, physiological, and psychological components of human body and thus can affect the performance of bio- motor variables to a great extent..

For the *purpose* of study, fortysedentary males were randomly selected as the subjects who were divided into two groups (Group 1 and Group 2).

*Methods.*Group I(N=20) underwent Pranayama Practices and Group II (N=20) acted as Control group. They were given their respective training programs for a duration of twelve weeks with a schedule of three days per week.

*Results.*Pre test and Post test data for selected bio- motor variables were taken to analyze the differences if any. The collected data were analyzed by using dependent 't'-test to find out significant improvements.

Conclusion. After careful analysis of the available data ,it could see thatthe experimental group had significantly improved on the performance of dependent bio- motor variables Speed, Explosive Power, Cardio Respiratory Endurance, and Agility.

Key words: Yoga, Pranayama, Explosive power, Cardio respiratory Endurance, Agility.

Introduction

The ancient Indian science of Yoga makes use of voluntary regulation of the breathing to make respiration rhythmic, and to calm the mind. This practice is called Pranayama. Pranayama is a Sanskrit word meaning "restraint of the prana or breath". The word is composed of two Sanskrit words, Prana, life force, or vital energy, particularly, the breath, and "ayama", to suspend or restrain. It is often translated as control of the life force (prana). These Yogic practices provide an opportunity to study the effects of selective nostril breathing carried on effortlessly for prolonged periods. Pranayama means control of breath and it involves three main phases which is much more important to keep strength of respiratory system and thus a whole of human body. These are best practiced in the early hours of the morning or after sunset.

The Prayama practice makes use of the diaphragm fully by drawing into the lowest and largest part of the lungs. Due to the regular practice of the Pranayama, breathing is so simple and so obvious that we often take it for granted ignoring the power it has to affect body, mind and spirit. With each inhale we bring oxygen into the body and spark the transformation of nutrients into fuel. Each exhale purges the body of carbon dioxide, a toxic waste. Breathing also affects our state of mind (Cooper et al ,2003). It can make us excited or calm, tense or relaxed. It can make our thinking confused or clear. What is more, in the yogic tradition, air is the primary source of prana or life force, a psycho-physio-spiritual force that permeates the universe (Danucalov MA et al, 2008). During breathing for Pranayama, inhalation (puraka) stimulates the system and fills the lungs with fresh air. According to Madanmohan et al,(2004), retention (kumbhaka) raises the internal temperature and plays an important part in increasing the absorption of oxygen. Exhalation (rechaka) causes the diaphragm to return to the original position and air full of toxins and impurities is forced out by the contraction of inter-costal muscles. These are the main components leading to Pranayama which massage the abdominal muscles and tone up the working of various organs of the body. Due to the proper functions of these organs, vital energy flows to all the systems. KhanamA et al (1996) in his study reveals that the success of Pranayama depends on proper ratios. Researchers like Brown and Gerbarg (2005) claim that yogic breathing is a unique method for balancing the autonomic nervous system and influencing psychological and stress-related disorders. One part of their report presented a neurophysiologic theory of the effects of Sudarshan Kriya Yoga (SKY) and another part reviewed clinical studies, their own clinical observations, and guidelines for the safe and

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effective use of yoga breath techniques in a wide range of clinical conditions. Although more clinical studies are needed to document the benefits of programs that combine pranayama (yogic breathing) asanas (yoga postures), and meditation, there is sufficient evidence to consider Sudarshan Kriya Yoga to be a beneficial, low-risk, low-cost adjunct to the treatment of stress, anxiety, post-traumatic stress disorder (PTSD), depression, stress-related medical illnesses, substance abuse, and rehabilitation of criminal offenders. SKY has been used as a public health intervention to alleviate PTSD in survivors of mass disasters. Nagarathna et al (1985) have proved that Yogic exercises are effective for bronchial asthma. It is believed that Pranayama practices can do a lot on the different physical , physiological and psychological components of human body and thus can affect the performance of bio motor variables to a great extent.

Significance of the study

The study will be significant by giving new trends to coaches and physical educators to train their athletes and players based on new concepts of Pranayama practices to improve their performance.

The study would provide new horizons to Physical Educators and Coaches in research training.

Methodology

For the purpose of the study, 40 sedentary males who not used to undergo any kind of physical activity and training were selected at random. The average age, height and weight of students were 21, 173 and 75kg respectively. They were categorized into two groups ; viz (1) Experimental Group and (2) Control Group. Group I underwent Pranayama Practices and Group II acted as Control (n=20). The selected bio motor variables were Speed, Explosive Power, Cardio Respiratory Endurance, and Agility. As per the available literature, the following standardized tests were used to collect relevant data on the selected dependent variables and they are 50 M run for speed, standing broad jump for explosive power, Cooper's run/walk test for cardio respiratory endurance, and Shuttle run for agility.

All the measurements in this study were taken by the investigator with the assistance of senior colleagues and had a number of practice sessions in the correct testing procedure. The tester's reliability was established by test and re-test methods.

Training program: - During the training period, the experimental groups underwent their respective training programs. Group-I underwent Pranayama Practices, for all three days per week for twelve weeks. The duration of training session in all the days was between fifty five to sixty minutes approximately which included warming up and limbering down. The time slot for the program was early morning during the first few weeks. This time period is considered as best for yoga practices as suggested from many yogic experts from ancient times.

Collection of the data :- The data on Speed was assessed by 50 Meters Run, Explosive Power was assessed by Standing Broad Jump, Cardio Respiratory Endurance was assessed by Coopers 12 Minutes Run/Walk Test, and Agility was assessed by Shuttle Run Test. Pre test data were collected two days before the training programme and post test data were collected immediately after twelve weeks of training session.

The collected data were analyzed by using dependent't'-test to find out significant improvements. Analysis of covariance (ANCOVA) was used to determine the differences, if any, among the adjusted post-test means. Whenever 'F'-ratio for adjusted post-test mean was found to be significant, the Scheffe's test was applied as post-hoc test to determine the paired mean differences. The level of significance was fixed at .05 level of confidence for all the cases.

Results and Discussion

By fulfilling all the requirements, the data was collected. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables.

The data obtained from the Experimental groups before and after the experimental period were statistically carried out with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post- test means was found to be significant, the Scheffe's test was applied as post-hoc test to determine the paired mean differences. The level of confidence was fixed at .05 level for all the cases. The influence of independent variables on each criterion variable was carried out and presented below:

The analyzed dependent 't'-test on the data obtained for Speed of the subjects in the Pre-test and Post-test of Experimental Groups and Control Group have been carried out and presented in Table 1.

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Results

Table 1

't'-test analysis on Speed

	Pranayama Practices Group – (I)	Control Group – (I)
Pre- test mean	7.66	7.68
Post-test mean	7.36	7.67
't'-test	3.69*	0.07

**** Significant at .05 level.***

(Table value required for significance at .05 level for 't'-test with df 14 is 2.15)

From Table I the dependent ' t' test values between the pre and post test means of, Pranayama Practices Group and Control Group are found to be 3.69 and 0.07 respectively. Since the obtained 't'-test values of Experimental group is greater than the table value 2.15 with df 14 at .05 level of confidence, it is concluded that, Pranayama Practices Group had registered significant improvement in performance of Speed.

The analyzed dependent 't'-test on the data obtained for Explosive Power of the subjects in the Pre-test and Post-test of Experimental Groups and Control Group have been carried out and presented in Table 2

Table 2

	Pranayama Practices Group – (I)	Control Group – (I)
Pre- test mean	2.18	2.17
Post-test mean	2.37	2.18
't'-test	2.77*	0.09

**** Significant at .05 level.***

(Table value required for significance at .05 level for 't'-test with df 14 is 2.15)

From Table 2 the dependent ' t' test values between the pre and post-test means of, Pranayama Practices Group and Control Group are found to be, 2.77 and 0.09 respectively. Since the obtained 't'-test values of Experimental group is greater than the table value 2.15 with df 14 at .05 level of confidence, it is concluded that Pranayama Practices Group had registered significant improvement in performance of Explosive Power.

The Analyzed dependent't'-test on the data obtained for Cardio Respiratory Endurance of the subjects in the Pre-test and Post-test of Experimental Groups and Control Group have been performed and presented in Table 3

Table 3

	Pranayama Practices Group – (I)	Control Group – (I)
Pre- test mean	2054.67	2049.33
Post-test mean	2274	2046.67
't'-test	3.48*	0.05

**** Significant at .05 level.(Table value for significance at .05 level for 't'-test with df 14 is 2.15)***

Since the obtained 't'-test values of Experimental group(3.48) is greater than the table value 2.15 with df 14 at .05 level of confidence, it is concluded that Pranayama Practices Group had registered significant improvement in performance of cardio respiratory endurance.

The analysis of dependent't'-test on the data obtained for Agility of the subjects in the Pre-test and Post-test of Experimental and Control Groups have been performed are presented in Table 4

Table 4

	Pranayama Practices (I)	Group –	Control	Group – (I)
Pre- test mean	10.66		10.50	
Post-test mean	10.32		10.53	
't'-test	3.04*		0.24	

**** Significant at .05 level.***

(Table value required for significance at .05 level for 't'-test with df 14 is 2.15)

From Table 4 the dependent ' t' test values between the pre and post-test means of, Pranayama Practices Group and Control Group are found to be, 3.04 and 0.24 respectively. Since the obtained 't'-test values of Experimental groups are greater than the table value 2.15 with df 14 at .05 level of confidence, it is concluded that Pranayama Practices Group had registered significant improvement in performance of agility.

Conclusions

It is concluded that there is a significant influence of Prayama practices on the performance of dependant variables viz, Speed, Explosive power, Cardio respiratory endurance and Agility. Therefore, different modalities in Pranayama like nadeeshodhana Pranayama, kapaalabhathitechniques ,shouchya pranayaama, etc may have its own effects on the physiological functions of human body.

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THE BODY POSTURE AND ITS IMBALANCES IN CHILDREN AND ADOLESCENTS

ACASANDREI LEONARD[1], MACOVEI SABINA[1]

Abstract

Aim. Recent studies show that 30% of the adolescents suffer, during their growth stage, from imbalances at the spinal column level, which may turn into malformations that can last throughout their lifespan. The growth periods in children and adolescents engender imbalances of the bone and muscular systems, circumstances that suppose a serious danger to the emergence of imbalances at the spine level. This danger is augmented by the adoption of inappropriate postures.

Postural attitude is not conditioned only by the muscle tone, the ligament strength and the erector spinae muscles, but also by the human being's personality, that is why it was called the "psychic drive". Depression and intellectual fatigue (overexertion) get worse the posture image and, conversely, joy and success improve it.

Purpose. The present paper aims at achieving a synthesis of a theoretical and methodical approach related to the body posture and the postural imbalances in children and adolescents, but also to some modalities of postural prevention, education and reeducation.

Content. Children and adolescents pass through a growth stage in which all the performed physical activities have consequences on their body structure.

In our study, we shall analyze some of the factors that may induce postural imbalances in children and adolescents, as well as some modalities of postural prevention, education and reeducation, which can be adapted to each subject or category of subjects.

Conclusions. Children and adolescents should be informed and must become aware of the possible postural imbalances and of some asymmetries in their body structure.

The education and reeducation of postural imbalances require the presence of a specialist who must know and implement efficient modalities of postural education and reeducation, because merely the verbal clues are often useless, they leading sometimes even to an adverse effect.

Key-words: body posture, adolescence, postural imbalances.

Introduction

Musculoskeletal imbalances are frequent among the population, particularly those related to the spinal column. Between 45 and 85% of the people suffer from low back pains at a certain moment of their life, pains that, in most of the cases, are determined by vicious postures, over exertions, lack of physical activity etc. Nowadays, this has become a serious concern, because we refer to an increasing health problem that emerges at early ages, especially starting with the age of 12 (Ramos, Gonzales, Mora, Mora, 2005).

About 30% of the adolescents suffer, during their growth stage, from imbalances at the spinal column level, which may turn into malformations that are susceptible to last throughout their lifespan (Masalo, 2001, quoted by Ramos, Gonzales, Mora, Mora, 2005).

The growth periods in children and adolescents engender imbalances of the bone and muscular systems, circumstances that suppose a serious danger to the emergence of imbalances at the spine level. This danger is augmented by the adoption of inappropriate postures (Sanchez, 2003).

Another important aspect refers to the fact that the postural attitude is not conditioned only by the muscle tone, the ligament strength and the erector spinae muscles, but also by the human being's personality, that is why it was called the "psychic drive". Depression and intellectual fatigue (overexertion) get worse the posture image and, conversely, joy and success improve it (Gomez, Izquierdo, 2003).

1. Purpose of the study

The present paper aims at achieving a synthesis of a theoretical and methodical approach related to the body posture and the postural imbalances in children and adolescents, but also to some modalities of postural prevention, education and reeducation.

This is an up-to-date issue, because it has been noticed that more and more children and adolescents spend their free time in front of a computer or a TV set, by usually adopting vicious postures, to the detriment of the physical activity or the sports practice.

2. Content of the paper

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2.1. Body posture

During his evolutionary process, man has progressively reached different postural stages that culminate with bipedalism. Body posture is inherent to the human being, because it accompanies him 24 hours out of 24throughout his lifespan. The different body attitudes or postures are defined through the interrelation between trunk and limbs, their stability depending on the subject's capacity to maintain his gravity center projection in the support polygon.

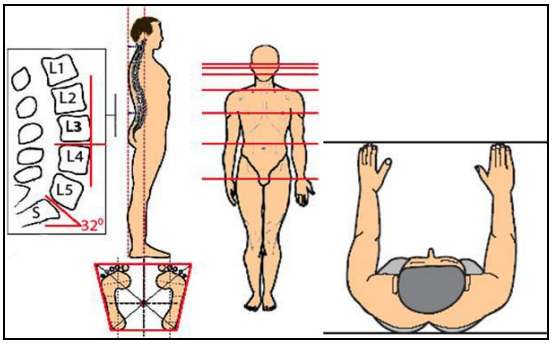
According to Kendall, Kendall, Mc. Creary, 2000, the body attitude represents a "*set of postures adopted by all the body's joints at a precise moment*", while the static postural alignment is defined in relation with the position of different joints and segments of the body. The ideal skeletal alignment used as a postural model is compatible with the scientific principles, involves a minimum tension and deformation and leads to the obtaining of the body's maximum efficiency.

The assessment and treatment of postural imbalances require the knowledge of many general principles related to the alignment, the joints and the muscles (Kendall, Kendal., Mc. Creary, 2000):

- An inappropriate alignment produces stressand an additional tension that affects the bone system, the joints, the ligaments and the muscles;
- The joint position assessment indicates muscles that are in a stretched or shortened position;
- There is a correlation between the body alignment and the findings resulted from the tests administered at the muscle level, in the situation in which the postural attitude becomes a routine;
- The muscle tone diminution allows the separation of the muscle insertion zones;
- The muscle shortening keeps together the muscle insertion zones;
- The stretching-induced weakening may occur in the monoarticular muscle groups that are in an elongation stage;
- The compensatory shortening may occur in the muscle groups that permanently remain in a shortening stage.

Authors such as Andujar, and Santoja, (1996) make reference to some concepts that are defined as follows: ***correct posture:****"posture that doesn't load either the spinal column or other element of the locomotor apparatus"; **vicious posture:**"posture that loads the bone, the tendon, the muscle, the vascular structures etc., by permanently deteriorating the body at the level of one or many elements and that mainly affects the spinal column";**harmonious posture:**"posture that is the closest to the correct one and that can be achieved by any person, depending on the individual possibilities at each moment or stage of his life*".

The correct posture or the physiologically balanced posture (fig.1) supposes an optimum distribution of the body weight around its vertical axis, as well as a correct position of pelvis, head and shoulders, which determines a minimum energetic consumption.



a. b. c.

Fig. 1.The physiologically balanced posture in the sagittal (a), frontal (b) and transversal (c) planes (**Şerban, I.,** 2011, p.26)

In the sagittal plane (fig. 1a), the vertical axis must cross the following coordinates: vertex; odontoid process of the second cervical vertebra(C2); vertebral body of the 3rd lumbar vertebraand, at the same distance, within the support base, between the two soles; concomitantly, the scapular and gluteal planes are aligned.

In the frontal plane (fig. 1b), the axes defined by natural landmarks must be aligned (they must be perpendicular to the gravitational acceleration direction).

In the transversal plane (fig. 1c), no rotation should exist at the shoulder and pelvic girdle levels.

2.2. Factors that may induce postural imbalances in children and adolescents

Children and adolescents pass through a growth stage in which all the performed physical activities have consequences on their body structure.

A recent study achieved by McGill, (2007) was based on the participation of pupils aged between 6 and 10 years old, whose parents were instructed to notice the different postures usually adopted by their children, at home. The obtained results were the following:

- ***Position in front of the TV set:***70.7% were adopting a wrong posture, 17.7% were adopting a correct posture, 9.7% were adopting sometimes a correct posture and 2.43% didn't know or didn't respond. The most frequent wrong posture is the ischiosacral support, with the total loss of lumbar curvature and an accentuated dorsal curvature.
- ***Sitting position on a chair or for study:*** 53.6% were sitting incorrectly or didn't dispose of appropriate furniture, 29.2% were using a correct posture, 9.7% were using sometimes a correct posture and 7.3% didn't know or didn't respond.
- ***Lying down position*** (while sleeping): 17.07% were sleeping on their back, 9.7% were sleeping on their belly (the most detrimental of all the positions), 51.2%

were sleeping on their side and 21.9% were changing many times their position.

Authors such as Casimiro (1999) and Tercedor (1998), quoted by Martin, Recio, (2009), assert that the adolescent's growth stage predisposes to the emergence of some postural imbalances, as a consequence of a series of factors that will be analyzed in the following lines:

a. Physiological characteristics specific to the growth stage at the locomotor apparatus level
b. Incapacity to become aware of the alterations at the body schema level
c. Psychological characteristics
d. Progressive tendency toward the sedentary life or lack of physical activities
e. Schooling-specific conditions
f. Vision disorders and their incidence on the posture

a. Physiological characteristics specific to the growth stage at the locomotor apparatus level

In adolescence, the many sudden alterations that occur at the locomotor apparatus level may engender a series of postural imbalances. In this stage, the bone system is submitted to a considerable growth that is not accompanied by the muscular mass development at the same rhythm, which means that the adolescent grows in height, while his muscular system is not correspondingly adapted to these changes. The fact that the muscular mass doesn't develop at the same rhythm with the bone levers converts the adolescent's locomotor apparatus into an unstable system and, consequently, this predisposes to the emergence of injuries or of the incorrect fixations at the postural level.

b. Incapacity to become aware of the alterations at the body schema level

As a result of the previously mentioned factor, the adolescent has an incapacity to become aware of the alterations produced in his body schema or, in other words, in this stage, the alterations affecting the adolescent's body are so numerous and accelerated that he has not sufficient time to assimilate or include them through the awareness of the new body schema, and this is due to the quick growth at his bone system level.

Consequently, the adolescent can adopt some determined postures that will lead to wrong postural habits and, finally, to some consolidated structural imbalances, although he is not fully aware of this.

c. Psychological characteristics

According to Silla (1998), quoted by Martin Recio (2009), the postural attitude is defined as a psychophysiological feature, therefore it will be influenced by the individual's psychological stage. Thus, we frequently meet kyphotic attitudes in the depressed individuals or an improper postural attitude that proves a negative self-image and, consequently, a low self-esteem.

At the same time, postural imbalances can result from the existence of a culpability feeling induced by the growth-specific circumstances, such as in the case of the "decency" kyphosis, encountered in the girl adolescents whose breasts are growing or whose height exceeds that of their colleagues.

d. Progressive tendency toward the sedentary life or lack of physical activities

The lack or the abandonment of physical activities is a common feature in this period and engenders a series of physical consequences, such as a decrease in the muscle strength and the joint mobility, physical qualities that are indispensable to maintain the correct posture. Thus, if these physical qualities are debilitated, some vicious positions will be adopted and, in the course of time, functional limitations may occur.

e. Schooling-specific conditions

The schooling-specific conditions compel the adolescents to sit many hours on a chair or in front of a computer. At the same time, the daily carriage of the school stuff converts into another factor susceptible to generate, in the future, postural imbalances (for instance, the unilateral school bags are not recommended, but the backpack utilization is the correct option). When using a backpack, it must be placed at the lower back level, in order to facilitate the dorsal hyperextension; however, the backpack is not recommended in the severe scoliosis or if the child wears an orthopedic corset.

f. Vision disorders and their incidence on the posture

By having a holistic conception on the human body, we can understand how the postural imbalances are determined by some eye disorders, because the vision organ participates in the adoption and conservation of a correct body posture. Thus, the individuals who use the wrong lens - in myopiaor strabismus (ocular torticollis)- have the tendency to adopt a compensatory posture of the head, which modifies the vision distances or angles.

2.3. Modalities for the postural prevention, education and reeducation of children and adolescents

The basic principles for the postural prevention, education and reeducation must meet some personnel or individual necessities of each subject or category of subjects, because each subject or category of subjects is different.

In our study, we suggest some modalities of postural prevention, education and reeducation, which can be adapted to each subject or category of subjects.

Authors such as Canto and Jimenez (1998) propose 3 essential principles:

- Awareness of the body attitude

- Strength development in the back and the abdominal muscles
- Joint mobility and muscle suppleness

These 3 principles can be developed through some work modalities with different characteristics, for instance: respiratory reeducation, exercises in the water environment, sports practice or balance exercises.

2.3.1. Awareness of the body attitude

We should know the imbalances, the adopted position asymmetries, as well as the correct position, under the static and dynamic conditions.

The correct position learning must cover, from the chronological point of view, different stages:

- Awareness of the body attitude. By using different methods of subjective assessment, we search for the asymmetries provoked by the spinal column curves that exceed the physiological normality of the child's or the adolescent's body structure.

- Modeling and awareness of the correct body attitude or posture. When the child or the adolescent knows the asymmetries in his body structure, we try to correct them through a series of exercises included in the group of the conscious gymnastics technics. Among them, we mention: identification exercises in front of the mirror; stretching exercises; retroversion and anteversion movements of pelvis in different positions: orthostatism, sitting position, dorsal decubitus, ventral decubitus; respiratory exercises; postural exercises in the water environment.

- Automation of the correct posture. To finalize this stage, a laborious work is required; it consists of the neuromuscular reprogramming of the current posture to a correct posture, from the physiological point of view.

2.3.2. Strength development in the back and the abdominal muscles

The muscle tone diminution in the spinal column muscles causes some postural abnormalities. The muscular groups that lack strength and consequently may hinder the establishment of the normal postural reflexes and their conservation are the following:

- ***The spinal extensors***: deep muscles –erector spinae: spinalis, longissimus, iliocostalis, which inserts between the spinous and the transverse processes, its main role being to hold up the spine and ensure its stability; intermediate muscles: serratus posterior superior, serratus posterior inferior; superficial muscles: rhomboideus minor; these muscles are responsible for the movement.
- ***The spinal flexors***, located in front of the spinal column, are the following: rectus abdominis, abdominal internal and external oblique muscles, iliopsoas.

The tonification of these muscle groups determines the trunk stability and protects the spinal column against some processes that generate osteoarticular deformations. We must have in view the following indications:

- Exercises shouldn't stress the column concavity.
- Isometric exercises are recommended (the position is maintained for 7 to 10 seconds, but the interval can increase up to 20 seconds).
- A special emphasis is placed on the controlled therapeutic exercises (slow movements, with the control maintaining while the exercise is performed).
- The head is considered an extension of the spinal column (it shouldn't fall).

One of the very efficient methods to strengthen the trunk muscles is the Pilates method.

2.3.3. Joint mobility and muscle suppleness

The joint mobility in children and adolescents is determined by the bone elongation, in disproportion with the increase in muscular mass at the lower limb and the trunk levels. Thus, mobility is diminished, particularly in the time interval between 10 and 14 years old.

The poor amplitude of different joints doesn't allow the achievement of a satisfactory balance. The normal balance regaining can be hindered by the amplitude limitation in the following joints: coxofemoral joint, spinal column joints (at the lumbar, dorsal and cervical levels) and glenohumeral joint, as a result of the pectoralis major retraction.

When conceiving a work program for the mobility, we should take into account the following aspects:

- The program must have a progressive intensity and must be preceded by an appropriate warm-up.
- The mobility exercises can be combined with the relaxation exercises, because these ones reduce the tension at the muscle tone level.
- Static and dynamic exercises will be associated to slow and controlled movements, which lead the muscle to a tension position, then the stretching is maintained for a period of time.

Among the recommended motor activities that contribute to the development of the above-mentioned basic principles, we enumerate: exercises for the respiratory reeducation, balance exercises, sports practice and exercises in the water environment.

Respiratory reeducation

While the exercises are performed, inspiration accompanies the stretching movements and the rest phase and expiration accompanies the effort phase of the exercises, because it forces the abdominal muscles to contract. The following indications are proposed:

- Exercises for the diaphragm mobility
- Practice of different breathing types (abdominal, thoracic and clavicular ones)
- Work on some respiratory rhythms that are necessary in different activities or sports: swimming, cycling, expression of some feelings (fury, interior peace) etc.

- Diverse breathing techniques: yoga (pranayama), tai chi, qi gong etc.

Body balance

The balance exercises are destined to the correct postural integration of the body schema. The following indications are proposed:

- Reduction of the support base. For instance: while sitting on a balloon, we try to keep our trunk upright.
- Elevation of the gravity center and reduction of the support base. For instance: on the balance board, we experience different positions, by modifying the support point or by bending our trunk.
- Increase of the body's perceptive level reached in the previous exercises, by suppressing our sight.

The special training of the balance capacity, in order to benefit from all that the biological element gives to the individual in different growth and development stages, is particularly recommended in the age period from 6 to 10 years old (Macovei, 2006).

Sports practice

Sports practice is recommended with precaution in the case of children and adolescents who present postural imbalances. Authors such as Balius, et al. (1987); Martin Recio, (2009) made a classification of the different sports disciplines, according to the effort impact on the spinal column. Among the prescribed sports for the postural education and reeducation, we mention: sports with a positive impact on the spinal column (basketball, handball, volleyball, swimming- except for the butterfly style, fitness gymnastics etc.) and sports with an indifferent impact on the spinal column (running events from the athletics, football, fencing, hockey, tennis, table tennis, golf, archery etc.) (Macovei, Acasandrei, Popescu, 2012).

At the same time, we must have in view that any sports practice has a competitive and recreational character and that it requires the allotment of a more or less important number of hours; moreover, we must take into account the motor exigencies specific to each sports discipline.

Activities in the water environment

In the water environment, the human body is submitted to a series of particular laws (Archimedes force, hydrostatic pressure, water resistance etc.) that make it the ideal ambience for the work on the postural education and reeducation.

Program for the postural education and reeducation in the water environment:

a. Learning the correct trunk position in the water. This is achieved under the guidance of a teacher, who permanently corrects the body position by using his hands or some accurate verbal clues.

b. Adopting the ventral and dorsal decubitus positions (by means of the floats), the vertical floating position or the immersion position. The degree of difficulty is increased by additional movements at the upper and lower limb level.

c. Dynamic muscular work. We use hydrodynamic resistances or the water turbulences. The effort intensity is variable and follows the covered surface while the body or the limbs are moving, but also the movement execution rapidity. As swimming aids, we can use the fins, the floats and the lead belt, which offer a great resistance to the upper and lower limb movements, by performing thus, through these exercises, a progressive muscular work.

d. Static muscular work. It stimulates the trunk muscles (the abdominal and spinal muscles, the retroversor and anteversor pelvic muscles, the shoulder blade fixing muscles), which work in isometry, in order to keep the trunk balance in a correct position that has been previously learned in the gym. The density diminution in different corporal segments by means of the floating aids, which can be used to facilitate the movement or to oppose a bigger resistance, favors the muscle strengthening.

The muscle tonification in the water is globally approached, because we can't work analytically with a specific muscular group without the intervention of other muscular groups. When the body or one of its segments travels in the water environment, there is a dynamic muscular work, which performs the movement, or an isometric one, of the muscles that maintain the body position.

Conclusions

- The education and reeducation of postural imbalances require the presence of a specialist who must know and implement efficient modalities of postural education and reeducation, because merely the verbal clues are often useless, they leading sometimes even to an adverse effect.
- Children and adolescents should be informed and must become aware of the possible postural imbalances and of some asymmetries in their body structure.
- Children and adolescents may practice their favorite sport without restrictions and with corresponding results, inclusively those who are confronted to postural imbalances, if they benefit from an appropriate training, from efficient prevention modalities and from correct treatments.
- Postural imbalances don't affect a single corporal segment, but they have negative influences on the whole body, which is detrimental to the individual's health condition and this imposes the implementation of some special steps, such as exercises, therapeutic elongations and stretching, which aim at improving or preventing these imbalances.

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Original article

THE ROLE OF KINETIC PROGRAMS IN THE IMPROVEMENT OF SEDENTARY ADULTS' POSTURAL BALANCE – CASE STUDY

AL NABLSI ERWAH[1], CORDUN MARIANA[1]

Abstract

*Purpose.*Through this case study paper we intend to prove that the use of our specific, individualized kinetic programs leads to the improvement of the analyzed subject's postural balance.

*Methods.*To validate the hypothesis we have used the following research methods: the bibliographic research, the questionnaire research method, the observation method and the case study method. For the assessment of the subject's balance we used a series of initial, intermediate and final tests. The study was conducted from July to September 2013. The kinetic programs we used consisted in performing simple bodyweight exercises or exercises that required different equipment, such as bands, stability balls, wobble boards, balance foams, medicine balls and Bosu balls. The subject was submitted to 20 training sessions, 45 minutes each. The balance assessment tests were Romberg, Fukuda and a static and dynamic posturography using the Multitest platform.

*Results.*At the end of the 20 training sessions using our individualized kinetic programs, the results showed an improvement of the subject's static and dynamic balance.

*Conclusions.*As a result of the case study research, the hypothesis was confirmed. Therefore, we determined that individualized kinetic programs contribute to the improvement of the subject's postural balance. The positive results determined us to extend the research on larger groups of subjects.

Key words: posturography, static balance, dynamic balance, platform.

Introduction

Sedentariness (lat. sedere = to sit) reflects a distinct class of behaviors which is characterized by low physical activity and energy consumption (≤ 1.5 METs) (Tremblay et. al., 2010).

According to the World Health Organization, physical inactivity is responsible for more than 2 million deaths per year, being amongst the first ten leading causes of disease and functional impairment worldwide (World Health Organization, 2002).

Sedentary lifestyle is a major risk factor for cardiovascular disease, diabetes and obesity. It also increases the risk of colon cancer, dyslipidemia, osteoporosis, depression an anxiety. These diseases can be prevented through a healthy lifestyle which includes daily exercise, tobacco cessation and good nutrition (World Health Organization, 2002).

Kinetic programs are an efficient training method which do not require the use of specific equipment and can be performed by any individual, regardless his age and physical fitness.

Kinetic programs are used in both physical rehabilitation and athletic training and they are designed to enhance ADLs/sports activities and prevent injury. They are not a new nor revolutionary concept, but offer an integrated approach in the process of improving the coordination, strength, flexibility and the overall conditioning of the subjects (Boyle, 2004). Therefore, motivating the individual towards a healthy lifestyle will have long term positive implications on the quality of his life.

Human movements cannot function properly without a normal balance system. Balance is the ability to maintain the body's line of gravity within the base of support with minimal postural sway (Shumway-Cook, et. al., 1988).

Achieveing and maintaining balance depends on a complex integration of the sensory inputs from the visual, vestibular and somatosensory systems as well as on the motor output to the eyes and muscles. One or more of these components can be affected by aging, injury or various diseases therefore resulting a balance disorder in which the individual feels unsteady or dizzy even in static conditions.

Balance disorders are characterized by various symptoms such as vertigo or dizziness, falling or the sensation of falling, blurred vision, confusion, desorientation, headache, lightheadedness, faintness or a floating sensation, anxiety. The symptoms may be transient or last for longer periods of time.

Balance disorders are treatable and the most effective treatment is vestibular rehabilitation therapy. It is an individualised exercise-based rehabilitation program which consists of specific head, body and eye exercises that are designed to retrain the brain to process and integrate the information from the vestibular system in order to create a central nervous system compensation for inner ear impairments. The exercises are simple and they may also be performed at home.

The Multitest Platform is a static and dynamic platform designed for the computerized analysis of

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one's ability to maintain his postural balance in various conditions. It also offers information about the factors that affect balance and the different degrees of proprioceptive, visual or vestibular impairment for an accurate diagnosis and rehabilitation prescription.

The test has 6 sequences of 30 seconds each with a 15 seconds rest time in between sequences:

A: stable platform, eyes opened, fixed target;

B: stable platform, eyes closed;

C: stable platform, visual disorientation (optokinetic);

D: unstable platform, eyes opened, fixed target;

E: unstable platform, eyes closed;

F: unstable platform, eyes opened, visual disorientation (optokinetic).

Balance disorders may be diagnosed based on the posturography results and several other specific vestibular tests.

The objective of this case study is to examine the effectiveness of our individualized kinetic programs in the improvement of a 57 year old sedentary subject's postural balance.

The scope is to determine whether such training methods may be suitable for other individuals with balance disorders, offering them the opportunity of performing simple physical exercises which enhance their motivation and desire to workout.

Methods

The subject is a white male, aged 57, who has never practised sports but joggs occasionally. He is overweight (BMI = 27.7) and has high blood pressure (in treatment with Captopril), therefore he had a complete medical check up before being submitted into the training program. He stated that he felt dizzy and had severe headaches from time to time.

The subject was informed about the scope and methods of the research and accepted freely to participate into the study.

The research methods we used for this study are: the bibliographic research, the observation method, the case study method, the questionnaire method (QOLS scale for the self appreciation of the quality of life) as well as some specific assessment tools for balance.

The study was conducted from July to September 2013 in „Le Club" wellness club in Bucharest. The kinetic programs were individualized and applied for 5 weeks. The objectives of our training plan were:

- The improvement of the subject's static and dynamic balance;
- The improvement of the subject's exercise heart rate;
- Weight loss;
- The improvement of the subject's quality of life.

The subject was initially assessed at the end of July. He was submitted to a series of balance tests (Fukuda, Romberg and a static and dynamic posturography using the Multitest Platform).

His resting heart rate is 72 bpm. Considering his medical condition, age and weight, as well as the objectives of the research, we determined an ideal exercise heart rate between 98-130 bpm. We used a Polar training watch to monitor his heart rate during exercise. He also was tested with the Astrand Rhyming cycle ergometer test.

The kinetic programs consisted in simple exercises which required a minimum of equipment, such as bands, a stability ball, a wobble board, a balance foam, a medicine ball and a Bosu ball.

According to Dragnea and Teodorescu (2002), cited by Şerbănoiu and Virgil (2007) the following exercise parameters should be taken into account when designing a training session: exercise duration, frequency, intensity and type. The kinetic programs we designed according to these parameters as follows:

- Duration – 45 minutes. The maximum number of exercises used for each training session was 4-6, in 4 sets of 10 repetitions each. Rest time in between sets varied between 60-120 min, according to the subject's heart rate and overall condition.
- Frequency – 4 times a week for 5 weeks. We designed a training program that the subject could perform at the gym as well as a series of exercises that he could easily perform twice a day at home.
- Intensity – moderate exertion;
- Type – aerobic exercise.

As an example, in table 1 we described some of the exercises we designed for our subject.

Table 1. Kinetic program design

Home exercises	Gym exercises
Walking next to a wall, eyes closed, the subject touches the wall with his index finger	Kneeling on Bosu ball, the subject performs different arm movements and turns the head towards the arm
Standing on a balance foam, eyes opened then eyes closed	Sitting on the stability ball, the subject catches the medicinal ball thrown from different directions
Standing on a balance foam, the subject performs different arm movements (e.g. front/lateral raises) and turns the head towards the arm	Four point kneeling on the Bosu ball, the subject performs opposite arm and leg raise
Squats on the balance foam	Standing on the Bosu ball, the subject catches the medicinal ball thrown from different directions
Unipodal stance on the balance foam, eyes opened/eyes closed	Squats on the Bosu ball
Unipodal stance on the balance foam, the subject	Bosu ball standing rows and chest press with an elastic

performs different arm movements and turns the head towards the arm band

Interim assessment was taken after the first 10 training sessions and we adjusted the workouts according to its results. The final assessment was conducted at the beginning of September.

Results

We systematized the results of the initial assessment in table 2.

Table 2. Initial assessment results

Variables	Results
Initials	J.P.
Gender	Male
Age (years old)	57
Chronic illnesses	High blood pressure
Height (cm)	180
Weight (kg)	90
Body Mass Index (kg/cm^2)	27.7
Blood pressure (mmHg)	135/80
Resting Heart Rate (BPM)	75
Exercise Heart Rate (BPM)	157
Romberg test	Negative
Fukuda test (50 steps)	90^o left laterodeviation
QOLS score	83

The following conclusions may be driven as a result of the analysis of the variables in the table above. The subject's exercise heart rate exceeded the accepted limit. The Fukuda test revealed a left side vestibular weakness but further specific tests were done by an otolaryngologist physician specialized in ear disease in order to establish the diagnosis. The physician determined that no spontaneous nystagmus existed therefore excluding a neurological impairement. The rotatory nystagmus was weaker on the left side and the caloric tests revealed symmetric bilateral vestibular hypofunction.

To assess the subject's own perception about his quality of life, we used the Quality of Life Scale (QOLS). According to C.S. Burckhardt and Anderson, (2003), the average score for the entire population is 90 points, which places our subject below average.

As we may notice in figure 1, the Multitest Platform assessment revealed a marked instability on an instable surface.

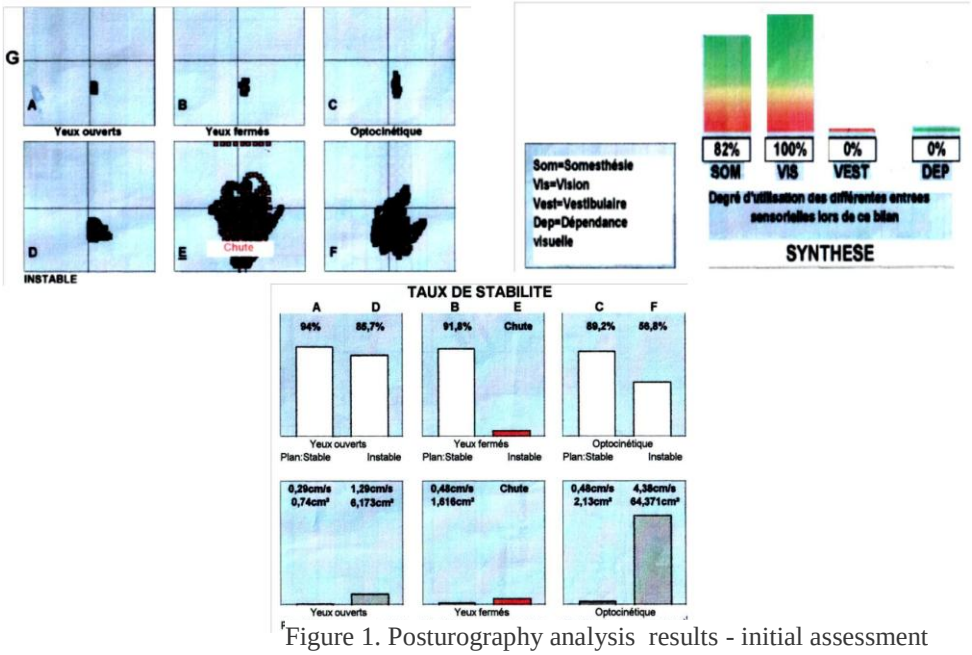

Figure 1. Posturography analysis results - initial assessment

Analyzing figure 1 we may state that the subject is rather unstable even on a steady surface, having an antero-posterior sway (A,B,C). The line of gravity is deviated backwards.

On an unstable surface, with his eyes closed, the subject could not maintain his ballance and reached out for assistance (Chute). The antero-posterior sway increased and the subject became more unstable.

We may see that, in maintaining balance, the visual stimuli are normally integrated in the cortex (100% rate) whilst the vestibular and sensorimotor systems are defficient, with a 82% and 0% rate, respectively.

Even with a vestibular impairment, the subject is not visually dependent, meaning that his brain did not completely suppressed vestibular input to become extremely reliant on the visual one in maintaining his balance (according to the Vestibular Dissorders Association, www.vestibular.org).

The computerized analysis revealed a marked disfunction of the vestibular system which was correlated with the physician's clinical findings. The results were analyzed by the physician and the diagnosis was balance disorder. Her reccommendation was vestibular rehabilitation therapy.

To improve his balance, we used the individualized kinetic programs described earlier. We increased difficulty according to the subject's performance and overall conditioning.

Discussions

The subject began rehabilitation the day after the assessment. Each session took place at 10 a.m. and lasted for 45 minutes. The subject performed a light movement warm up for 10 minutes before the workout.

He was instructed to perform the 10 minutes home exercises twice a day, morning and evenining, in non-training days and once a day, in the evening, on workut days. He adapted really well to the kinetic programs we designed and followed the instructions carefully.

Interim assessment took place after the first 10 rehabilitation sessions and was performed by the otolaryngologisst physician. It revealed an improvement of the subject's static and dynamic balance but the data were not available for the analysis. Based on her reccomendation and our clinical observations we continued the rehabilitation process and we could increase the difficulty level of our workouts.

At the final assessment, we collected the following data, as shown in table 3.

Table 3. Final assessment results

Variables	Results
Weight (kg)	87
Body Mass Index (kg/cm^2)	26.9
Exercise Heart Rate (BPM)	130
Romberg test	Negative
Fukuda test (50 steps)	40^o left laterodeviation
QOLS score	92

Table 3 reflects the improvement of the subject's functional parameters, balance tests results as well as an increment of his final QOLS score. Due to his medical condition, one f the objectives of our training plan was to decrease the subject's exercise rate at a maximum of 130 bpm. Using our individualized kinetic programs this objective was accomplished. We also managed to reduce the subject's weight, further measures needing to be taken into account for better results (e.g. dieting, exercising). By the end of the rehabilitation program, the subject's perception about his quality of life improved. He felt much stable, the headaches diminished and he stopped feeling dizzy. He considered himself to be healthier, fitter and more physically active.

The Multitest posturography revealed a marked improvement in his static and dynamic balance as shown in figure 2.

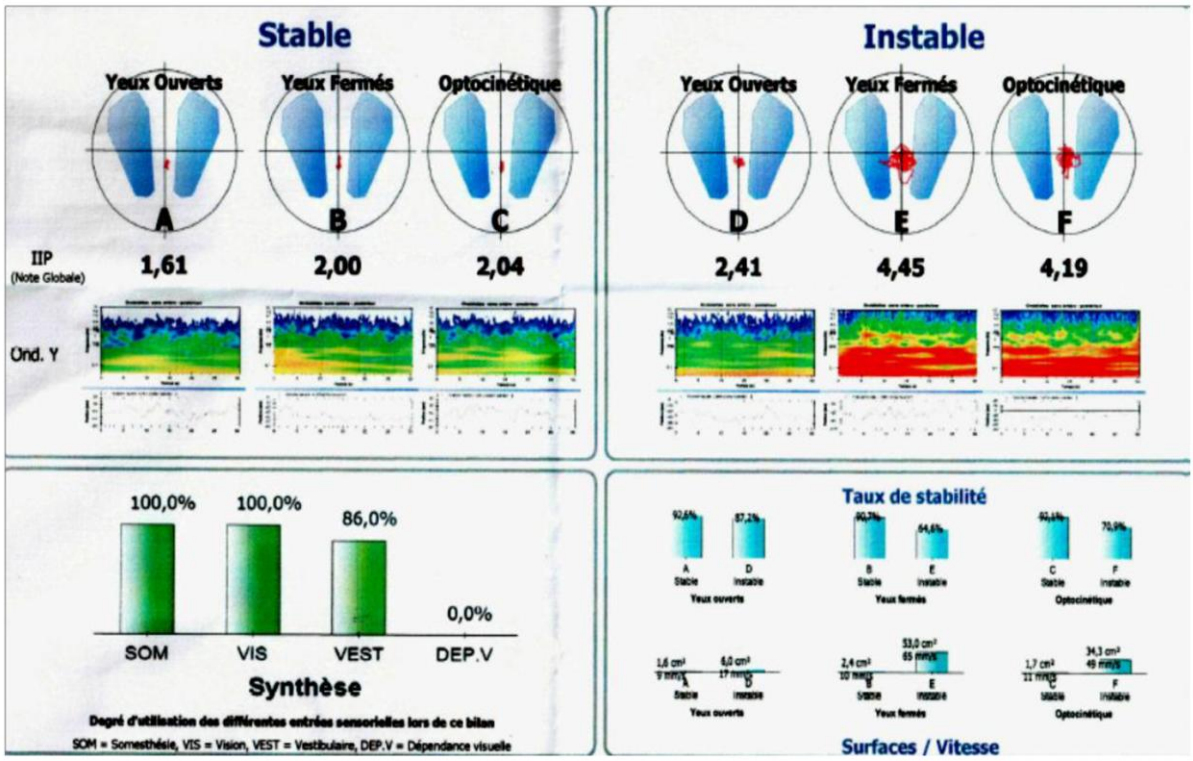

Figure 2. Posturography analysis results - final assessment

Comparing his stability rates (taux de stabilité) at the final assessment with the initial ones, we may note the following:

- On a stable surface, eyes opened, the index had a 1.49% decrease while on an unstable surface it increased with 1.75%;
- On a stable surface, eyes opened, the stability rate decreased with 1.2%, while on an unstable surface it increased with 64.5%. The patient was able to maintain his balance without falling nor reaching for support;
- Both on a stable and unstable surface, with optokinetic stimulation, the rates increased with 3.25% and 24.82%, respectively.

At the final assessment we may notice that the antero-posterior sway decreased, whilst the line of gravity continued to be deviated backwards.

By the time of the final assessment, the subject's vestibular impairment reduced. The degree in which the vestibular input was integrated at a cortical level increased with 86%. Moreover, the Fukuda test revealed a 50^o decrease in the left laterodeviation, from 90^o to 40^o.

Conclusions

As a result of the case study research, the hypothesis was confirmed. Therefore, we determined that our individualized kinetic programs contribute to the improvement of the subject's postural balance.

The positive results determined us to extend the research on larger groups of subjects.

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Original article

SINGLE CASE STUDY: EFFECTS OF THE PHYSICAL ACTIVITY AND EXERCISE IN A SEDENTARY SUBJECT SUFFERING FROM METABOLIC TURNER'S SYNDROME

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Abstract

Turner's Syndrome (TS) is a genetic disorder associated with abnormalities of the X chromosome. TS, is usually related with reduced adult height, gonad dysgenesis and thus insufficient circulation levels of female sex steroids leading to premature ovarian failure and infertility. Often show high levels of cholesterol and increased triglycerides, determined by obesity and hyperinsulinemia. In the women with Turner's Syndrome is impaired glucose tolerance (10-34%). In addition, adult women tend to develop insulin resistance and propensity for type 2 Diabetes Mellitus. Physical activity is important in the management of type 2 diabetes mellitus

The aim of this study was to examine the effects of the physical activity and exercise in sedentary subject suffering from metabolic TS.

The patient with TS, was recruited during the counseling for exercise in the diabetes clinic. For counseling has used the transtheoretical model in accordance with the guidelines of the American College of Sports Medicine. She was monitored for one year, and before and after the start of the educational exercise has undergone a series of tests: blood, and anthropometric. The level of physical activity was estimated by the 7 day physical activity recall (7-DR).. The exercise prescription is in accordance with the guidelines of the American Diabetes Association for the improvement of metabolic fitness.

Results: From the literature, it is clear that young women with TS have a low level of physical activity. Our intervention allowed the patient to improve her level of physical activity going from low to a moderate level. Improvement of the level of physical activity was assessed by 7-DR, and through the armband. Therefore, analysis of the data, it appears a significant improvement in BMI, abdominal girth, blood pressure and blood glucose, compared to baseline.

Conclusion: We believe that the results obtained after one year to serve as a stimulus not only to reduce morbidity and mortality, then, but also to improve the lifestyle.

Key words: Turner's Syndrome, Physical Activity, Fitness Metabolic.

Introduction

Since the description of Turner syndrome (TS) by Henry H. Turner in 1938, a wealth of information has been added and our current understanding of the syndrome is continuously being broadened. The syndrome affects only females and care must include the close collaboration of several specialties such as genetics, embryology, pediatrics, gynecology and obstetrics, endocrinology, cardiology, gastroenterology, oto-rhinonology, ophthalmology and others.

The genetic background of the TS phenotype is highly variable, but includes complete or partial absence of the sex chromosomes (the X and/or Y chromosomes). In addition, mosaicism with two or more cell lines may be present. The first described cases were with the 'classical' karyotype 45,X. In more recent series the classical karyotype only accounts for 50% of cases; the remaining cases comprise mosaic karyotypes (i.e. has cells with 45,X and cells with 46,XX), karyotypes with an isochromosome of X—for example i(Xq) or i(Xp)—or karyotypes with an entire or part of an Y chromosome. The genetic basis for the findings in TS is being further unraveled as the functions of the SHOX gene become clearer. Haploinsufficiency of SHOX explains the reduction in final height, changes in bone morphology, sensorineural deafness and other features.

Prenatal prevalence of the syndrome is much higher than the postnatal prevalence, for there is a well-described increased intrauterine mortality. Prenatal diagnosis of TS may not always be correct; therefore a more precise diagnosis rests on inclusion of high-resolution ultrasound scan or foetal echocardiography and other modern investigations (Baena, et al., 2004; Nielsen, Wohlert, 1991)

Most postnatal diagnoses are made at birth (15%), during teenage years (26%), and in adulthood (38%), with the remainder being diagnosed during childhood (Savendahl, Davenport, 2000) and therefore there is a considerable delay in diagnosing girls and adolescents. Interestingly, the key to diagnosis was lymphedema in

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97% during infancy, and short stature in 82% during childhood and adolescence.

Morbidity is considerably increased in TS. In a study of all females diagnosed with TS compared with the general population of women, we compared the incidence rates of specific diseases we suspected might occur with increased frequency. The relative risk (RR) of an endocrine diagnosis in TS patients is significantly increased to 4.9 overall, with a significantly increased risk of hypothyroidism (RR 5.8), type 1 diabetes (RR 11.6) and type 2 diabetes (T2DM) (RR 4.4). The risk of ischemic heart disease and arteriosclerosis (RR 2.1), hypertension (RR 2.9) and vascular disease of the brain (RR 2.7) were also significantly increased. The risk of other conditions such as cirrhosis of the liver (RR 5.7), osteoporosis (RR 10.1) and fractures (RR 2.16) was also significantly increased, as were the risks for congenital malformations of the heart, of the urinary system, of the face, ears and neck. The risk for all cancers was comparable to other women, with only the risk of colonic and rectal cancers being significantly elevated (RR 4.94). Congenital malformations are most frequent among women with the 45,X karyotype, whereas endocrine diseases, heart disease, hypertension and arteriosclerosis are more frequent in women with other TS karyotypes.

Mortality is also increased in TS. In a British cohort study the RR of premature death was increased to 4.2 with increases due to diseases in the nervous, digestive, cardiovascular (CV), respiratory and genitourinary systems. Death due to cancer was lower than expected, corroborating the morbidity studies (Swerdlow et al., 2001). We found a comparable increase in mortality among Danish patients, with important differences between patients with 45,X or an isochomosome, who had a four-fold increase in mortality, while patients with other karyotypes only had a two-fold increase in mortality.

In summary, TS is a clinical description without firm guidelines for the diagnosis, but the cardinal stigmata include growth retardation with reduced adult height and, except in rare cases, gonadal insufficiency and infertility.

Typical features in Turner's syndrome such as growth deficit and abnormal body proportions may result in perceiving Turner girls as being physically weaker. Hence, physical activity systematically undertaken by those girls would be of utmost importance for keeping healthy and for an adequate relation of body fat to muscle mass, sustaining or increasing physical capacity and for prevention of osteoporosis and hypertension (Pasquino et al., 1997).

Physical activity not only contributes to well-being, but is also essential for good health. People who are physically active reduce their risk of developing major chronic diseases – such as coronary heart disease, stroke and type 2 diabetes – by up to 50%, and the risk of premature death by about 20-30%. The evidence also clearly demonstrates that achieving the weekly recommendation is not the preserve of the sports enthusiast. We all can and should be more active. The evidence of the potential health gains from active lifestyles is clear. Changing inactive lifestyles and levels of inactivity presents a tremendous public health challenge – a challenge we must rise to if we are to improve health.

Physical activity and exercise are often used interchangeably, but these terms are not synonymous. Physical activity is defined as any bodily movement produced by the contraction of skeletal muscles that result in a substantial increase over resting energy expenditure. Exercise is a type of physical activity consisting of planned, structured and repetitive bodily movement done to improve or maintain one or more components of physical fitness (ACSM's, 2000).

The aim of this study was to evaluate the effects of physical activity and physical exercise within the activity counseling in a patient suffering Turner syndrome dysmetabolic.

Methods

Dysmetabolic patient suffering from Turner syndrome was recruited through the counseling exercise in the diabetes clinic of the hospital of S. Maria Misericordia Urbino. The diagnosis of Turner syndrome aberrant to 60% have been diagnosed by the age of 5 years. At the beginning of the study, the patient was 24 years old. The study lasted 12 months. Before the study anthropometric and metabolic characteristics were as follows: Height: 1,60, Weight: 73,5, BMI: 28,7, Waist Circumference: 85 , Fasting Glucose: 104, systolic blood pressure: 140, diastolic blood pressure: 85 (American Diabetes Association. Standards of Medical Care in Diabetes-2013).

The level of Physical Activity was estimated by the questionnaire 7 DR, and it resulted sedentary since the patient took an exercise of less than 150 minutes/ week.

The 7 DR, is a semi-structure interview that estimates an individual's time spent in physical activity, strength, and flexibility activities for the 7 days prior to the interview. The general interview format is as follows: an interviewer asks the participant to recall time spent sleeping and doing physical activities for the past 7 days. The interviewer guides the participant through the recall process, day-by-day, to determine duration and intensity of the physical activities. From hours spent in moderate, hard, and very hard intensity physical activities, total Kilocalories/day can be estimated. The role of the interviewer is very important as it must collect accurate information from the participant. This is not always easy. If a standard format is not followed, an interviewer might gather information that is biased by subjective thoughts and feelings he/she may have about what physical activity a participant actually does or does not perform (˙Sallis, 1985)

The primary outcome was to educate dysmetabolic patient, which was highly sedentary, to increase

physical activity in daily hours and more to perform 150 minutes of exercise a week at least.

The motivational tool to encourage the patient towards a more active lifestyle has been counseling exercise. In fact, they are significant studies (Di Loreto et al., 2003; Moyer, 2012; Peterson, 2007) that confirm the importance of counseling to promote physical activity both in healthy population and in the population affected by metabolic disorders.

The counseling technique used was of type transteoric (transtheoretical model of behavior change) in accordance with the guidelines of the American College of Sports Medicine (Battistini D., Piana N., De Feo, 2007). In the transtheoretical model change is a "process involving progress through a series of stages: precontemplation, Contemplation, Preparation, Action, Maintenance, Termination. In addition, the researchers conceptualized "relapse" (recycling) which is not a stage in itself but rather the "return from Action or Maintenance to an earlier stage".

Results

The dependent variables under study were measured at time 0 (baseline) and at time1 (after 12 months).

As illustrated in the following graphs (Fig. 1, 2, 3) shows a significant improvement in the variables considered: fasting blood glucose, weight, BMI, blood pressure.

Fig.1 (Fasting Glucose) denotes a significant improvement in fasting plasma glucose, from a value of 104 (borderline diabetes) to a value of 71 condition of perfect normality.

Fig.2 (Weight / BMI), indicates a decrease in weight and therefore in BMI. The reduction of these two variables leads to a general improvement in the patient, which passes from a state of overweight with a BMI = 28.7 to a condition of normal with BMI = 26.

Figure 3 (Blood Pressor), outlines a reduction of pressure: systolic 140 to 120; diastolic blood pressure from 85 to 80.

Moreover, in the summary table is also outlined to improve of physical activity level (Physical Activity Recall, PAL) estimated by the 7 DR. Therefore, we observe a significant improvement as the sedentary patient moves from a sedentary PAL <150 min / week to an active PAL > 150 min. / week.

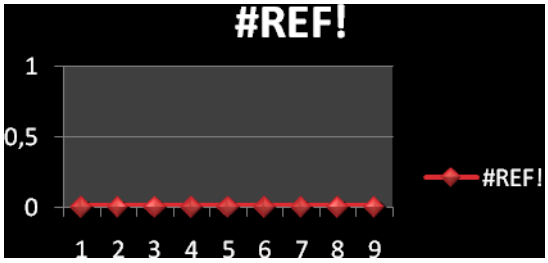

Figura 1 Fasting Glucose

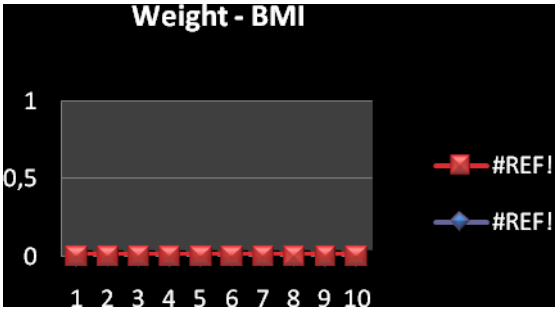

Figura 2 Weight / BMI

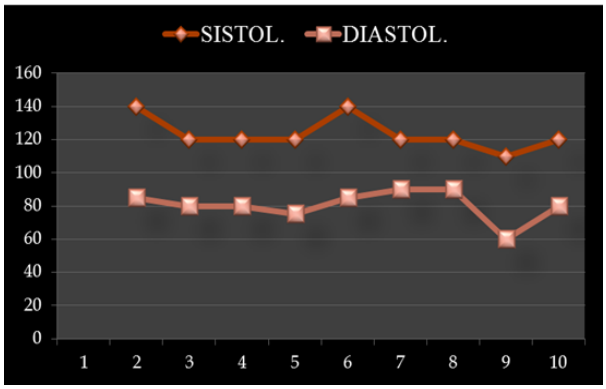

Figura 3 Blood Pressor

VARIABLE	BASELINE	12 MONTH
Fasting Glucose	104	71
Weight	73,5	68
BMI	28,7	26
Blood Pressure	S D 140 85	S D 120 80
❖ **PAL**	Sedentary < 150 min/week	Active > 150 min/week

Table 1 – Change in Fasting Glucose, Weight Body Mass Index (BMI), Blood Pressor, and Physical Activity Level (PAL), after counseling exercise.

Discussion

(Turner Syndrome: Updating the Paradigm of Clinical Care)

Turner syndrome (TS), in which there is loss of all or part of one sex chromosome, occurs in one in 2500 live-born females and is associated with characteristic findings, such as growth failure, pubertal delay, and cardiac anomalies (1). Recent studies show that evaluation of the clinical findings in TS cannot occur in isolation because all findings relate to the underlying pathophysiology of this genetic disorder. Consequently, clinicians cannot solely rely on knowledge gleaned from previous experience treating other isolated conditions when making diagnostic and treatment decisions for women with TS. For example, historically young girls with TS diagnosed for reasons unrelated to poor growth were treated the same as any child with short stature, with delay of initiation of GH therapy until height velocity began to noticeably decrease. Some studies suggest, however, that girls with TS may benefit from significantly earlier treatment because their growth rates often decrease in the first few years of life (4).

In addition, mounting evidence suggests that hypogonadism in TS leads either directly or indirectly to a reduced quality of life: Haploinsufficiency of genes on the X chromosome has been implicated in the presence of an increased risk of congenital malformations: cardiovascular features, hormones levels, feature related to sex hormones, metabolic features.

Metabolic diseases involve an alteration body composition, as decreased muscle mass, increased total fat mass and visceral fat mass, a more sedentary lifestyle and decreased VO_{2max} and muscle strength. This factors contribute to the risk of developing reduced insulin sensitivity and type 2 diabetes. Therefore, regular physical activity is an important part of the TS management plan regular exercise may prevent type 2 diabetes, as regular exercise has been shown to improve blood glucose control, reduce cardiovascular risk factors, contribute to weight loss, and improve well-being.

Conclusion

Patients with TS need comprehensive care preferably from a multidisciplinary team. Knowledge concerning TS is still very limited. Glucose metabolism, weight, thyroid function, bone metabolism, blood pressure, liver function and CV status should be assessed This study suggests that physicians' efforts in physical activity counseling may

have the best impact when provided in the context of a health problem. Our counseling strategy was designed based on the conclusions of the report released in 1996 by the U.S. Department of Health and Human Services (U.S. Department of Health and Human Services, 1996), regarding the efficacy of the interventions to promote physical activity in adults. In effect an increase in physical activity improves insulin action in obesity, with or without a concomitant reduction in body weight and fat stores (Felton, Parsons, 1994). Moreover, for some individuals, improvement may occur within 1 week of the intervention. This is an important and often overlooked salutary effect of regular exercise, suggesting that physical activity is as efficacious in preventing insulin resistance as losing body weight. The level of physical activity of girls with Turner's syndrome, is relatively low, low interest in practicing sports ;

The results obtained in this study show that the counseling exercise and physical activity lead to an improvement in the health of the patient, resulting in a decrease and then an optimization of the primary outcomes and consequently the lifestyle.

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Original article

THE STUDY REGARDING SHARE OF CONSTRUCTION ON ATTACK OF PLAYER COORDINATOR, IN NATIONAL VOLLEYBALL CHAMPIONSHIP YOUTH

COJOCARU ADIN MARIAN[1], COJOCARU MARILENA[1]

Abstract

Problem statement. This paper wants to be, if possible, to help all professionals working in the field and beyond. We hope our findings to create an overall picture, even on action game under consideration, unless the game entirely at youth level.

The aim of research. Processing and interpretation of official data collected on site during the five days of competition allows us to have a personal view on the level of technical and tactical training of teams and individual players coordinators participating in the tournament for youth.

Methods of research. As a working method I used:

- information recording method;
- interpretation of statistical and mathematical method;
- graphical representation method;

Results. As can be seen in this chart presents the highest efficiency made lifting to Zone 3, followed closely by lifting the two, these being the areas towards which frequently taking. The area with the lowest efficiency is zone 5, an uncomfortable area for this process, perhaps because those running setting here tend to send up to zone 4, considering that usually found in the two linkage, which owns best technique for attack.

Conclusions. Desire and requirement to obtain a positive result and ranked as best lead to a situation where some coaches go over their primary objective: to develop and promote the game of volleyball players for high level. This creates a game based teams practice only on getting the point and not using a complex tactical and technical baggage that can lead to spectacular games default to the objectives stated above.

Key words: a share, game, volleyball, setter

Introduction

The problem of the study attempts to identify the most comprehensive range of components entire game and player models, the current peak performance requirements, as landmarks of content and methodology, for which to strive, as a whole, the entire Romanian manager, connection elements foreshadowed in the model is prerequisite in delivering unified Romanian game design, preparation and model of player.

Knowledge and performance of each player's contribution compared to others, the achievement of the game, is of major importance for both the technician and the athlete (Şerban, 1999)

Indices of efficiency and economy of the setter, they work objectifies game athletes know an interest in growing, they constitute benchmarks to which is conjugated efforts of coaches and players (Ioniţă, 2007).

Analyzing the games team tournament hopefuls cadets in terms of quantitative and qualitative values, which the team as a whole and separate players, they realize the evolution of game highlights that between quantitative values (weight) and qualitative (efficiency), there is a relation of determination, the value of the opposition side has a decisive (Ghenadi, 1995). The value of the efficiency is higher, the quantitative values are lower, expressing a very good indicator of economy.

Hypotheses

- In the National Division youth setting is performed preponderantly in zone 2.
- While setting actions should be aimed at all areas and use the line I and the attack line II, preliminary observations lead us to assume that will be used to complete the special zone 4.
- Efficiency raising national division cadets will be - for the most part - good and very good.

Research of methods

For comparative analyzes of various parameters and characteristics of patterns of play the players, we proceeded to use methodological tools that experts recommend in this regard. At the basis of the work, stays a rich analysis of information, studies and consultancy, as well as opinions and experience shared by many specialists and technicians with extensive activity in performance volleyball players.

The recordings were made with "Data Volley 2007 Professional" CVM Tomis Constanta license.

Aanalyses requested have been:

- Total analysis by skill for each team

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- Total direction chart analysis pe for each team

Our approach followed the route registration, systematization, processing and interpretation of data relating to individual technical and tactical efficiency of the tournament cadets namely distribution passes the Phase I reported the setter position.

As a working method I used:

- Information recording method;
- Interpretation of statistical and mathematical method;
- Graphical representation method;

For the evaluation the effectiveness of the game, parts of the structure of the game, we considered necessary to provide for appropriate qualifications immediate effect that these actions have had on the game play.

Granting of the evaluation was done using the scale developed by the FIVB and presented in „Manual for FIVB Statistical Match Record (SMR)", 1992. The result of each action is evaluated using a scale of 4 degrees based on the effect on the score or subsequent control of the ball by the team that plays the ball or the opponent. Thus, the degree, the evaluation and award criteria, we:

- EXCELLENT – 3 – won the full control maintained;
- GOOD – 2 – won the limited control maintained;
- LOW – 1 – lost control, without control;
- WRONG – 0 – lost point.

Results

Compared to other game actions raising presents among the highest values of the indices of efficiency due to the following aspects:
- ball sent his land teammate intercept it with interest,
- **e**xecutions wrong can be corrected by attacker,
- speed of the ball after reception relatively small, so it can be easily intercepted,
- setting can be done by any player outside the basic.

From studies on best representative teams in the world in 2012, presented in the bulletins of the FIVB, the following indices were detached efficiency of lifting both for the whole team and skilled players seting. Thus we have obtained the following indices:

- For team 0,74
- For setter 0,723

In the study I conducted the National Championship Youth have obtained the following indices of efficiency:

- For team **0,596**
- For setter **0,603**

Analyzing the teams participating in tournament games cadets from Dej, in terms of quantitative and qualitative values, which the team as a whole and separate players, they performed in the evolution of a game, it reveals that, between quantitative values (weight) and the qualitative (efficiency), there is a report of determination, in which the value of the opposition side has a decisive importance. As the value of efficiency is higher, the quantitative values are lower, expressing a very good indicator of economy.

Increasing the number and improving tactical combinations based on considerable increase in velocity of the ball, especially on the last path (high-drag) and movement of players being finalized, provides linkage crucial importance to the success of collective action. Participation is combined solution appeals to all 5 players in the field, specialized teams with 1-2 players to attack II line, usually with players crowding the line I variant in an area on a grid and attack II line with the player to the diagonal, less attack "doubled" on the same side of the line corresponding player II. Priority II line attacking zone 1 and 5 on a lift with a medium trajectory in the space of 3 m (the line) with a detachment to jump forward and attack generally long trajectory in force.

Quick setting (Table 1) made permanent jump accompanied by feint, increased weight gain in the set.

Table 1 - Efficiency in the game and lift share of different trajectories

Trajectory	During in seconds	Share in game and efficiency	
		Romania	International
Ascending	3-10 hundredths of seconds	8% - 0,847	18% - 0,863
Short for T1	17- hundredths of seconds	26% - 0,726	21% – 0,811
Short for T2	18-44 hundredths of seconds		
Rapidly between the 4-3 zone	25-38 hundredths of seconds	14% - 0,636	23% - 0,733
Rapidly in zone 4	3-45 hundredths of seconds		
Semi high on the net	65-90 hundredths of seconds	43% - 0,678	23% - 0,710
Semi high in line II	60-80 hundredths of seconds	7% - 0,512	13% - 0,743

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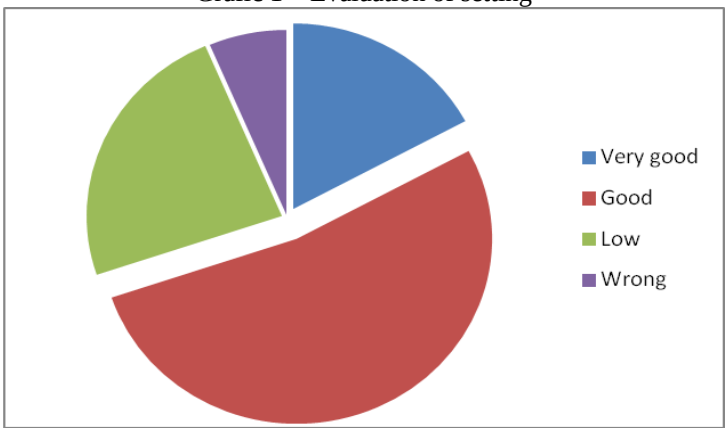
In the following we present the lifting efficiency of each land area and lifting efficiency of each area relationship it establishes trajectory step.

It can be seen, as we will show chart. 1 that the highest number of lifting falls to the level of assessment 2 (good).

Grafic 1 – Evaluation of setting



To get a clearer idea of raising efficiency in the analysis of the record sheets, we calculated the number of executions for each grade and for each assessment area relationship it establishes the path step (in that area is executed and in what area is intercepted by shooter).

Table 2 – The share of setter with the setter in zone 1and 2

	Zone 1				Zone 2			
	Zone 4	Zone 3	Zone 2/1	Pipe	Zone 4	Zone 3	Zone 2/1	Pipe
Steaua	65	22	11	2	24	34	41	
Dej	33	15	50	2	75	22		
TOMIS Cta	25	36	25	14	72	20		8
Zalau	48	22	28	2	65	16	19	
CSS1 Cta	18	21	58	3	37	47	17	
Timisoara	43	14	26	14	31	14	43	9
MIN	*18.0*	*14.0*	*11.0*	*2.0*	*24.0*	*14.0*	*17.0*	*8.0*
MAX	*65.0*	*36.0*	*58.0*	*14.0*	*75.0*	*47.0*	*43.0*	*9.0*
AVERAGE	*38.7*	*21.7*	*33.0*	*6.2*	*50.7*	*25.5*	*30.0*	*8.5*

Table 3 - The share of setter with the setter in zone 3 and 4

	Zone 3				Zone 4			
	Zona 4	Zona 3	Zona 2/1	Pipe	Zona 4	Zona 3	Zona 2/1	Pipe
Steaua	36	33	28		35	29	35	
Dej	76	13	9	2	65	19	17	
TOMIS Cta	46	38		15	77	20		
Zalau	69	15	12	4	83	4	12	
CSS1 Cta	51	41	5		36	57		7
Timisoara	65	18	12	5	38	32	16	11
MIN	*36.0*	*13.0*	*5.0*	*2.0*	*35.0*	*4.0*	*12.0*	*7.0*
MAX	*76.0*	*41.0*	*28.0*	*15.0*	*83.0*	*57.0*	*35.0*	*11.0*
AVERAGE	*57.2*	*26.3*	*13.2*	*6.5*	*55.7*	*26.8*	*20.0*	*9.0*

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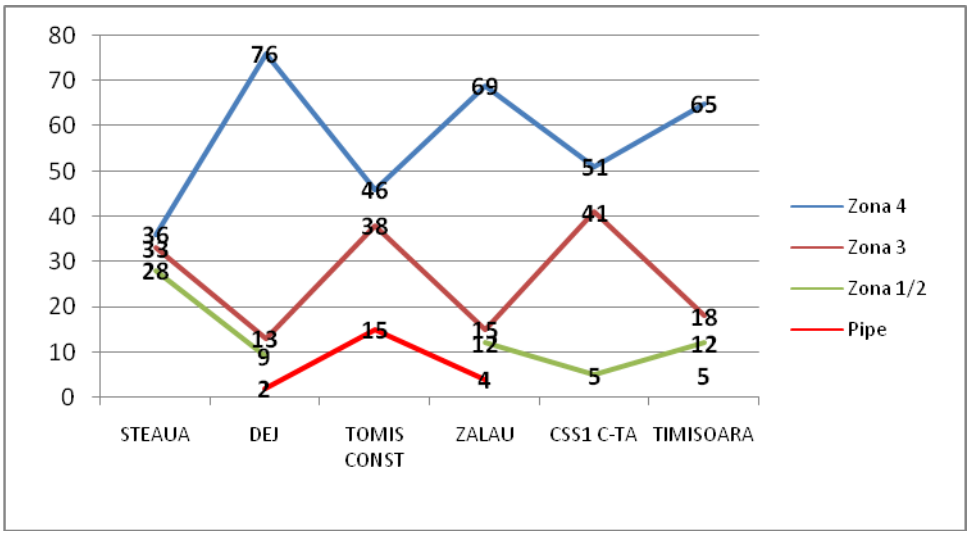
Table 4 - The share of setter with the setter in zone 5 and 6

	Zone 5				Zone 6			
	Zona 4	Zona 3	Zona 2/1	Pipe	Zona 4	Zona 3	Zona 2/1	Pipe
Steaua	18	42	40		32	21	46	
Dej	46	35	19		57	12	29	2
TOMIS Cta	61	19	19		55	27	18	
Zalau	70	3	23		47	25	28	
CSS1 Cta	27	70		3	73	14	9	5
Timisoara	41	34	16	9	54	23	17	6
MIN	*18.0*	*3.0*	*16.0*	*3.0*	*32.0*	*12.0*	*9.0*	*2.0*
MAX	*70.0*	*70.0*	*40.0*	*9.0*	*73.0*	*27.0*	*46.0*	*6.0*
AVERAGE	*43.8*	*33.8*	*23.4*	*6.0*	*53.0*	*20.3*	*24.5*	*4.3*

Graphic 2 - Distribution dynamics passes by setter



Discussions

Encoded by the 4-5 combination for phase I and 2-3 other phase II of each fundamental situation, building attacks exploit the full potential of speed and execution to completion of each player.

Increasing the number and improving tactical combinations based on considerable increase in velocity of the ball, especially on the last path (high-drag) and movement of players being finalized, provides linkage crucial importance to the success of collective action. Participation is combined solution appeals to all 5 players in the field, specialized teams with 1-2 players to attack II line, usually with players crowding the line I variant in an area on a grid and attack II line with the player to the diagonal, less attack "doubled" on the same side of the corresponding player line II (Bril, Kleshev, 1988).

Priority II line attacking zone 1 and 5 on a lift with a medium trajectory in the space of 3 m (the line) with a detachment to jump forward and attack generally long trajectory in force . For the construction of the first line aims crowding an area of land with two players and dislocation of the third with an opponent to block, without offset of priority areas for completion. Dominance zone in specific situations is determined according to the characteristics opponent (Stroe, Lăzărescu, 1989).

Priority combinations are built on piston mechanism, the main player in zone 3, which acts to attack rising and short set between zones 3-2 or setting trajectory lying between zones 4-3, with the task of fixing Player of the opposition center. Depending on the variant of movement is building disguised versions of other players movements (changes in direction, single or double crosses, starting positions takeover device service, unpredictable and constantly alternated) and generally behind finalization Player piston while I "doubled" or "distant" (exceeded) of the drive thereof, setting the ball over short or extended path, through which the increased speed of construction of attack.

Efficiency attack remains high, both on account of the organization of the plant, and the force of hitting the ball. Build Speed of attack actions

resulting solely flight speed of the ball, the fragment raise shooter.

Completion combination attack involving 2 shooters, is primarily on the principle of simultaneity or alternation with "doubling" of players in attack or "overcome" the distance over 1m, with detachment and a leg.

Conclusions

It is noted that as the head is effectively in zone 3 to zone 2, followed by from 3 to 4. Raising from 2 to 4 is less efficient because it has greater distance traveled and the effort you have to make greater setter.

We see thus that the relationship used is lifting from zone 2 to zone 4 (29.4% share), followed by the raising of zone 2 to zone 3 (23.3% share). That is one reason why poor technical training, which does not allow the lifter to perform more frequent combinations and to other areas (raising from 2 to 2 and from 3 to 2 are small numbers of shares).

The study concluded that we elaborated:

- In the Youth National Championship the lift is performed mostly in zone 2. Thus 69.3% of the actions are performed in this area are made from 16.8% area 3, 6.1% of the area 4 and the area 1, 6, 5 are made 16.8%. In this case the teams participating in the study fall into the pattern of play at high performance.
- Efficiency index of setting the youth National Championship is 0.586. Specialized for this action the players have made index 0.603. If the level is high performance setting efficiency indices close to 0,723, we hope our youth division setters will improve as soon as tactical and technical baggage default action lifting efficiency.
- Of the total number of lifts 6.5% are made of players who are not specialized in this action. Efficiency index of these executions is very low - 0.479 - compared to the efficiency of all the lift. This result proves that non-expert players not thoroughly mastered the technique required to achieve lift, cannot be constructed effectively in terms of a takeover attack bad that linkage cannot intercept
- Desire and requirement to obtain a positive result and ranked as best lead to a situation where some coaches go over their primary objective: to develop and promote the game of volleyball players to higher echelons. This creates a game based teams practice only on getting the point and not using a complex tactical and technical baggage that can lead to spectacular games default to the objectives stated above.

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Original article

THE DEVELOPMENT OF FUTSAL GAME AT NATIONAL LEVEL BY IMPLEMENTING A STRATEGIC COMPETITIVE AND TRAINING MANAGEMENT

DAMIAN COSMIN[1], NEAMTU MIRCEA[2]

Abstract

Problem statement. The research has as priorities the drawing of selection model, finding the most efficient methods and ways of training in futsal game and drawing a managerial project that could promote the futsal game at the level of children and juniors.

The purpose of the research is to draw the selection model and training of the futsal player and, in the same time, to draw and implement a managerial project of developing the futsal at regional level (with the support of County School Institute Constanţa, A.J.F.Constanţa and "Ovidius" University from Constanta), then, at national level by introducing competitions at school and academic level and stimulating the specialized and continuous training of the performance team from children to seniors.

Content of research is development about: development of futsal at children on local/regional level and in perspective at national level; Training the coaches; Training the coaches; Organization of competitions, Management and Marketing.

Conclusions. The management strategic project and the experimental research will determine:1.contributions – on national plan – at the development of futsal game;2.contributions – on national plan – for accomplishing the selection model and training of the futsal team at the juniors' level and a national competitive system among juniors.

Key words: futsal game, selection, training management.

Introduction

Pleading for futsal

First of all, Futsal is the official version of indoor football accepted by FIFA and UEFA

Futsal is considered the indoor game with the fastest development in the world.

Outstanding players as Pelé, Zico, Romario, Ronaldo and recently Kaka and Ronaldinho explain their success at high level and the special technical quality by intense practice of futsal in childhood. **" I** played Futsal two or three years before going to Santos… Futsal was important in the development of the control of the ball, passes, fast thinking, … also dribbling, balance, focus… Futsal was very important, undoubtedly". Pelé, World Champion 1958, 1962 and 1970." Futsal is an important way for developing at children the abilities and understanding of the game. My dribbling and handling the ball were improved after practicing futsal ." Ronaldinho, FIFA World Footballer of 2004, 2005.

In Europe futsal expanded a lot, especially in Spain, Portugal, Belgium, Italy and Russia. A single example is suggestive for the extraordinary vision in developing this sport branch, that of France and French Federation of Football that after 90's created a national team and a National Cup that gathered over 1500 teams. (Florent MAQUART and Olivier LAUNOIShttp://www.launoiso.info/futsal/accueil).

Thus futsal presents the following advantages:

- It can be played at different categories of people, from young to old persons
- Represents a great base of selection for football which is practiced especially at the school level (ONSS)
- It is very easy and fast to gather a team of 5 players on one side and another for playing a game. (it is more difficult to gather teams of 11 players)
- The regulation allows the replacement of players as in handball and those the 10 players of both teams will alternatively play being avoided the abandon of so-called substitute players.
- It is played on a small field which is available for all specialists and children (on the sports field and sports hall of schools, neighborhood's fields, parks, malls, touristic departments, balneary, etc.)
- If we keep into account that the cold period is longer than the hot period we consider that the indoor game is an advantage for children
- A bigger possession of the ball for each player as on the field are teams of 5 players.
- The reduced space challenge the players to think and take decisions fast, to create and improvise for keeping the possession of the ball and obtain at advantage at the score
- As the ball does not jump, it may be considered as

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an advantage for children as they have a better control of it, which builds their confidence and improves the technical abilities regarding the handling of the ball, passes, final passes

- Futsal is a means of education, inclusion for people with special problems or disadvantaged children
- New commercial opportunities may be developed not only for FRF (affiliates, base of selection for football, sort show, etc)

Methods

strategic plan for developing futsal in românia

Goals

1.Development of futsal at children on local/regional level and in perspective at national level

2. Training the coaches

3. Training the referees

4. Organizing a competitive system

5. Management and marketing

6. Developing the training and select futsal team 12-13 years model.

Team

Coordinator of the program – Prof. Dr. Damian George Cosmin

Director of the program – Prof. Dr. Stănculescu George

Members - Associate Professor Dr. Melenco Ionel

Assistant Professor Dr. Muşat George

Partners

A.J.F. Constanţa – President Mihu N

„Gh.Hagi"Academy of football

ISJ Constanţa – PopescuRăducu

C.J. Constanţa – President Nicuşor Constantinescu

Collaborators: Coaches of National Team

Referees of the futsal league

Objectives

1.Development of futsal at children on local/regional level and in perspective at national level

1.1. Implementation of futsal in curriculum at primary, secondary and high school level

1.2. Development of a competitive system within ONSS at local, regional and national level with compliance of the rules from futsal

1.3. Making of a performance representative team at the level of Sports Associations and their affiliation at A.J.F. Constanţa

1.4. Co-opting the local authorities for developing the game

2. Training the coaches

2.1. Organizing of workshops for debating the regulation

2.2. Workshop - analysis of somatic, motor and psychic profile of futsal player

2.3. Workshop - differences in training the futsal players –on the components of sport physical training

2.4. Practice lessons for physical training in futsal

2.5. Workshop – programming and evaluation of sport physical training –futsal

3. Training the referees

3.1. Organization of courses – national and international referees assistant professors

3.2. Practical lessons – video watching

3.3. Practical lessons – direct umpire

4. Organization of competitions

4.1. „I play futsal, also" Cup, for children with ages between -7-10 years old

4.2. „ First futsal then football" Cup, for children with ages between - 11-14 years old

4.3. „ Futsal Lyceum" Cup, for children with ages between - 15-19 years old

4.4. „Futsal for all" Cup, for children over 19 years old

5. Management and Marketing

5.1. Evaluation SWOT analysis

5.2. Evaluation costs of equipment, balls, field, referees, courses

5.3. Attracting the sponsors

5.4. Advertising, media, creating logos, posters, banners, flyers, etc

Strategic Plan - General

OBJECTIVES	ACTIONS	TARGET GROUP	RESPONSABILITY	DATE
Implementation of futsal in curriculum at primary, secondary and high school level **Forming performance teams at the junior's level**	1. Introduction of futsal in the schools from the city and County Constanţa 2.Organizing competitions at local and county level 3.Assuring the equipment for the game: under vests, balls, prizes	Pupils from primary, secondary, high school education **58** schools – municipality and **100** schools from the county	Coordinator of the project at the County School Inspectorate County Football Association DJST FRF	September 2013– May 2014

		12-14 teams at county level		
Training the coaches	1.Presentations at the level of schools for promotion 2.Organization of **5** Workshops for the teachers and coaches from schools 3. Practicallessons 4. Watching of national and international matches	Teachers from schools Coaches Students	Coordinator of the project County School Inspectorate FEFS Constanţa County Football Association DJST FRF Coaches from the national team and futsal teams Schools of Constanta County	1. May-June 2013 2. August-September (module of 3 days x 5 weeks)
Training of referees	1. Organization of courses – national and international referees Assistant Professors 2. Practical lessons – video watching 3. Practical lessons – direct umpire	Teachers Students Other interested persons	Coordinator of the project FEFS Constanţa County Football Association DJST National referees	During the school year 2013/2014
Marketing	1. Production of DVD. 2. Creating logos, posters, banners, flyers 3. Attraction of sponsors 4. Advertising, media 5.Demonstrations 6.Researches and publishing in the specializedmagazine (quarterly) Editing a methodical book	Distributing to the teachers coaches instructors	Coordinator of the project FEFS Constanţa County Football Association DJST	June-2011 -May 2014

Results

SWOT Analysis

STRONG POINTS

- Fast game, manifesting the coordination abilities, captivating for being practiced or watched.
- recognized by FIFA and UEFA.
- easy to organize the teams and the activity even by the less experienced coaches
- a game proper for all ages and types of persons
- a sport practiced in all seasons-indoor in winter
- Ideal for building the technicality for football players. Presents more safety – smaller lesions, the ball is more often on the floor – less chances for head lesions
- Futsal offers more opportunities for all the players to score – funnier for the players
- New commercial opportunities for FRF.
- Has finality at international level – 'UEFA Futsal

Cup, European or FIFA Futsal World Cup'
• It is practiced by top teams as Brazil, Spain, Argentina, Holland, Italy, France and others.
• May be played outside and indoors.
• Small costs for being practiced

WEAK POINTS
• lack of experienced people
• insufficient infrastructure.
• necessity of a new equipment- balls, gates, new markings.
• costs for renting halls
• necessity of training coaches and referees
• high volume of work for training, popularity
• too small number of players in the team and a small number of volunteers
• transition of players to football with teams of 11 players.
• players with weak qualities for futsal.

OPPORTUNITIES
-Developing futsal at school level
-Developing of futsal at academic level
-Assures high attractiveness and dynamism that can attract media, spectators and financial resources
-Opportunities for developing the market and for attracting sponsors
-Assuring a large basis of selection for football and representative teams of futsal for participating in UEFA/FIFA competitions
-Training new coaches and referees
-Integrating of players rejected from football in futsal
-Opportunity of practicing futsal after the retirement from football
- Opportunity of practicing in the free time of pupils, students and other categories – means of health
- Possibility of inclusion in Olympic Sports

THREATS
• difficulties from authorities
• difficulties in keeping the players that can be selected in football.
• Resistance/indifference towards the new game from administrators, players, media, partners from football, sponsors.
• Perception of some people that Futsal is competing with football.
•.Objections of leaders and football partners to develop Futsal
• Lack of coaches, referees at the school level, sports associations, etc.

Discussion

Were organized futsal competitions for children aged 7-10 years, involving 100 children from 10 teams.

The age group 11-14 years was very high attraction among children attending 13 teams gathering together 130 children competed in futsal.

High school was a tight competition attending the best schools gathering together 70 children between the ages of 15-19.

The cup for those aged over 19 years was technically spectacular where over 100 children have displayed technical mastery to play futsal.

Conclusion

The futsal competition was a success among children because it can play in different categories on a small field. The advantage of this game is that you can easily assemble a team of 5 children and that can be played indoors during the cold where the benefit of the children. Attending a large number of children based on the selection is much greater advantage being specialists.

The game of Futsal is a means of education, inclusion for people with special needs or children in need.

In conclusion, the game of futsal creates opportunities for all categories of people, for specialists in the field, not least because FRF.

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Original article

PLYOMETRIC EXERCISES TO IMPROVE EXPLOSIVE POWER IN ARTISTIC GYMNASTICS

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Abstract

Problem statement. Preparing gymnasts is more severe due to more frequent change of code points, the major role in preparing athletes taking him coach, he was forced constantly to find the best means of improving working methods. Of all the biomotric training qualities, strength and power are the most critical for many sports. Sports with speed-power dominance is based on developing solid strength and power. Understanding the mechanics and physics of force training and incorporate their principles workout will boost the competitiveness of athletes.

Aim. Pliometric exercises performed at the floor and beam lead the level of explosive power and increase the technical level of artistic jumps.

Methods. Evolution of subjects was accomplished by the Kinovea program, the data being presented in tables and graphs. The means used for research are specific for pliometric training adapted to gymnastics discipline and to the physical characteristics of the individuals targeted. The research was conducted on two groups (experimental and control group) of 8 gymnasts of 9-10 years old.

Results. Explosive power increases the experimental group compared to the control group at all tests ($p<0,005$)

Conclusion. The results lead to the conclusion that plyometric exercise induces an elastic mechanical adjustment in the opposite direction, an increase of muscle tone. Plyometric training interaction causes a change in elasticity-contractility of the muscle by requesting the cycle: stretch – explosive force.

Keywords: maximal force, explosive power, pliometrics, methods, tests.

Introduction

The competition and the high level of the results obtained in most of the sports categories demand an additional effort from the coaches to correct and adjust the variables of the training and competition, by permanently paying attention to the evolution of sport in general or to the evolution of a specific category. (Teodorescu, 2009)

Gymnastics has known a fast progress in the past few years, especially from the moment when new technical demands began to appear. Gymnasts, coaches and researchers, all together have been busy trying to reach the perfection.

Having a deep knowledge regarding the development process of expansion involves a close analysis of the processes of adaptation who can be found in artistic gymnastics training.

Practicing artistic gymnastics according to the style of domain and the actual demands requires great qualities. We can not speak about one single quality, but a combination of many qualities in a system, with a higher level of organization and having a preponderance of them, all of this having a determinant role in establishing the exact performances. (Dungaciu, 1982).

One of the practice methods which enjoys a great success is the training with the help of plyometric exercises. (Bompa 2006).

Plyometric exercices consist of rapid acceleration and deceleration of the muscles which creates a cycle of growth and contraction. The exercices help the muscles, the connective tissue and nervous system to efficiently pass through cycles of elongation and contraction leading to an improvement of the sport performances. Any sportsman needs a rapid deceleration of the body followed by an acceleration in the opposite direction.

The term of plyometric consist in exercises which make the muscle capable of reaching the maximum strength in a very short time. This capability of speed - strength is known as power. (Radcliffe, Farentinos, 1999)

Plyometric exercises help develop rhythm, speed, strength and endurance. The exercices used correctly and for a purpose can be a valuable attribute for a sportsman and for the entire training program as well.

The plyometric training leads to the following:

- rapid mobilization of some increased innervation activities;
- the recruitment of majority or of all motor units and muscle fibers;
- increasing the speed of the pulses to the motor neurons;
- transformation of the muscle power in explosive strength.

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Hypothesis of the research

The correct application of some specific methods for the explosive strength in the training will contribute to a significant increase of the expansion indices.

Objectives of the research

- optimization of the methodology regarding the development of expansion;
- development of a training program according to the specific needs of the artistic gymnastics and evolution in perspective;
- setting the subjects of the research;
- accomplishment of the tests.

Tasks of the research

- development of expansion through a plyometric exercices program;
- raising the artistic level according to the demands imposed by CP;
- application of the methodology specific for artistic gymanstics;
- statistical processing of the data recorded on the tests applied.

Research protocol

Having as objective experimentalal argumentation of the methodology regarding the development of expansion, the study was carried out on two groups of gymnasts from the same category (experimental group and control group), gymnasts trained by coaches with vast knowledge in domain. Each group had 8 gymnasts between 9 and 10 years old. The study was conducted in the gym of Farul Constanta during 15 september 2012 – 31 may 2013.

To highlight the efficiency of the training, both groups from the study had the same stages and tests.

When we created the methodology of training for the experimental group, we had in mind to solve the following objectives:

- optimization of the methodology regarding the development of expansion;
- development of a training program according to the specific needs of the artistic gymnastics and evolution in perspective;
- setting the subjects of the research;
- accomplishment of the tests.

We also mention that the improvement of this methodology was accomplished by optimizing the volume and the intensity of all the exercises that we used. The intensity of the strength – speed exercices was raised by establishing a specific number of exercices against time, while the volume of work was adjusted for the needs and the age of the two gymnasts.

Methods

PLYOMETRIC PROGRAM

A. Stage I
- Duration: 1 september 2012- 30 november 2012; 1-2 trainings /week; 10 15'/training
- Recovery: minimum 72 hours between trainings; 2-4' break between exercises
- Repetitions: 50 – 80 repetitions / training
- Intensity: low

B. Stage II
- Duration: 1 december 2012 –15 february 2013; 1-2 trainings/week;15-20'/training
- Recovery: minimum 48 hours between trainings; 1-3' break between exercises
- Repetitions: 80 -120 repetitions / training,
- Intensity: low - moderate

C. Stage III
- Duration: 15 february 2013 – 15 april 2013; 2 - 3 trainings/week; 20´/training
- Recovery: 48 hours between trainings; 1 - 2' break between exercises
- Repetitions: 100-150 repetitions/ training
- Intensity: moderate - high

D. Stage IV
- Duration: 15 april 2013 - 31 may 2013; 2-3 trainings/week; 30'/training
- Recovery: minimum 24 hours between trainings; 1-2' break between exercises

Repetitions and intesity: the intesity, frequency and duration of the training are being reduced.

Exercises used for the development of the expansion

- Jumping in place on a leg with ample amortization and immediately detachment, on vertical and raising the knees to the chest; 4 x 20
- Jumping on both legs, with the help of an elastic band, tied on the pelvis and also tied on a bar; 4 x 20
- Successive jumps in place, with detachment from the both legs, turning 180 degrees to the left and to the right; 4 x 30
- 3 – 5 jumps on a leg moving forward and followed by the develope jump; 10x
- 3 – 5 jumps on a leg moving backward and followed by the develope jump; 10x
- Ankle jumps with both legs; 3 x 10
- Ankle jumps with both legs and twisting the hips at the same time; 3 x 10
- Jumping on both legs from the edge of a platform having 45°; 4 x10
- Jumping on a leg from the edge of a platform having 30°; 3 x10
- Back squat from a leg with vertical detachment; 3 x 10

Tasks applied on the research

1. Dynamic tasks

- High jump on place followed by a detachment from the both legs / cm;
- Depth Jump starting from a platform followed by a vertical jump;
- Vertical jump having two steps for upsurge;
- Back squat followed by a vertical jump.

2. Dynamic tasks of artistic jumps

- Calculating the distance (in cm) of the highest moment in the develope artistic jump, made on the ground ;

- Calculating the distance (in cm) of the highest moment in the develope artistic jump, made on the beam.

1. High jump on place. This task was done three times and consisted in a jump on place, in height, starting from the both feet and it's a task where the hand of the gymnasts must touch a wooden support located in the lateral plane. The test was calculated in cm and had as purpose highlighting the explosive force of the participants.

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2. Depth Jump starting from a platform. This task was done three times and consisted in a depth jump, from a 45 cm high platform. After the ground landing, the subject jumps on vertical, touching the wall as high as possible. The test was calculated in cm and had as purpose highlighting the explosive force of the participants.

3. Vertical jump having two steps for upsurge. This task was done three times and consisted in taking two steps for upsurge, where in the final step the subject jumped on vertical and had to touch the wall as high as possible, like in the previous task. The test was calculated in cm and had as purpose highlighting the explosive force of the participants.

4. Back squat followed by a vertical jump. This task was done three times and consisted in execution of a backwards squat on one foot. During the execution of this squat the pelvis and the knees get down until the hips will be parallel with the ground. From this position the subject must execute a vertical jump, touching the wall as high as possible.

The test was calculated in cm and had as purpose highlighting the explosive force of the participants.

5. Artistic jumps. Gymnasts have made three developpe jumps both on the ground and on the high beam. The purpose of this test was to highlight the detachment force of every subject, where two international referees rated the executions. Both ground and high beam executions were rated so that every gymnast had one rate for the ground and one rate for the high beam.

For this task we used Kinovea Video, a program that helped us to find out the exact distance in cm when the develope jump reached the climax.

Results

After we finished the initial test, we noticed that there are no big differences between the subjects, main purpose of this test being to highlight an eventual progress made by gymnasts during this experimental. To achieve the analysis of physical parameters, were tested a total of 4 and 2 artistic tasks:

Tabel 1. High jump

	Experimental group		***Control group***	
	Initial test	***Final test***	***Initial test***	***Final test***
X ± Ds	***29.333± 0.577***	***32.333± 1.155***	***28.667 ± 1.155***	***29.667 ± 0.577***
Cv%	***1.967%***	***3.572%***	***4.029%***	***1.945%***
t	***5.196***		***1.732***	
p	***p<0.025***		***p>0.05***	

Initial test

- At this task, during the initial test the average score obtained by the experimental group was 29.333± 0.577cm and the coefficient of variation was equal with 1,967 %. A homogenus group as we can see in chart nr. 1.
- Control group had an average of 28.667 ± 1.155 cm and a coefficient of variation equal with 4.029%. Was also a homogenus group like experimental group.
- As shown in the above results we can conclude that at this test, the two groups showed a relatively equal average and a good homogeneity.

Final test

- In this test, after we applied the program of work, we found an increase in the average for the experimental group, reaching 32,333±1,155cm, with a 3.572**%** coefficient;
- Control group, having an average of 29.667±0,577cm in this final test, doesn't show a real progress as we can see above.

From the results above we can conclude the following:

- Experimental group is in progress as the increased rate of the average emphasizes . A group with a very good homogeneity (Cv= 3.572%);
- Control group is a homogenus group (Cv =1.945%) but the average of the final test (29.667±0,577 cm) doesn't confirm the fact that this group has shown a progress after the program;
- For this reason we can say that the difference between the averages it's in favor of the experimental group. In conclusion, the program applied is efficient.

Tabel 2. Depth Jump starting from a platform / cm

	Experimental group		*Control group*	
	Initial test	*Final test*	*Initial test*	*Final test*
X ± Ds	***31.667± 0.577***	***36.667± 0.577***	***30.667± 0.577***	***32 ± 1***
Cv%	***3.647%***	***1.574%***	***1.882%***	***3.125%***
t	***5***		***1.512***	
p	***p<0.025***		***p>0.05***	

Initial test

- During the initial test the average score obtained by the experimental group was 31.667± 0.577cm, and the coefficient of variation was equal with 3.647 % ; a homogenus group.
- For the control group, the average of the initial test is 30.667 ± 0.577 cm, coefficient of variation equal with 1.886 % , showing a homogenus group here too.

Final test

- After the program was applied on the both groups, we can see that the average obtained by the experimental group in the final test shows a real progress (36.667cm ± 0.577) with homogeneous values (cv = 1.574 %).
- The control group, although is a group with a good homogeneity, as shown in the chart above, between the two test the group doesn't show a great improvement of the average, the difference being very small (1.333 cm);
- In conclusion, the difference between the averages at the final test is in favor of experimental group, which is why we can say that the program applied is efficient.

Tabel 3. Vertical jump having two steps for upsurge.

	Experimental group		*Control group*	
	Initial test	*Final test*	*Initial test*	*Final test*
X ± Ds	***31.333 ± 0.577***	***34.333 ± 0.577***	***30.667 ± 0.577***	***31.667 ± 0.577***
Cv%	***1.842%***	***1.681%***	***1.882%***	***1.882%***
t	***5.196***		***1.732***	
p	***p<0.025***		***p>0.05***	

Initial test

- From the results obtained by the both groups, we can see that we almost got identical values at initial test (the average of the experimental group was 31.333±0.577 cm and the average of the control group was 30.667±0.577cm);
- Coefficient of variation shows low variability and high homogeneity achieved by both groups;

Final test

- The final test shows a significant progress for experimental group (34.333±0.577cm). The control group had 31.667± 0.577cm;
- The progress shown by the experimental group between the two test (represented by the „t" variable) denote positive results. (p<0,025).
- The group control deosn't show a progress at this task because the „t" variable denote negative results p>0.05, and for that matter we can say that the results are in favor of the experimental group.

Tabel 4. Back squat followed by a vertical jump

	Experimental group		*Control group*	
	Initial test	*Final test*	*Initial test*	*Final test*
X ± Ds	***27.333 ± 0.577***	***28.333 ± 1.155***	***27 ± 1***	***27.667 ± 0.577***
Cv%	***2.111%***	***4.077%***	***3.704%***	***2.086%***
t	***1.732***		***2***	
p	***p>0.05***		***p>0.05***	

Initial test

- In this first test, the experimental group presented values of the average equal with 27.333±0.577cm, compared to the control group that had te following values: 27±1cm. This means that both groups are rated „good" in this first test with almost equal values;

Final test

- The average recorded by the experimental group in this final test was 333±1.155cm, while control group doesn't show any progress (27.667±0.577cm).
- The variable "t" calculated for the experimental group (1.732cm) is located below the limit

(p>0.05). Thist is the same for the control group (2cm) where also the „t" variable is below the limit (p>0,05).

- After the data recorded on the progress of the two groups in this task and after applying the experimental training program we can see a stagnation of the values, which does not confirm the effectiveness of the experimental program proposed for this task.

experimental group, but is also a homogeneus group as we can see in chart nr. 5.

Tabel 5. Developpé jump on the ground

	Experimental group		***Control group***	
	Initial test	***Final test***	***Initial test***	***Final test***
X ± Ds	***71.333 ± 1.155***	***73 ± 1***	***69.333 ± 1.528***	***71 ± 1.732***
Cv%	***1.619%***	***1.37%***	***2.204%***	***2.439%***
t	***5***		***2.5***	
p	***p<0.025***		***p>0.05***	

Initial test

- Because of the average obtained at the beggining of this program by the experimental group (71.333±1.155 cm) and a coefficient of variation equal with 1.619 %, we can say that they are a homogenus group because of the values;
- The control group had an average of 69.333±1.528 cm, an average less than the averages is 1.667 cm, in favor for the experimental group;

Final test

- From the results obtained by the experimental group at the final test it appears that they are in progress, average of the final testing demonstrating this. They are a homogeneous group, as we can see from the chart 5, with a coefficient of variation equal with 1.37 %. So after the two tests, the difference between the
- Control group doesn't show a progress because the average after the final test was equal with 71 ± 1.732cm. So the difference between the initial test and final test is insignificant.
- Following the results we can see that the difference between the averages (2 cm) at the final test is in favor the experimental group (p<0,025), as we can see in chart 5.

Tabel 6. Developé jump on the beam

	Experimental group		***Control group***	
	Initial test	***Final test***	***Initial test***	***Final test***
X ± Ds	***66.333±1.155***	***68.333± 2.082***	***65.667± 1.155***	***66.333±1.155***
Cv%	***1.741%***	***3.047%***	***1.759%***	***1.741%***
t	***3.464***		***0.5***	
p	***p<0.025***		***p>0.05***	

Initial test

- The average recorded by the experimental group at this task is rated as „good" (66.333±1.155cm). It's a homogeneus group as we can see from the calculated value of the coefficient of variation.
- Control group had an average of 65.667±1.155 cm, an average almost equal with the value of the experimental group, evidence that proves a low level of training for both gymnasts according to the demands.

Final test

- fter we implemented the training program, the experimental group has a remarkable increase of average (68.333± 2.082cm), and a very good homogeneity, the value of the coefficient of variation strengthening this (Cv%= 3.047).
- Control group doesn't have a spectacular evolution, they only obtained 66.333±1.155 cm. But the homogeneity is very good, the value of the

coefficient of variation strengthening this (Cv%=1,741).

- After applying the experimental training program, there is an increase from the intial test to final test that favors the experimental group. However, we can see a stagnation for the control group in the same period of time, which confirms the effectiveness of the experimental program proposed for this test for the experimental group, because the difference between the two gymnasts from initial testing to final testing is statistically significant in favor of the experimental group ($p<0.025$).
- So after applying physical training program we can see an increase in value in 5 of the 6 tasks tested within the experimental. The results obtained by the experimental group proves the efficiency of the experimental program that we proposed.

Discussions

The efficiency of this experimental program is demonstrated by the fact that after it was applied on the experimental group the results obtained show a higher level compared with the results obtained by the control group.

The low value obtained at task 4, ***back squat followed by a vertical jump***, can be explained by the fact that at this age athletes must develop a general force in a very short time, by not having enough experience but also because the trainings are overloaded.

The different significance of the means was determined by the period, stage and the tasks that had to be solved in certain points of the training.

Conclusions

After applying this experimental program regarding physical training on the 3rd category of gymnasts, we suggest the following recommendations:

- The content of the sport training will be made depending on the somatic, functional and physical baggage that every gymnasts are endowed. Also, for finishing the preparation program and for setting the final goals we must take into consideration the inhomogeneous dynamic baggage of gymnasts, taking into account that in sport uniform progress is not achieved;

We recommend that physical training be conducted by a specialized person, in every training and with a well determined length depending on wich stage the gymnasts are.

By applying video analytics when the junior gymnasts are being prepared, training becomes more objective, having a scientific base. For that reason it must be implemented as much as possible in training.

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Original article

COMPARATIVE ANALYSIS OF HANDBALL TECHNICAL EXECUTION AND SELF-IMAGE TO JUNIOR ATHLETES AGED 12-13 YEARS

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Abstract

Problem statement. This research analyzes the quality of technical execution and processes in handball game to junior athletes aged 12-13 years, compared to self image that is highlighted by the sociological questionnaire applied.

Methods. The questionnaire contains 12 questions that relate to the level of laterality, in assessing the technical execution of passes and shots on goal. At the same time the level of technical execution has been evaluated with grades by the trainer. The target group consisted of 22 athletes from Sports School Club No.1 from Constanta.

Results. The findings have revealed that the athletes have responded honestly and the assessment of their level of laterality corresponded to the one stated in the questionnaire. From what they said they prefer to execute and actual level of technical executions were not recorded differences (questions 1,2,3,4,5,7,9,10) and where differences were assessed (questions 6 , 8,11,12) between the athletes and the coach will intervene with additional exercises.

Conclusions. This study reorients technical and tactical preparation of players in terms of laterality and implicitly ambidextrous. The modern game of handball has to regard the preparation of psychomotor qualities since its infancy in this branch of sport.

Keywords: handbal, laterality, technical execution.

Introduction

Handball is a team game very attractive and practiced by all ages of children and youth.

„Handball contributes to the acquisition of basic motor skills and specific knowledge of specific technical and tactical sport.It is a dynamic game and requires the subjects an intense exercise and a great psychological commitment.Handball game practiced scientifically effort contributes through the effects of the physically and mentally efforts, to strengthen health, physical and intellectual capacity, volition and moral practitioners.Handball game is considered a basic overview of human motor skills such as running, jumping, catching and throwing, with positive effects on the physical preparation of athletes from other branches.

Handball is a team game with a strong dynamic character because it takes place in a very fast rhythm"(Cicma, Mereuta,2012).

"The handball game takes place on a background of intense physical demands, with a highly educational and formative character.

We notice a rigorous scientific organization tendency of the training process, and linked to the development of qualitative trends towards a quick game and with a series of varied and complex techniques and tactical actions" (I.T. Cicma, 2010).

"The beauty of the game is given by the explosive, in the lower limbs and by the take-off height, the one which actually ensures both the transmission of the ball from one player to another, and the vision of the opening and occupation of the goal by the goalkeeper" (G. Rață, B. Rață, M. Rață, 2010).

Mungiria Muthaa, Mwisukha, Kariuki Mbugua, Mwenda, 2013, in *Investigation of Self-Perception of Players in Sports in Meru* – was carried out to establish the self-perception of players in sports in Meru Technical Training institute by considering perception in volleyball and football. A sample of 24 players participated, where 12 were from each team. Volleyball had 14 players and football 22. A questionnaire was used to collect the data. Descriptive and inferential statistics were used to analyze the data. A majority of footballers and volleyball players perceived themselves positive as fit, active and healthy. But, volleyball players perceived themselves negative in being attractive, happy, relaxed, optimistic, successful and confident while football players perceived themselves positive in all these attributes. Arising from the results, it was recommended to have regular self-perception tests for sports participants to enhance their positive self-perception. (Mungiria Muthaa G, Andanje Mwisukha, Kariuki Mbugua, Elias, 2013).

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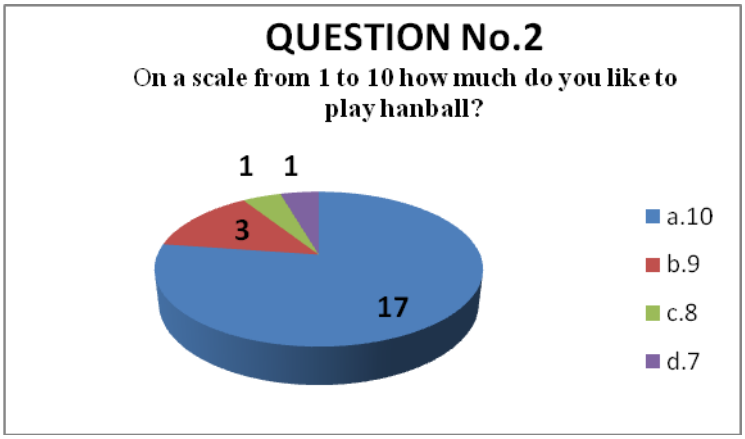
Methods

The questionnaire proves to be one of the techniques most commonly used in social and human sciences. Caplow T.,1975, examines the main sources of data in articles published in the Revue Française of Sociology (1965-1967) in The American Sociological Review (1966-1967), and believes that the interview and questionnaire surveys accounted for more than half of all published studies. In Romanian Sociology investigations based on a questionnaire are the most. A ten-year study (1972-1982) of the journal of sociology reveals that half of the research conducted, the results of which were published questionnaire used. (Chelcea,1985). A more detailed analysis, distinguishing between questionnaires with open questions, closed and hierarchical, showed that the most often used are questionnaires with closed questions (pre-coded) (Giddens, 2000). The questionnaire used in the present research consists of 12 questions distributed as it follows:

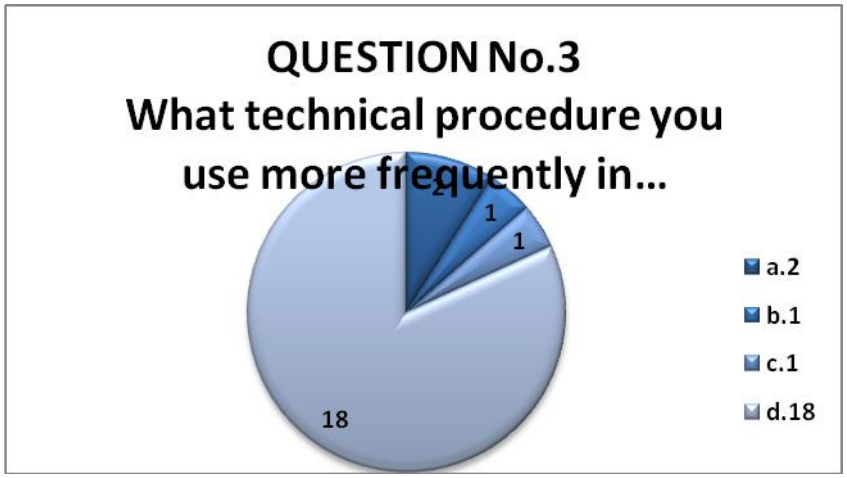
Closed questions: 1, 2, 5, 6, 7, 8, 10, 11, 12.
Opened questions : 9.
Mixed questions: 4, 3.
Simple questions, dichotomous (yes/no): 1

Results

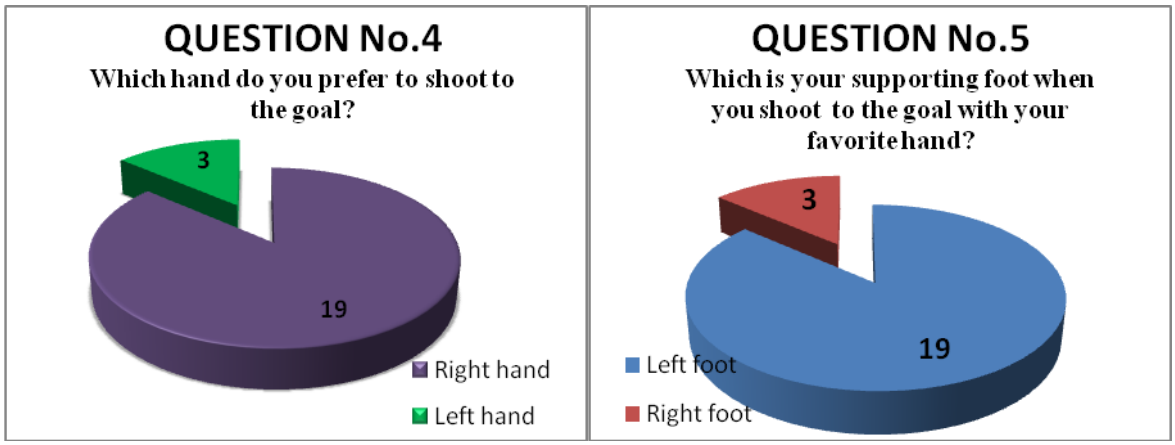
Characterization questions were placed at the beginning of the questionnaire, without having a running number. The questionnaire was applied to the handball team from Sports School no.1 in Constanţa. The 22 handball players are 12-13 years old.



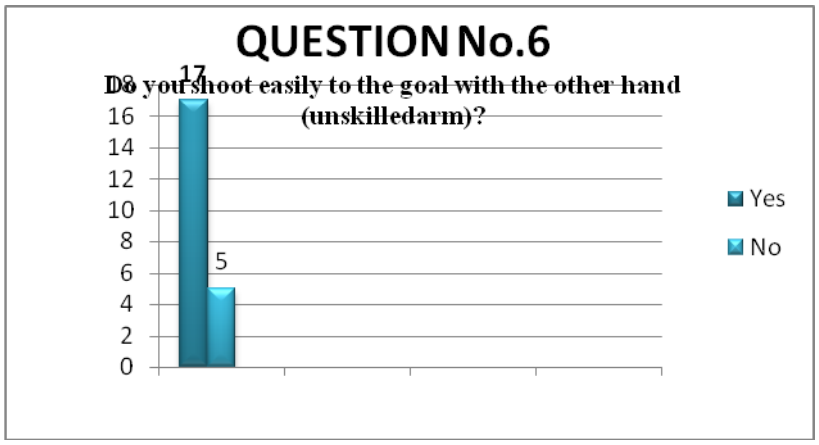
Graphic nr.1- question no.2



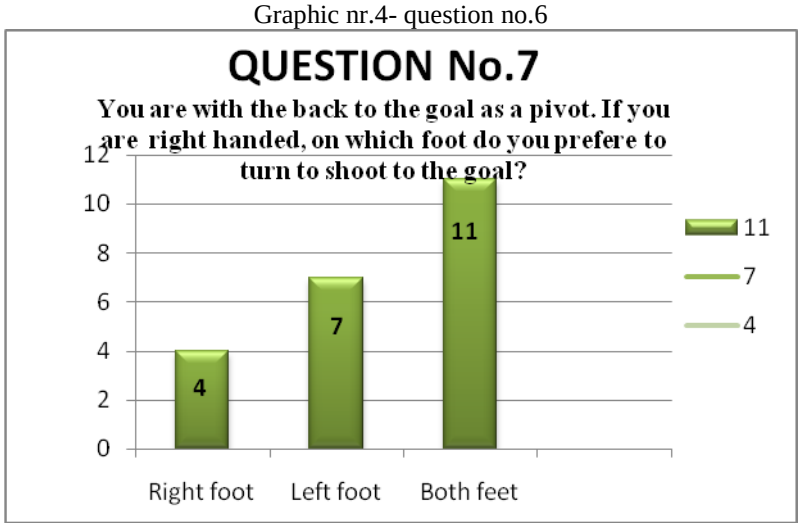
Graphic nr.2- question no.3



Graphic nr.3- question no.4 and 5



Graphic nr.4- question no.6



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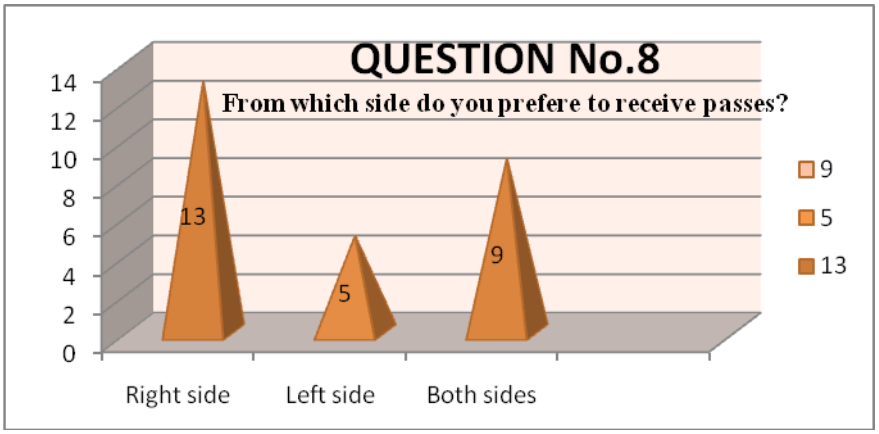
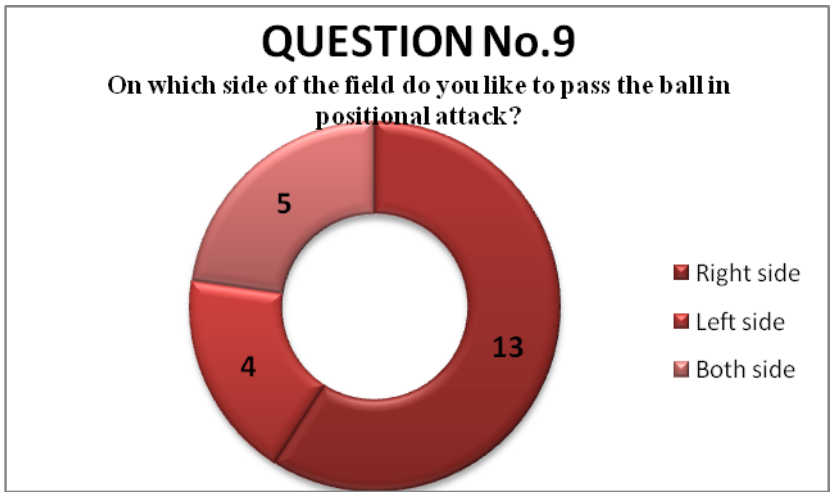
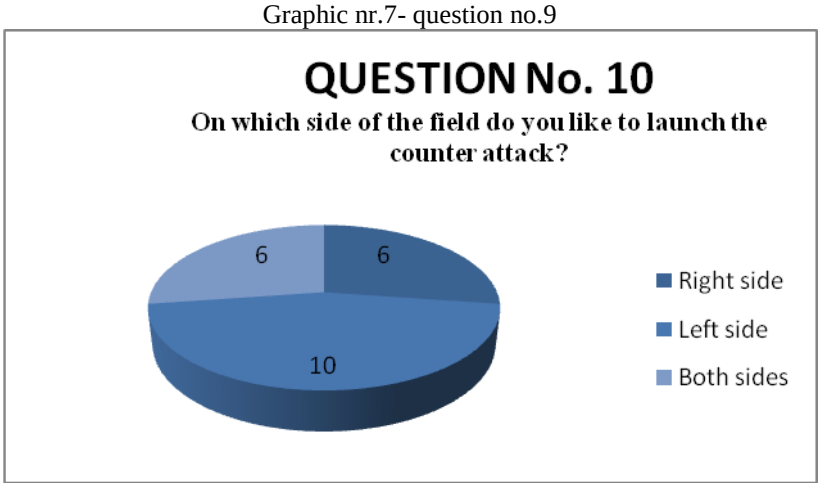


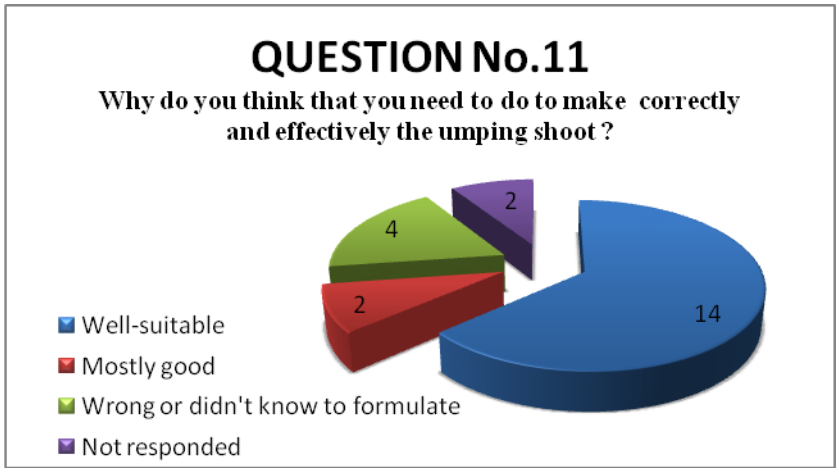
Graphic nr.6- question no.8



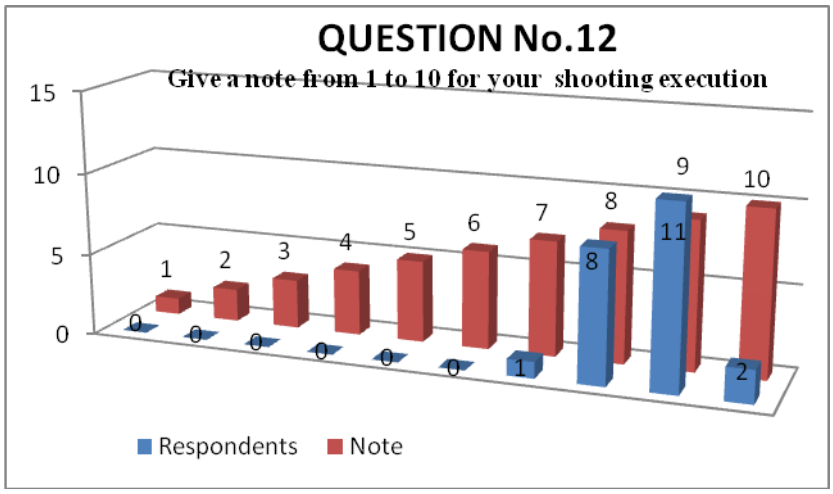
Graphic nr.7- question no.9



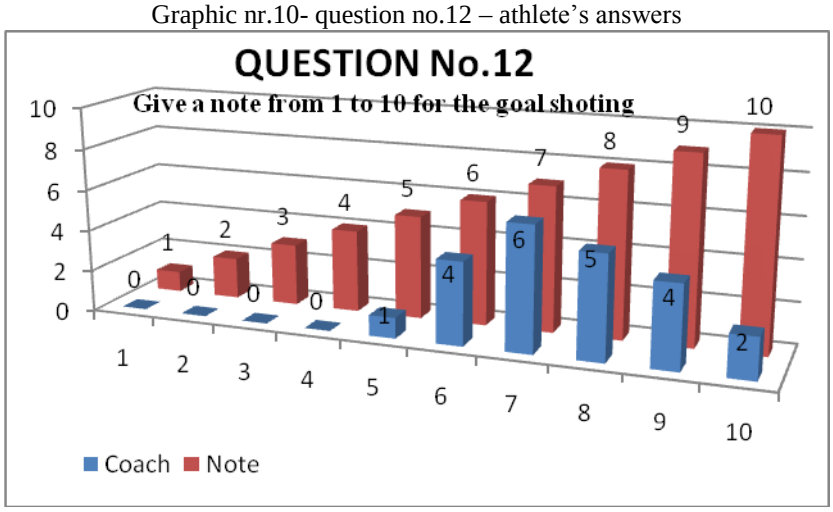
Graphic nr.8- question no.10



Graphic nr.9- question no.11



Graphic nr.10- question no.12 – athlete's answers



Graphic nr.11- question no.12 – coach's answers

Discussion

The analysis of the questionnaire applied to the handball girls team from Sports School No. 1 Constanţa:

1. The handball players have answered affirmative 100% to the first question: "would you like to participate in a study and answer as correctly as possible?".

2. Surprising for the coach were the answers for question No. 2 due to the fact that two handball players have granted 7 and 8 for the level of pleasure with which they practice handball, with

5. Question No. 5 verifies the level of laterality and appreciation made by the athletes is according to the reality

6. As shown, to question No. 6, 17 the athletes answered that they easily throw to goal with the unskilled arm, which is overrated.

From the coaches records results that only six athletes throws easily with the other arm to the goal. The explanation for the incorrect appreciation of the athletes is that they are constantly working for ambidextrous, with movement games and effectively with throws to the goal.

7Question No.7 has been addressed to the athletes in order to harness the answers so that during workouts to run as many sets of shoots both the preferred sideand the non-preferred side, game situations asking quite often to find technical and tactical solutions to avoid the opponent's defender and completion of this posture.

8. At question No. 8 the athletes answered in accordance with the execution required in training but their degree of sincerity and here is distorted because it is easily observed that all athletes prefers the passes coming from the direction of the skilled arm. (correct answer-19 from the right and 3-from the left)

9. At question No. 9 the athletes have answered more realistic, if we consider the fact that they answered to the right, 13 of the 19 right-handed athletes, 4 to the left and 3 are left-handed, and the other 5 have no problems with the direction from which the pass comes. We consider appropriate this question because the coach will be able to refocus the methods in order to achieve an improvement of this technical element,both to the preferred direction and the non-preferred.

10. Most of the answers (n = 10) of the athletes, to question No. 10 were for the "b" version - to the left. Taking into account that the vast majority are right-handed., we realize that the technical execution of the long pass is easier and is preferred to the opposite direction the skilled arm.

11. It is noted that to question No. 11, the majority of the athletes have theoretically acquired the method of execution, the problem

mention that those two players were not poor athletes.

3. At question No. 3, 18 handball players answered with throwing to the goal while jumping although the execution technique is not so good at this age and it is not ruled very well by them.

We believe that the answers were induced by the fact that in training are required to throw a lot with the long ju4. At question No. 4, the athletes responded correctly, 19 among them were right-handed and 3 of them left-handed. We can say that they have correctly assessed the level of laterality. is that at this point, the coach believes that in proportion of 100% the technical procedure is not executed yet, correctly.

12. The degree of subjectivity of the handball players is observed by comparing the two tables where they give themselves notes from 7 to 10 and the coach from 5 to 10.

The findings have revealed that the athletes have responded honestly and the assessment of their level of laterality corresponded to the one stated in the questionnaire. From what they said they prefer to execute and actual level of technical executions were not recorded differences (questions 1,2,3,4,5,7,9,10) and where differences were assessed (questions 6, 8,11,12) between the athletes and the coach will intervene with additional exercises.

Conclusions

This study reorients technical and tactical preparation of players in terms of laterality and implicitly ambidextrous. The modern game of handball has to regard the preparation of psychomotor qualities since its infancy in this branch of sport.

As a result of the conducted study there are the following conclusions:

1. The handball players have answered with sincerity and assessement of their level of lateralitycorresponded to that stated in the questionnaire

2. Between what they said they prefer to execute and the actual level of technical executions are not big differences (questions 1, 2, 3, 4, 5, 7, 9,10).

3. Where the differences were considerable (questions 6, 8, 11, 12) between the athletes and the coach's opinion it will intervene with additional exercises

4. The present study is reorienting the technical and tactical training of the players regarding the laterality and so implicitly the ambidextrous.

5. The modern game of handball must have in mind the preparation of psychomotor training since their debut stage in this branch of sport.

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Original article

RECOVERY OF PATIENTS WITH BRAIN ATROPHY

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Abstract

Aim. Our study presents correlations between brain atrophy measured by CT-scan/MRI images and clinical diagnostics of these patients and the way in which melotherapy modify possible associated depression. Our study consisted of 110 patients admitted to Neurology Department Constanta between January-December 2012 and diagnosed (by means of brain CT-scan/MRI done in the first days from admission) with diffuse brain atrophy in majority of cases and secondary to a neurologic affection. The patients with vascular brain diseases were divided in 2 groups according to their diagnosis: poststroke and post de generative disease.For all patients we performed BECK depression scale and MMSE and for stroke patients NIHSS scale.

First group consisted in 60 patients admitted to Neurology Department with first acute stroke. Brain atrophy was revealed by CT/MRI -scan on 1-3 days from admission. We performed Beck depression scale and applied melotherapy correlated with the degree of depression. Clinical evaluation performed:10% patients with minor disability, 10% with severe disability 80% of patients was with moderate disability on NIHSS scale.The musical program consisted in 15 minutes three times a day.

Presence of brain atrophy in first days from brain stroke shows clear evidence of underling risk factors: arterial hypertension, diabetes mellitus, atrial fibrillation and presence of associated diseases.

The results on first group were: 81% of patients older than 61, arterial hypertension present in 79% of cases and 61% cases with cortical atrophy. On the latest Beck scale evaluation we observed an improved depression in 67% of patients after melotherapy.

The second group in our study consisted in 50 patients with one or more strokes in their background.

On Beck depression scale we identified 30 patients with medium and severe depression and we conducted a musical program consisting in 15 minutes of music three times a day and after melotherapy, we observe an improvement of depression at 20% of patients.

Conclusions. Presence of diffuse brain atrophy associated with other diseases rather than cerebral vascular diseases was in correlation with oldness of underling disease. The age is an important factor of risk. Compensatory capacity is highly variable from subject to subject and thus, the relationship between the location and size of vascular brain injury and the severity of cognitive impairment is variable from subject to subject. Further study must clarify the correlation of brain atrophy and prognostic of an ongoing stroke and the role of music in recuperation of patients with brain atrophy.

Keywords: brain atrophy, cerebral CT/MRI associated diseases, melotherapy.

Introduction

Numerous autopsy and imaging studies have documented the fact that cerebral atrophy occurs as a feature of usual aging. Several mechanisms have been invoked to explain the senescence and death of cells in normal aging, including loss of hormonal stimulation, accumulation of toxins, genetic errors and internal cellular clock that program death. In neurodegenerative disease, brain parenchymal loss occurs prematurely. Loss of neural tissue leads to the neuroimaging findings of focal and/or diffuse atrophy. As the brain shrinks, the cerebrospinal fluid spaces appear capacious with prominence of the ventricles, cisterns, and sulci. Athough atrophy in gray matter has been noted with senescence (Pfferfferbaum et al, 1994, Christiansen P et all 1994), the longstanding belief that selective loss of neurons occurs in neocortex (Brody, 1955, Brody, 1970) has been challenged by recent studies showing that whereas atrophy is grossly detectable in the frontal and temporal lobes, there is no change in the total neuron population (Terry et al, 1987). Metabolic imaging studies also have tended to find decreases with age, also most prominently in the frontal region (Hazlett et al, 1998, Cabeza et al, 1998)

The rate of cerebral atrophy in usual aging also hase been somewhat of a source of controversy. Most studies report a linear decline in brain volume with advancing age beginning sometime in middle to old age. The "knee" of the volume versus age curve has been variably located in the fifth, sixth, or seventh decade (Meier Ruge et al, 1992, Guttman et al, 1998, Steward et al, 1987, Meier Ruge et al, 1985, Takeda et al, 1985). The rate of age-related brain atrophy was noted to be different in men that in women (Kaye et al 1992, Jernigan et al, 1991, Laffey et al, 1984, Gur et al, 1991). Although most studies have assessed global/ hemispheric atrophy with advancing age, recent studies indicate that the different portions of the brain may

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more susceptible to age-related atrophy than others (Zats et al., 1982, Murphy et al., 1992).

Increasing prevalence of focal and confluent areas of increased signal intensity on conventional T2-weighted and FLAIR MR in the white matter and central nuclei of individuals with advancing age is a widely recognized phenomenon.

Our study presents correlations between brain atrophy measured by cerebral CT/MRI images and clinical diagnostics of these patients and the way in which melotherapy and rehabilitation programme modify possible associated depression or evolution of disease.

Material and method

Our study consisted of following 110 patients admitted to Neurology Department Constanta between June-December 2012 and diagnosed (by means of brain CT-scan done in the first days from admission and cerebral MRI) with diffuse brain atrophy in majority of cases and secondary to a neurologic affection. The patients with vascular brain diseases were divided in 2 groups according to their diagnosis: poststroke and confusion post degenerative disease

For all patients we performed BECK depression scale, MMSE and for stroke patients NIHSS scale.

Results

Table 1 Age distribution in first group

Age	Number of cases
Below 40	0
41-50	2
51-60	23
More than 61	35

Table 2 Presence of risk factors in first group

Risk factors	Number of patients
Arterial Hypertension	46
Diabetes Mellitus	10
Arithmias	12
Metabolic syndrome	12
Cardiac disease	9

Table 3 Types of brain atrophy in first group

Brain atrophy	Number of cases
Increased focal and confluent areas of incresed signal intensity on conventional T2-weighted and flair MR in the white matter and central nuclei	41
Triangular –shaped regions posterior and superior to the trigones	3
Lacunae type 3	16

Table 4 Other MRI signs in first group

Other imaging signs	Number of cases
Lacunae type 1	3 cases
Lacunae type 2	4cases

Table 5 Age distribution on second group

Age	Number of cases
Below 40	0
41-50	0
51-60	10
More than 61	40

Table 6 Presence of risk factors on second group

Risk factors	Number of patients
Arterial Hypertension	40

Diabetes Mellitus	5
Cardiac Aritmia	3
Metabolic syndrome	18
Myocardial infarction/ischaemic Cardiopathy	6

Table 7 Presence of associated diseases on second group

Associated diseases	Number of patients
Chronic Alchoolism and nicotine abuse	13
Neoplasma	1
Brain trauma	1

Table 8 Types of brain atrophy on second group

Brain atrophy	Number of cases
Increased focal and confluent areas of incresed signal intensity on conventional T2-weighted and flair MR in the white matter and central nuclei	26
Triangular –shaped regions posterior and superior to the trigones	2
Lacunae type 3	22

Discussion

First group consisted in 60 patients admitted to Neurology Department with first acute ischaemic stroke. Brain atrophy was revealed by CT-scan or IRM. We performed Beck depression scale, NIHSS scale and applied melotherapy correlated with the degree of depression.

Clinical evaluation performed: 10% patients with minor disability, 10% with severe disability 80% of patients was with moderate disability on NIHSS scale. 50 patients was with MMSE more than 23 and 10 with MMSE less than 23.

The musical program consisted in 15 minutes three times a day (music preferred by patient) and passive rehabilitation programme begin.

Distribution according to sex was of 26 cases female and 34 cases male. The distribution according to age is seen in table 1 and the distribution according to urban-rural medium in figure 1.

Presence of brain atrophy in first days from brain stroke shows clear evidence of underling risk factors (1): arterial hypertension, diabetes mellitus, atrial fibrillation etc. All this items are seen in tables 2, 3. Most of patients had two or more risk factors. On brain MRI we also found other imaging signs such as: cerebral lacunae type 1and 2 (table 5).

In this group, cerebral lacunae are not associated with previous clinical symptoms.

Cerebral lacunae type 1 on MRI are old, small, deep cerebral infarcts with irregular cavities containing macrophages and parenchymal fragments surrounded by gliosis and Cerebral lacunae type 2 are old, small hemorrhages with hemosiderin-laden macrophages and iron pigmentation of their walls and type 3 are dilated Virchow-Robin space.

The results on first group were: 81% of patients older than 61, arterial hypertension present in 79% of cases and 61% cases with cortical atrophy. On the latest Beck scale evaluation we observed an improved depression in 67% of patients after melotherapy. The clinical presentation of vascular brain injury is highly heterogeneous. It is very hard to identify specific homogeneous clinical-pathologic subtypes of vascular cognitive impairment and vascular dementia and the fact that the clinical result in any affected individual is a combination of the anatomic areas involved by vascular brain injury plus individual`s cognitive genetic reserve. In 21% of our patients we have a single infarction placed in hippocamp, medial thalamus and caudate nucleus.

The second group in our study consisted in 50 patients with one or more strokes in their background.

They were 22 females and 28 males. The distribution according to age and urban-rural medium is seen in table 6 and figure 3. Most of the patients had two or more risk factors. (tables 7 and 8)

These patients were readmitted to our department for:

- Chronic etilism with trouble of cognition
- Degenerative disease (Alzheimer, mixed or vascular dementia) and due to Parkinson disease;

On Beck depression scale we identified 30 patients with medium and severe depression. 30 patients was with MMSE less than 15 and 20 with MMSE less than 23.We conducted a musical program consisting in 15 minutes of music three times a day (according the information regarding the type of the anterior personal music listening of the patients).

For the second group of study the results showed hypertension is the dominant symptom**.** On further evaluation on Beck scale, after melotherapy, we observe an improvement of depression at 20% of patients.

Cerebral vascular disease is regarded by some to be the second-most-common cause of dementia in the elderly after Alzheimer dementia.

Conclusions

The patients with vascular brain diseases were divided in two subgroups according to their diagnosis; they were diagnosed by CT/MRI scan done in the first days from admission with diffuse brain atrophy.

There is dissociation between brain atrophy diagnosed by MRI and clinical examination of vascular patients. Difficulties in relating imaging to clinical presentation are the same as those in relating pathology to clinical presentation.

The pattern of cognitive deficits varies as a function of the unique location of the areas of the brain involved with vascular brain injury in each individual subject. In first two groups the principal risk factor was hypertension, age more than 61 years in 80% cases, brain atrophy was of cortical type in more than half of them.

Arterial hypertension and metabolic syndrome were most frequent risk factors founded in patients with age more than 61 years old.

Presence of diffuse brain atrophy associated with other diseases rather than cerebral vascular diseases was in correlation with oldness of underling disease.

The age is an important factor of risk. Compensatory capacity is highly variable from subject to subject and thus, the relationship between the location and size of vascular brain injury and the severity of cognitive impairment is variable from subject to subject

Correct treatment of arterial hypertension, metabolic syndrome, diabetes mellitus and other cerebral vascular risk factors delays development of brain atrophy.

Role of melotherapy at this patients was important (but mostly in the first group), we see that the Beck depression scale it was improved the quality of life of this patients. There must appear future research in this field to saw in what way melotherapy improve cognition and quality of life.

Both vascular brain injury and Alzheimer Dementia increase with age.

Further study must clarify the correlation of brain atrophy and prognostic of an ongoing stroke and the role of music in recuperation of patients with brain atrophy.

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Cortical brain atrophy was present in all patients, 26 with increased focal and confluent areas of incresed signal intensity on conventional T2-weighted and flair MR in the white matter and central nuclei, 2 with Triangular –shaped regions posterior and superior to the trigones on cerebral MRI and 22 with lacunae type 3.

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Original article

CLINICAL DIAGNOSTIC DIFFICULTIES IMAGING CEREBRAL ISCHEMIA IN YOUNG VERSUS SM: RECOVERY METHODS

DOCU-AXELERAD DAN[1], DOCU-AXELERAD ANY[2]

Abstract

Objectives. Stroke is a commonly used but imprecised term that describes a frequently devastating clinical event-the sudden onset of a persistent neurologic deficit, ussualy secondary to blockage or rupture of a cerebral blood vessel. Ischemic stroke are divedided in thre subtype: large artery or atherosclerotic infarction, cardioembolic infarction and small vessel or lacunar infarctions.

Multiple Sclerosis (synonyms: multiple sclerosis, lenconevraxita) is a condition characterized by multiple foci of demyelination scattered white matter of the central nervous system.

Materials and methods. We present the case of a female patient aged 39 years, with initialy diagnosis of ischemic stroke and after one year with multiple sclerosis relapsing remitting form.

*Results.*We present the case of a patient aged 39 years, diagnosed with ischemic carotidian stroke without cardiovascular risk factors or metabolic, are presented to our clinic for decrease of force at right limb and dysarthria with unknown causes. Patient recover completly motor deficit after 1 mounth and she`s diagnosis was ischemic silvian stroke in the middle cerebral brunch with unknown causes. After one year patient develop left motor deficit, with parestesia on the left side of the body, with asterognosia and left ademolexia and at discharge diagnosis was Multiple sclerosis relapsing-remitting form in concordance with clinic and imagistic images..

Conclusion. The clinical course of classic Multiple sclerosis is highly variable. MRI has fundamentally changed the clinical evaluation of patients with Multiple sclerosis.

Key words: ischemic stroke, multiple sclerosis, young adult, recovery.

Introduction

Stroke is a commonly used but imprecised term that describes a frequently devastating clinical event-the sudden onset of a persistent neurologic deficit, ussualy secondary to blockage or rupture of a cerebral blood vessel. Ischemic stroke are divedided in thre subtype: large artery or atherosclerotic infarction, cardioembolic infarction and small vessel or lacunar infarctions.

Multiple Sclerosis (synonyms: multiple sclerosis, lenconevraxita) is a condition characterized by multiple foci of demyelination scattered white matter of the central nervous system.

The four main symptoms of the disease are added:

• Symptoms sensitive translated primarily by numbness that can add vibration and discriminative sensitivity disorders, lack of sensitivity rarely termoalgezică the Brown-Sequard syndrome. At flexion of neck sometimes appear electrifying sensations in the limbs being Lhermitte's sign. This looks like a symptom of demyelinating sensory level cervical spinal cords. Lhermitte's sign is useful for the diagnosis of multiple sclerosis, but is encountered in traumatic lesions or cervical spinal compression.

• Symptoms of the brainstem. In addition to vestibular syndrome can meet eye paralysis translated by diplopia, paresthesia in the trigeminal territory, trigeminal neuralgia.

• Mental Damage in Multiple Sclerosis rare but can occur in some patients in advanced stages of the disease.

A maximum recovery point is reached in the first 6-9 months, after which the progresses are no longer that significant. Abandoning systematic recovery from various reasons predisposes to tendinous and capsulo-articulatory reactions.

The prolonged bed immobilization and passive non-immobilized cases develop achilean retraction, humeral capsulo-articulary retraction and algo-dystrophic syndromes. At this stage it was noticed a net benefit from active kinetictherapy in the case of ACA territory stroke (hemiparesis with crural predominance) and a favorable evolution in the case of ACM stroke (hemiparesis with facio-branchial predominance) where prehension and the fine movements of the fingers were incomplete.

Thus, the practice of a systematized recovery

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over the first 6-9 months seems to ensure important progress, imposing the realization of a complex, yet individualized, work scheme in order to facilitate psycho-social reintegration.

Materials and methods

We present the case of a patient aged 39 years, diagnosed with ischemic carotidian stroke without cardiovascular risk factors or metabolic, are presented to our clinic for decrease of force at right limb and dysarthria with unknown causes.

Results Patient Name: _____ Rater: _____ Date: __/__/__ ___:___	
Activity	**Score**
Feeding 0 = unable 5 = needs help cutting, spreading butter, etc., or requires modified diet 10 = independent	0 5 10
Bathing 0 = dependent 5 = independent (or in shower)	0 5
Grooming 0 = needs to help with personal care 5 = independent face/hair/teeth/shaving (implements provided)	0 5
Dressing 0 = dependent 5 = needs help but can do about half unaided 10 = independent (including buttons, zips, laces, etc.)	0 5 10
Bowels 0 = incontinent (or needs to be given enemas) 5 = occasional accident 10 = continent	0 5 10
Bladder 0 = incontinent, or catheterized and unable to manage alone 5 = occasional accident 10 = continent	0 5 10
Toilet Use 0 = dependent 5 = needs some help, but can do something alone 10 = independent (on and off, dressing, wiping)	0 5 10
Transfers (bed to chair and back) 0 = unable, no sitting balance 5 = major help (one or two people, physical), can sit	0 5 10 15

10 = minor help (verbal or physical) 15 = independent	
Mobility (on level surfaces) 0 = immobile or < 50 yards 5 = wheelchair independent, including corners, > 50 yards 10 = walks with help of one person (verbal or physical) > 50 yards 15 = independent (but may use any aid; for example, stick) > 50 yards	0 5 10 15
Stairs 0 = unable 5 = needs help (verbal, physical, carrying aid) 10 = independent	0 5 10
TOTAL (0 - 100)	_____

Modified rankin scale:

0 No symptoms at all

1 No significant disability despite symptoms; able to carry out all usual duties and activities

2 Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance

3 Moderate disability; requiring some help, but able to walk without assistance

4 Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance

5 Severe disability; bedridden, incontinent and requiring constant nursing care and attention

6 Dead (Rankin J., 1957, Bonita R et al., 1988, Van Swieten JC et al.1988)

NIHSS scale:

0= normal

1-4= minor stroke

5-15= moderate stroke

15-20= moderate/severe stroke

21-42= severe (Bradley G Walter et al, 2004)

CT scan was normal at onset. **Clinical criteria was performing** NIHSS (NIH Stroke Scale): 25 points, Modified Rankin Scale: 5 and Barthel index: 0. Cerebral MRI on 72 hours after the onset show: multiple hyperintense lesions in the centrum semiovale and subcortical white matter with two gadolinium enhancing in the frontoparietal right lobes.

We initiate a recovery kinetic programme and at discharge - NIHSS (NIH Stroke Scale): 15 points, Modified Rankin Scale: 3 and Barthel index: 85 and the diagnosis at discharge was Multiple sclerosis relapsing-remitting form.

Discussion

The history revealed recurrent episodes of right hemi-body numbness transitories. Patient is not a smoker, do not consume oral contraceptives and has no history of cerebrovascular disease in the family.
CT scan was normal at onset. **Clinical criteria was performing** NIHSS (NIH Stroke Scale): 20 points, Modified Rankin Scale: 5 and Barthel index: 5.

Imagistic criteria

Cerebral MRI on 72 hours after the onset was normal. Echo cord and carotidian Doppler was normal. We perform laboratory test for possible vasculopathies associated with collagen-vascular disease was normal.
We initiate a kinetic programme following:

- promoting the activity of the antagonists by the inhibition of the spastic muscles (the agonists)
- promoting a complex movement scheme
- promoting the control of the proximal muscles during some increased performance exercises

- promoting the motor control of the intermediary joints.

In the medium or spastic stage, the characteristics are:

- the muscular tonus is high – hypertonicity is installed
- the osteo-tendinous reflexes on the affected side are increased
- the initiation of movement is improved, there can be made movements in more difficult positions, but the control of the movement is still insufficient because of spasticity
- usually, the tonus of the upper limb flexors and of the lower limb extensors is greatly improved

The following set of exercises is one of those used in the study:

- with the arm raised at different levels, there are made extensions-flexions of the elbow, the hand with spread fingers is taken to the opposite shoulder, thus making movements above or below the horizontal, the sports teacher opposes resistance on the shoulder both for the forward and the backwards movements; the lowered or raised position of the elbow entails the mobility of the scapula
- fromthe lateral decubitus, the training of the lower limb for walking in order to independently mobilize the joints: the hip is maintained flexed and the knee is extended-flexed, then the hip is maintained extended and the knee is moved; concomitantly, independently from the coxofemoral and knee movements, the foot is flexed-extended. These movements are trained (are facilitated) in the dorsal decubitus
- from ventral decubitus with forearm support, the shank is flexed and maintained at different angles
- rolling from dorsal to lateral and ventral decubitus
- from the four limbs position, the weight of the body is alternatively transferred on the paralyzed limbs: forwards-backwards and left-right balancing, gradual raising of a healthy limb, than both
- also from the four limbs position, the patient raises at first the head, then the torso, remaining only on knee support
- from the kneeled position, the teacher balances the body from side to side, especially forwards
- seated on a stool, with hip and knee flexed at a 90º angle, with the flexed foot, the heel in support on the floor, the weighth is increased on the affected side: the teacher stimulates fith the point of the fingers, the sole and the toes in order to release dorsiflexia (Lee J-M et all , 1999)
- from the seated position, the upper limb is raised with the elbow stretched, the hand

Patient recover completly motor deficit after 1 mounth and she`s diagnosis was ischemic silvian stroke in the middle cerebral brunch with unknown causes. After one year patient develop left motor deficit, with parestesia on the left side of the body, with asterognosia and left ademolexia.

The Barthel Index consists of 10 items that measure a person's daily functioning specifically the activities of daily living and mobility. The items include feeding, moving from wheelchair to bed and return, grooming, transferring to and from a toilet, bathing, walking on level surface, going up and down stairs, dressing, continence of bowels and bladder.

The higher the score the more "independent" the person. Independence means that the person needs no assistance at any part of the task. If a persons does about 50% independently then the "middle" score would apply. (Mahoney, Barthel, 1965).

Conclusion

1. The clinical course of classic Multiple sclerosis is highly variable. MRI has fundamentally changed the clinical evaluation of patients with Multiple sclerosis.

2. Transient evolution of symptoms even in young patients with no apparent risk factors requires differential diagnosis with Multiple sclerosis. (Hankey Gjet et all ,1992, Hu FB et all, 2000)

3. Young patient with normal conventional imaging but transient symptoms and focal neurological deficits require laboratory investigations, biochemistry and imaging extended.

4. Many patients may present with one neurologic deficit and at onset without MRI changes or viceversa may present one neurologic deficit, with related wite matter lessions on MR imaging not fulflilling criteria for the conclusive diagnosis of multiple sclerosis.

5. The general accuracy of MR imaging for prediction of this clinical conversion is about 68% (Korteweg et all, 2006).

6. Occupational and physical therapy applied postoperatively had an important role in social rehabilitation of the patient.

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Original article

CONTINUOUS FORMATION IN THE OPTIMIZATION OF TEACHING PHYSICAL EDUCATION TO LOWER GRADE STUDENTS

DUMITRU MARIANA[1], MOROIANU MIRUNA[1]

Abstract

Problem statement. Continuous preparation of the teaching staff working in the preschool and primary educational system implies their systematic participation in new training courses aimed at optimizing the teaching of those subjects specific to their professional profile and implicitly of physical education and sport discipline. Even more so, as the aforementioned disciplines appear in the curriculum starting with the preschool educational level and, in case of an integrated version, in an extended curricular domain.

Methods and procedures. The present work proposes an integrated training program for those teaching The Pedagogy of Preschool and Primary Education, resulting in a mobility of teachers within the system according to its requirements.

In this respect we suggest a questionnaire based survey being conducted upon the completion of this program. The survey should be aimed at identifying the attendees' opinions regarding the contents and efficiency of the training courses. The survey results will be accordingly processed and interpreted as to reflect the importance of continuous preparation in the teaching staff's didactic career for the pedagogy of preschool and primary education, with emphasis on physical education.

Results. Since, the physical education is mainly a practical activity during which the student is acting in a specific environment (gym, sport grounds, etc.) the conduct of the instructional and educational process implies a wide range of physical activities specific to our field, as well as, a didactic strategy quite different from the other study subjects included in the curriculum.

As already mentioned, competence is determined not only by internal factors related to the competent person (knowledge, abilities, attitudes / personality characteristics) but, at the same time, by the external factors related to the circumstances under which the competent action is carried out (task, environment, context).

Conclusions. In the actual reforming context of society, quality and competence are the main priorities of the professional training. Proposals:the re-evaluation of the social and educational roles played by the didactic personnel is a phenomenon that determines new responsibilities, both, in school and society.

Key words: preparation, formation, curriculum, didactic strategies, projection, competence.

Introduction

Romanian education system has been included in the comparative studies, conducted by European countries to emphasize both the common tendencies in teachers' initial and ongoing training and the national specific characteristics of the process. In this respect three main aspects should be considered:

- the rescaling of the social and educational role played by the teaching staff and the impact of this process on teachers' functions and responsibilities within the education system and society as a whole;
- the professional and personal development of teachers for meeting the new professional requirements;
- the improvement of the quality of teacher's initial and ongoing preparation systems, so that, their pedagogical, psychological and sociological preparedness to foster an interdisciplinary approach and their teamwork abilities.

The ongoing preparation of preprimary and primary school teachers implies their systematic participation in training curses aimed at optimizing their expertise in teaching Physical Education and Sports.

Since, in the integrated version of the education system, this school discipline is part of the curriculum starting with the preprimary education, in an extended curricular area, for teachers at this level, periodical training is necessary especially when the objectives are in a continuous evolution in accordance with the subjects' development level.

The "Presidency Conclusions" of the Lisbon European Council held in March 2000 set a series of objectives for the EU Member States in order to establish a knowledge-driven society and economy, goal that could only be achieved through an efficient adaptation and improvement of the education and professional training systems.

The "Copenhagen Declaration" (Declaration of the European Ministers of Vocational Education and Training, and the European Commission, convened in Copenhagen on 29 and 30

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November 2002, on enhanced European cooperation in vocational education and training) set the following priorities for the development of the initial and ongoing education and vocational training systems: reinforcement of the European dimension, transparency, information, guidance and counseling, recognition and validation of competences and qualifications and improvement of quality assurance.

In our education system, regular training is necessary to ensure teachers' mobility as it was already the case when the preparatory classes were included in the primary educational level. Furthermore, since many Romanians have moved to other European countries, in order to allow our teachers to rapidly adapt to the didactic requirements of the respective country, official regulations regarding qualification recognition and validation should be implemented.

This ongoing specialty training does not imply theoretical training only. For an effective employment of the already acquired theoretical knowledge, vocational and practical training should constitute the basis of such a preparation system.

Teachers' ongoing preparation - which, in order to express the continuity and coherence of the different didactic career stages, within the context of a lifelong teaching activity, is more and more frequently known as ***"continuous professional development"*** - has a different statute in different countries: it is always considered a right but, in fact, varies between being mandatory and optional.

However, not in all cases teachers are explicitly bound to attend ongoing training courses. For instance in France, The Netherlands, Sweden and Island continuous personal development is a professional obligation while the participation in such courses is optional.

Methods and procedures

For a better mobility of teachers within the system - in accordance with system requirements - this article proposes a training program for Physical Education and Sports integrated for the Pedagogy of the Preprimary and Primary Education teachers.

As shown by Baillauqués (1990) ... "teacher - a relational profession" ... could facilitate the efficient employment of personal experience by raising the awareness of teacher's personal style in combination with his creative capacity.

Due to the changes intervened in the social environment lately, in the actual educational context, the role played by the teaching staff has strengthen; also the integrated curricular format - which is mandatory for the primary education too - assumes an activation of the students' overall knowledge thus turning to a good account the students' potential. The student will be able to creatively use his previously acquired knowledge, regardless the type of activity and, as a result, increase his learning motivation. Consequently, the assessment will be more permissive putting emphasis on what the student knows and not on what he doesn't.

The program we prposed has already been included in the Extended Continuous Formation Programm for preprimary and primary teachers, in 2012.

Upon the completion of the training program, a questionnaire based survey was carried out. The survey was aimed at identifying the trainees' opinions regarding the contents and efficiency of the training courses.

The survey results were accordingly processed and interpreted as to reflect the importance of ongoing preparation for teaching staff's didactic career and for the pedagogy of preprimary and primary education, with emphasis on physical education.

Our training program was designed so that the attendees were provided with a series of motor knowledge, skills and abilities, specialty information regarding the organization of the educational process of physical education, competencies specific to physical education taught in preprimary and primary education.

The program consisted of seven theoretical courses carried out over a span of a teaching practice semester. This, in fact, was considered the basis for our preparation.

The ***theoretical program*** had the following objectives:

- to learn the main aspects concerning the physical activity of preprimary and primary school students;
- to break up the new school program contents per study years and project its didactic implementation over specific periods of time;
- to develop assessment procedures so as to stimulate the students' preparation and avoid their adversity towards physical education.

The ***practical program*** had the following objectives:

- to efficiently exploit the personal potential for the management of practical physical education class, using commands specific to the physical education domain;
- to exercise the language specific to our field of expertise by learning the terminology specific to sport branches;
- to adapt the training contents to the everyday reality and to the student's concerns, interests and skills;
- to enable the teacher to provide help and support to his students whenever necessary.

Through this practical program we pursued the management of a physical education class by using also knowledge accumulated during previous classes on different other topics. At the same time, we organized the participation of the trainees - as observers - in as many training sessions as possible, with an exchange of views on the lessons learnt during classes. The main gain of such procedures was the "participants' interaction", their possibility to share

ideas and views with regard to the strategies selected for improving the training contents.

The whole instruction process got the significance of a vast modeling exercise applied to the trainees, resulting in a transformation in space and time of their affective, emotional and psychometric cognition experience, thus enabling them to deliver physical education classes in any EU member state.

A series of practical activities - in an integrated version - were also conducted for students in lower grades 0-2. By doing so, one objective of the curriculum was fulfilled.

For the primary school cycle the physical education and sports is included, alongside other optional topics, in the curricular area called *health and motricity*. The discipline **music and movement** appears within the curricular area called *arts and technologies* and requires teachers to undergo a training that will allow them an integrated approach consisting of a combination between musical arrangements and appropriate movement categories.

To evaluate the efficiency and quality of this training course and implicitly of its contents, a set of five questions had to be answered by participants. For each question - pending on each participant's opinion - one to five points were granted.

Table nr.1

The assesment of the didactic activities conducted during continuous preparation training course

Nr. crt.	Assesment criteria	Final result (points)
Q1.	*Courses delivered and the debates during seminars covered the topics and objectives of the proposed curriculum*	**97**
Q2.	*Contents and pace of presentation were accesible for me*	**90**
Q3.	*Practical activities were interesting and attractive*	**102**
Q4.	*Aplicative part to take a grater share of the curriculum in the future*	**101**
Q5.	*Aknowledge that the present training course had a positive impact on the consoslidation of my preofessional competencies*	**98**
	Total points	**488**
Number of participants		**22**
Maximum total possible		**550**

Results

Since, the physical education is mainly a practical activity during which the student is acting in a specific environment (gym, sport grounds, etc.) the conduct of the instructional and educational process implies a wide range of physical activities specific to our domain, as well as, a didactic strategy quite different from other study topics included in the curriculum.

Jinga,1998, considers that through "professional competence of the teachers working in the education system one means the set of cognitive, affective, motivational and managerial capacities that interact with the teacher's personality traits, resulting in the necessary qualities for a didactic performance meant to ensure the achievement of the projected objectives for the vast majority of students".

Paquita, 1996), cited by Constandache, 2006, proposes "a scheme to tackle teacher's professionalism by defining several capabilities:

- to analyze complex situations, with reference to several levels of perception;
- to adapt on the fly and effectively consider the selection of optimal strategies against the goals and requirements imposed by the social context;
- to find its way in a broad spectrum of knowledge, techniques and appropriate means;
- to project its work by effectively using previous experience;
- to critically analyze his actions."

Thereby, through our training program, we achieved the enhancement of some competencies initially formed during our university courses:

- to get a comprehensive and realistic view on how the educational process has to be conceived and implemented;
- the gain of practically verified theoretical knowledge to provide the basis for the specialist training on our domain;
- to empower teachers with instructional strategies aimed at improving physical education and sports in accordance with international standards and subject age;
- to guide the learning towards formation of capabilities and attitudes, by exploiting the competencies specific to physical education and learning how to use the participative strategies in support of teaching activities;
- development of capability to design the teaching activity in accordance with the curriculum requirements, particular age and educational level.

Potolea (1998) states that teaching style is associated with certain behaviors and manifests itself as structures of influence and action, has internal consistency, relative stability and appears as a product of "personalization of principles, rules and methods specific to the educational work."

Teachers develop professional practice skills, by gaining new experimental attitude, subject to further self-reflection and analysis.

In the pedagogical practice they get in touch with knowledge that cannot be otherwise discovered and acquired. We consider that teaching style is a personal feature and its unique character has to be cultivated as a derivation source for genuine and creative pedagogical processes.

Vernioux,1986, shows the dimensions of teacher training based on a leveled structure, aiming to an initial and continuous training program with nuanced contents:

f1 - scientific training through university studies;

f2 - professional training by practical initiation in educational activities;

f3 - training through research, involvement in research techniques specific to the educational phenomenon;

f4 - enhancing personality features suitable to the teaching profession, creating didactic style abilities;

f5 - formation by concentrating the components of the theoretical and practical training and research into the teacher's personality structure.

The main objective of our program was the further development of the skills acquired during the initial training, by organizing interactive theoretical training sessions and by translating the acquired knowledge into practice.

Table nr.2
Didactic activities conducted during the on going training
Assesment results

Question Nr.	Total points	Percentage	5 p	4 p	3 p	2 p	1 p
Q.1.	**98**	**88,18 %**	**13 a**	**5 a.**	**4 a.**	**0 a.**	**0 a.**
Q.2.	**90**	**81,8 %**	**10 a.**	**6 a.**	**4 a.**	**2 a.**	**0 a.**
Q.3	**102**	**92,7 %**	**14 a.**	**8 a.**	**0 a**	**0 a**	**0 a**
Q.4	**101**	**91,8 %**	**15 a.**	**5 a.**	**2 a.**	**0 a**	**0 a**
Q.5.	**98**	**89 %**	**12 a.**	**8 a.**	**2 a.**	**0 a**	**0 a**

p *- nr.of points;* ***a****.- nr.of answers out of the total number.*

Discussions

Analyzing the assessment results summarized in the table above the following comments could be made:

The highest scores of 101 and 102 points were obtained for questions 3 and 4 pertaining to the practical and applicative aspects of didactic activities contents.

According to the participants this type of activities, both those already conducted and those in the planning stage, have a higher share in this type of training courses.

The following significant scores are for questions 5 and 1 where 98 and 97 points respectively were obtained.

The subjects believed that the participation in the training course would be positively reflected in the consolidation of their professional competencies. They also considered that the topics proposed in the curriculum and the training objectives had been fully covered.

Answering the question number two, 90% of the participants stated that the pace of contents presentation had been reasonable and their structure accessible.

The academic activity shall provide not only teacher professional training but also teachers' formation by ensuring those competencies required by its position as a professor and educator. Consequently, the selection process for this profession has to take into account certain aspects related to the individual personality and ability to develop a series of qualities specific to our domain.

Therefore, in our view, the ideal profile of a pedagogy of preprimary and primary education teacher, seen in the light of competencies specific to physical education, implies:

- ***Theoretical knowledge*** from a variety of areas (biology, physiology, methodic specific to different sport branches, psychology, pedagogy etc.);
- Ability to design the integrated didactic activity in accordance with curriculum requirements and age and education particularities;
- Advanced management abilities and emulation spirit.

Motor competencies:

- Motor qualities - by practicing certain forms of physical exercise;
- Advanced motor experience - accumulation of motor skills specific to the sport branches reflected in the primary and preprimary cycle specialized curriculum;
- Sensorial qualities - visual acuity, differentiated hearing sensitivity etc.;
- Qualities of the loco-motor system and of the overall physiognomy (pleasant appearance, medium and high mobility of the main joints, spatial and temporal orientation ability, etc.);
- Attention (concentrated, distributive, mobile);
- Intellectual qualities (memory, thinking, creativity, language, etc.);
- Special and general attitudes (psycho-pedagogical abilities, affectivity, strong personality etc.).

Psycho-pedagogical, psychological and managerial abilities formed through specialty courses,

knowledge implemented during regular and competitional activity, with the main objective of attracting students towards practicing physical exercises and thus substantially reducing the number of sick-leave days:

- Pedagogical mastery (high professional qualification and native educational qualities);
- Pedagogical tact - ability to asses facts and actions in a balanced way taking cautious and delicate actions;
- Love and respect for students;
- Solid organizational skills focused on providing an optimal educational environment;
- Continuous training through information, documentation, specialization, attendance of various symposia, scientific presentations, masters etc..

Personality traits:

- Dynamic nature with an impeccable behavior;
- Abilities in practicing a number of sports in general those contained in the curriculum enabling the teacher to demonstrate the motor skills to be learned;
- Integrity and advanced communication skills.

Physical education does not pursue the limited, intrinsic goal of physical development which could be achieved parallel and independent of other features of the human personality. On the contrary, physical education - a component part of a system - acts on the integrated personality development, concomitantly with the other components.

Conclusions

The main issue of the contemporary education is not the one regarding the knowledge acquirement but that of learning methods and procedures on how to manage abilities forming processes leading to the discovery and effective use of new knowledge. Consequently, the education system has the duty and responsibility to educate students for the changes taking place at economic, social, politic and cultural level, both, domestically and internationally.

The concern for curriculum and standards characterizes most of the questions asked in relation to the future of education. What and how do our students learn compared to the students in other countries? Are our students able to compete the students from other countries? Is the Romanian education system - in its actual format - relevant, significant and useful for the future of society and individual? Is there enough freedom within the system to meet the more and more diversified students' interests?

In the reforming context of society the quality and competence issue is a priority of the professional preparation.

Taking into account the results obtained it could be concluded that:

- The didactic strategies applied in this formation course were a good self - promoting and professional development opportunity for participants;
- An emphasis on the applicative parts of the content, addressed with a view to the means, methods and strategies in general, was desirable.

Thereby, the pedagogy of preprimary and primary education teacher will be enpowered with didactic strategies having the following objectives:

- To place learning - as a process - in the center of the school approaches (what the students learn is important and not what the teacher teaches);
- To focus the learning towards the formation of capabilities and attitudes by the development of competencies specific to problem solving, as well as, through the use of participative strategies in the didactic activities;
- To make the school learning offer more flexible (structuring the education not uniformly and uniquely for all, designed for an abstract student, but an education for each student, based on its own needs and development particularities);
- To adapt the learning contents to the daily reality and to the student's interests and abilities;
- To introduce new contents and objective selection and organizational methodologies in line with the principle "not much but well"; what is important is not only what but how well, when and why do students learn; how useful what has been learnt in school would be for their future life;
- To provide the students with the opportunity of individualized and motivating educational pathways, directed towards creativity and personal fulfillment;
- To increase the accountability of all educational partners with regard to the design, monitoring and assessment of curricula.

The opportunity of training courses is valued for providing additional new information and consolidating teachers' professional competencies.

Proposals

Romanian education system, being included in the European comparative studies, has to reflect common tendencies of the initial and ongoing training with its specific national orientation

Periodical teaching staff training should have as main objective the development of professional competencies. It should address, also, the methodology, student's management techniques and the implementation of different changes imposed by the educational reforms.

By identifying those situations when the five years period could be reduced the provisions laid down by the *Didactic Personnel Rules and Regulations* make the aforementioned period more flexible. The reduction of the five year period applies to the management, guidance and control staff, uncertified in the field of educational management, under the following circumstances: when significant changes of the curricula take place, when new instructional methods and technologies are implemented, based on a personal request, with the recommendation of the Staff Council, upon a new position take-over.

The rescaling of the social and educational role played by the teaching staff is a phenomenon that triggers new responsibilities in school and society.

The functional unity between initial and ongoing training becomes the priority for higher education institutions that professionalize through curriculum selected and organized in modules, against the program which defines the types of skills.

In this respect the following are necessary:

- The reevaluation of the social and educational role played by the teacher through new responsibilities in school and society;
- The personal and professional development of the teaching staff through professional exigencies that define the "professionalism" in didactic activity and new competencies specific to the studied topics are proposed;
- The improvement of the ongoing training systems by enabling them with practical competencies specific to physical education, so as to encourage, through pedagogical training, the team work, innovation, preparation for organizing small-scale sporting events.

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Original article

THE ROLE OF EXERCISE IN INCREASING MOTRIC PERFORMANCE IN CHILDREN WITH PHYSICAL – KYPHOSIS

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Abstract

Objective. Physical development is related to body growth in ontogenesis, but takes place in an uneven pace. The Romanian system of physical education, ensuring harmonious physical development is focused on specific objectives to all his sub, depending on levels of age or profession. Society through specified activities (such as physical education). can interfere, meaning, acceleration "and, harmonize" (in periods when possible) body growth. This development intervention is thought to be so called, and development"(Fozza, 2001).

Methodes. The methodological basis of the work is the applied research methods: literature review, pedagogical observation, testing method, teaching experiment, comparative method, statistical and mathematical method of processing and interpretation of data.

Results. The results of each subject were presented with arithmetic mean, standard deviation and coefficient of variation. Comparison was made between the results of the two testing made.

Conclusions. Medium physical deficiencies can be corrected partially or remain unchanged by performing functional tests. They are segmentation (located in different parts of the body).

Key words: correction, deficiencies, students, kyphosis.

Introduction

Physical development, as part of optimal health status of the individual is emphasized much by ancient thinkers. This concept is outlined clearly in ancient Athens formula, KAI KALOS hanging ", ie, nice and good man", specifically: bodily health, manhood, strength and dexterity, physical beauty, harmonic proportionality, attire and more. Harmonic ideal antique Renaissance acquires new valences, resulted in preserved unaltered today dictum expressed by Juvenal, 'Mens Sana in corpore SANO ". In this synthesis is distinguished important bodily health, mental health which together form the optimal health of man.

In physical education systems formed in the second half of the nineteenth century, the ideal harmonic is present in a high gear. The Swedish system of Hevrik Per Ling, as in the expected in France by Georges Herbert. Harmonious physical development is defined as a fundamental objective of physical education process (Badiu, 2004)

The Romanian system of physical education, ensuring harmonious physical development is focused on specific objectives to all his sub, depending on levels of age or profession.

Physical development is related to body growth in ontogenesis, but takes place in an uneven pace. There is, in this respect, some periods of acceleration, deceleration or others maintaining slow etc. But there is a relationship between body growth and development. Growth is a process that takes place after the so-called specific legitimate and accepted, by many specialists, increasing age "(considered to be up around 18 to 20 years or by other specialists 25 years). Society through specified activities (such as physical education). can interfere, meaning, acceleration "and, harmonize" (in periods when possible) body growth.

This development intervention is thought to be so called, and development".

Development is a phenomenon both quantitative and especially qualitative addressed not only to the body (in-morphological functional), but also to aspects, that are extracorporeal "(the intellectual, emotional
and social).(Fozza, 2001)

There are several classifications of stages of growth and body development. What can be observed in these classifications is the appearance, in one form or another, the criterion of schooling. The synthetic classification is proposed by Andrew Antal in 1975:

- Ante stage (up to 3 years);
- Preschool (4-7 year three groups of kindergarten);
- Stage school (small, medium and large).

Under normal conditions, the body growth and development take place continued until adulthood, but the intensity of the processes and phenomena that characterize it gradually decreases as we get closer to the end of the evolution.

As discussed previously, the rate processes and phenomena of this period is uneven, with a variable increase in intensity and duration, more or less active, accelerations and slowdowns.

Most intense growth and development occurs in the womb, where the body finds the most favorable conditions of life. In the evolution of ectopic first months and early years of rapid developments remain

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positive but over time, it gradually decreases.(Docu Axelerad, 2009)

In modern auxological, growth and development laws are grouped by different criteria. The most comprehensive grouping seems to be following:

January. Law unequal and asymmetric growth of tissues and organs;

February. Law different pace of growth and development;

Three. Law change proportions and the relationship between the body and its parts;

April. Law of large alterations in growth and development;

May. Law on gender differentiated growth and development.

As a component of optimal health, harmonious physical development is represented by the growth indices of body size, according to age and sex, and a number of indicators such as:

optimal proportionality between the size and shape of segments, state optimal weighted segments between size and shape, condition and optimum weighted fairness attitude that shows each segment and body completely.

Research has proven that physical development is the result of several factors of the body (internal and external) and its definition is achieved by optimum process logically. Among the factors that condition the physical development can be mentioned, hereditary predispositions, and neuroendocrine stimuli that act inside the body, and other external factors, of which the most important are: the economic and social (living conditions, nutrition, hygiene conditions), geo (climate, microclimate) and physical exercise.(Docu Axelerad, 2009)

Materian & Methods

The problem of detecting, preventing and correcting physical deficiencies existing in children, is an ongoing concern for both parents and all the teachers in charge of raising and educating them.

During medical examinations that are in school to determine health status and to assess growth and physical development, students found that only some of them show the right attitude of the body. Therefore, one can not overlook the percentage of students who are carriers of morphological and functional defects, localized to the musculoskeletal system.

Musculoskeletal defects are called physical impairments.

Physical deficiencies are defined as deviations from normal physical shape and function of the body that disrupt normal growth and harmonious development of the body, changing appearance, reducing skills and the power of adaptation to physical effort, reducing the ability of productive work.

High frequency of deficiencies and their diversity caused analyzing this definition.

Physical deficiencies are characterized by morphological changes more or less pronounced, occurring in the first place, in the form and structure of the body and it is manifested by a slowdown or an excessive increase through a growth disorder or a disproportionate development through deviations, deformities or other structural defects preceded or followed by functional disorders.(Docu Axelerad, 2009)

Careful study can differentiate by their evolution, especially after correction possibilities through exercise: physical impairments mild, medium and sharp.(Docu Axelerad, 2009)

The first group of deficiencies, mild deficiencies, include small deviations from normal shape and function of the body, deficiencies caught in the early stage. They are considered deficient attitudes that may interest the body entirely or only certain parts of the body and, by executing corrective motion - functional test - Correct and hipercorecteaza. In this category falls attitudes overall deficiencies: cifotica, plane rigid asymmetric and segmental deficiencies mild form: head and neck leaning forward or sideways, forward or asymmetric gathered shoulders, torso flexion, attitudes cifotice, lordotic and scoliotic spinal cord or valgum knees bent, feet abducted or Addu. (Badiu, 2004)

Caught early, pending changes in tissue structure, light physical deficiencies are corrected, in most cases, under normal school activity.

The second group comprises medium deficiencies, defects embedded morphological and functional stationary or slow progress, which corrects partially or remain unchanged performing functional tests. Most environments are deficient segmentation, is localized in different regions of the body such as the spine deficiencies (kyphosis, lordosis, cifolordoze, scoliosis, kyphoscoliosis, back round cifotic and plan), thorax and abdomen deformations, knees and feet.

It also encountered and average global defects such as hiposomii, etc. disproportions between segments. Students will follow a medium deficient diet very life that comes first will lie with corrective exercise. Following, both in school and at home, the recommendations prescribed by doctors and physical education teachers, regarding the education of a correct attitude of the body, the rational alternation of work (research, teaching) and rest, and by performing daily exercises These deficiencies may be partially correct, you can stop evolution or even improve, up to their complete correction. (Docu Axelerad, 2009)

The main element used in medical gymnastics for preventing and correcting deficiencies is physical exercise, grouped and systematized the procedures and methods of medical gymnastics.

Exercise is defined as a static and dynamic attitude, framed in one of the forms of habitual exercise. This activity is made after technical rules and methods hinestabilite representing general anatomical,

biochemical, physiological, hygienic and educational requirements.

Rectification by practicing physical exercise is possible only because of their impact on the study of body tissues, the body functions, the organic and psychic functions.

The static and dynamic exercise, exert positive influences on the human body. Therefore, one can not speak of a single classification. Thus, it appears that after practicing systematic exercise, local or general changes appear in the organism, transient or long lasting, fast or slow, that alter the structure and function of tissues, organs and aspects of the human body. (Docu Axelerad, 2009)

Prophylactic effects, especially those corrective physical exercised, results in morphogenetic effects (plastic), physiological and education, which is seen in those who practice for long and methodical physical exercise, with proper purpose.

Exercise is an important morphogenetic factor, especially for musculoskeletal elements. Bones and periosteum, joints and muscles, tendons and fascia have a functional structure so obvious that they mean the end of a graphical representation of the mechanical forces that they run static and dynamic actions on them. (Circiumaru, Docu Axelerad, 2007)

Corrective exercise dynamic

Dynamic exercises can be performed in medical gymnastics as active movement, free or bound, active resistance movement. Dynamic corrective exercises can systematize this:

1 Active exercises of the head and neck, torso, upper and lower limbs - made free or overcharged. So, in this group are deficient segment active exercises and active exercises with neighboring segments, which amplifies primary deficiency corrective movements.

Active exercises will be located only deficient segment to create other defects not compensatory. Example: lumbar lordosis correction will be executed only torso flexion movements in the lumbar region, the thoracic spine is fixed or maintained in the correct positions. These movements can be executed overcharged - medicine balls, sticks, etc dumbbells. or against a strong opposing force manual or weight. (Docu Axelerad, 2009)

The main deficiency neighboring segments exercises will complete the exercises mainly breast. The upper limbs in lumbar lordosis plan will work in the rear, to avoid compensation cifotica dorsal spine, while the legs are moved, maintained or established in the previous plan to correct pelvic position. Also, these exercises will be performed free or overcharged different.(Circiumaru, Docu Axelerad, 2007)

In the corrective exercises, movement can be performed analytically, but the best results are obtained when performing exercises combined.

2. Corrective breathing exercises to run in stable positions. It can run freely or during exercise for torso and upper limbs in positions symmetrical or asymmetrical chest not moving master.

In general, breathing exercises will be introduced at the end of the beginning and not a lesson after corrective exercises harder.

3. Applied corrective exercises. The application exercises are

used for education or retraining basic driving skills. Among the best exercises are exercises of walking, crawling exercises, balance and suspension.

Walking corrective exercises are introduced in the introductory and final medical gymnastics lessons. Use only those exercises that go with the correct structure for deficiency.

primary. For example, walking tips for correcting kyphosis, walk on your knees bent to correct lordosis (walking squat with the torso straight) etc..

Crawling exercises - are performed in positions with large base of support and center of gravity very close to the base of support. These positions allow precise location of the exercises in the segment engaged in poor work and large muscle groups. Crawling exercises are performed in basic positions lying on knees, sitting, and of their derivatives positions, made symmetrical or asymmetrical.

Balance exercises can be simple or associated with wearing light objects, causing a symmetrical muscles antagonists request.

Clarifications physical education programs on preventing and correcting physical deficiencies attitudes among students

Specific competencies

Contents

1.1 Appropriate use of specific methods and means of physical development. - Programs influencing the analytic body segments;

- Complex physical development: the free exercise with portable objects musical background;
- Programs tailored for:

bodybuilding, fitness, sports, aerobics, stretching.

1.2 Self physical development and prevention, removal of specific disharmony puberty -Specific measures: height, weight, perimeter, diameter, scale;

- Indicators: nutrition, proportionality;
- Functional indices and their determination;
- The harmonious physical development;
- Attitudes physical impairments: kyphosis, lordosis, scoliosis, flat foot asymmetries;
- Prevention and correction of deficiencies body attitudes each. (5)

Organizing and conducting study

Where the National School Evaluation System did not provide evidence for evaluating development indicators of any of the major muscle groups, we used the samples to another year of study: any back muscles in grade boys and girls, for which turned to face trial extensions lying on the bench 30 °;

Sample-conditions, sample consisted of students who were found in attitudes impairments and physical, of the several classes. As noted above, their number may be much higher, but some of them did not want to

participate in this action, although they were known to these deficiencies, others may not have said those things. Mentioned that they were still enrolled in the school office medical records, but having no restrictions or special recommendations regarding physical education, so everyone attending lessons.(3)

Absolutely all those involved in the intent to solve tasks presented themes had signed the minutes of protection in physical education classes, protocol signed at the beginning of the school year.

NO. CRT.	Name	DATE OF BIRTH	CLASS	DIAGNOSTIC
1	VA	11/03/1992	VA	Dorsal scoliosis "C" right lateral convexity
2	RC	04/04/1992	VB	Cifi-dorsal scoliosis
3	AC	04/25/1992	VC	Scoliosis in "S" right and left lumbar dorsal
4	OA	13.11.1991	VI A	Cifo - Lordosis
5	VA	14.12.1991	VI A	Dorsal scoliosis "C" left side
6	DO	08/17/1991	VIB	Kyphosis - dorsal
7	VC	24/09/1991	VII A	Splay foot
8	JC	15.08.1991	VII B	Dorsal scoliosis "C" left lateral convexity
9	MS	12.09.1991	VII B	Dorsal scoliosis in "S" left lumbar dorsal right
10	TP	10/13/1990	VII C	Cifo scoliosis
11	MM	11/02/1990	VIII A	Dorsal scoliosis Cifo

After starting business subjects' age was 10years. Imortal experiment was understood by students who have tried to present as often as possible in these meetings.

They claimed control samples and their engagement effort was outstanding.

School No. 18 "Yulia Haşdeu" in Constanta, has at present only the sporty interior - modern equipped sports hall with dimensions of 36 x 18m, with lockers fitted bathrooms, storage of materials and the boardroom.

Fitness has the following features:

- 4 stairways
- 2 goats;
- 1 box ;
- 10 mattresses;
- Low beam;

Were used as materials: light weightlifting (10 kg), improvised weightlifting (4 kg). medicine ball (2-5 kg) sizes balls, extendable batons gymnastics flexible sticks, stopwatch, roulette.

Research tasks

At the beginning of the research we established several tasks.

These were:

1.Extensive information in order to draw an age bibliographies;

2.Studying general bibliography for documentation and retention the essential aspects of preparation work;

3 . Stating working hypothesis;

4.Choosing the school and request management unit and physical education department for receipt agreement work;

5.Detection deciente students attitudes and physical (training group);

6. Setting complex anthropometric measurements and "b aterial" driving test;

7. Preparing the "tools" work: timer, roulette as grounding, metric tape, summary tables, etc..

8.Initial Supporting evidence;

Results

Ways Drive's exercises and proposals to correct kyphosis, below are a few exercises.

1.Walking with a cane tips back, carrying torso arched back.

2.Same exercise with left-right twisting torso.

3.Walking with a cane sat diagonal peaks at the back, left hand down, right hand up trunk extension at each step.

4.Same exercise with lateral tilt.

5.Sitting side lunge, left hand on hip, right hand on the crown, torso bend to the left, with s carrying arm straight up inspirational comeback breath.

6. Sitting high lunge on the left leg with twist torso to the right while simultaneously carrying arms asymmetrically-right, above the bottom left- oblique, comeback.

7. Sitting with the legs spread -slow and ample inspiration, with the rise of the left arm, while twisting the torso to the right, right hand on hip - Back to expiration.

8. On the knees, the right hand above the head, left hand behind the back or hip, torso extension, lateral bending of the torso to the left.

9. On the right knee, the left leg side-stretched, hands behind the head, carrying the pelvis to the right, and the left inclination of the torso.

10. On the knees, the right hand supporting a medicine ball on the head, left hand on hip, stretching the sides of the torso to the left.

11. On the knees, leaning on hands, rotating the torso horizontally.

12. Hanging on a fixed scale, legs swinging left-right

13. Lying with the torso off the support surface, right hand behind the head, left hand back, torso extension, bending.

Exercise programs

SP1. Ex. 1 – 2 – 3 – 4 – 5

SP2. Ex. 2 – 4 – 5 – 6 – 9

SP3. Ex. 3 – 6 – 7 – 9 – 10
SP4. Ex. 5 – 6 – 7 – 8 – 11
SP5. Ex. 6 – 9 – 10 – 12 – 14
SP6. Ex. 7 – 11 – 13 – 14 – 15
SP7. Ex. 13 – 14 – 15 – 16 – 17
SP8. Ex. 16 – 17 – 18 – 19 – 20

Fifth grade, C class- girls- Table no 1, Annex no 1.

Anthropometric measurements revealed the following: weight 44 kg, height 1.62 m, Pt 79 , Erismann index, (Pt I/2)=4,50 is relatively higher than the rate (3.8)

Crate 5x10 cm. The values of the arithmetic averages were: 19"20 (T.I.) and 18"31 (T.F.). It was an increase of 0''89. The standard deviation had the next evaluation: ±0,90 (T.I.) and ±0,51 (T.F.),so the central value is more representative of the final results (low dispersion). On both tests, the variability coefficient indicates that there is greater homogeneity of the final results in favour of the first ones (4,69 - T.I.si 2,79 - T.F.).

The results of the subject were: 20"17 (T.I.), with 1"50 more than the initial average and 18"72 (T.I.), with 0"41 more than the average of the final results. She achieved a progress of 1''46.

Running resistance on 800 m. The arithmetic averages were: 4'36"(T.I.) and 4'31"(T.F.)." Growth rate of 0'05''. The standard deviation shows that the final results have a smaller dispersion and the coefficient of variation reveals high homogeneity in both tests, but with lower value to final testing, where the dispersion of results is less.

The results obtained by the subject: 4'41"(T.I.) with 0'06" more than the average 4'36" and 4'31"(T.F.), with 0'05" more than the average 4'31" and achieved a progress of 0'05'.

Pushups with hands on the bench. The students' results revealed the following average: 5,42 (T.I.) and 6,23 (T.F.), a general progress of 0'81 executions. The final results had a smaller dispersion revealed by the standard deviation ±1,48. The Coefficient of variation indicated in both tests, the lack of homogeneity of results.

The investigated student had the following results: 5 (T.I.), with 0'42 smaller than the average and 6 (T.F), with 0'23 smaller than the average.

Raising knees to chest from hanging position. The results had the following arithmetic averages: 11,47 (T.I) and 14,76 (T.F.), progress of 3.29 executions. The final results have a lower dispersion revealed from calculating the standard deviation ±1,71, opposed to ±2.60 , the one from the initial results .the Coefficient of variation indicates a lack of homogeneity in the initial results and an average homogeneity in the final results.

The student under observation made 8 executions on (T.I) and 13 on (T.F), distinguishing herself with a progress of 5 executions. Both values are below average.

Extensions on the bench with face lying, 30°. The arithmetic averages of the results were: 14,17 (T.I.) and 16.29 (T.F.). the dispersion between them reveals progress of 2,12 executions. The final results found better dispersion revealed by the standard with ±1,76 smaller than the one calculated in the initial results; Uniformity average results in both tests.

As opposed to the average, the student had the following results: 17 on (T.I.) – with 2,83 more than the average of the initial results and 19 on (T.F.) with 3,61 more than the average of the final results.

Pushing with one foot, resting on fixed scale. The values of arithmetic averages were: 13,58 (T.I.) and 16,17 (T.F.),general progress of 2,59. Lower dispersion of the final results ascertained by calculating indices: the standard deviation and coefficient of variability that reveals an average homogeneity in both datasets.

Subject results are below average, so in the initial testing: 13.58 average, the result of the subject 10 , as well as in final testing: 16.17 average, th result of subject 14.

Fifth grade –class C-boys

Subject investigated: Radea M. Cristian

Anthropometric measurements revealed the following: weight 43 kg, height 1.59 m, Pt 78 , Erismann index, (Pt I/2)=4,50, below than the rate 5,8.

Crate 5x10 m. Values of arithmetic averages 18"20 (T.I.) and 17"11 (T.F.) highlighted a general improvement of 1''09;there is a Smaller dispersion at the final data string: ± 0.32 compared to the baseline, ± 0.90 by the standard deviation and the coefficient of variation reveals high homogeneity of the final results. The subject of the research had below-average results at both initial testing l7 "79 with 0" 41, and the final testing 16 "87 with 0" 26.

Running resistance. The average of the results 4'36"(T.I.) and 4'30"(T.F.) revealed progress of 0'06''. The final results have better dispersion observed by calculating the standard deviation ±0,05-(T.F.) < ±0,06 – (T.I.) and calculating the coefficient of variation - high homogeneity0,72 < 1,58. The subject's results 4'41"(T.I.) sand 4'32"(T.F.) were both over the medium.

Pushups with feet on the bench. The averages were 6,70 (T.I) and 9,70 (T.F.). Lower dispersion in the final testing: ± 0.94 standard deviation and coefficient of variability that indicates high homogeneity (9,78). The results are below average in both subject tests: at(T.I.) 6 < 6,7 average, at (T.F) 7< 10,6 average.

Simultaneous raising of the torso and legs. Averages were 10,6 (T.I.) and 14,5 (T.F.) and showed progress of 3,9 executions. . The final results have a smaller, better dispersion: ± 1.84 standard deviation(T.F.) < ±2,00 (T.I.). Coefficient of variation: the average homogeneity of the final results, compared to the initial results that are not homogeneous. The student has performed below average on both tests: 7 < 10,6 (average T.I.) and 12 < 14,50 (T.F.).

Extensions on the bench with face lying, 30°. There were better results on the final testing. Averages were 14,30 (T.I.) and 17,60 (T.F.) with progress of 3,30

executions. The calculation of the standard deviation of the results reveals lower dispersion ±1.84 (T.F.) < ±2,00 (T.I.). The coefficient of variation indicates medium homogeneity of the results of both tests. The student has performed below average: 12 < 14,30 (average T.I.) and 17 < 17.60 (average T.F.).

Side lunges. The averages were 14,70 (T.I.) and 19,40 (T.F.). there was a better dispersion on the final results, revealed by the standard deviation ±1,28 (T.F) < 2,35 (T.I.) and by the the coefficient of variation 6,52 (T.I.) high homogeneity and 16,05 (T.I)-medium homogeneity the subject had below average results : 12 < 14,70 (average T.I.) and 18 < 19,40 (average T.F.).

Conclusions

1. Physical deficiencies are defined as deviations from normal in shape and physical functions of the body that disrupt normal growth and harmonious development of the body by changing its appearance, reducing skills and adaptation to exercise power, decreasing their ability to work.
2. With careful study, they can differentiate by their evolution, especially by their possibility of improvement through physical exercises in : mild, medium and sharp.
3. Detected on time, until the change in tissue structure occurs, light physical deficiencies are corrected in most cases, under normal school activity, they are considered deficient attitudes.
4. Medium physical deficiencies can be corrected partially or remain unchanged by performing functional tests. They are segmentation (located in different parts of the body).

Recommendations

1. In such cases, the physical education teacher must know these deficiencies from students, parents, the medical staff of the school, and organizing an action as a predictive evaluation of the collective of students.
2. Knowing the different characteristics of the groups of physical deficiencies by the sport teacher is very, very important, also for the correct assessment of the biological value of a team.

Tables

Evolution of the average values of performance during the control of schoolgirls from fifth grade,class A; evolution of the average values of Varga M. Alexandra

Chart 1

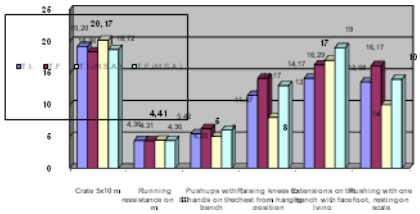

Chart 2

Evolution of the average values of performance during the control of schoolgirls from fifth grade,class B; evolution of the average values of Badea M. Cristian

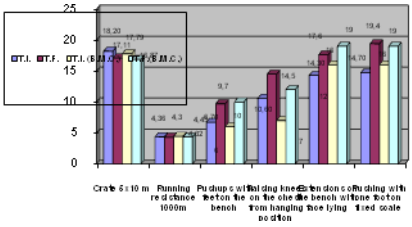

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Table 1

The results from exercises of students from fifth grade, class A

	Exercises	Crate 5X10 m		Running resistance 800 m		Pushups with hands on the bench		Pushing knees to chest from hanging position		Extensions on the bench with face lying		Pushing one foot	
Nr	First and last name	T.I	T.F	T.I	T.F	T.I	T.F	T.I	T.F	T.I	T.F	T.I	T.F
1	B.S.A.	20,10	18,91	4,45	4,37	4	6	12	14	16	18	14	16
2	B.C.M.	19,11	18,02	4,27	4,26	7	8	10	14	10	13	16	17
3	B.A.T.	18,37	17,90	4,30	4,28	3	4	14	16	12	15	10	14
4	C.M.A.	18,79	18,01	4,35	4,30	6	6	8	13	17	18	15	17
5	C.V.I.	20,37	18,99	4,44	4,35	4	5	12	15	13	15	14	16
6	F.D.D.	18,10	17,86	4,31	4,29	7	7	15	18	15	17	16	17
7	F.I.G.	20,14	18,95	4,39	4,33	3	4	14	17	12	15	10	13
8	I.M.K.	19,22	18,72	4,43	4,35	6	7	8	12	17	18	15	16
9	L.R.	18,35	17,88	4,32	4,28	4	4	13	16	13	17	13	15
10	N.P.C.	20,71	18,94	4,38	4,31	7	7	9	13	15	16	16	17
11	P.C.E.	18,17	17,56	4,37	4,30	7	5	15	16	14	17	10	13
12	P.S.M.	18,37	18,20	4,42	4,36	6	7	8	13	17	18	15	18
13	S.N.A.	19,04	18,33	4,33	4,28	4	5	13	15	13	15	14	18
14	S.M.	20,33	18,79	4,36	4,31	7	7	10	14	15	18	12	16
15	S.R.	18,44	18,01	4,34	4,29	6	7	14	17	12	13	16	18
16	V.M.A.	20,17	18,72	4,41	4,36	5	6	8	13	17	19	10	14
17	V.I.M.	18,71	17,54	4,35	4,28	6	7	12	15	13	16	15	20
Suma		326,47	311,33	74,22	73,30	92	106	195	251	241	277	231	275
Average	Average	19,20	18,31	4,36	4,31	5,42	6,23	11,47	14,76	14,17	16,29	13,58	16,17
	General Progress	0,89		0,05		0,81		3,29		2,12		2,59	
	Standard deviation	±0,90	±0,51	±0,05	±0,03	±1,48	±1,23	±2,60	±1,71	±2,15	±1,76	±2,31	±1,91
	Coefficient of variation	4,69	2,79	1,19	0,80	27,30	20,07	22,67	11,61	15,21	11,01	17,07	11,81

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Original article

NEUROREHABILITATION AT PATIENTS WITH PARKINSON'S DISEASE

GOGU ANCA[1], GLAVAN OANA[2]

Abstract

*Objectives.*Parkinson Disease (PD) is a neurodegenerative disease with a progressive evolution, the second after Alzheimer disease as frequency. The PD diagnosis is exclusively clinical and the treatment administration will be started when the disease becomes symptomatic.

Methods: Between February 2012 - February 2014 we hospitalized 42 patients with PD (only self -casuistry). Demographic (sex, age), clinical data (UK Parkinson's Disease Society Brain Bank Clinical Diagnostic Criteria), the Unified Parkinson's Disease Rating Scale (UPDRS), a clinimetric assessment of the Movement Disorder Society (MDS) - sponsored revision of the UPDRS (MDS-UPDRS), modified scale Hoehn & Yahr, imagistic data (cerebral MRI) as well as risk factors, treatment, evolution and neurorehabilitation were all considered.

Results: A total of 42 PD patients with the UPDRS and MDS-UPDRS (22 males and 20 females) were examined. All Hoehn & Yahr stages were represented, with the majority of patients in stage 2 (stage 1= 2; stage 1,5= 4; stage 2 = 18; stage 2,5 = 10; stage 3=6 stage 4= 2). The mean age was 66,4 years (range: 52 - 84).Twenty- for patients (in stage 1- 2) were treated with dopamine agonists in monotherapy or with MAO inhibitors. Eighteen patients (in stage 2,5 - 4) were treated with levodopa in combination with another symptomatic treatment (dopamine agonists, MAO inhibitors, COMT inhibitors and piribedil).Thirty-six patients, starting with stage 2 Hoehn&Yahr, followed a neurorehabilitation treatment, the physiotherapist considering the clinical type as well as the seriousness of the functional deficit.

Conclusions: The MDS-UPDRS was designed to be more comprehensive than the original UPDRS, with new items devoted to several non motor elements of PD.
A modified version of the Hoehn and Yahr stage is commonly used in contemporary clinical trials. Symptomatic pharmacological treatment should begin when the patient shows functional disability related to PD symptoms, using dopamine agonists for the first time. Therapy with Levodopa should be introduced in the later stages of the disease, considering the occurrence of the motor fluctuations and dyskinesia. Physical therapy cannot influence the disease evolution but it can improve the mobility under the current pathologic conditions.

Key Words: Parkinson Disease, MDS-UPDRS, dopamine agonists, levodopa, neurorehabilitation.

Introduction

Parkinson disease (PD) is a neurodegenerative disease with a progressive evolution, the second after Alzheimer disease as frequency.

The pathological hallmarks of PD are the presence of Lewy bodies and loss of pigmented (dopaminergic) neurons in pigmented brainstem nuclei (Edwards at al, 2008). Lewy bodies are inclusions within the cytoplasm of neurons that are composed of alfa - synucleid, ubiquitin and other neurofilament protein. In PD, Lewy bodies are found in the basal ganglia, brainstem and cortex, and number correlates with disease progression.

Mean age at onset is 60 and prevalence is slightly higher in men than women. The fundamental feature of PD is akinesia but there are three other components that may or may not be present: rigidity, tremor, postural and gait disturbance. The PD diagnosis is exclusively clinical and the treatment administration will be started when the disease becomes symptomatic. Unified Parkinson Disease Rating Scale (UPDRS) remains one of the most important tools in quantitating chiefly the motor symptoms of PD and is also used to chart the course of the disease (Jancovic, 2005).

We use symptomatic treatment of Parkinson disease: anticholinergics, amantadina, MAO-inhibitors, dopamine agonists, catechol -O- methyltransferase inhibitors, Levodopa. There is universal agreement that LD is the most potent drug in the PD arsenal, but there are concerns that is might be toxic to dopaminergic neurons and that it promotes the development of motor fluctuations (Bradley at al, 2008). In our study we start for initial therapy with dopamine agonists.

Physiotherapy should be available for people with PD and should be given to gait re-education, improvement of balance and flexibility, enhancement of aerobic capacity, improvement of movement initiation, improvement of functional independence including mobility and activities of daily living (Edwards at al, 2008).

Patients and methods

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Between February 2012 - February 2014 we hospitalized 42 patients with PD (only self - casuistry). Demographic (sex, age), clinical data (UK Parkinson's Disease Society Brain Bank Clinical Diagnostic Criteria), the Unified Parkinson's Disease Rating Scale (UPDRS), a clinimetric assessment of the Movement Disorder Society (MDS)- sponsored revision of UPDRS (MDS- UPDRS), modified scale Hoehn & Yahr, imagistic data (cerebral MRI), as well as risk factors, treatment and neurorehabilitation were all considered.

The UPDRS (55 items) is a scale that was developed as an effort to incorporate elements from existing scales to provide a comprehensive but efficient and flexible means to monitor PD-related disability and impairment (Goetz , 2003). The scale itself has four components, largely derived from preexisting scales that were reviewed and modified by a consortium of movement disorders specialists (Part I- Mentation, Behavior and Mood; Part II- Activities of Daily Living; Part III- Motor; Part IV- Complications). Despite its multidimensional approach with different section, the UPDRS has proven an easy- to- use instrument in clinical practice with an average time requirement for administration of the full scale between 10 and 20 minutes (Martinez- Martin at al, 1994).The UPDRS is less comprehensive in its assessment of non- motor features of the disease.

The modified UPDRS (MDS - UPDRS) retains the four-scale structure with a reorganization of the various subscales. The scales are now titled: 1- non-motor experiences of daily living (13 items), 2- motor experiences of daily living (13 items), 3- motor examination (18 items), 4 - motor complications (6 items). Each subscale now has 0 - 4 rating, where 0= normal, 1= slight, 2= mild, 3= moderate, 4= severe.

The Hoehn and Yahr stage, first described before effective dopaminergic treatment became available, outlines the milestones in progression of the illness from mild unilateral symptoms through the end-stage nonambulatory state. A modified version of the Hoehn and Yahr stage is commonly used in contemporary clinical trials (Bradley at al, 2008).

We performed neuroimaging studies (cerebral MRI) at all patients but there are not helpful in making a diagnosis of PD because they are generally normal or show only incidental abnormalities.

Results

A total of 42 patients (22 males and 20 females) with PD were examined initial with UK Parkinson's Disease Society Brain Bank Clinical Criteria. A set of well-validated criteria exist to assist in the clinical diagnosis of PD and have a high specificity and sensitivity. They bring together many of the aspects of history taking and examination discussed above. We use three steps:

1. Diagnosis of parkinsonian syndrome.
2. Exclusion criteria for Parkinson's disease.
3. Supportive prospective positive criteria for Parkinson's disease (Hughes at al, 1992).

Once the diagnosis established, we performed a quantitative evaluation of the disease's severity, which allows a serious monitoring of the severity and therapeutic response.

We used two types of evaluation scales:

- UPDRS and MDS- UPDRS which makes a quantitative measuring of the neurological changes and of the impact upon the daily quality of life.
- A modified Hoehn and Yahr scale which performs a whole functional evaluation of the disease's severity degree.

A total of 42 participants were studied. Participants were Caucasian (100%) and male (52 %) and had a mean age of 66.4 years (range: 52-84).
The diversity of disability is captured by the range of scores for total UPDRS (8- 96) and MDS- UPDRS (18 - 126).

The mean Hoehn and Yahr score 2.2 was indicative of a mild to moderately impaired of PD participants.
The range of scores for Hoehn and Yahr scale was 1.0- 4.0.

Table 1: Participant characteristics

Variable	Mean	Range
Age (yr)(n=42)	66.4	52 - 84
Race (White)	100	-
UPDRS total score	32.1	8 - 96
MDS - UPDRS	48.2	18 - 126
Hoehn and Yahr Score	2.2	1.0 – 4.0

Parkinson Disease is a clinical diagnosis and the investigations are not necessary for the majority of patients. Neuroimaging studies such as computed tomography (CT) and magnetic resonance imaging (MRI) are also not helpful in making a diagnosis of PD because they are generally normal or show only incidental abnormalities. Sometimes, neuroimaging abnormalities can be useful in suggesting alternative diagnosis such as progressive supranuclear palsy (PSP) and multiple system atrophy (MSA) (Bradley at al, 2008). However, we made cerebral - MRI to all patients before the start of treatment.

There is no role for routine electrophysiological testing in the diagnosis of PD. Because identified genetic causes are rare and their interpretation for genetic counseling is difficult, DNA tests should not be used routinely in the diagnosis of PD.

Treatment

Twenty - four patients (in stage 1- 2) were treated with dopamine agonists in monotherapy or with MAO inhibitors. Symptomatic pharmacological treatment should begin when the patient shows functional disability related to PD symptoms, using dopamine agonists for the first time. Dopamine agonists directly stimulate postsynaptic dopamine receptors. We used non- ergot agonists such as: Pramipexole, Rotigotine and Ropinirole in our study. Dopamine agonists are effective in the treatment of motor symptoms in PD as monotherapy and are only rarely associated with the long- term side effects of dyskinesia and the on - off fluctuation seen with levodopa. Some patients have common side effects like nausea, vomiting and postural hypotension. Four patients were treated with Rasagiline, a newer monoamine oxidase B inhibitor which is licensed for monotherapy. Rasagiline prevent breakdown of dopamine in the synapse and is not metabolized to amphetamine derivates.

Eighteen patients (in stage 2.5 - 4) were treated with Levodopa in combination with another symptomatic treatment (dopamine agonists, MAO- B inhibitors, COMT inhibitors and piribedil). Levodopa is recognized as the most effective drug for the treatment of motor symptoms in PD. However, the long time consequences of levodopa treatment in terms of dyskinesia and fluctuations can be serious. For this reason we try to withhold levodopa for as long as possible.

Neurorehabilitation

Thirty- six patients, starting with stage 2 Hoehn and Yahr scale, followed a neurorehabilitation treatment, the physiotherapist considering the clinical type as well as the seriousness of the functional deficit.
Rehabilitation is a process of active change by which a person who has become disabled acquires the knowledge and skills needed for optimum physical, psychological and social function. This definition recognizes that the disabled person plays an active role in determining the end points of the rehabilitation process and how they may be reached. Rehabilitation therapy/ physical therapy enhance the lives of people with Parkinson's disease.(Sharma, 2008). A program of physical therapy and occupational therapy can help people learn movement strategies: how to roll over and get out of bed more easily, rise from a chair, or get out of a car. Therapists sometimes suggest simple devices to assist with daily activities, such as shower grab bars, shower stools, or an elevated toilet seat. Occupational therapists and physical therapists have experience finding ways to help people button shirts, cook, and generally keep their lives going. They know about special kinds of utensils that help keep food on a spoon or a fork. Even people with serious tremor, slowness, or rigidity can use these utensils to feed themselves without making a mess. In addition to allowing people to enjoy their meals, this kind of therapy helps people maintain their independence and self-respect (Weiner, 2001).

Physical therapy – it's used:

- To improve or maintain gait, balance, mobility and posture.
- To improve or maintain general (cardiovascular) fitness.
- To improve or maintain flexibility and range of movement.
- To prevent contracture of muscles (Playford, 2003).

Gait deficits

- Early-Stage PD - Gait changes in PD are generally mild in the beginning stage of the disease. Slowness, slight dragging of one leg, and slowed or absent arm swing on one side are the common changes noticed. Patients may describe themselves as feeling less coordinated and report episodes of tripping. In this stage, only minimal gait training may be necessary.
- Moderate-Stage PD - With disease progression, gait becomes characterized by shortened stride, slower speed, narrowed base of support, and reduced heel strike. Together, these produce a shuffling gait, which leads to increased episodes of tripping. Even small changes in the walking surface, such as a threshold between a carpeted and noncarpeted room, can become obstacles due the decreased ground clearance of the feet. Gait changes coupled with environmental risk factors and postural instability can ultimately result in falls. This fear of falling is further heightened in patients who test poorly on portions (arising from a chair, posture, gait, postural stability) of the Unified Parkinson's Disease Rating Scale (UPDRS) and on particular standing balance tests.
  Freezing is another gait deficit that occurs in the moderate stage of PD. This causes either the legs to tremble in place or the body's center of gravity to become so anteriorly displaced that the patient is standing on his/her toes and then loses his or her balance(Bunting, 2007).

Strategies for correcting posture deficites

1. Exercise
   - Stretching neck and hip flexors, chest, hamstrings, and heel cords.

- Strengthening trunk, neck, and hip extensors, shoulders, scapular muscles, and abdominals.

2. Home modification
   - Use a lumbar roll in chairs to enhance natural lumbar curve (lumbar rolls can easily be used in cars, planes, and theater seats).
   - Avoid recliner chairs and allowing hips to slide forward in regular chairs.
   - Avoid excessive pillows with sleep. Attempt to use one appropriate height pillow at neck or a cervical roll. If side sleeping, use a pillow between knees.
   - Keep television and computer screens at eye level.
   - Place posture reminder signs in commonly used rooms to encourage frequent posture checks.
   - Ask family and friends to give posture reminders.
   - Prop elbows on table to hold books or magazines up directly in front of the face while reading, or use a book stand.
3. Office modification
   - Use a lumbar roll or chair with lumbar support to enhance natural lumbar curve.
   - Keep computer screen at eye level.
   - Place posture reminder sign on computer.
   - Keep chair and desk at appropriate height to one another.
   - Avoid sitting for longer then 20–30 min. During breaks, stretch arms up over the head.
4. Braces
   - Lumbar braces made of elastic and Velcro can provide tactile reminders to keep spine erect.
   - Rigid braces for the neck and trunk can be used with more advanced disease progression.

Freeze reduction strategies

1. Answering the phone
   - Never rush to answer the phone.
   - Keep pathways open by rearranging furniture, and keep floors free of clutter.
2. Walking through doorway
   - Tell yourself not to focus on the doorway, but rather how your feet are hitting the ground.
   - Guess how many steps it will take to walk from where you are through the doorway, then count your steps as you move through to see how close you were to your guess.
   - Look through the doorway at an object inside and focus on stepping to approach the object.
   - Walk up to the threshold, stop, and then focus on stepping over it.
   - Place colored tape on threshold to draw attention to stepping over it.
   - Keep areas around doorways open and free of clutter.
3. Walking in crowds
   - Try to walk near walls.
   - Take slow, deep breaths and focus only on how your feet are moving, not on the people around you.
   - Cycle between only walking a few feet, stopping yourself, and then starting again.
4. Turning
   - Never pivot.
   - If turning right, step with the right foot first. If turning left, step with the left foot fi rst.
   - Try making a U-turn in open spaces.
   - Try marching to turn.
   - Try to avoid stepping backward to turn.
   - Keep areas where turns commonly occur, like the kitchen and bedroom, open and free of clutter.
   - If there is not enough room to make a safe turn, try sidestepping.
   - Finish one task at a time—do not try to turn while closing the refrigerator.
5. Gait initiation
   - Stop all movement, and take a deep breath.
   - Make sure weight is evenly placed throughout both feet.
   - Visualize stepping over or kicking an object.
   - Shift weight side to side and then step with unweighted foot.
   - March in place before stepping.
   - Have your care partner place his or her foot ahead of your foot and step to it.

New movement strategies to reduce loss of balance

1. Reaching into a high cabinet in kitchen or bathroom
   - Stand as close to the counter or sink as possible (body can touch surface) before reaching.
   - If you must move up onto your toes to reach an object, it is too high. Bring the object to a lower shelf
     or keep it on the counter.
   - Avoid step stools.
   - If possible, slide objects along counter instead of carrying.
2. Opening and closing a door, oven, microwave, or refrigerator
   - Do not stand directly in front of the door. Stand sideways at a right angle to the door. This will keep you from stepping backward.
   - Keep feet wide apart.
   - Place one hand on counter or wall (a vertical grab bar can be installed here).
   - Shift your weight from front to back to help pull the door open. Shift weight from back to front to close.
3. Reaching forward into a closet or for an object

• Do not reach forward while walking.
• Stand as close to the clothing or object as possible before reaching.
• Keep feet wide apart and one foot slightly forward.
• Steady yourself with one hand on the wall (a vertical grab bar can be installed here). If you have to lean forward or move up onto your toes, you are not close enough and/or the clothing/object is too high.
• Move commonly needed objects to lower and easier to reach places.
• Lower the clothing bar and/or move it forward.
• Keep floor of closet free of clutter.

4. Picking up objects from the floor or out of low cabinets
   • Use a reacher.
   • Move commonly used items to an easy to reach area.
   • Steady yourself with one hand on the counter or steady furniture.
5. Dressing
   • Gather all clothing and put it in one place first.
   • Sit down to dress.
   • Use adaptive devices like long-handled shoe horns, sock donners, and button hooks.

Assistive devices

Many patients with PD will need to use an assistive device to improve the safety of their gait. All patients in need of an assistive device for walking should have an assessment from a physical therapist to ensure that they receive the proper device. When safe ambulation with a walker is no longer possible, motorized wheelchairs and scooters can provide patients with an alternate means of mobility. Physical therapists can make recommendations concerning the proper type of device and features as well as provide education in using the device correctly.

Fall prevention

- Home assessments - Patients with PD can reduce and prevent falls not only by following new movement strategies, but also by making their home environments safer. A home safety assessment by a health professional will ensure that proper changes are made to accomplish this. The assessment should include, but need not be limited to, evaluating (a) the layout of each room's flooring, lighting, furniture, closets and cabinets, appliances, and maneuverability with and without a gait assistive device; (b) all entrances to the home; (c) parking areas; and (d) all hallways and stairways. The patient should then be evaluated walking, transferring, and performing ADLs in all of these areas. After this is accomplished, recommendations for home modifications can be made.
- Home modifications - Simple changes to a home can greatly improve patient safety. Attaching grab bars in hallways and showers and next to toilets and doors provides increased stability. Removing clutter and throw rugs from the floors reduces the chances of tripping. Rearranging furniture to allow for open spaces will increase maneuverability, especially for those using assistive devices for walking. Some modifications are more complex, like widening doorways, adding ramps, and remodeling bathrooms to make them wheelchair accessible.
- Transfers and bed mobility - With disease progression, transfers and bed mobility become increasingly challenging. This is due in part to bradykinesia, a lack of trunk flexibility, and difficulty performing fluid sequential motor activities. Teaching patients to break down complex activities like bed mobility into a series of small steps often makes the task much easier to perform. Below is an example of this technique.

Rolling from supine to side lying

- Bend knees.
- Turn head in direction of turn.
- Gently rock knees side to side for momentum.
- Allow knees to fall together to the side while reaching upper arm in direction of turn.

When transferring to stand, patients with PD tend to not lean forward enough, causing their center of gravity (COG) to fall posterior to their feet. This leads to patients either not being able to lift them selves up or to continually "plop" back down into the chair. The correct technique is highlighted below:

- Scoot to the edge of the seat.
- Keep feet wide and posterior to knees.
- Hold armrests.
- Lean forward "nose over toes" and push to stand.

The transfer to stand can also be made easier by patients first mentally rehearsing the movement, by rocking back and forth before moving, and by sitting in a chair that has armrests and is the proper height. Chairs should be high enough so that the hips are in line with, or higher than, the knees. Patients should avoid low, soft furniture that sinks in when sat on, as is often the case with sofas. For patients with advanced PD, a motorized lift chair or physical assistance from a care partner may be necessary.(Bunting, 2007).

Patients with PD often land in a side sit position when returning to sit from a standing position. This partial landing on the seat edge occurs when patients reach for the surface they intend to sit on

before fully turning around. Reaching forward too soon and too far causes an anterior shift in the COG. This shift leads patients to feel as though they are losing their balance, which they then try to resolve by landing in the chair as quickly as possible. Many falls result from patients tipping over chairs or sliding off the seat edge onto the floor. The correct technique is highlighted below:

- Turn completely around so backside is facing the chair.
- Be sure back of legs touch the chair.
- Reach back with both hands for armrests.
- Slowly lower to sit.

Discussions

In community-based series, PD accounts for more than 80% of all parkinsonism, with a prevalence of approximately 360 per 100,000 and an incidence of 18 per year (de Lau at al, 2006).PD is an age- related disease, showing a gradual increase in prevalence beginning after age 50 years and a steep increase after 60 years

Typically the onset and progression of PD are gradual. The most common presentation is with rest tremor in one hand. Bradykinesia and rigidity are often detectable on the symptomatic side. The presentation may be delayed if bradykinesia is the earliest symptom, particularly when the onset is on the nondominant side.

The disorder usually remains asymmetrical throughout much of its course (Bradley at al, 2008).
There is no diagnostic test for Parkinson's disease, and it remains a clinical diagnosis. UPDRS remains one of the most important tools in quantitating chiefly the motor symptoms of PD. The modified UPDRS (MDS - UPDRS) measures including non- motor symptoms. A modified Hoehn and Yahr stage is a descriptive scale to describe stages of PD progression.

No issue in PD is more vexed or mired in controversy than when to start treatment and which drug to start with. No consensus exists amongst movement disorder specialists. It is common practice to start medication only when the patient is functionally disable by their symptoms (Edwards at al, 2008). Levodopa is recognized as the most effective drug for the treatment of motor symptoms in PD. De novo, agonist monotherapy, by delaying introduction of levodopa, delays levodopa- induced fluctuations and dyskinesias.

There are a number of physiotherapy interventions that have been used in patients with PD at different stages of the condition.

Patients with PD have many treatment options to help them deal with their symptoms. Physical therapy is one option that can assist patients throughout the course of the disease. Referring patients to physical and occupational therapy should occur soon after the diagnosis of PD is made. An early physical assessment, along with treatment and education, can help patients feel more in control and may help limit motor decline. With disease progression, therapists can make activities like walking and bathing easier and safer by using strategies such as adaptive equipment and mobility training. Even in the end stages of PD, there are many rehabilitation strategies that can assist both patients and care partners in improving mobility.

Conclusions

1. The PD diagnosis is exclusively clinical.
2. A set of well- validated criteria exist to assist in the clinical diagnosis of PD and have a high specificity and sensitivity. They bring together many of the aspects of history taking and examination discussed above. We use four stages: UK Parkinson's Disease Brain Bank Clinical Criteria, UPDRS, MDS- UPDRS and modified Hoehn and Yahr.
3. The MDS - UPDRS was designed to be more comprehensive than the original UPDRS, with new items devoted to several non motor elements of PD.
4. The mean Hoehn and Yahr score 2.2 was indicative of a mild to moderately impaired of PD participants.
5. Symptomatic pharmacological treatment should begin when the patient shows functional disability related to PD symptoms, using dopamine agonists for the first time.
6. Therapy with Levodopa should be introduced in the later stages of the disease, considering the occurrence of the motor fluctuations and dyskinesia.
7. Physical therapy cannot influence the disease evolution but it can improve the mobility under the current pathologic conditions.
8. Rehabilitation therapy/ physical therapy enhances the lives people learn movement strategies.
9. At a practical level rehabilitation is a process which consists of a number of stages: assessment of physiological, psychological and social aspects, planning of short- term, intermediate or long- term goals, intervention to help patients achieve these goals.
10. Referring patients to physical and occupational therapy should occur soon after the diagnosis of PD is made.

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Original article

CHANGES IN BIOLOGICAL DEVELOPMENT OF NEWBORNS IN THE LIGHT OF SELECTED CONDITIONS – FROM AN AUXOLOGICAL PERSPECTIVE

GRAŻYNA NOWAK-STARZ[1], MAŁGORZATA MARKOWSKA[1], TOMASZ WOJCIK[1], BEATA KARAKIEWICZ[3]

Abstract

Objective. The long-term consequences of the acceleration phenomenon should stimulate an increase of actions towards improving care over mother and child, which is the main task for realisation indicated in the 'European Strategy for Child and Adolescent Health and Development'

The aim of the hereby presented research was to state the changes in hight and body mass, depending on the influence of selected paragenetic factors.

Methods. A total of 3911 neonates were examined, including 1869 (47.8%) born in 1970 and 2042 (52.2%) born in 2010. It encompasses newborns from the Swietokrzyskie Region. Body length and weight-at-birth, relevant to the subject of the research, were taken into consideration. Since records contain a number of social and demographical data, comparisons include the age and social background of mothers, the week of pregnancy as well as the order of pregnancy and order of labour. Newborns' mothers were divided into two groups: of urban and of rural origin.

Results. Since great importance is attached to social and demographical factors in research into acceleration, these traits were compared in the groups from 1970 and 2010. As a result, in comparison to data from 1970, the following conclusions have been drawn:

-the age of mothers increased.

-there was a significant decrease in the number of newborns of both sexes from first pregnancy and first parturition in favour of those from second pregnancy and second parturition.

-the length of pregnancy shortened, especially in the case of female newborns.

Conclusions. The connection between the biological condition of neonates and those changes can only be hypothesised and should become the subject of further research.

Key words: acceleration, biological, newborns.

Introduction

Presently the scope of auxlogy scientific knowledge encompasses not only issues concerning genetic conditions, paragenetic conditions and environmental processes of personal development but also health promotion and methods of controlling changes taking place in ontogenesis (Kopczyńska-Sikorska, 2004; Kornafel, 1978; Barański, Bogdanowicz, Łomnicki, 1938). These methods are still indispensable in ontogenetic development prognosis and diagnosing, but also in controlling the effectiveness of therapeutic, correctional or rehabilitative actions. This is especially significant in face of the presently shaping demographical situation.

The Swietokrzyskie Region, previously named Kielecczyzna, is, in this respect, an extraordinarily interesting research area. Research was conducted in 1882 by Suligowski and was continued for years by many researchers (Kołodziej, Kołodziej, 1970; Nowak-Starz 2002; Nowak-Starz, Dutkiewicz, Cieśla, 2004). In literature devoted to changes in secular and accelerative growth in the Swietokrzyskie Region, there is a complete lack of research into changes in the biological development of newborns. Only recently, attempts have been undertaken to fill this gap. Unfortunately, it is impossible to reach back to an earlier period, as in the case of other analyses, since documentation was destroyed in fifteen-year intervals.

The aim of the hereby presented research was to state the changes in hight and body mass, depending on the influence of selected paragenetic factors.

Method and materials

The presented research was based on materials from the years 1970 and 2010. It encompasses newborns from the Swietokrzyskie Region. The analyses embrace only those features which are documented in neonates' records. Body length and weight-at-birth, relevant to the subject of the research, were taken into consideration. Since records contain a number of social and demographical data, comparisons include the age and social background of mothers, the week of pregnancy as well as the order of pregnancy and order of labour.

Analyses were also carried out in relation to mothers' place of residence. The author's own research included the comparisons of physical development of newborns in Kielce from the years 1970 and 2010. A total of 3911 neonates were examined, including 1869 (47.8%) born in 1970 and 2042 (52.2%) born in 2010.

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Data describing the origin of newborns' mothers was divided into two groups: mothers from urban areas and mothers from rural areas.

The research material was verified and grouped according to selected variables. The Statistica Polonia package was used for statistical analysis. Acquired data was verified and analysed. Arithmetical mean ($\overline{X}$), standard deviation (s), standard deviation of arithmetical mean (E $\overline{X}$), and coefficient of variation (V) were calculated and significance of differences between the arithmetical means of investigated features was described through statistical test /t°/. The issue is only a part of extensive research into the discussed subject.

3. Results

In the span of 40 years, an increase in body length of newborns was observed. In 2010, mothers originating from cities gave birth to children longer by 0.5cm and mothers in the rural areas – by 0.2cm. In 1970, no difference in body length related to the place of residence was observed. In the researched material, only the difference indicating an increase in body length of newborns in cities is statistically significant (p<.001). Considering the fact that in all studied groups an increase in body length is observed, it can be concluded that acceleration exists. (Table 1).

Table 1. Body length of neonates In 1970 and 2010

Mothers' residence	Neonates born in				Difference 2010-1970 (d.)
	1970		2010		
	$\overline{x}$	s	$\overline{x}$	s	Significance of difference
Cities and rural areas (combined)	52,78	3,57	54,17	3,37	+0,393 p<0,101
in cities (c)	53,70	3,63	54,26	3,25	+0,562 p<0,001
in rural areas (r)	53,86	3,43	54,08	3,43	+0,225 p<0,139
Differences d=(c-r)		0,155 p<0,628		0,181 p<0,729	

However, the research results of Nowak-Starz, Dutkiewicz and Ciesla (2004); and research on the development of six-year-old children realised country-wide for the Ministry of National Education in the years 2005-2007 as part of the "Dziecko sześcioletnie u progu nauki szkolnej" (Six-year-old child at the doorstep of school education) research project, indicate a linear build in further ontogenetic development of urban children and a thickset build of rural children, additionally strengthened by early-undertaken physical work [14]

The average birth weight of newborns examined in 1970 was 3323.76g with standard deviation s=547.26, while in 2010 it was 3271.01g with standard deviation s=553.82. In the period of 40 years, a decrease in body weight was observed in the two groups of newborns, both in cities and rural areas – by 37.13g (p>0.05) in cities and by 68.36g (p>0.05) in rural areas. The direction of changes, both in cities and in rural areas, characterised by an increase in body length and a decrease in weight-at-birth, resulted in a more asthenic constitution of neonates in 2010. (Table 2).

Table 2. Wright At birth of neonates In 1970 and 2010

Mothers' residence	Neonates born in				Difference 2010-1970 (d.)
	1970		2010		
	$\overline{x}$	s	$\overline{x}$	s	Significance of difference
Cities and rural areas (combined)	3323,76	547,26	3271,01	553,82	-52,75 p<0,003
in cities (c)	3329,01	593,21	3291,88	554,69	-37,13 p<0,185
in rural areas (r)	3318,51	554,12	3250,14	553,75	-68,37 p<0,004
Differences d=(c-r)		10,50 p<0,825		41,74 p<0,273	

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Many authors indicate that there is a considerable relationship between the age of parents and the development of their offspring (Cieślik, 1999; Garns, Petzold, 1983; Haiek, Lederman, 1988). An apparent increase in the age of newborns' mothers in 2010, as compared to 1970, was discovered; which means that, on average, mothers giving birth in 2010 were older. In that forty-years period, the age of mothers of boys increased, on average, by 1.217 years and of girls – by 1.509 years. Mothers aged 19-27 gave birth to the largest number of children in 1970 (66.21% of the total). In 2010, 61.51% of newborns were born to mothers aged 22-30. In 1970, there were more mothers in the 19-24 age group (18.64%) giving birth to children than in 2010 . An analogous preponderance of mothers in the 25-36 age group (22.12%) giving birth to children in 2010, in comparison with 1970, can be observed. The most significant decrease in the number of newborns of both sexes can be observed in the 19-21 age group. (Figure1). It was also noticed that in 2010 (a difference of 19.74% in relation to 1970) the number of older women (31-36 years old) giving birth to children increased almost twofold.

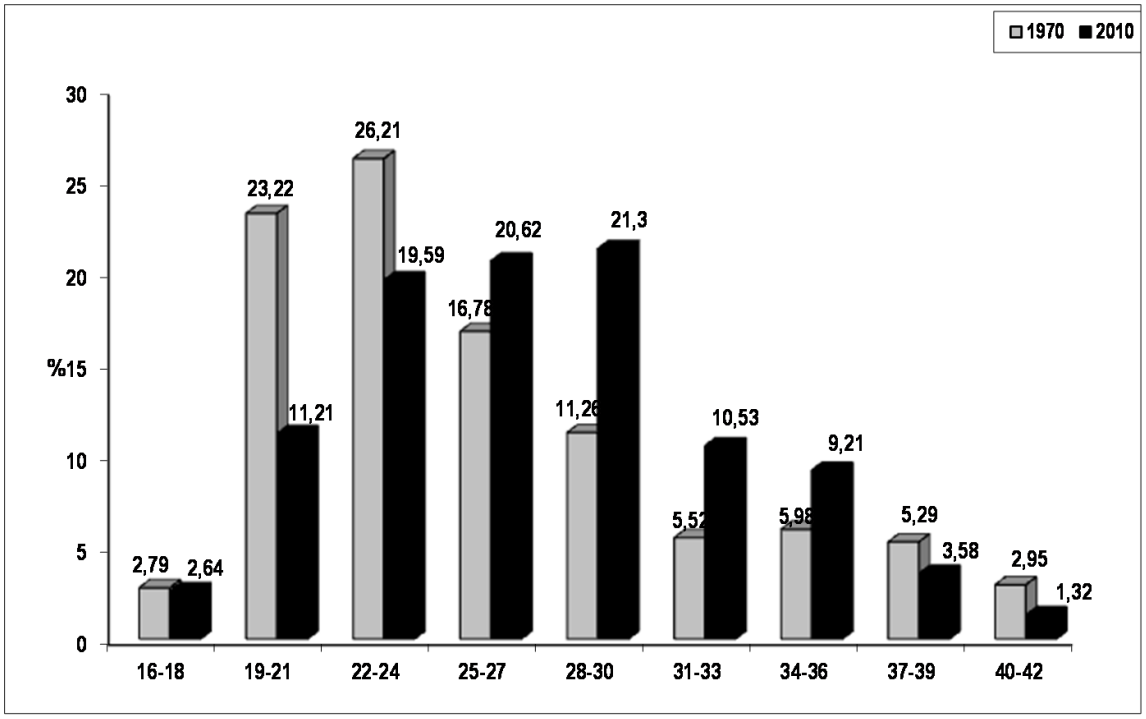


Figure 1. Comparison of distribution of data concerning the age of mothers of neonates in 1970 and 2010.

A preponderance of male newborns in 1970, in comparison to 2010, is observed in the 19-24 and 37-42 age groups of mothers and amounts to 23.18%. Similarly, a preponderance of female newborns in 1970, in comparison to 2010, is observed in the 19-24 and 37-42 age groups of mothers and amounts to 27.79%. In the examined period, there was a significant decrease in the number of births of female neonates born to mothers aged 22-24, in comparison with mothers of male newborns. At the same time, there was a significant rise in the number of births of female neonates born to mothers aged 28-33.

The analysis of acceleration in development of newborns with an additional division into mothers' place of residence (Figure 2) is justified by claims resulting from supplementary studies, which indicate that the development of newborns is conditioned, to a large degree, by environmental factors.

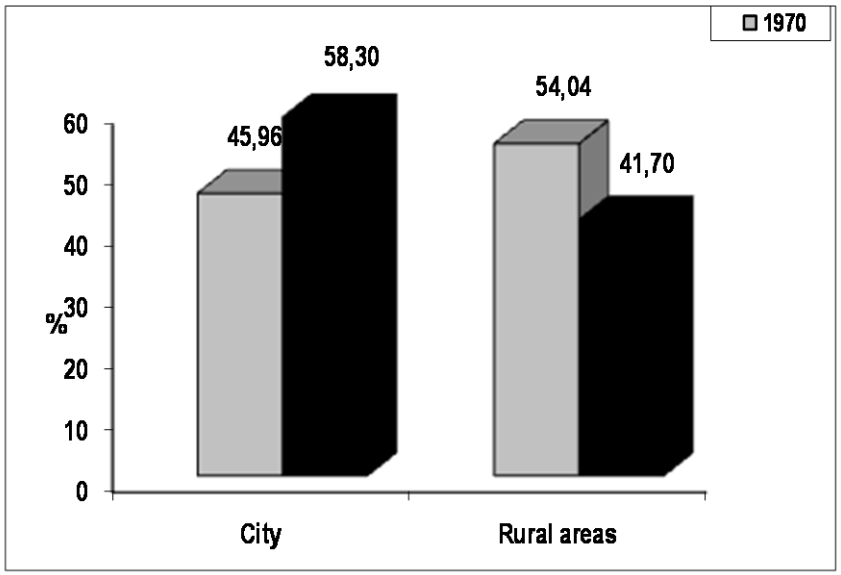


Figure 2. Comparison of distribution of data with reference to the place of residence of mothers of neonates from 1970 and 2010.

Most probably, migration from rural areas to cities resulted in the fact that in 1970 54.02% of mothers originated from rural areas, while in 2010 58.30% of the examined were mothers originating from cities. The differences in the origin of mothers are most clearly noticeable in female newborns. In 2010, 64.26% of all female neonates were born to mothers who came from cities. This is 28.52% more than in the case of mothers who came from rural areas in the same period and 18.82% more than in the case of mothers who came from cities in 1970.

On the basis of the definition of prematurity, formulated by the WHO Commission of Experts in 1951, which describes premature infants as neonates born after a period of pregnancy lasting 37 weeks or less, the data was divided into three groups, according to the length of pregnancy:

1. neonates delivered prematurely – up to 37 weeks,
2. neonates delivered in full term – between 37 and 41 weeks,
3. neonates delivered post-maturely – after 41 weeks (Figure 3)

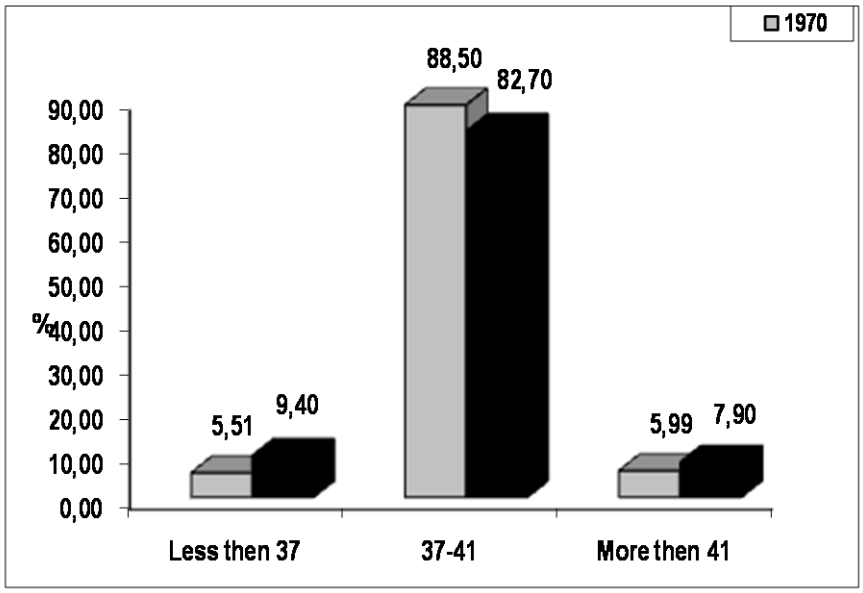


Figure 3. Comparison of the distribution of data with reference to the week of pregnancy in which neonates were delivered in 1970 and 2010

In the examined period, no significant changes between the three groups of newborns were observed. The number of male newborns delivered in full term decreased by 9.90% in comparison with 1970; at the same time, there was an increase in the number of males delivered prematurely (by 3.55%) and post-maturely (by 5.35%). Similarly, in the case of female newborns, there was a decrease in the number of females born in full term, although – in contrast to boys – by only 1.87%; the number of girls born prematurely increased by 4.21% and the number of girls born post-maturely dropped by 2.34%.

Analysing the orders of pregnancy and parturition in 1970 and 2010, the number and proportions of sexes were taken under consideration. In the examined period, there was a decrease by 12.79% in the number of first-born neonates and an increase in the number of newborns from the second pregnancy by 13.75%. (Figure 4).

Differences in the numbers of neonates born in subsequent pregnancies and deliveries were small. (Figure 5).

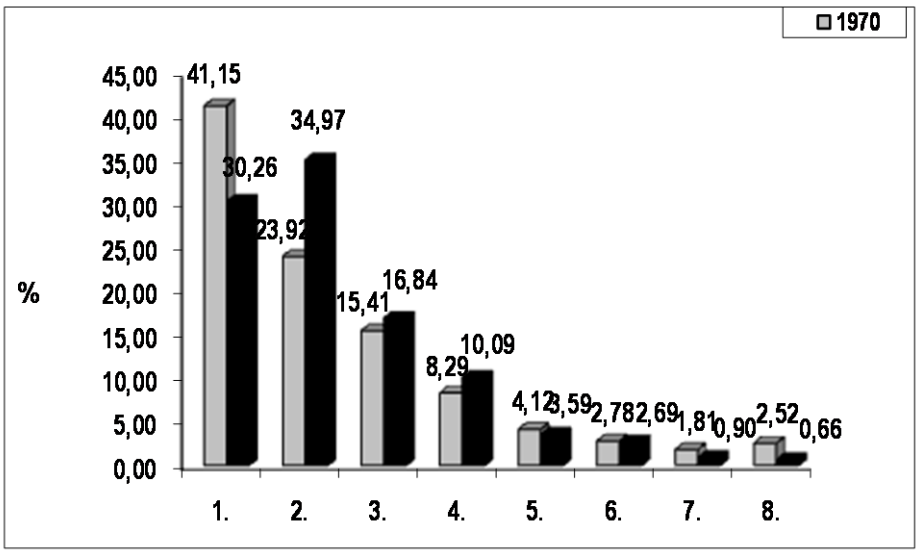
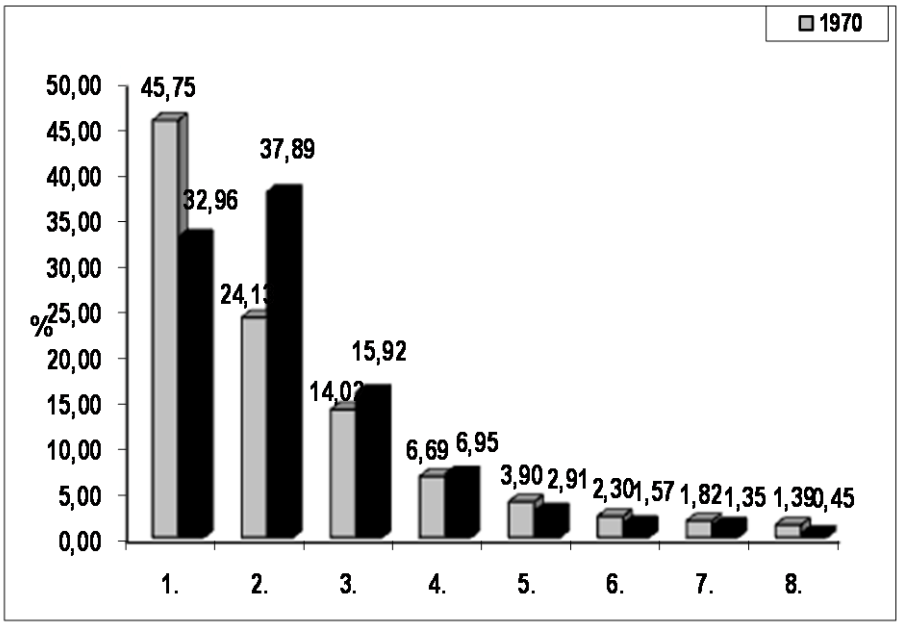


Figure 4. Comparison of the distribution of data with reference to the order of pregnancy of mothers of neonates born in 1970 and 2010

Figure 5.Comparison of the distribution of data with reference to the order of parturition of mothers of neonates born in 1970 and 2010

Discussion

As a result of the research, acceleration in the development of newborns with reference to body length and body weight was determined. On the whole, there is an increase in body length of newborns – although, the statistical difference is greater in the material from cities – and a decrease in body weight at birth – here the statistical difference is more significant in the case of newborns' mothers from rural areas. Such a direction of changes and relationship of body length to body weight detectable in the course of years results in an asthenic build of contemporary neonates in the Swietokrzyskie Region.



Since great importance is attached to social and demographical factors in research into acceleration, these traits were compared in the groups from 1970 and 2010. As a result, in comparison to data from 1970, the following conclusions have been drawn:

- the age of mothers increased; and so – mothers of female neonates were older by 0.285 of a year in comparison with mothers of male newborns. There was a significant decrease in the number of newborns born to mothers in the 19-21 age group in favour of newborns born to mothers in the 28-30 age group. Taking into consideration that, along with age, cytoplasm of the ovum ages and the number of errors in transferring genetic information increases, the phenomenon will have its consequences, both demographical as well as health-related – the number of children with disorders in the state of health and development is increasing.

Works on the role of non-genetic and paragenetic factors are also interesting. From amongst them, research on the relation between parents' age and morphological features of children in different periods of ontogenesis (Charzewska, Wolański, 1964), time of deciduous teeth eruption (Stołychwo, 1964), and the age of menarche is worth mentioning (Kowalska, 1968). This provided the basis for measuring out the so called optimal parents' age. For the urban environment in Poland, this was enclosed in the 25-30 range for mothers and 30-35 for fathers, whereas the father should be three-years-or-more older than the mother. In the rural environment, this age was 20-25 for mothers and over 40 for fathers. Such a phenomenon was confirmed in other Polish and foreign research (Cieślik, 1999; Dougherty, Jones, 1982).

A mother's advanced age is presently one of the basic indications for prenatal diagnostics. Most researchers find that the risk of foetus developmental disorders' occurrence increases along with the age of the mother giving birth. Moreover, newborns from such mothers are far weaker biologically, therefore they have greater adaptive inhibitions.

The research of D. Kornafel, B. Kwiatkowska, J. Kowal and E. Żemojtel (Kornafel, Kwiatkowska, Kowal, Żemojtel, 2002) shows that:

- newborns of mothers from extreme age groups have lower birth parameters than newborns born at an optimal age;
- newborns of adolescent mothers are born with a better clinical condition than newborns of mothers who are over 40;
- both mothers' age groups should be under medical care, and the development of their children should be monitored.
- there was a significant decrease in the number of newborns of both sexes from the first pregnancy and first parturition in favour of those from the second pregnancy and second parturition. In 1970, the greatest number of newborns were born from the first pregnancy, and in 2010 from the second pregnancy. These tendencies will have a long-term demographical, social and economical (pensions, financing and functioning of the health-care system) reach.

In older works, attention was also drawn to relations between weight-at-birth and order-of-labour. Most frequently, weight-at-birth increased with every subsequent birth given by a woman over 25. The differentiation of this relation between genders was also indicated: the heaviest male children were born from the second pregnancy; female children – from the third.

The presently existing tendency of the number of past pregnancies increasing along with a mother's age hinders precise determination of the influence of order-of-labour on many of the offspring's features. In recent years, owing to ever more common sexual education, the phenomenon of a stabilised child birth frequency amongst adolescent mothers – below the age of 19 – situation can be observed. On the other hand, the number of childbirths among older women – above 40 – is increasing. The social causes of this phenomenon are various, but one of them is undoubtedly the transfer of a western type of life with its established occupational-family priorities.

Presently, we can notice a clear tendency for societies to get older as a result of ever lower birth-rate and longer life expectancy. Between the years 2000 and 2020, the headcount of the 65-90 age group will increase from 16% to 21% of the whole EU population. This lack of numerical balance between younger and older people will bring about qualitative changes in intergeneration relations.

- the length of pregnancy shortened, especially in the case of female newborns. The above-mentioned long-term consequences of the acceleration phenomenon should stimulate an increase of actions towards improving care over mother and child, which is the main task for realisation indicated in the 'European Strategy for Child and Adolescent Health and Development', which was signed by Poland in 2005, and the document is given priority character by WHO.

A social and demographical analysis of the acceleration in development of newborns demonstrated numerous changes in environmental factors influencing foetuses, in the course of 40 years (Malina, 2004; Król, Melke, Biskup, Wójcik, Makieła, Nowak-Starz, Zboina, 2011; Nowak-Starz, Kozak, Zdziebło, 2013).

Conclusions

Since great importance is attached to social and demographical factors in research into acceleration, these traits were compared in the groups from 1970 and 2010. As a result, in comparison to data from 1970, the following conclusions have been drawn:

1. The age of mothers increased.
2. There was a significant decrease in the number of newborns of both sexes from first pregnancy and first parturition in favour of those from second pregnancy and second parturition.
3. The length of pregnancy shortened, especially in the case of female newborns.
4. The connection between the biological condition of neonates and those changes can only be hypothesised and should become the subject of further research.

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Original article

THE COMBINED WORKOUT IN JUVENILE BASKETBALL EXAMPLE OF PHYSICAL AND TECHNIQUE SPECIAL TRAINING

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Abstract

Problem Statement.The following paper talks about sport practice nowadays in a new view, no more dividing athletic workout and sport specific technical one. The problem is not so easy to solve, and many sport operators are working with them own solving philosophy. What we are going to propose is introducing is a very experienced methodology. Our idea is a reasonable mix between athletic and technical workout, sure that is nothing genial to finally resolve the problem.

The aim. of the research-So that what we are going to introduce is a plan of combined workout, specific for basketball second level (15-19 years old) juvenile training. Combined means an harmonica and intelligent cohesion, interrelation between physical and technical workout, proposed, in particular periods of the year.

Objectives. We are therefore in the categories under nineteen, and sometimes under seventeen years old. This kind of job doesn't remove that such a practice methodology is also used broadly by single athletes and not necessarily only in juvenile sectors that find necessary for some players a kind of additional diversified workout from usual the groupwork for varied motivations, that go from a possible delay on preparation or technical gaps to teach to be competitive in the proper group as well as towards the opponent.

Method and Template. Here our following individual proposal has been, in real, performed by single athletes, on his spontaneous application around July, normally absolute or relative athletes rest period.
This doesn't remove the following possibility for an athlete, very stimulated, in our case, we can say, autostimolated, to be able to effect a certain of type of diversified and specialized work-out of improvement. However what has to be maintained, in our opinion, is a period of absolute rest of about a pair of weeks, if not four weeks in case of younger athelets, one week more or less, in which the athlete must try to "reload the physical and psychological battery" for the beginning of the new sport season.

Conclusions. Good feeling between sport operators and the individuals. Very high improvement both in technical-athetical way and in psychological one.

Keywords: workout, specific training, combined job.

Introduction

Nowadays in sport practice is quite difficult to think, as in an old way of view, to divide athletic workout and sport specific technical one. It's not so easy to solve the problem, and many sport operators are working with them own solving philosophy.

What we are going to propose is introducing is a very experienced methodology. Our idea is a reasonable mix between athletic and technical workout, sure that is nothing genial to definitively resolve the problem.

The aim of the methodology

So that what we are going to introduce is a plan of combined workout, specific for basketball second level (15-19 years old) juvenile training (Mc Innes, Carlson, Mc Kenna, 1995). Combined means an harmonica and intelligent cohesion, interrelation between physical and technical workout, proposed, in particular periods of the year. This type of work is usually used by a juvenile evolved team.

Objectives

We are therefore in the categories under nineteen, and sometimes under seventeen years old. This kind of job doesn't remove that such a work methodology is also used broadly by single athletes and not necessarily only in juvenile sectors, that find necessary for some players a kind of additional diversified workout from usual the groupwork for varied motivations, that go from a possible delay on preparation (for different motivations) to technical gaps to coach for being able to be competitive in the proper group and towards the opponent. Here the following proposal has been performed by an athlete, on his spontaneous application around July, normally for absolute or relative athletes rest period, this doesn't remove the following possibility for an athlete, very stimulated, in our case autostimolated, to be able to effect a certain of type of diversified, specialistic work-out of amelioration. However What has to be maintained, in our opinion, is a period of **absolute** rest of about a pair of weeks, at least, in which the athlete must try to "reload the battery" for the beginning of the new sport season preparation, that normally, for the older juvenile categories, under 17 as well as under 19,

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it's usually fixed around half the month of August, week more or less.

Methods and referring template

The combined workout template proposed following also takes in consideration overload training obviously concerning the specific physical part, because we are firmly convinced, from a long time, that to get the best from an athlete, to optimize his performance, this kind of work is not important but fundamental, to built, when and if necessary, and very often it is, to strengthen, model or to compensate, a specific correct body balance (Bosco, Mognoni, Luthanen, 1983; McKinney, 1985, Cavallo, 1993). Strenghten the useful muscular masses of each athlete in spite of his eventual lack, and referring to the most technically specific involved muscles in their own sport specificity. In this paper we're not going to touch the overload practice in injuries rehabilitation being it a medical discipline. Coming back to the technical part of this presentation and concerning 1 on 0 or 1 on 1 , we'd like to point out, that it will be quite important the intensity of each repetition during the all drill and this impulse has to be the most powerful impulse in order to be useful to practice the foundamental with a maximum range of explosivity (Commetti et al., 2001; Martens, 1987).

Obviously it has to be done when a player is opposed to anyone as well as against one opponent. In conclusion this kind of conduct has to be held in all the proposed exercises, to qualify the entire practice as an optimized practice. At last a recommendation about stretching, take care first on the concentration on his execution, second choose one correct methodology of stretching and follow it in a very sharp way.

COMBINED PRACTICE PLAN
(Phisical and Technical WORKOUT)

Athlete: Z.F.
Year of birth: 199x
Position: Guard
Weight: 88 kg
Height: 194 cm

WEEKLY PLANNING TEMPLATE

	Morning	Afternoon
MONDAY	**Athletic workout**	**Athletic workout**
TUESDAY	**1vs0+ Shooting**	**Light weights workout + S.A.Q. (speed, agility and quickness) workout for speed and explosive strnght**
WEDNESDAY	**Rest**	**Athletic workout + Shooting/Shooting/Shooting**
THURSDAY	**Rest**	**Light/slow Jogging**
FRIDAY	**Heavy Weight workout + SAQ with Athletic workout**	**1 on 0 / 1 on 1 + Shooting**
SATURDAY	**Athletic workout**	**Rest**
SUNDAY	**Rest** **Optional: Shooting 1 vs 0**	**Rest**

MONDAY

a.m.: 10' run around the athletic lap (400 mt), average speed 2'45'' each lap
15' stretching
1 serie of light running 80 mt, with 30'' rest
2 repeted series of 200 mt with 1'30'' rest and 3' rest between the series
10' stretching
10' run around the athletic lap (400 mt), average speed 2'45'' each lap

p.m.: 10' run around the athletic lap (400 mt), average speed 2'45'' each lap
15' stretching
2 jump series, A, B, C, with 1'15'' of rest between jumps and 4' between series (A = 1' feet together, B = 1'30'' alternated feet, C = 15'' knees to chest
5 repetitions of one minute multiple exercises, with slidings, jumps and a 5 meters sprint , with 1'30'' rest between repetitions.
(Jumps notes, 10 maximal jumps knees to chest)
10' run around the athletic lap (400 mt), average speed 2'45'' each lap
15' stretching

TUESDAY

a.m.: 10' general warm-up
10' 1vs0; Cross over startings (hand and opposite foot) ending to the basket (right and left foot) with maximum 1 dribble; with maximal gesture (max possible reaction impulse).
3 shooting series with "Mikan Hooks"; 25 shoots each set; 1'15'' rest between series.
10' 1vs0; maximal velocity with Step and Go staring (same foot same hand) with max 2 dribbles before shooting (right and left foot).
200 shoots always changing position; both catch and shoot and catch and one or two dribbles and shoot

p.m.: overload practice

ATHLETIC WORKOUT ATTIVATION, WARM-UP

WORK TYPE	DURATION AND DESCRIPTION	REST
CYCLETTE	10' level 2/3	
ABDOMINALS	5 series of 30 reps (in the floor, flected knees and hands behind the head)	1'45'' between series
DORSAL	4 series of 15 reps ("belly in the floor" flecting the back	1'15'' between series

OVERLOAD WORKOUT SESSION "A"

HORIZONTAL BENCH PRESS	4 x 12 with 28 kg	2' between series
INCLINED BENCH PRESS	3 x 8 with 24 kg	1'30'' between series
LEG EXTENSION	5 x 7 with 20 kg	1'30'' between series
LEG CURLS	5 x 7 with 20 kg	1'30'' between series
TRICEPS PULLOVER	3 x 8 with 14 kg	1'15'' between series
TRICEPS PULLOVER-SINGLE	3 x 6 with 6 kg (BENCH, ALTERNATIVE)	1' between series
TRICEPS PULLEY	2 x 8 with 25 kg	1'30'' between series

SAQ workout:
10 reps of multiple exercise: 10 jumps c.m., sprint 10 mt, 5 jumps changing front each time; 1' rest between reps
7 reps of shuttle run, that is go and back tot. 15 mt
15' careful stretching

WEDNESDAY

a.m.: rest

p.m.: 30' run around the athletic lap (400 mt), average speed 2'30'' each lap
shoot/shoot/shoot, thirty 300, whereof 100 worth 3 points, 100 worth 2 points and 100 cross-over and layup, both right and left; the last 20 from half court, max speed

THURSDAY

a.m.: rest

p.m.: jogging (3' each lap) for 35' min tot
30' stretching

a.m.: overload practice

FRIDAY

ATTIVATION ATHLETIC WORKOUT

WORK TYPE	DURATION AND DESCRIPTION	REST
CYCLETTE	10' level 2/3	
ABDOMINALS	4 series of 30 reps (in the floor, flected knees and hands behind the head)	1'45'' between series
DORSAL	4 series of 15 reps ("belly in the floor" flecting the back	1'15'' between series

OVERLOAD WORKOUT SESSION "B"

BICEPS SCOTT BENCH	4 x 7 with 14 kg	1'30'' between series
BICEPS CURLS concentration	4 x 10 with 8 kg	1'30'' between series
LAT MACHINE back	3 x 7 with 35 kg	1'30'' between series
LAT MACHINE front	3 x 7 with 30 kg	1'30'' between series
SLOW BACK	3 x 8 with 12 kg	1' between series
LAT LIFTING	3 x 7 with 6 kg (stand up)	1' between series
FRONT LIFTING	2 x 8 with 5 kg (stand up)	1' between series
WRIST CURLS	3 x 8 with 8 / 10 kg with forearm supported	1' between series

SAQ workout
10 reps of multiple exercise: 10 jumps c.m., 10 mt sprint, 12 defensive slides (3 right and 3 left) to finish with 7 jumps with spin changing front each time; 1' rest between reps
7 reps of shuttle run, that is go and back tot. 15 mt, with 10' skip for each reps
15' of careful stretching

p.m.: 10' general warm-up
10' 1vs0, cross and homologous starts, with finish after max 2 dribles, either with layup or shoot 3 points
10' 1vs1 from dangerous position
Shot: 200 shots from a personal but varied position, with technical solution chosen at the moment

SATURDAY

a.m.: 10' run around the athletic lap (400 mt), average speed 2'30'' each lap
15' stretching
2 jump series, A, B, C, with 1'15'' of rest between jumps and 4' between series (A = 1' feet together, B = 1'30'' alternated feet, C = 15'' knees to chest
5 reps of multiple exercises, with 1'30'' rest between reps
(10 maximal jumps and than 30 mt sprint and at the end 5 maximal jumps knees to chest)

5' of active recovery: slow jogging
20 little-sprints, 5mt each, 5 each set, than 30'' rest and go again; final recovery 5'
10' run around the athletic lap (400 mt), average speed 2'45'' each lap
15' stretching

p.m.: rest

SUNDAY

a.m.: rest, or optional shooting session

p.m.: **rest**

Conclusions

The combined workout between technical and physical performance today, in high-level juvenile sport and not only, is no longer exclusively performed during the pre-season but also during athletes rest period, individually speaking, during championship breaks, and anytime we have the possibility, and may continue in restricted forms throughout the all sport season. It has to be inserted with balance and intelligence to let it work in a positive way.

The subject, anyway, is still controversial however, and, in my opinion, many more scientific experiences will have to be done on the court, to optimize the training parameters, the limits of the possible load capacity for teams or single player.

Anyway is in our opinion the Combined Workout, and the multiple proposal offered by a lot of important sport operators, tell us that probably this is the good way to follow up to reach the best performances first from the individual and then from the team.

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Original article

EFFECT OF CONCURRENT TRAINING ON VO_2 MAX, CERTAIN PHYSICAL VARIABLES AND SPIKE PERFORMANCE FOR YOUNG FEMALE VOLLEYBALL PLAYERS

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Abstract

Purpose. Cardiovascular and strength training workouts either during the same training session or within hours of each other. This sequential exercise regime referred to as "concurrent training." The purpose of this study was to investigate the effects of concurrent training on vo2 Max, static strength, power, strength endurance and spike performance among young female volleyball players.

Methods. Twenty young female volleyball players (mean +/- SD age, 15 +/- 1.7 years), divided into two experimental groups: (Experimental group -10 young female volleyball players) and (control group -10 young female volleyball players) from the APHRODITE club, Kurdistan Iraq. Training experience of all the participants ranged from 3 to 4 years. Subjects and coaches were required to read and complete a health questionnaire and informed consent document; there was no history of injuries, diabetes or recent surgery. Subjects in experimental group participated in concurrent training for eight weeks, 3 days per week. Subjects completed 8-10 resistance-training exercises first, and then completed their hour of training by walking / jogging / running for up to 30 minutes on a treadmill at a prescribed target heart rate. The Astrand Treadmill Test used to determine the VO_2 Max, and dynamometer instruments used to measure the strength of the leg and back.

Results. The results revealed significant increases in VO_2 Max, strength, power and spike performance for the Experimental group versus the control group.

Conclusions. Finally, the present study shows that eight weeks of concurrent strength and endurance training has beneficial effects on musculoskeletal power and VO_2 Max

Key words: VO_2 Max, concurrent training, volleyball.

Introduction

Volleyball is a sport whose athletes must demonstrate explosive moves, agility, vertical jumps, strong hits and serves. Position rotation requires players to be well rounded and excel at all positions. Strength training will give them the edge needed to excel in this sport. Volleyball athletes will get the best results if they put into practice periodization of their training. Bompa (1993) defines, "Periodization is the process of varying a training program at regular time intervals to bring about optimal gains in physical performance. The goal of periodizing an exercise program is to optimize training during short (e.g., weeks, months) as well as long periods of time (e.g., years, a lifetime, or an athletic career). Using periodization, a competitive athlete is able to peak physical performance at a particular point in time, such as for a major competition." Concurrent training is one method that many coaches employ as it consists of training multiple qualities at equal amounts of focus within the same training phase and often within the same workout. The biggest issue that can arise from this sort of programming is that often times the two or three qualities one is looking to enhance end up competing with each other for adaptation.

In volleyball, a spike is a strategy play that sends the ball over to the opponent giving him or her little chance of returning it. Usually, the ball struck so forcefully so that it lands on the ground.

All types of training, whether it is strength training or long distance running, will produce specific responses from the body which trigger gene expression and molecular changes that in turn cause the body to adapt to the training stimulus in order to make us more prepared to tackle this stressor should we need to face it again (next workout or competition). One of the arguments against concurrent training is that the adaptations that the body's internal environment under goes in response to the differing training stimuli brought on by the multiple qualities being trained in the training day or training phase are on different ends of the spectrum thus confusing the body as to how it should respond and leading to less than favorable adaptations. This referred to as the Interference Phenomenon. (Bell et al., 2000; Dantas et al., 2008).

In 1980, Hickson et al. first provided evidence for the existence of an "interference phenomenon" between resistance and endurance training by demonstrating that strength gains hindered when the two types of training performed concurrently. Since

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that time, the combination of resistance training and endurance training has been frequently used in athletics.

Oxygen uptake (VO2) at maximal exercise considered the best index of aerobic capacity and cardiorespiratory function. Maximal VO2 defined as the point at which no further increase in measured VO2 occurs and a plateau reached, despite an increase in work rate during graded exercise testing.

Strength and endurance training regimes represent and induce distinctly different adaptive responses when performed individually. Typically, strength-training programs involve large muscle group activation of high-resistance, low-repetition exercises to increase the force output ability of skeletal muscle (Sale et al., 1990). In contrast, endurance-training programs utilize low-resistance, high-repetition exercises, such as running or cycling, to increase maximum O2 uptake (VO2 Max). Accordingly, the adaptive responses in skeletal muscle to strength and endurance training are different and sometimes opposite (H. Tanaka and Swensen, 1998). Therefore, the purpose of this investigation was to examine the effects of concurrent training on vo2 Max, static strength, power, and strength endurance among young female volleyball players.

Material and Methods

Experimental approach

Two experimental groups performed a pre- and post-training intervention in which VO2 Max, and the physical variables, including leg strength (LS), back strength (BS), standing long jump (SLJ), and strength endurance for legs and arms (SEL; SEA), were measured.

Experimental group performed concurrent training for one hour per day, three times a week, for eight weeks. Control group performed traditional training in the volleyball court for one hour per day, three times a week, for eight weeks. The groups completed the training programs to see whether this type of training modality would have a positive, negative, or neutral effect on VO2 Max, HR, LS, BS, SLJ, SEL, and SEA.

Participants. Twenty young female volleyball players (mean +/- SD age, 15 +/- 1.7 years), divided into two experimental groups: (Experimental group -10 young female volleyball players) and (control group - 10 young female volleyball players) from the APHRODITE club, Kurdistan Iraq. Training experience of all the participants ranged from three to four years. All subjects were free of any disorders known to affect performance, such as bone fractures, osteoporosis, diabetes, and cardiovascular disease, and had not undergone recent surgery. The participants did not report use of any anti-seizure drugs, alcohol and cortoon consumption, nor cigarette smoking. All participants fully informed about the aims of the study and gave their voluntary consent before participation. The measurement procedures were in agreement with ethical human experimentation.

Training Protocol

The eight-week, in-season training program consisted of resistance training and endurance training.

Procedures

Subjects assessed before and after the eight-week training program. All measurements taken one week before and after training at the same time of day. Tests followed a general warm-up that consisted of running, calisthenics, and stretching.

Astrand Treadmill Test (ATT)

To perform this test you will require:

- Treadmill
- Stopwatch
- Assistant

This test requires the athlete to run as long as possible on a treadmill whose slope increases at timed intervals.

- The athlete warms up for 10 minutes.
- The assistant sets up the treadmill at a speed of 8.05 km/hr (5 mph) and an incline of 0%.
- The assistant gives the commands "GO" starts the stopwatch, and the athlete commences the test.
- Three minutes into the test, the assistant adjusts the treadmill incline to 2.5% and then every two minutes thereafter increases the incline by 2.5%.
- The assistant stops the stopwatch and records the time when the athlete is unable to continue.
- From the total running time, an estimate of the athlete's VO2 Max calculated as follows:
- VO2 Max mLs/kg/min = (Time × 1.444) + 14.99

Where "Time" the recorded test time expressed in minutes and fractions of a minute.

Push-Up Test

A standard push-up begins with the hands and toes touching the floor, the body and legs in a straight line, feet slightly apart, and arms shoulder width apart, extended, and at right angles to the body. Keeping the back and knees straight, the subject lowers the body to a predetermined point, to touch some other object, or until there is a 90-degree angle at the elbows, then returns back to the starting position with the arms extended. This action repeated, and the test continues until exhaustion, until they can do no more in rhythm, or until they have reached the target number of push-ups.

Static Strength Test (LS) (BS)

A back dynamometer used to measure static leg strength. The subject stands on the dynamometer platform and crouches to the desired leg bend position while strapped around the waist to the dynamometer. At a prescribed time, they exert a maximum force straight upward by extending their legs. They keep their backs straight, head erect, and chest high. Three trials performed, and the best score taken. Subjects rested between the trials.

Standing Long Jump Test (SLJ)

The subject stands behind a line marked on the ground with feet slightly apart. A two-foot take-off and landing used, with swinging of the arms and bending of

the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts allowed.

Wall Sit Test (WST)

The subject stands comfortably with feet approximately shoulder width apart and back against a smooth vertical wall. The subject then slowly slides their back down the wall to assume a position with both their knees and hips at a 90° angle. The timing starts when one foot lifted off the ground and stopped when the subject cannot maintain the position and the foot returned to the ground. After a period of rest, the other leg is tested. The total time in seconds that the position held for each leg recorded.

Spike performance Test (SP)

Evaluation the Performance levels of Spike by a committee contains three judges, the judge was assessed from 1 to 10 degree, consider that body form and style when the player performed the skill of the Spike.

Statistical Analysis

All statistical analyses calculated by the SPSS statistical package. The results reported as means and standard deviations (SD). Differences between two groups are reported as mean difference ± 95% confidence intervals (mean diff ± 95% CI).Student's t-tests for independent samples were used to determine the differences in physical variables between the two groups. A P-value <0.05 was considered statistically significant**.**

Results

Table 1. The age, Anthropometric Characteristics and Training experience of the Groups (Mean ± SD)

Group	N	Age [years]	Weight [kg]	Height [cm]	Training experience
Experimental	**10**	**14.89 ± 1.34**	**51.47 ± 4.3**	**164.16 ± 5.06**	**4.00 ± 1.2**
Control	**10**	**14.00 ± 1.01**	**50.35 ± 4.4**	**165.29 ± 5.2**	**3.94 ± 1.6**

Table 1 shows the age and anthropometric characteristics of the subjects. No significant differences were observed in the anthropometric characteristics and training experience for the subjects in the two groups.

Table 2. Mean ± SD and (T) Test between pre – tests and post - tests in VO2 Max, certain physical variables and spike performance for the experimental group.

Variables	Measurement Unites	Experimental group		Sig.
		Before	After	
(VO2Max)	**L⁄ min**	**32.21±0.68**	**34.55±0.51**	**Sig.**
Leg Strength (LS)	**kg**	**77.16±4.6**	**92.67±6.3**	**Sig.**
Back Strength (BS)	**kg**	**75.04±3.21**	**84.71±4.6**	**Sig.**
Arm - Strength Endurance (ASE)	**N**	**10.12±1.3**	**15.8±1.7**	**Sig.**
Leg - Strength Endurance (LSE)	**S**	**64.78±3.11**	**72.11±2.57**	**Sig.**
Spike performance (SP)	**Degree**	**5.7±1.3**	**8.7±1.2**	**Sig.**

Table 2 shows that: Significant Difference between pre – tests and post - tests in all variables for post - tests.

Table 3. Mean ± SD and (T) Test between pre – tests and post - tests in VO2 Max, certain physical variables and spike performance for the control group.

Variables	Measurement Unites	Control group		Sig.
		Before	After	
(VO2 Max)	**ml/kg/min**	**33.47±0.2**	**33.52±0.29**	**No Sig.**
Leg Strength (LS)	**Kilogram**	**75.24±3.5**	**76.36±5.6**	**No Sig.**
Back Strength (BS)	**Kilogram**	**76.3±4.6**	**80.01±3.2**	**Sig.**
Arm - Strength Endurance (ASE)	**Number**	**11.7±1.9**	**13.3±1.6**	**Sig.**
Leg - Strength Endurance (LSE)	**Seconds**	**64.52±2.57**	**65.11±2.08**	**No Sig.**
Spike performance (SP)	**Degree**	**5.8±1.4**	**7.9±1.6**	**Sig.**

Table 3 shows that: Significant Difference between pre – tests and post - tests in (BS), (ASE) and (SP). And no Significant Difference between pre – tests and post - tests in (VO2 Max) (LS) and (LSE)

Table 4. Mean ± SD and (T) Test between post - tests in VO2 Max, certain physical variables and spike performance for the experimental and control groups.

Variables	Experimental group	Control group	Sig.
(VO_2Max)	**34.55±0.51**	**33.52±0.29**	**Sig.**
Leg Strength (LS)	**92.67±6.3**	**76.36±5.6**	**Sig.**
Back Strength (BS)	**84.71±4.6**	**80.01±3.2**	**Sig.**
Arm - Strength Endurance (ASE)	**15.8±1.7**	**13.3±1.6**	**Sig.**
Leg - Strength Endurance (LSE)	**72.11±2.57**	**65.11±2.08**	**Sig.**
Spike performance (SP)			

Is clear from Table (4) significant differences at 0.05 between post - tests of control and experimental groups in all the variables for the post-tests in the experimental group.

Discussion

The purpose of this study was to determine if concurrent training could enhance VO2 Max, LS, BS, SLJ, WST, and SP among young female volleyball players. The main findings were significant improvements in all physical variables and VO2 Max, which proved concurrent training efficacy.

Kraemer, et al. (1995) reported that concurrent training interfered with leg press and double leg extension strength development. This study also showed that only the resistance-trained group improved in peak and mean power during the Wingate anaerobic test. Bell, et al. (1997) reported interference in strength gains in the subjects of the concurrent group who were female, but not in the male subjects. Another study by Bell, et al. (1991) found that the resistance training group made larger gains in knee extension one repetition maximum (1 RM), but not leg press 1 RM when compared to the concurrent group. A very recent study conducted by Balabinis, et al. (2003) showed that the resistance-training group made greater gains in leg press and bench press 1 RM compared to the concurrent group.

Interestingly, the concurrent group in this study showed greater improvements in many other performance tests conducted. It should also be noted that in all but one of the above studies, changes in VO2 Max were the same for the concurrent and endurance only groups.

Based on the findings of these studies, it seems rather convincing that endurance training interferes with strength development. However, several studies showing no interference in strength development by concurrent training (Hickson, 1980; Dudley and Djamil, 1985; Craig, et al. 1991; Bell, et al. 1997). Sale, et al. (1990) found no interference in strength or endurance development with concurrent training. Actually, the concurrent group improved the most in the number of repetitions performed at 80% of leg press 1 RM. These results may have been due to the hybrid nature of the training program (endurance training = 3 minute bouts at 90%-100% VO2 Max and resistance training = sets of 15-20 repetitions) used.

Abernethy and Quigley (1993) performed a study solely examining concurrent training in elbow extensor muscles. Their study also showed no interference in strength development. Four other studies have also reported no difference in the strength gains of the concurrent and resistance training only groups.

Balbinis, et al. (2003) actually found the concurrent group to improve more than the resistance-training group in Wingate power. In this study, the concurrent group showed greater improvements in 1 RM squat, vertical jump, and Wingate power. Hunter, et al. (1987) showed interference in vertical jump performance when comparing untrained subjects who concurrently trained to those who only resistance trained. However, they failed to show any interference when a group of trained runners who began resistance training was compared to the untrained group who only resistance trained. A recent study conducted by McCarthy, et al. (2002) also reported no strength impairments with concurrent training.

A small number of other studies have examined whether or not adding resistance training to the training regimen of endurance-trained athletes could improve their endurance performance. The results of these studies are also inconsistent. Bishop, et al. (1999) showed that resistance training of endurance-trained cyclists did not improve their performance. In this study, the resistance-trained subjects did improve in the strength test, but showed no difference from the control group in average power output during a 1 h cycle test, lactate threshold, or VO2 Max. Nelson, et al. (1990) reported that 11 weeks of concurrent training actually interfered with gains in VO2 Max as compared to endurance training alone. Here, the authors speculated that because of hypertrophy, a dilution in mitochondrial volume of the type IIa fibers might have occurred in the concurrent group.

Häkkinen, et al. (2005) performed a study showing just the opposite of Nelson's findings. They found that subjects who had resistance trained showed greater improvements in short- and long-term endurance compared to those who only endurance trained. Short-term endurance was 5-8 min to exhaustion and long term was maximal cycling time to exhaustion at 80% VO_2 Max.

Conclusions

It hypothesized that resistance training increased short-term endurance performance by increasing high-energy phosphate and glycogen stores. Short-term endurance may have also been improved by increases in the fast twitch to slow twitch fiber area ratio. Long-term endurance performance believed to have increased due to a delay in the recruitment of fast twitch fibers because of resistance training increasing maximum strength (Nelson, et al. 1990). In addition, long-term endurance performance can benefit from resistance training not only by reducing large motor unit recruitment, but also by improving running or cycling economy. Similar to Hickson's findings (1980), Balabinis et al. (2003) recently reported that those who concurrently trained made greater gains in VO_2 Max than those who only endurance trained.

Practical Applications

Two months of concurrent training, (endurance and resistance training) can improve physical variables VO_2 Max and Spike performance among young female volleyball players.

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Original article

PHYSICAL DEVELOPMENT OF 16-YEAR-OLD YOUTH IN POLAND

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Abstract

Aim. In determining the physical development of children and young people one of its characteristics is evaluated, which is grow (height and body mass). Correct physical development promotes health and well-being in every period of human life. The aim of this study was to determine the state of the physical development of 16-year-old youth in Poland.

Materials and methods. The study was conducted in the school year 2008 at vocational schools in Kielce, Poland. The study included 2067 adolescents aged 16 years. In view of the 734 tested disorders in health and development were found. Finally, the study involved 210 people, both girls (33 people) and boys (177), coming from a city (over 39%) and from a village (nearly 61%).

Results. In more than 16% of respondents were identified abnormalities in physical development (grow), especially among technical school students (over 15%) living in the city. Identified problems, low body mass (11%) and short stature (above 8%) predominated among the tested living in the city. Obesity is a health problem for 5% of the respondents from the rural environment. Underweight was confirmed among youth educating on the level of basic vocational schools (nearly 14%), living in the countryside.

A strong correlation and low strength of the relationship were confirmed ($p < 0.05$; $r_c = 0.26$) between physical development of the tested and learning in their chosen profession.

Conclusions. Growth disorders may limit among others physical activity, fitness and exercise capacity of respondents. It is necessary to take the medical care of young people with identified disorders in physical development. It is necessary to reinforce physical activity among young people.

Keywords: health, physical development, grow, vocational school.

Introduction

Data on physical development are the main positive indicator of the health of children and adolescents. Proper physical development affects the successful mental, motor, social and emotional development (Markowska, 2002; Taras, Potts-Datema, 2005; Nowak - Starz, 2008, Cieśla, 2011).The World Health Organization (WHO) provides a broad approach to the implementation of preventive health care for students (World Health Organization, 1997).

In Poland, since 1972 preventive medical examinations of children and young people have been carried out in certain age groups. Performed screening tests of 16 -year-old youth are aimed to determine the level and pace of physical development, to make qualifying group for physical education and school sports, to detect potential health problems. Counseling is conducted for healthy lifestyle and choice of further education or work (Woynarowska, 2000; Oblacińska, Woynarowska, 2002; Regulation of the Minister of Health, 2004; National Health Program, 2007; Król, Kwiatkowski, 2009, Regulation of the Minister of Health, 2009).

At age 16, there is a dynamic development in the course of which in some individuals are revealed or exacerbated a variety of disorders (Woynarowska, 2000; Nowak-Starz, 2008; Woynarowska, 2010).

In adolescence there are intensive physical changes to the construction and body weight (Suliga, 2000; Król, 2004; Kułaga et al, 2011). In 2010, 18% of boys and 11% of girls aged 15-16 years were overweight and obese (Wojtyniak, Goryński, Moskalewicz, 2012).

The doctor determining the level of physical development of youth, in the event of irregularities (short stature, obesity, low body mass) may decide to limit the study in selected vocational school and the chosen direction of education (Oblacińska, Woynarowska, 2002; Oblacińska 2013). For there are numerous physical and physiological constraints on the choice of profession and vocational training. These include, among others, occupations requiring heavy physical effort, standing posision, difficult climatic conditions, being at the height, good manual efficiency (Woynarowska, 2000; Roesler et al, 2000; Vieweg et al, 2007). Deviations in health status and development of the youth are associated with a higher risk of accidents and injuries.

Properly extending physical development generally determines the values of health and psycho-

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physical capabilities of young people, which undoubtedly plays an important role in the learning process, choosing a career and in adulthood.

Methods

The study was conducted in the school year 2008 at vocational schools in Kielce, Poland. The study included 2067 adolescents aged 16 years. In view of the 734 tested disorders in health and development were found. Finally, the study involved 210 people, both girls (33 people) and boys (177), coming from a city (over 39%) and from a village (nearly 61%). The study used two equivalent methods: the method of documentary research and diagnostic survey. The statistical correlation of selected features was verified with non-parametric Chi-square test.

Results

It was found that young people surveyed derive mainly from the rural environment. Educating in vocational schools is of great interest in the environment (Table 1).

Interest of the respondents in education in vocational schools is undoubtedly related to the short period of training (2-3 years) in jobs that are very popular and provide an opportunity for the labor market (Table 2).

Table 1. Characteristics of the study group divided into the chosen school and environment.

Name of school	Town		Village		Total	
	n	%	n	%	n	%
Complex School of Information Tchnology	34	41,46	23	17,97	**57**	**27,14**
Complex of Mechanics and Economics Schools	13	15,80	38	29,69	**51**	**24,29**
Complex of Vocational Schools No 1	35	42,68	67	52,34	**102**	**48,57**
Total	**82**	**100,00**	**128**	**100,00**	**210**	**100,00**

Table 2. The students in the study with regard to the type of school and educational direction.

Name of school	Job/direction of education	Type of school						Total	
		Technical		Basic vocational		Specialised secondary school			
		n	%	n	%	n	%	n	%
Complex School of Information Tchnology	electronics technician	10	5,78	0	0,00	0	0,00	**10**	**4,76**
	IT technician	39	22,54	0	0,00	0	0,00	**39**	**18,57**
	information management	0	0,00	0	0,00	8	100,00	**8**	**3,81**
Complex of Mechanics and Economics Schools	mechatronics technician	9	5,20	0	0,00	0	0,00	**9**	**4,29**
	polygraphy technician	21	12,14	0	0,00	0	0,00	**21**	**10,00**
	mechanical technician	21	12,14	0	0,00	0	0,00	**21**	**10,00**
	construction technician	11	6,36	0	0,00	0	0,00	**11**	**5,24**
	technician of landscape architecture	13	7,51	0	0,00	0	0,00	**13**	**6,19**
	Environmental technician	4	2,31	0	0,00	0	0,00	**4**	**1,90**
	Water treatment technician	7	4,05	0	0,00	0	0,00	**7**	**3,33**
Complex of Vocational Schools No 1	road technician	10	5,78	0	0,00	0	0,00	**10**	**4,76**
	geodesy technician	11	6,36	0	0,00	0	0,00	**11**	**5,24**
	wood technology technician	7	4,05	0	0,00	0	0,00	**7**	**3,33**
	clothing technology technician	10	5,78	0	0,00	0	0,00	**10**	**4,76**
	bricklayer	0	0,00	20	68,97	0	0,00	**20**	**9,52**
	Painter/wallpaper hanger	0	0,00	5	17,24	0	0,00	**5**	**2,38**
	carpenter	0	0,00	4	13,79	0	0,00	**4**	**1,90**
Total		**173**	**100,00**	**29**	**100,00**	**8**	**100,00**	**210**	**100,00**

Physical development disorders were found in over 16% of the respondents studying primarily in professions: road technician, geodesy technician, wood technology technician, clothing technology technician, bricklayer and carpenter.

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The most common of these was a shortage of body weight (above 7%), often manifested in boys from towns. Comparatively the young people were diagnosed with short stature (almost 4%) and obesity (over 4%). Adolescents lived in different environments (urban and rural).

More growth disorders were revealed among students at technical school (15.61%), mainly in boys living in the city (Figure 1).

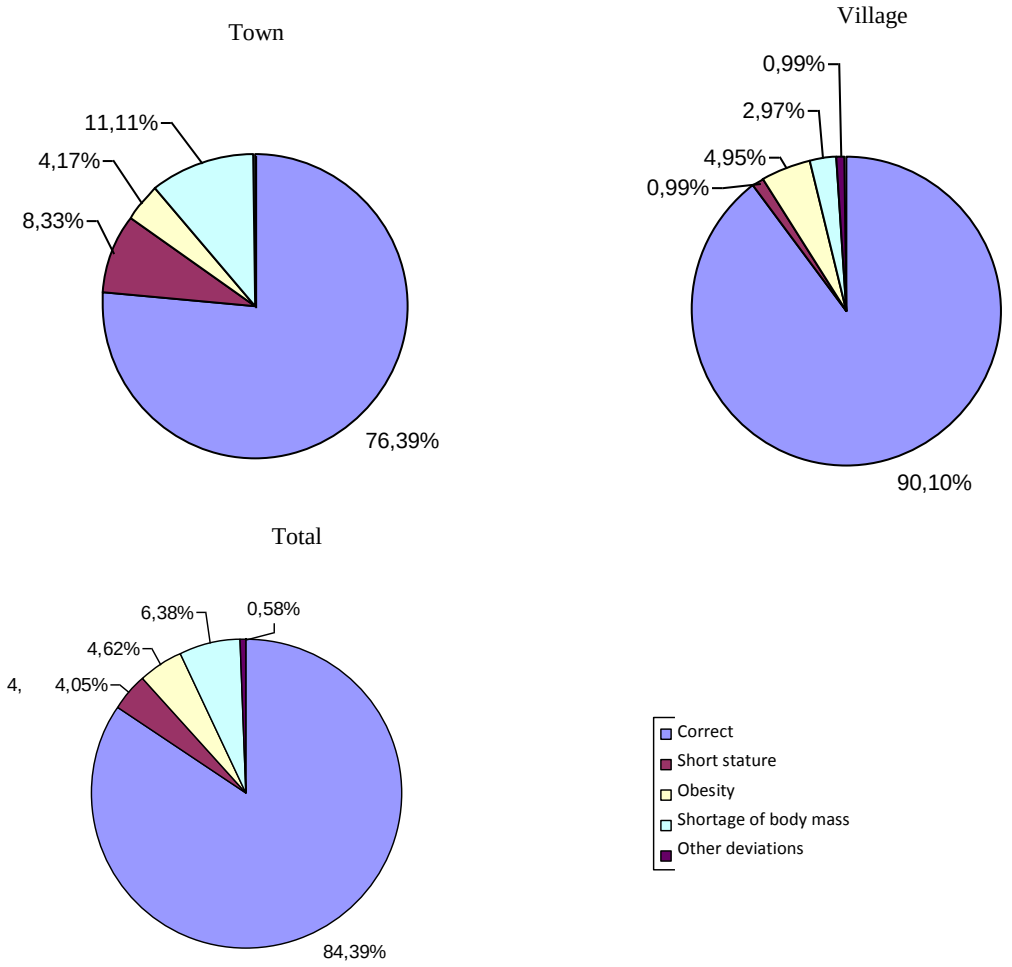

Figure 1. Growth disorders among students of technical schools divided into the environment.

Identified disorders, low body mass (over 11%) and short stature (above 8%), dominated among students living in the town, while obesity (almost 5%) and short stature (nearly 3%) concerned respondents from the rural environment.

In the group of 29 peers studying at the basic vocational level, growth disorders were observed in over 13% of them coming from a village. These deviations were associated mainly with a shortage of body weight. The same results were obtained in specialized secondary schools.

The results were statistically analyzed determining the dependence of growth on the chosen by the students of education direction (Table 3).

Table 3. Growing vs chosen by the respondents education direction

Grow (physical development)	**Education direction**							
	Technical		**Basic vocational**		**Specialized**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Correct	146	84,39	25	86,20	4	50,00	**175**	**83,33**
Short stature	7	4,05	1	3,45	0	0,00	**8**	**3,81**

Obesity	8	4,62	0	0,00	1	12,50	**9**	**4,29**
Shortage of body mass	11	6,36	2	6,90	2	25,00	**15**	**7,14**
Other deviations	1	0,58	1	3,45	1	12,50	**3**	**1,43**
Total	**173**	**100,00**	**29**	**100,00**	**8**	**100,00**	**210**	**100,00**

$\chi^2 = 16,299 > \chi^2_{0,05;\,8} = 15,507$; $r_c = 0,26$

Results of chi-square test (χ^2) confirmed the strong correlation and low strength of the relationship ($p < 0.05$; $r_c = 0.26$) between the result of the medical examination on the growth and education direction chosen by the subjects. It can be seen that physical development disorders may be considered by the doctor in terms of limitations of education in the chosen by the student vocational school and related educational direction. It must be assumed that in the case of surveyed students growth disorders can be compared by a physician with the exercise abilities of respondents (eg shortage of body weight - lifting heavy objects) and their agility (obesity - less efficiency and physical exercise).

Discussions

The dynamic development of the market economy, thereby increasing demand for a variety of professions, have increased interest among young people in vocational education. The surveyed youth chose vocational education at secondary school and basic vocational education.

Both boys and girls come from rural environment. A clear relationship was confirmed between the environment in which students are brought up and the selected school ($p<0.001$).

The choice of career at such a young age (16 years old), in the period of adolescence, requires a many-sided support of families, schools, doctors and nurses, employers, state (Woynarowska, 2000; Markowska, 2002; Nowak - Starz, 2008). Not without significance is comprehensive knowledge of the student's chosen profession, of the requirements during its execution, and thus their opportunities and abilities (Król, Kwiatkowski, 2009).

Although implemented in Poland preventive medical examination show numerous health disorders of 16 year-olds, including physical development (Woynarowska, 2010; Oblacińska, 2013), it was found that the subjects and their parents do not take into account the health status in career choices.

As previously pointed out in the research by Woynarowska, 2000; Roesler et al, 2000, Viewegi et al, 2007, Taras H, Potts - Datema, 2005; Kułaga et al, 2011, diagnosed among nearly16 % of respondents growth disorders: overweight and obesity (4.29 %), short stature (3.81 %) and low body mass (7.14 %) raise concerns about the health safety at risk of teens as well as their future career.

A clear statistical relationship was confirmed between the results of the medical examination and selected by the respondents direction of education in most of the analyzed features. Recognized disorders in physical development - grow ($p<0.05$) significantly influence the direction of education chosen by the respondents. At the time of practical training and subsequent career people with developmental disorders (eg short stature) may have unsuited to their growth workplaces, which creates a risk of injury and promotes the adoption of unergonomic position during work. No exercise limitations are meaningless such as a shortage of body weight - lifting heavy objects , obesity - less efficiency and physical exercise.

To support the actions outlined in the operating objective 8 (National Health Programme 2007-2015, 2007) studies and the obtained results confirming the significant disorders of physical development among respondents require continuation of research to determine the essential causes that adversely affect the health of adolescents and their elimination.

Conclusions

1. Youth in adolescence show disorders of physical development.
2. Growth disorders affect the limitations of practical training in their chosen profession.
3. Abnormal physical development significantly reduces any possibility of a young man.
4. The discussed issue needs further study for a more exact understanding of the problem and the effect of corrective actions taken.

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Original article

THE PERSONALITY PROFILE OF TOP PERFORMANCE ATHLETES IN KARATE DO

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Abstract

The karate do practice can be considered a school of life and, byobserving its principlesin the physical and mental applications, we can improve our spirit andachieve our knowledge expansion, which enables us **toenrich our personality!**

Karate do permanently contributes to the individual's development, it being an open door to the limits thatare to be exceeded and the plenitude of this art resides in the **spirit-psychic-body**communion!In the spirit-psychic-body communion, the mostimportant one is thespiritual attitude, even if karate is performed as a combat sport.

The present paper aims at creating the karate do athletes' personality profile, which we consider to be important to their training management.

To elucidate our study, we used the case study method and the graphical representation method. In this sense, we administered the ZPKQ personality questionnaire and the Endler Multidimensional Anxiety Scales - Perception (EMAS-P, SAS-P), tests included in the CAS^{++} digital platform for the psychological assessment,created byCognitrom.The subjects of our research were top performance athletes atthe "Rapid" Sports Club of Bucharest, seniors, components of the WKC National Karate Squad. Testing was performed within the UNEFS Psycho-Pedagogy Lab, under the supervision of Assistant Lecturer RaduPredoiu, Doctor of Psychology.

We find out that the investigation of personality traits represents a valuable documentation forthe athletes' training management and for their preparation improvement, which can lead to better competitive results.At the same time, we notice that the combative spirit, creativity, practical intelligence, the control and self-control capacities, combativeness, aggressiveness, quick thinking etc. are psychic qualities indispensable to a top performance karate fighter.

Keywords: karate do, performance, personality profile.

Introduction

There are many opinions of the specialistsabout the importanceof practicing karate do. In this context, D. Deliu considers karate do as an artthat presents a maximum efficiencyunder the aesthetics and the elegance conditions and that supposes technical perfection. In his turn, Frédéric (1993, p. 7) considersmartial arts as a universein itself, a captivating one, which couldn't be discovered in its whole complexity not even if man had been given to live many lives one after another!

At the same time, the karate do principles transferred to the physical and mental practices help us improve our spirit and expand our knowledge, **by enriching our personality,** that is why karate do can be considered a school of life (Deliu, 2008, p. 121).

Karate do permanently contributesto the individual's development, being an open door toward limitsthat are to be exceededand the plenitude of this art resides in the **spirit-psychic-body**communion!In the spirit-psychic-body communion, the mostimportant one is thespiritual attitude, even if karate is performed as a combat sport.

According to Deliu,2008, ,the training in the fundamental techniques, conjugated with the study of thecombat forms and variety, leads to the simultaneoustraining of the karate fighter's physical and psychic components. Under real conditions, a psychically well-prepared karate fighter will win even if, physically, he is less prepared.

In accordance with the above-mentioned aspects, we consider the following quotation as a motto of our paper:***"The performance maximization can't be reached without the athlete's personality maximization***" (Epuran, 1990).

Sports psychology is concerned with the psychic phenomena and with the behavior of those who practice sports (activities with an agonistic, ludic and gymnasticcharacter) predominantly orientedto performance, to surpassing oneself, the opponent or the nature (Epuran, 2001, p. 4).

The psychic capacity is energetically and attitudinally supported by the temperamental, characterial, motivational, affective andvolitional traits. Personality represents the distinctive and characteristic pattern of the thought, affectivityand behavior that

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define the individual's personal style and influence his interaction with the environment. Consequently, we emphasize the psychic capacity position as an element integrated into the performance capacity, with which it perfectly interacts. It shouldn't be understood as a summative element, but as acrucial element meant to regulate and control the performance capacity in its whole.

As to the concept of "personality", it represents the totality of psychic qualities of aperson, which are submitted, in the course of time, to the structuring processthat not only differentiates among them, but also valorizes them, by making them unique (Zlate, 2009, p. 253).

Allport (1981, p. 253) defines personality as the dynamic organization within the individual of those psychophysical systems that determine his characteristic behavior and thought.

Reuchlin (1992, quoted by Dafinoiu, 2002) considers that personality is a stable characteristic featureof a person, in relation to his way of reacting to the situations he is confronted with.

By starting our commentary from the idea according to which the performance maximizationcan't be reached without the athlete's personality maximization, we can state that the athlete'sperformance behavior willinclude his capacity of expression, his desire of self-assertion, his effort and his commitment, as well as the requirements and the pressure of his social environment.

Thus, we think appropriate to make reference to the 4 essential performance-related factors, represented by aptitudes, attitudes, training andambience(Epuran, 1990, p. 38).

In sports, a particular emphasis is placed on the motor aptitudes, but we shouldn't ignore the importance of the intellectual ones, among which we shall mention those considered by Most (1982, quoted by Epuran, 2008) to be necessary for the performance obtaining, namely: quick analysis and synthesis of the situations, understanding the opponent's tactics, knowing the partner's state of spirit, capability to focus on the action, to choose among different solutions, to make decisions and to take action (Epuran, 2008, p. 37-61).

These last aptitudes are extremely important to the karate fighters, if we take into account that they practice a heuristic sport, with unpredictable and combative opponents, with actions performed at maximal intensity and under the time pressure specific to each competitive fighting (the last 30 seconds of the contest).

In karate do, we can notice an attitudinaltendency toward the opponents, expressed by the desire to dominate in the competitions, by the aggressive fighting, by the attempt to win the supremacy over the others, as well as an attitudinal tendency toward oneself, expressed by the spirit of combat and sacrifice, by the permanent desire for self-improvement etc.

Attitudes play an important role in the competitor's personality structure, by determining the development and the valorization of his own capacities.

Ambience, implicitly thesports environment in karate do, influences thepsycho-sociological status-related behaviors, but also the preferential, organizational and culturalrelationships. The karate do practice in an organized framework confers the athlete a feelingof belonging, communication, socialization, self-esteem and respect from the others.

As to the training, this is themost complex structure that includes all the components of the performance capacity and that highlights all the aspects which will render efficient the competitive results.

The main psychic qualities specific to karate do are the following: spirit of combat, creativity, practical intelligence, capacity of control and self-control, spirit of sacrifice, intelligence, motivation, combativeness, aggression, tenacity, quick thinking etc. (Deliu, 2008, p. 137).

Purpose of the research

The present paper is a starting point for a study related to the athletes' personality profileand it can represent a prediction factor for the competitive performances of the karate do fighters. Thus, our work aimed at creating the karate do athletes' personality profile, considered by us to be important to their training management and to the increase of their performance level.

Methods

To elucidate our study, we used the case study method and the graphical representation method.

Our subjects were top performance athletes atthe "Rapid" Sports Club of Bucharest, juniors and seniors, five boys and four girls, components of the WKC National Karate Squad, practitioners, for more than 10 years, of the Goju-Ryu style from the karate do branch.

In order to complete our study, we used tests included in the CAS^{++} digital platform for the psychological assessment,created by Cognitrom.In this sense, we administered the ZKPQ personality questionnaire and the Endler Multidimensional Anxiety Scales –anxiety as aPerception (EMAS-P, SAS-P) and as a State (EMAS-S).The tests were performed within the UNEFS Psycho-Pedagogy Lab, under the supervision of Assistant Lecturer Radu Predoiu, Doctor of Psychology, on February 20th, 2013, in the preparatory period.

In modern times, the terms"test" and"testing" are more and more frequently used, by tending to become usual terms, due to the creation of some special means for the assessment of human qualities and for the prognosis of their evolution in the course of time, they being essentially imposed by the school and vocational selection or orientation.

In psychology, the word "test"has an accurate significance, by designating a certain psycho-diagnosistool (Horghidan, 1997, p. 69).

The test represents, according to the definition adopted by the International Psycho-Technical Association, "a definite trial involving a task to fulfill, which is identical for the examined subjects andis based on a precise technique meant to assesssuccess or failure through the numerical grading" (Cesari, 1989, p. 11).

The tests used in our research aim at investigatingpersonality, reasoning and the anxiety traits.

Starting from the psychological significance of the trials, P. Pichot distinguishes two big categories: personality tests and efficiency tests.

Personality tests represent subtle tools designed to reveal some specific reaction modalities, some isolated traits, a group of traits or the personality organization trend.The great number and particularly the great variety of personality tests render difficult their classification, but usually they are divided into analytical tests and synthetic tests.

Analytical personality tests are destined to the study of some delimited characteristicsof the personality. In most of the cases, these testsinvolve questionnaires with a variable number of questions that require the subject to give open or closed answers, in order to reveal one single personalityvariable (uniphasic questionnaire) ormanyvariables (multiphasic questionnaire).

Synthetic personality tests investigate complex aspects of the personality (Horghidan, 1997, p. 74,78) and are represented by the questionnaires.

"The questionnaire is a system of questions formulated so that we collect as accurate data as possible about a person or a social group" (Cosmovici, 1996, quoted by Tudor, 2005:37).

Thus, through the personality questionnaires, we can diagnose the traits, which actually express the attitudes of a person toward himself.

The **Zuckerman-Kuhlman Personality Questionnaire (ZKPQ)** assesses five scales, namely: sociability, impulsive sensation seeking, activity, neuroticism-anxiety andaggression-hostility.

By using the true-false versions of the items on thesensation seeking scale, but also itemsfrom other personality scales, Zuckerman and his co-workers (1993) analyzed their factors, which resulted inthe construction of a more extended personality questionnaire including the fiveabove-mentioned factors.One of these factors is completely made up of itemsthat refer to impulsivity and the sensation seeking, being called "impulsive sensation seeking".

The revised version of the ZKPQ questionnaire contains 99 items grouped on five scalesthat we shall describe in the following lines.

Figure 1. Components of the Zuckerman-KuhlmanPersonality Questionnaire

Sociabilityincludes 17 items referring to parties and friends, which indicate the preference for the parties with many people and the interaction with them. The latter factor reveals, for the extroverts, their intolerance to social isolation, and for the introverts, their inclination to solitary activities.

Impulsivesensation seeking encompasses 19 items that highlight twofactors, impulsivity and sensation seeking. The items contained by the "impulsivity" factor describe the lack of planning and the tendency to act in an impulsive way, with no previous reflection. The "sensation seeking" factor describesthe general need for sensation and agitation, the preference for unpredictable situations and friendships, as well as the need for change and novelty. There is no special mention related to specific activities, such asalcohol and/ or drug consumption or other sports involving higher risks. These itemswere eliminated, in order to limit someconclusions when investigating the persons who participate in such activities.

Activityis made up of17 items thatcompose two groups, as follows:one group of items describes the need for general activity, the lack of patience and the anxiety state when there is nothing to do, and the other group of items (the work effort) indicates the preference for a diversified and sustained work, but also a high energy level when performing the daily activities and other tasks.

Anxiety-Neuroticismcomprises 19 items that describe the annoyances, the emotional tensions, the worries, the constant indecisions, the

lack of self-confidence and the sensibility (http://www.scribd.com/doc/123769900/personality questionnaire).

Aggression-Hostilityincludes 17 items that describe the moments when thesubjectsare susceptible to have a hostile behavior.

EMAS-P and**SAS-P** represent a measure of the subjective perception on the type of situation and on the intensity of the threat evoked by that situationat the testing moment. These ones assess seven scalesof the perceptionanxiety, namely:social evaluation, physical danger, new and ambiguous situation, daily routine, separation from the beloved and self-disclosure.

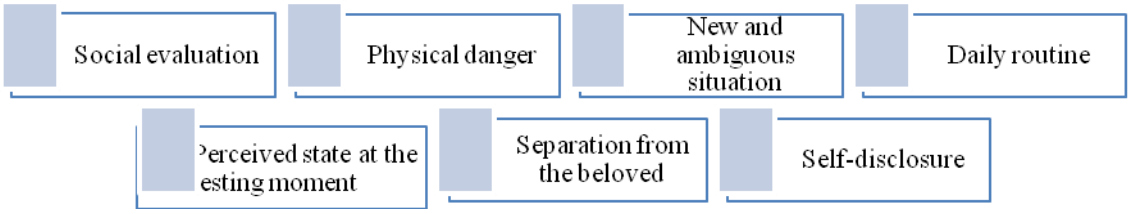

Figure 2. Components of the perception anxiety test – EMAS-S and SAS-P

EMAS-S assesses the current subjective state of anxiety, namely the anxious-type responses felt at a certain given moment in the course of time. EMAS-S includes the emotional-physiological scale, the cognitive scale and the total score of the state anxiety.

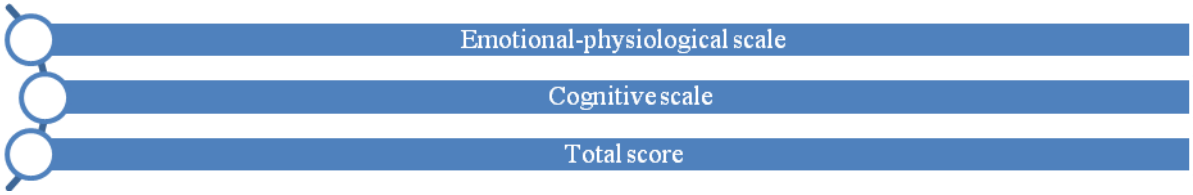

Figure 3. Components of the state anxiety test – EMAS-S

After the administration of the personality and anxiety questionnaires, but also of the analytical reasoning test, on the basis of the correction grid, we calculated the score for each trial and the respective score was interpreted with the CAS^{++} digital platform for the psychological assessment, created by Cognitrom.

Results

The obtained results were tabulated and assessed throughscore items related to the achieved level, under the qualitative aspect.

1. Results obtained at the Zuckerman-Kuhlman Personality Questionnaire (ZKPQ)

Table 1. Zuckerman-Kuhlman Personality Questionnaire (ZKPQ)

No.	Surname and name	Sociability scale		Impulsive sensation		Activity scale		Neuroticism-anxiety		Aggression scale		Desirability
		Score	Level	Score	Level	Score	Level	Score	Level	Score	Level	Score
1.	A.G.	49	2	59	2	64	3	55	2	50	2	4
2.	B.D.C.	61	3	45	2	64	3	39	1	67	3	1
3.	B.F.	61	3	53	2	57	2	44	2	53	2	3
4.	B.R.M.	66	3	53	2	47	2	58	2	56	2	3
5.	I.V.R.	53	2	53	2	57	2	49	2	70	3	4
6.	L.E.A.	58	2	40	2	53	2	59	2	45	2	1
7.	L.I.S.	60	2	53	2	53	2	40	2	56	2	1
8.	S.D.M.	55	2	43	3	56	3	36	2	40	3	1
9.	T.A.I.	51	2	73	2	64	2	58	1	61	2	2

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Based on the data resulted from the administration of the ZKPQ personality questionnaire, by means of the correction grid, we calculated the score for each scaleassessed by ZKPQ. Relying on this score, the software of theCAS^{++} digital platform for the psychological assessment, created by Cognitrom,indicates us the level corresponding to each score.

We can thus obtain the classification on levels and the level corresponding to each score from 1 to 3, where level 1 ranks the subjects with scores comprised between 0 and 40 below the population mean, level 2 ranks the subjects with scores comprised between40 and 60 within the population mean and level 3 ranks the subjects with scores comprised between 60 and 100 above the population mean.

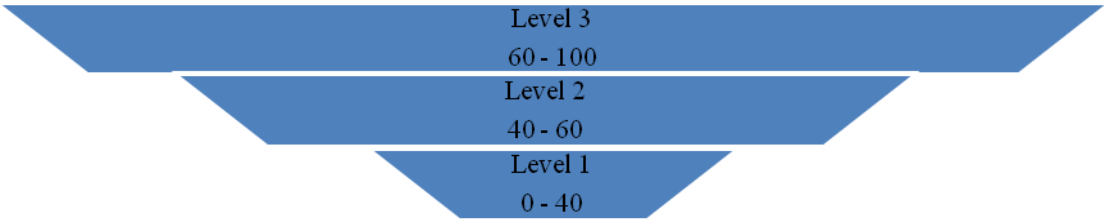


Figure4. Classification on the three levels of the ZKPQ personality questionnaire

Thus, as we can notice in table1, on the **sociability scale**,six athletes, A.G., I.V.R., L.E.A., L.I.S., S.D.M. and T.A.I., obtained scores between 49 and 60, which ranked them on level 2, within the population mean, under the sociability aspect. B.D.C., B.F. and B.R.M. obtained scores between 61 and 66, which ranked them on level 3, above the population mean. These ones have many friends, they are pleased to be with other people and they can animate the parties.

On the **impulsive sensation seeking scale**, almost all our athletes obtained scores comprised between 40 and 60, which ranked them within thepopulation mean, on level 2. The subject T.A.I. obtained the score 73, which ranked him on level 3, above the population mean. This one searches for new experiences, with environmental changes and strong sensations, he acts under the impulses of the moment and he can be non-conformist.

On the**activity scale**, three athletes, A.G., B.D.C. and T.A.I.,were ranked on level 3, above the population mean, their score being 64. These ones feel the need for permanently being in activity, unlike the other six subjects who are within the population mean, from the point of view of their desire for activity.

On the **neuroticism-anxiety scale**, the subjects A.G., B.F., B.R.M., I.V.R., L.E.A., L.I.S. and S.D.M.had scores comprised between 36 and 58, which ranked them on level 2, namely within the population mean. Only two athletes, B.D.C. and T.A.I.,obtained the score 39, respectively 58, which ranked them on level 1, under the population mean. These ones are self-controlled persons, who don't worry about unimportant things.

On the **aggression scale**, three subjects, B.D.C., I.V.R. and S.D.M., obtained scores between 40 and 70, which ranked them on level 3, above the population mean. These ones directly express their annoyance and they argue with those who have another opinion than theirs. The other seven athletes had scores comprised between 40 and 60, which ranked them on level 2, within the population mean.

On the **social desirability scale**, the athletes didn't distort their answers to the questionnaire, by trying to create a favorable image about themselves.

2. Results obtained at the perception anxiety test– EMAS-P and SAS-P

Table 2. Perception anxiety – EMAS-P and SAS-P

No.	Surname and name	Social evaluation	Physical danger	Ambiguity	Daily routine	Threat scale	Separation	Self-disclosure
1.	A.G.	57	62	55	53	63	60	57
2.	B.D.C.	35	40	62	35	42	61	39
3.	B.F.	35	54	62	49	50	46	48
4.	B.R.M.	44	47	45	42	50	53	56
5.	I.V.R.	44	47	45	42	42	46	48
6.	L.E.A.	52	47	45	58	50	46	46
7.	L.I.S.	36	40	38	51	42	39	37
8.	S.D.M.	52	40	38	65	42	39	37
9.	T.A.I.	53	54	54	56	50	46	65

After the analysis and interpretation of the data resulted from the perception anxiety testing, on the basis of the correction grid, we can notice, in table 2, the representative score for each subject.

These scores rank the athletes on three levels, from 1 to 3, where level 1 is below the population mean, level 2 represents the population meanand level 3 is above the population mean. The scores comprised between 0 and 40 rank the athletes on level 1, those between 40 and 60 rank them on level 2 and thosecomprised between 60 and 100, on level 3.

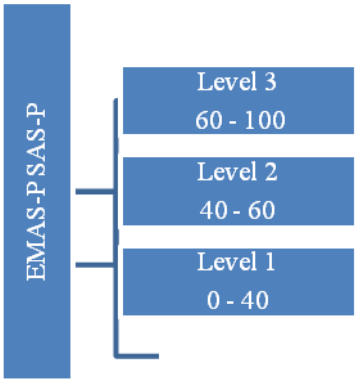


Figure5. Classification on the three levels of the anxiety test – EMAS-P and SAS-P

EMAS-P and SAS-P measure the subjective perception on the type of situation and on the intensity of the threat evoked by that situationat the testing moment. These ones assess seven scalesof the perception anxiety, namely:social evaluation, physical danger, new and ambiguous situation, daily routine, separation from the beloved and self-disclosure.

In the case of the **social evaluation scale**, we can notice, in table 2, the scores obtained by our subjects. These scores rank five athletes, B.D.C., B.F., B.R.M., I.V.R. and L.I.S.,slightly below the population mean. The athletes L.E.A. and T.A.I. obtained scores ranking them within the population mean and A.G. was ranked slightly above the population mean.

The **physical danger scale** shows that three subjects, B.D.C., L.I.S. and S.D.M., are rankedbelow the population mean, which indicates that the years of experience in the practice of this sport, karate do, confer them enough confidence in their own capacities. Five subjects, B.F., B.R.M., I.V.R., L.E.A. and T.A.I., are ranked within the population mean, which proves that, although they have been practicing this sport for more than 10 years, they perceive the physical danger like anybody else. One single athlete, A.G., is ranked slightly above the mean.

The **ambiguity scale** presents the subjects B.R.M., I.V.R., L.E.A. and T.A.I., who are ranked within thepopulation mean. The subjects L.I.S. and S.D.M. are ranked slightly below the population mean, while B.D.C., B.F. and A.G. are ranked slightly above the population mean.

As to the **daily routine scale**, the athletes L.E.A., S.D.M. and T.A.I. are ranked slightly above thepopulation mean, which indicates that theyperceive the sports activity, the participation in training sessions, training camps and competitions as a constant part of their life. The subjects B.D.C., B.R.M. and I.V.R. are slightly below the population mean, while A.G., B.F. and L.I.S. are ranked within the population mean.

On the **threat scale**,we can notice that the subjects B.D.C., I.V.R., L.I.S. and S.D.M. are slightly below the population mean, which shows that they didn't feel threatened at all at the testing moment. The subjects B.F., B.R.M., L.E.A. and T.A.I. are ranked within the population mean, namely they felt as threatened as any other person who had been previously submitted to this testing. The athlete A.G. is slightly above the population mean, which indicates thathe felta little bit more threatened in the situation at the testing moment.

On the **separation scale**, as we can notice in table 5, the subjects B.D.C. and A.G. are ranked slightly above the population mean, which shows that they feel the separation from the beloved in a stronger way than the majority of the population. The athletes L.I.S. and S.D.M. are slightly below the population mean,which makes us conclude that they tolerate the separation from the beloved in a better way than the others. The subjects B.F., B.R.M., I.V.R., L.E.A. and T.A.I. are ranked within the population mean.

The **self-disclosure scale** reveals that the subjects B.R.M., A.G. and T.A.I. are ranked slightly above the population mean, which indicates that theirperception level of the situation at the testing moment wasthat of self-disclosure. The subjects B.D.C., L.I.S. and S.D.M. are ranked slightly below the population mean, which shows that they didn't perceive the testing moment as a self-disclosure moment, while the subjects B.F., I.V.R. and L.E.A. are ranked within the population mean.

3. Results obtained atthe state anxiety test – EMAS-S

Table 3. State anxiety – EMAS-S

No.	Surname and name	Emotional-physiological scale	Cognitive scale	Total score
1.	A.G.	63	62	63
2.	B.D.C.	43	44	43
3.	B.F.	51	47	49
4.	B.R.M.	43	46	44
5.	I.V.R.	59	59	59
6.	L.E.A.	48	41	44
7.	L.I.S.	42	41	41
8.	S.D.M.	43	42	43
9.	T.A.I.	68	71	70

The state anxiety analyses three scales, namely: the emotional-physiological scale, the cognitive scale and the total score scale.

After the analysis and interpretation of the data resulted from the state anxiety testing, on the basis of the correction grid, we can notice, in table 6, the representative score for each subject.

These scores rank the athletes on three levels, from 1 to 3, where level 1 is below the population mean, level 2 represents the population meanand level 3 is above the population mean. The scores comprised between 0 and 40 rank the athletes on level 1, those between 40 and 60 rank them on level 2 and thosecomprised between 60 and 100, on level 3.

EMAS-S	Level 3
	60 - 100
	Level 2
	40 - 60
	Level 1
	0 - 40

Figure 6. Classification on the three levels of the state anxiety test

On the **emotional-physiological scale**, we can notice that the athletes B.D.C., B.R.M., L.I.S. and S.D.M. are ranked slightly below the population mean, the athletes A.G., I.V.R. and T.A.I. are slightly above the population mean and the athletes B.F. and L.E.A. are ranked within the population mean.

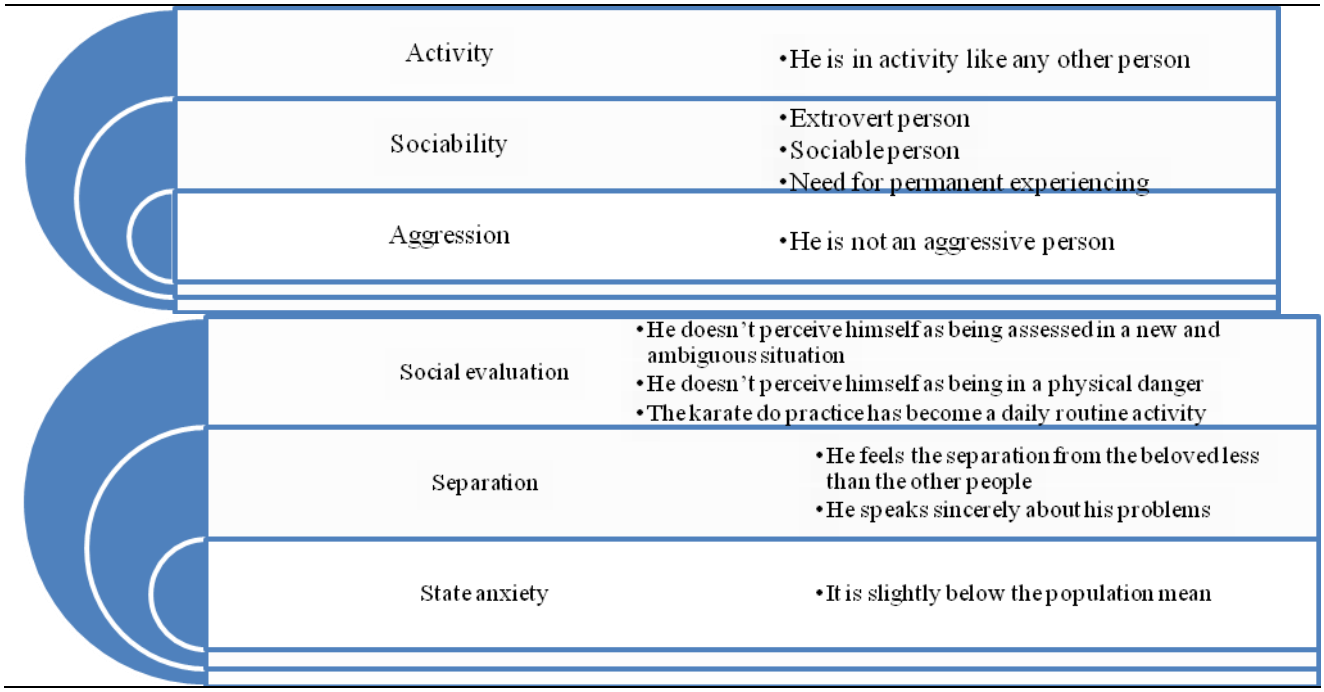
The **cognitive scale** shows that the subjects B.D.C., L.E.A., L.I.S. and S.D.M. are ranked slightly below the population mean, the subjects A.G., I.V.R. and T.A.I. are ranked slightly above the population mean and B.F. and B.R.M., within the population mean.

As to the **total score scale**, we can notice, depending on each subject's score, that B.D.C., B.R.M., L.E.A., L.I.S. and S.D.M. are ranked slightly below the population mean, A.G., I.V.R. and T.A.I. are ranked slightly above the population meanand B.F., within the population mean.

Discussions

Publications with a central topic on psychology, personality, address issues in terms of personality formation in students, teenagers or presents basic issues related to it. Of sports psychology publications, we mention books with the following titles: "Coach's Psychological Guide", "Athlete's Psychological Preparation", both written by Mihai Epuran, or "Psycological Profiling of the Judoka Successful Athlete" of conf. Univ. Dr. Mircea Ion Ene and "Understanding Psychological Preparation for Sport: Theory and Practice of Elite Performers" by Hardy, L., Graham, J., Gould, D.

By analyzing the data resulted from the administration of the three tests considered by us representative for the creation of the top karate do athletes' personality profile, we achieved its synthesis, which is presented in the following table.



Conclusions

1. We find out that the spirit of combat, creativity, practical intelligence, the capacity of control and self-control, combativeness, aggression, quick thinking etc. are psychic qualities indispensable to a top performance karate fighter.

2. Another important aspect refers to the fact that, although the subjects practice a combative, an aggressive sport, they are very kind, conscientious, extrovert, active and emotionally stable persons.

3. Another conclusion drawn from the interpretation of the data resulted from the administration of the perception anxiety testrefers to the fact that the athlete doesn'tperceive himself as being in a physical dangerinhis daily life, which can be due to the karate do practice for more than 10 years, and this has led to its perception as a daily routine.

4. We find out that the administration of personality tests offers the karate do athlete's profile, which enables the coach to individualize the sports training and to direct the sports preparation under all its branches, by improving thus the competitive results.

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Original article

THE ATHLETE AND THE ACTOR ON THE ROAD TO HIGH PROFESSIONAL PERFORMANCE

LEŞE ANA-CRISTINA[1]

Abstract

The present essay discusses common aspects in the psychological and physical training of both highly performing athletes and young actors with additional information that can be successfully used in both areas: Sports and Theatre. The constant effort of those involved in these areas – athletes and actors – generally revolves round a set of common principles. We shall enumerate similarities and useful elements that can be transferred from one of the domains to the other.

Key words: athlete; actor; psychological-physical training.

Introduction

A plea for psychological-physical training in sports and theatre.

The information and ideas in this paper are extracted from training activities involving drama students of the Acting and Puppetry sections of the Drama School within the "George Enescu" Art University, Iaşi, as well as the use of various specialised resources in the domain of Sports and Drama; it is also the result of the teaching experience accumulated in years of practice and specialization in the area. We shall present only a part of the ideas that are conducive to acquiring excellence in Sports and Theatre and the material can be completed for those interested.

Excellence in sports and theatre raises the issue of personal efficiency, related to personal talent and to the responsibility of managing one's own resources: the individuals are their own manager. They have to assess their resources realistically, to set their objectives and cofidently approach the psychological and physical training program for professional qualification. This should be the athlete's / actor's starting point towards professional excellence.

As if in support of our beliefs, Ioan Cojar, director and professor states in his book *A Poetics of the Actor's Art*: "Formation is a delicate process of retrieving human wholeness, the integral potential of an individual, a complex mixture that creates new habits, specific of a high quality spiritual, psychological and physical performance, of transcending the limitations of the ordinary human being." (Cojar, 1996)

The athlete and the actor start on their path to excellence after a detailed selection base on their psychlogical and motor abilities, the most important of which are: talent, motivation, confidence, imagination and will force. It has been repeatedly demonstrated that talent is not enough to achieve success, to reach the top. Many talented actors and athletes waste their gift on the way, tempted by various seductions. If an individual has the talent and instinct to think along a particular sport or can think in terms of dramatic conflict, his/her talent will be shown to hold or not depending on how he acts when he takes charge of his own life. Where talent is strengthened by other psychological qualities, remarkable results will be seen.

To us, the athlete able to achieve excellence following detailed selection can be seen as a companion of the actor: they share aspirations, professional joys and disappointments, the toil of the training sessions, the principles underlying their practice, but they also share and exchange subtler methods that are characteristic of each domain, with the aim of broadening their respective psychological and physical horizon.

Psychological training in each domain is extremely important in achieving excellence. It is common knowledge that the human body and psyche influence each other and are in constant interaction. It must also be mentioned that, in their training, both the actor and the athlete use methods belonging to Physical education. Teaching the practical course in Physical education to drama students gave me the opportunity to implement many physical exercises – also used in the athletes' training programs for general fitness. Moreover, in collaborating with colleagues who teach motion disciplines at the Iaşi Drama School, we have discovered that the actor's training is organized systematically around the same underlying principles as those in the athletes's training who have reached professional excellence. Looking back, we found that where representation and ceremonial are conceened, **physical exercise** and motion are used, sports competition or theatre show in forms that vary but are different from performance. Sports, Physical Education and Theatre are reunited in terms of forms and practices that succeed each other, yet retain their autonomy.

The Importance of Physical Education in Sports and Theatre

Physical Education is important for these two domains as it has a vast arsenal of methods required in

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professional training. The fact that Physical Education is present as a compulsory discipline in the curriculum of drama schools facilitates the young actors' access to clearly set physical exercises, adapted to the specific nature of acting and adequately tailored. There is this **common point** in the athlete's and the actor's path called Physical Education, which is the source from which they can extract principles and methods which can subsequently be adapted to their professional specific purposes.

The ideal held by Physical Education in the athlete's training tends to enjoin the spirit and the physical force in an interdependent relation, as the spirit needs a language to express itself, while movements centre round psychological concepts. The issue of Physical Education cannot be indifferent to the drama environment, since it is also implicit that **Physical Education** facilitates the students' training for other Movement disciplines in the curriculum for drama schools. The high quality of the actor's training is ensured by the maximized development of all physical and psychological abilities. By psychological abilities we mean psychological components such as thinking, will power, memory. Physical Education should be seen as a genuine informing process whose end lies in the range of abilities, skills and attitudes acquired by drama students. Once it has been acquired, this set of motive stock will have a great impact on the other motion disciplines and on performance on stage implicitly. It is of essence that the actor should be familiar with the methods needed to acquire the components of Physical Education (abilities, skills and motive attitudes), that can be stabilized mentally and in physical expression, at the same time removing technically incorrect aspects in execution (in the case of acrobatic elements, for instance). Acquiring a new physical ability implies an increased degree of educability/trainability which is to be acquired through continuous training, of great complexity both technically (correct clear executions, with minimal effort) and artistically.

The purpose of this paper is to emphasize the common elements in the actor's and the athlete's physical training and to suggest the use of elements from the actor's mental training in the athlete's psychological training. We consider the exchange of experience, the borrowing of methods and techniques from one domain to the other very useful. Therefore, the actor's physical training can be significantly improved by applying and adapting methods used in sports competitions, while mental training suggested by the books devoted to drama practice can be a step forward in the athlete's progress and improvement.

Besides being an academic discipline in higher education, Physical education represents the domain that provides the methods necessary for the actor's and the athlete's physical and psychological training. The role of **Physical education** in the curriculum of higher education drama institutions is to introduce the students to physical exercises, skills and abilities in their "natural state", which are to be subsequently adapted to the artistic specificity found in the other motion disciplines. The important objectives of Physical education should not be ignored in the actor's training: harmonious physical development, acquiring and developing basic and applied motive abilities, cultivating a love for movement, the formation and development of desirable personality features such as will force and strength of character.

The actor's body training is an increasingly investigated topic and has been since the beginning of the 20th century; the beginning is to be found in K. S. Stanislavski's research. Along the time, the actor has used his voice and physical motion to express himself, but the physical component was less investigated in the past, even if it was present in the actor's training process. By practicing certain elements or motive sequences, the training is in fact achieved, along with endurance in effort that will result in good technical and artistic quality as well as fitness.

The future actor's training meant to enable him to perform the whole range of **motions** with a credible expression starts from the simplest exercises in **motion,** being of a purely physical nature; they are acquired through physical education (the appropriation of theoretical and practical elements). The same is done in the case of competing athletes, who accumulate in their stock of motive abilities natural physical exercises which will be subsequently directed towards their technical, tactical and artistic training, while all these elements are in a specific relations. For this reason, in the actor's and the athlete's training, the simplest exercises provided by **Physical Education** will reveal their true value only when the conditions of sports competition and of the dramatic performance are met. It is the first step in the process of acquiring professional excellence.

The figure below (Fig. 1) shows the relationship between Physical education, Competition sports, Theatre and success; we have tried to capture the connection between the two domains:

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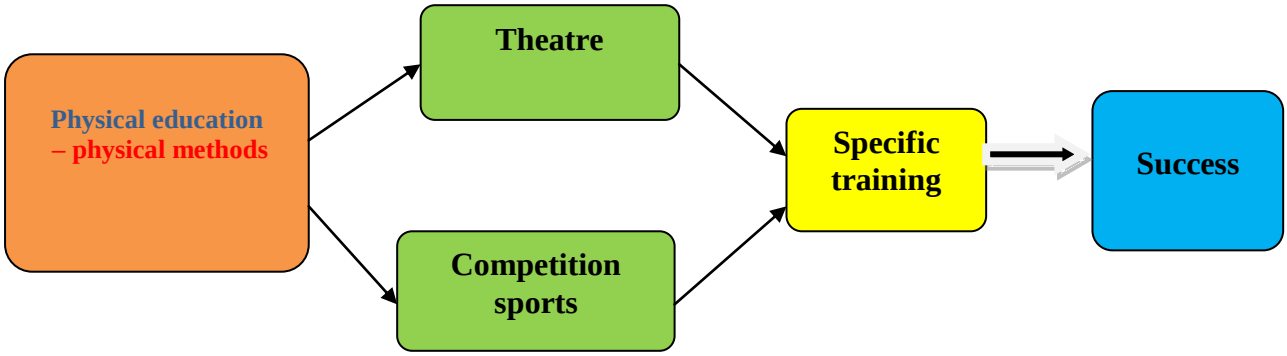

Fig. 1

Shared aspects of the two domains, Competition Sports and Theatre:

- Physical education supports both the actor's and the athlete's professional training by methods (physical exercises, motive habits) extant in its stock. It is known that an athlete undergoes physical training all throughout his career. Similarly, the actor needs the entire range of components to prepare a role: memorizing the stage, voice coaching, preparation of stage movement, psychological and physical training.
- The methodological principles in the two types of training (for athletes and actors) are phrased along the same lines: an intercorrelation between the theoretical and practical aspects; the progressive approach to effort; careful systematization of the methods meant to develop motive abilities and of the morpho-functional indicators; conscious participation, individual, pair or team work; continuity. In her academic course *Stage Expression and Improvization*, Suzana Badian, Professor at the Bucharest Academy of Drama and Film, lists the principles that can also be found in the methodology of Sports and Physical Education according to several other authors.
- Competition athletes and actors start in their respective careers from a particular inborn level of technical, artistic and physical capabilities, and in the course of years undego special training based on the mental and the physical component as well as other components that define their respective professions.
- Actors of established reputation, highly experienced in performing, can be compared to reputed athletes – however, this sets the basis for another side of the debate. We shall eliminate from our assessment of the two types of training – for the athlete and for the actor – the individuals of exceptional capabilities, the geniuses. Most people know athletes and actors who did not become famous mainly for industrious training, but mainly for their exceptional talent. Even in such cases, permanent practice was not excluded, as it is known that, as the saying goes in both **sports** and **theatre**, **talent** alone is not enough for an actor or athlete to reach the top of professional achievement and recognition. Some examples in this respect are:
  - Muhammad Ali, the best heavy weight boxer in history
  - Usaid Bolt and Carl Lewis, the best athletes in sprint
  - Grigore Vasiliu Birlic, a comic genius in Romanian theatre
  - Charles Spencer Chaplin, one of the greatest cinema actors in the 20th century. There are many more who made themselves recognized for their genius.
- The competition athlete and the young actor have to develop their talent, their artistic and physical capabilities and bring them to a higher level. Both theatre and competition sports are domains where success is achieved with difficulty and only after constant effort.
- By voluntarily submitting to strenuous training in order to achieve professional excellence, the athlete and the actor transmit their message to the audience mainly through the medium of movement and of their body.
- The key word which is movement establishes the dynamic nature of the theatrical performance, and that of the athletic performance, too. Movement, this "guiding and, at the same time, reconciling, principle" (Adolphe Appia, 2000) will result in the union between the various practical and theoretical aspects of the two domains in order to bring them to a common point: authentic, qualitative performance. We shouldn't doubt for one

moment the role played by Physical Education in sports and theatre. In this respect, we shall emphasize the **authentic quality of the motions** generated by the practice of physical exercises, which is placed in a natural connection with excellence.

▶ The human body, "alive and mobile" (Appia, 2000) is the essential element in the creative act in the arena and on stage, for which the performer has to prepare in advance.

▶ Thus, the starting point will be the inborn physical quality of each athlete and actor to be used in his gradual development.

▶ The first stage, however, in the development of the technical and expressive qualities of his body is to acquire the natural, purely physical motions that are part and parcel of **Physical education**. The next stage is that of training (athletic in the case of the athlete) and of the Movement disciplines (bodily expression training, fencing, pantomime in the case of the actor).

An insight into the training for excellence in theatre and sports

A professional exchange

Within a project named *Artists' Movement,* preparatory exercises were introduced for the game of basketball with the aim of inviting a few professional athletes (in basketball and handball) for an exchange of ideas.

The athletes also took part in some acting classes based on the concentration method. The drama students attended a basketball and a handball game between the teams consisting of pupils of the Sports highschool, cadets I, Iaşi. Then other teams were made contaning three students from the drama classes each, while the rest consisted of athletes. These games were played for two hours on three consecutive days.

The students learned to get physically and mentally involved to a higher degree in the sporting events, under the influence of the pace of the game. They also were introduced to specific steps to move in the ground, and acquired improved collaboration skills with their team members and the ability to devise attack ploys depending on the opponents' behaviour.

On the other hand, the athletes had a unique experience by participating in acting courses, where there were exercises based on the development of attention, concentration and impersonating a certain character.

Even if the actor's psychology does not exist as a discipline in higher education in the curricula of vocational institutions, certain psychological processes are approached at the various stages of the actor's training; there are many exercises in this area that can be taken as models for the athlete's mental training. Great personalities in 20th century theatre, Stanislavski and Mihail Cehov among them, developed and implemented methods of psychological training, thus raising the value of acting. The reverse is that Sports have the discipline *Sports Psychology* – however, the existing methods are scarcely applied. One thing is certain: psychological training is vital in the athlete's development towards achieving excellence in his career. Many famous Romanian athletes train in clubs, most of which are American, and find real support in mental training. It is true that research in the area of *Sports Psychology* in Romania is striving to implement the best options in the athletes' psychological training; however, the results in competitions in the past years has not been encouraging. With this in mind, we suggest the researchers in *Sports Psychology* some of the models of psychological training for actors. We should not forget that, on seeing the need for improvement in the area of mental training, Mihai Epuran, the Romanian specialist in *Sports Psychology*, states that "any means that can bring the smallest progress in training and excellence must be used." (Mihai Epuran, 2008)

The exercises used in the experiment described above were similar to those used by the famous drama teachers K.S Stanislavski and Mihail Cehov, who left an indellible mark in world theatre.

The exchange described brought together the exercises used in the psychological training in theatre and sports. The positive effects of these exercises should be continued by introducing them in the daily program of athletes and actors. Adapting other exercises according to the model experimented in the exchange can represent a step forward to professional excellence.

Conclusion

In our paper we have aimed at revealing a connection between the psychological and physical training in the athlete's general training and in that of the actor in order to obtain remarkable results.

We have compared the actor with the competition athlete since their level of training is closest. Of course, a parallel can be drawn between the athlete with a level of excellency in his results and the highly experienced and acclaimed actor who prepares many dangerous acrobatic elements, or stunts. This is, however, a different issue.

The idea we would like to emphasize is that one should concentraate on training for success. The result of interest for this topic is the transfer of specific methods from the psychological and physical training between the two domains, Sports and Theatre.

The physical methods in the domain of Physical education build a bridge between the two. For the general physical training, the drama student allots two or three hours per day during the movement courses (stage movement, physical education, dance). The difference between the two types of training, in sports and in theatre, is made by the methods and techniques used to acihieve the respective objectives.

The actor's and the athlete's **psychological training** respectively consists of the development of certain abilities and qualities in the area of the **intellect, affection, will force** and **personality traits**.

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Original article

THE AQUATIC ENVIROMENT – WAYS OF IMPROVING THE QUALITY OF LIFE FOR CHILDREN SUFFERING OF DIAGNOSED IMPERFECT OSTEOGENESIS (OI)

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Abstract

Purpose.Osteogenesisimpefecta,throughitscharacteristics,drasticallylimitsthepossibilities of sufferingchildrentomove and developprogrammswithphysical carácter in ordertoimprovethequality of life. Because of extreme bonefragility, there are veryfewworkmethods.

Objectives. The present paper serves the purpose of creating a theoretical and methodical approach regarding the ways through which children suffering from OI can improve their quality of life through the use of aquatic environment.

Methods. Thestudypresentsboth a classification and a description of themethods and instrumentsused in aquaticenvironmentforraisingthequality of lifeforchildrensuffering of OI. Theeffects and their role onthe human organism are alsoexplained.

Results. Therewas a majorimprovement of quality of life of thechildrenwith OI thatfollowedourtheoretical and methodicalrecomandations in aquaticenvironment.

Conclusions. The most efficient environment for improving the quality of life for children suffering from OI is the aquatic environment. With a carefully structured programme, aknowledged and applied by the suffering child in the aquatic environment, some of the following objectives can be acomplished: improving the quality of life for children suffering from OI, their psychological development, the development from an early age of a positive thinking, mandatory characteristic of children with OI in putting together a recovery programme for them.

Key words: osteogenesis imperfecta, quality of life, game, aquatic environment.

Introduction

Imperfect Ostheogenesis(OI), as few know about, is a rare malady encountered in 1/15000 – 1/20000 people, occuring in all populations and both sexes..This estimate does not include the moderate forms of the malady which can occur. There are about 500 000 people affected in the world, which is about 0,008% of the total population. For example, in the United States the exact number of people with imperfect osteogenesis is unknown, but it is between 20 000 and 50 000 people.(http://www.oif.org/ - fast facts about osteogenesis imperfect). In France, the estimated number is about 3 900 people.

As a conjunctive tissue malady, hereditary by nature, characterized by the fragility of the bone system, OI was first named ,, the glass bones disease". It is an anomaly regarding the production of collagen, the main fibrous protein of the bone structure, compound also present in skin, tendons, eye sclerosis and dentine, the main compound of the teeth. (Puiu, 2007).

The major consequence of OI is the occurrence of multiple fractures, but these are not followed by major trauma. In pregnancy, the heredity of this malady presents a risk of 50%. If a parent is diagnosed with OI, the chance of transmitting the malady to the child is 50%. There are cases of OI transmitted as a recessive trait. There are healthy parents who carry the disease who can give birth to children having a chance of 50% of being carriers themselves, and of 25% of being affected by the malady. There are countless cases of parents with OI that gave birth to perfectly healthy children.(http://www.oif.org/site/pagename=AOI_Facts).

From the heredity perspective, OI does not have consequences on fertility. Some of the women with OI can suffer complications because of the bone sistem problems, but it is very important that all people suffering from this illness to be informed and receive information regarding their condition and the effects and consequences of birth.

It needs to be pointed out that the OI diagnosis is often associated with other maladies like : deformations of the skelleton (at arm, calves or spine level), little height, high laxity at joints level with possible sprains, contusions, etc., platfus, eyesight defficiencies, reduction or even loss of hearing, dental malformations (imperfect

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dentinogenesis), heart valves insufficiency, fatigue, excessive sweating.

One big problem with children suffering from OI is the development of movement capacity. Fear of accidents cummulates with all the shortcomings due to the above mentioned affections because different fractures happen very often.

From the motric education perspective, learning intervention is very difficult and restraint. But from our point of view, as well as the cummulated experience from practical programmes applied to children with OI, but also from studying specialty literature and sites, we can affirm that the aquatic enviroment represents the most efficient and safe way to better the quality of life of children with OI.

Purpose

This paper presents the advantages of using hidrokinetotherapy exercises for the development of movement capacity of children suffering from OI. The objectives of the activity monitor both phisical development aspects, motric, pshichic and social integration.

They particularize in muscle development, effort and movement capacity, correction of postural deficiencies, re-learning to walk, ballance development, coordination. Added to these are the enhancing of the psichological factor considered determinating from our point of view and with implications in the evolution of the recovery and socio-cultural integration processes.

We consider that developing these aspects, the quality of life of these children can be enhanced, and they gain confidence in themselves.

Content

Phisical exercise represents the ideal means for enhancement of health if it is applied accordingly and adapted to specific situations. It will intervene, in equal measure, at an emotional and cognitive level, influencing the motric and social behaviour of persons who desire an improvement of life quality. (Grigore et. al., 2007).

When the option of applying physical exercise takes into consideration the advantages of the environment where it takes place, the teaching intervention can be enhanced.

In this context, we will answer the question :Why the aquatic environment, and implicitly hidrokinetotherapy (HKT) ?

We rally to the opinion that HKT is for people who cannot exercise in normal conditions in dependence to the force of gravity, people who have problems in supporting their own mobile body segments weight. (Vasile, 2010).

When the body is submerged under water to neck level, bodyweight is perceived as 10% of the bodyweight perceived when it is on the ground. The teaching intervention implies using an array of passive and active techniques in which the subjects are in immersion. (Vasile, 2013)

Because, in the water, the body weight is sustained, the pressure on the bones, tendons and joints is minimal and the performance of activities in the aquatic environment can be considered ideal for children with OI. Thus, the aquatic environment has numerous favorable influences and determines specific effort.

As specified in *Interdisciplinary treatment approach for children with OI*, studies regarding the effect of hidrotherapy on children with OI have not been made (Chiasson, Munns, Zeitlin, 2004).

After realising a programme in which 2 subjects suffering from OI on a 2 year duration, an obvious development has been proved, from a psichological and morpho-functional point of view.

Subjects have achieved , from neuro-psychic point of view, a development of motric learning capacity of movement expresivity and cursivity, as well as developing the capacity of phisical relaxation (muscular, functional and psychic).

Regarding morphology, a favorisation of growth and phisical development processes has been noticed ; some of the atitudes and defficiencies present were corrected in a significant percentage.

Under functional aspect, an enhancement of the general effort capacity has been realised through swimming, and also an increase in the functional capacity of the cardio-vascular and respiratory apparatus.

From a social-educational point of view, subjects suffering from OI have integrated in a social group formed by subjects without defficiencies, forming the habit of sistematically practicing phisical exercise, in purposes both profilactic and therapeutic.

Although the advantages of training in water enviroment are obvious, we point out the fact that in specialty literature we have not found concludent data reffering to the programmes recommended for OI. In that manor and for this reason, we consider this paper as of actuality.

Relying on the 2 years practical experience throughout witch work has been done with 2 subjects diagnosed with OI, we have systematised a series of methodic directions for organising the systematic training in table 1, furthermore detailed.

Table 1. Recovery programme in aquatic enviroment :

AQUATIC RECOVERY PROGRAMME					
Recovery Programme	Objective	Effort type	Intensity	Duration	Frequency
Stage I Antrenament de inițiere(2-4 săptămâni)	Acommodation with water	Aerobic	60% of heart frequency	30-50 minutes	3-5 lessons/ week
Stage II Endurance Training (6-20 weeks) (reduced endurance)	Learning ,,crawl" and ,,backstroke" procedures, with accent on cardio-respiratory endurance.	Aerobic	70% of heart frequency	40-90 minutes	3-5 lessons/ week
Stage III Strength training (moderate endurance)	Muscle mass enhancement, with accent on balance and gaining a correct body posture	Aerobic	75% ofheart frequency	60-90 minutes	3-5 lessons/ week

Utilitarian applications

The principle of individualisation represents the basics for organising any motric training programme. This principle, nominated by most theoreticians from sports and phisical education domain (Dragnea, Mate – Teodorescu, 2002) becomes essential for adapted phisical activities. Thus, the orientation of activity to the subject and his requirements will multiply their option of motric evolution and social integration (Teodorescu, Bota, Stănescu, 2007).

In the case of some subjects with OI, adapting the programme to the morpho-functional and motric characteristcs, in paralel with the adequation of socialising situations and psychological intervetion are essential.

As any programme applied in water, the aquatic recovery programme of subjects with OI began with basic training done on land. Subjects who participated were adequatelly equipped (bathing suit, special seeing goggles, swimming helmet, slippers, towel, bathrobe) and have presented medical proof with all tests and evaluations up to date that they can perform phisical activities.

Because of existing problems, children with OI present a greater sensibility from a psychic point of view, so we consider that before beginning the recovery programme, it is mandatory that a discussion between the child and the kinetotherapist takes place. The discussion must be warm, simple, in order for the kinetotherapist gain part of the childs trust. The rest will represent one of the essential objectives of the aquatic programme.

Children being involved, they must be aquainted from the beginning with the ideea of not being dependent on the parents, and to be able to stay and cooperate with specialised personell.

When the children are prepared from the psychological point of view to begin the recovery programme, they can advance to realising the first stages of the recovery programme.

Accomodation with water represents the first stage of the whole recovery process : a full showering occurs, while being held by the kinetotherapist and protected from external risk factors, and then carefully seated on the edge of the pool.

On entering the water, the atention of the kinetotherapist must be focused on the OI suffering child, in the ideea to avoid possible accidents and to create a sense of confort and trust of the participant in the programme.

Entering the water is made gradually, without forcing the child with OI from any point of view, beginning with the lower limbs. The goal is a gradual accommodation of the organism to the water temperature. Because the aquatic enviroment represents the main enviroment of application of the recovery programmes, accommodation of the children with the water represents the first objective and we consider that it is the most important of the recovery programme.

Because the people suffering of OI, and mostly the children are overprotected by the parents or the people around them, accommodation to the water represents a very delicate and hard to solve problem.

Following the cummulated experience we consider that the foundation of solving this objective lie in the patience of the kinetotherapist and his communication with the participants. He must offer them his trust without forcing the

participants in any way, because the transit from dry enviroment to aquatic enviroment is only realised gradually and in the time imposed by them.Once accomodation with the aquatic enviroment has occured, the work of the kinetotherapist becomes considerably easier.

Accomodation and even adaptation to the water occurs at the same time the subjects get used to : impeded breathing because of water pressure, performing slow movement because of water resistance, losing ballance because of the ascending force according to depth, lowering of body temperature because of water temperature, difficult orientation because of swimming on the back or without goggles, total body immersion and performing exercises with the head in the water.

The recovery programme is based upon the principle of progressivity regarding both duration and exercise complexity, simple-complex, easy-hard.

The duration of the programme applied to the children with OI is basically long term, becoming a necessary routine for suffering children.

We consider this to be the only actual alternative so that people suffering from OI can become independent. The programme must be entirely recorded in the personal chart of the subjects, for them to consult it at any time with the skilled person that tends to the programme. Another very important aspect is tied to the type of recovery programme : this can be individual or grup.

From our point of view, the programme must contain an individual part, as well as a group part. We consider it necessary for the programme to start with an individual part, because the child requires enhanced attention, especially because he comes into contact with a new enviroment, the aquatic enviroment.

We recommend the individual part to be immediately followed by a collective programme, because the subjects can become examples for each other. The advanced subjects represents a successfull model for the beginner subject, and the beginner subject will represent an example for the advanced subject. This will help to realise the progress in the recovery programme and will be considerably motivated.

In the case of people with OI, HKT perfectly adapts to their particularities. Its efects are those of fighting inflamations, decontractation and miorelaxation, and are benefic in fighting vicious atitudes present in children with OI, inherent muscular contracments and ligament and capsular retractions.

Recovery can be made and even high performance can be reached by children with OI, a goal set to be realised by one of the two subjects.

Evaluation of the participants will be made before applying the programme, periodically and continuosly during the application of the programme, and also at the end of the programme, representing a summative or final evaluation (Ciolcă, 2012). The procedures used in the recovery programme will be the „Crawl" procedure and the „Backstroke" procedure. We consider that these procedures are the only ones that can be used and applied in the case of children with OI without negative consequences

Conclusions

- Because of the specificity of the disease and more precisely the high risks of fractures, the phisical activity of children suffering from OI is very restraint. Because of the specific characteristics, the most efficient enviroment for the recovery programme for improving the quality of life of children suffering from imperfect osteogenesis is the aquatic enviroment. We consider this the beste actual option for people with OI to become independent.
- The training programmes must combine in harmony the motric and phisiological aspects with those of improving the psychological factor.
- It is recommended that the duration of the recovery programme is the persons lifetime, becoming a rutine necessary to the suffering subjects. The recovery programme will be based on the progressivity principle, both as duration and exercise complexity.

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Original article

A PHARMAECONOMIC STUDY REGARDING THE DEMAND FOR MUSCLE HYPERTROPHY PARAPHARMACEUTICALS CONSUMED BY YOUNG ATHLETS

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Abstract

The demand for nutritional supplements has registered a continuous growth over the years, due to the population's obsession with food, health and the way they look. Today it has transformed into a billion dollar industry, with hundreds of million people consuming nutritional supplements daily, owing to the development of the pharmaceutical industry.

The demand is for Vitamins, Minerals and Supplements also known as VMS, especially used by young adults to boost their health, image and sport performance. The consumer behavior can be seen in the market quota growth that these products hold on the par pharmaceutical market.

Key words: nutritional supplements, market demand growth, muscle mass growth.

Introduction

Due to the fact that people nowadays are more and more concerned about their health and the way they look the global VMS (Vitamins, Minerals and Supplements) market is one of the fastest growing industries in the world, especially the sports nutrition segment. Today supplement manufactures offer a very wide range of products for young athletes and not only and according the BCC Research report the global supplement market was estimated at about 44.3 billion dollars in 2011 and is expected to reach 52.2 billion dollars by 2016 (BCCResearch). In Romania the supplement market is estimated at 270 million dollars from 78 million dollar estimated during 2007-2008 (Cegedim).

This boom is the result of the wide variety of supplements that existent on the market not only for professional athletes, but also for individuals that participate in recreational workouts and sports. Sports performance products have been directed especially towards the male consumers, but nowadays sports nutrition products exist for both genders and according to a study carried out by the National Health Interview Survey it shows that more and more kids use sports performance formulations.(National Health Interview Survey- cdc.gov.).

Sport endurance supplements are the foundation of the sport supplement market, leading to a substantial growth in this area. Due to the continuous innovation in this industry the line between professional athletes and recreational exercisers are becoming blurrier therefor the market registers a continuous growth.

Nutrition Business Journal (NBJ) separates sports nutrition into three distinct categories: Sports Nutrition Supplements, including powders, pills and "hardcore" bodybuilding ready-to-drink (RTD) products; Nutrition Bars & Gels; and Sports & Energy Drinks & Shots. (Nutrition Business Journal.com)

Currently on the market a large segment is occupied with muscle growth and repair supplements and drugs. Supplement use is widespread among athletes that participate in sports that require strength and power.

Aim of the study

The aim of the study is to highlight the demand for muscle hypertrophy drugs and supplements.

Results and discussions

The consumer is often confused because supplements do not undergo the same regulations as pharmaceutical drugs. A few of the supplements and pharmaceutical drugs that are more commonly used by athletes are described in this article.

Researchers recommend athletes to consumefood proteins before and after exercising which leads to an increase in muscle mass, that consuming high energy carbohydrates is not enough to maximize protein synthesis. Scientists have proven that consuming certain types of rapid digested proteins and by consuming these immediately after working out helps develop muscle mass. For immediate results often athletes supplement their diet with nutritional supplements and drugs to help enhance their muscle mass. (Clarkson, 1998).

In this paper we present the drugs most used by athletes to increase muscle hypertrophy , these drugs can only be released with a medical prescription and even if it is a legal prescription it is illegal for a professional athlete to use them before a competition, coming into disagreement with the anti-doping laws.
Below we present the most commonly used drugs banned by the World Anti-Doping Agency.

Androstenedione ("Andro") is a steroid produced in the adrenal glands and the gonadswhich is converted in the body to testosterone. Medically is aids in the production of testosterone for individuals with

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hormonal problems and it can only be obtained only with a medical prescription. In improving performance it is used by young athletes to increase muscle strength and mass and to shorten muscle recovery time. (Lemon, 1995).

Human Growth Hormone ("HGH," Somatotropin) it is a hormone produced by the pituitary gland that promotes body growth, it is available only with a medical prescription. Whereas anabolic steroids primarily affect muscles, HGH strengthens bones and tendons as well. It is used by athletes to reduce body fat, thus increasing body muscle, speed recovery from injury and increase resistance to injury. (Cristea, 2006).

Tetrahydrogestrinone ("THG," "the Clear") medically it is not used, but is very popular with athletes due to the fact that it increases muscle strength and promotes muscle growth.

Ephedrine (Ephedra, Ma Huang) is a chemical compound derived from the herb ephedra. Athletes use it to increase energy and alertness and to lose weight by speeding up their metabolism. Medically it is used as a decongestant and for temporary relief of asthma and bronchitis. Ephedrine has been banned by the International Olympic Committee, the National Football League, Major League Baseball and the National Basketball Association. It's illegal to use in dietary supplements and can be obtained only with a medical prescription. (Cristea, 2006).

Stanozolol (Winstrol) is a man-made anabolic steroid derived from testosterone, it has been approved for human use but only with a medical prescription. Athletes use it to increase the strength of their muscles, generate lean body mass and to improve endurance. Used medically to promote bone and tissue growth and to treat hormonal problems and skin/tissue swelling.

Testosterone is a hormone produced primarily in the testes of males and the ovaries of females. In the sports world it is used to build muscle mass and it also reduces fat and increases bone density and strength. It also can be obtained only with a medical prescription.

Erythropoietin is a type of hormone used to treat anemia in people with severe kidney disease. It increases production of red blood cells and hemoglobin, resulting in improved movement of oxygen to the muscles. Epoetin, a synthetic form of erythropoietin, is commonly used by endurance athletes. Erythropoietin use among competitive cyclists was common in the 1990s and allegedly contributed to at least 18 deaths. Inappropriate use of erythropoietin may increase the risk of thrombotic events, such as stroke, heart attack and pulmonary edema.

Nandrolone (Deca-durabolin) is a anabolic steroid (a steroid that acts as the hormone testosterone) that occurs in small amounts in the human body. Medically it is u used to treat osteoporosis in postmenopausal women, to aid in the growth of blood cells in bone marrow, and to help tissue and muscle growth in people suffering from degenerative diseases like AIDS. Athletes use it to grow muscle mass and aid in physical recovery from workouts. It can only be obtained with a medical prescription.

Diuretics have long served as a way to mask steroid use. A diuretic is any drug that affects kidney function, resulting in increased urine output. The "water pill" chlorthalidone, for example, prevents fluids and salts from being reabsorbed into the kidney tubules and returned to the blood. As a result, more water leaves the body. Acetazolamide works by blocking the uptake of sodium bicarbonate in the kidney tubules. Upon excretion, the bicarbonate ion carries out water, sodium and potassium.In patients with certain conditions, such as heart disease, diuretics can help control high blood pressure and fluid retention. But athletes who take anabolic steroids take diuretics to dilute their urine, which decreases steroid concentration and makes it much more difficult to detect. Weightlifters and boxers may also down water pills to expel large amounts of fluid, which qualifies them to compete in a lower weight category. Then, right before the match, they stop taking the pills to return to their heavier fighting weight, giving them an advantage against their opponents. Of course, an athlete taking diuretics may also get dizzy, become dehydrated or experience a severe drop in blood pressure. (Cristea, 2006).

Many athletes have turned away from anabolic steroids and illegal drugs and toward nutritional supplements in the hope of gaining a competitive edge without threatening their health. Athletes may require slightly more protein than sedentary people do to maintain positive nitrogen balance, but it is dubious whether extra dietary protein will help someone to achieve athletic goals.(Burke, 1994).

Over time athletes have been advised to consume from meat and wine to herbal tonics, from beef juice to egg based protein powder, but nowadays supplements exist that offer a wide range of products for each person's needs (Mertz, 1992). But bodybuilding supplements have also caused health problems, for example in 2012 the best-seller Craze sold on Amazon and in Wall Mart consisted of amphetamine like compounds that lead to liver damage and blindness. In the Unites States 50.000 reports are filled each year due to dietary supplements. Bodybuilding supplements are the number one cause of liver damage out of all the other supplements. Purified amino acids have become a popular and expensive form of protein supplementation. (cdc.gov) Excessive protein supplementation can lead to dehydration, gout, liver and kidney damage, calcium loss, and gastrointestinal effects. Supplementation with vitamins and minerals in excess of recommended daily allowances appears to have no effect on muscle mass or athletic performance. Other substances touted as having ergogenic properties are carnitine, cobamamide, growth hormone releasers, octacosanol, and ginseng,

but there is no reliable scientific evidence to support claims that products containing these compounds have ergogenic potential, and heavy supplementation may lead to adverse effects. Nutritional supplements are promoted through unsubstantiated claims by magazine advertisements, health food stores, coaches, and other sources.(Clarkson)1998 The FDA considers nutritional supplements to be "foodstuffs", not drugs, and therefore has not required that they be proved safe and effective. Dosage guidelines are inadequate, and quality control is poor. The FDA has begun to revise regulations governing labeling and health claims for these products. There is little if any evidence that nutritional supplements have ergogenic effects in athletes consuming a balanced diet, and some products have the potential for harm.

Next we present the most commonly used substances in dietary supplements taken to enhance muscle hypertrophy. (fda.gov)

Protein

Athletes need a diet high in protein and numerous studies have found out that there is a higher need for protein when physical activity is carried out. The muscles in our body consist mainly of protein and their role is essential for gaining performance in all sports. Exercise has a well known effect on protein metabolism, and hard exercise damage the muscle tissue and proteins help repair and recover the muscle. These factors aredependent on protein intake in ones diet.

In a number of recent studies it has been proven that protein supplementation is not necessary for the athletes. Deficiencies in protein intake are more likely in the sedentary individual, especially when energy intake is restricted in order to control body weight, than in the athlete training hard who consumes sufficient energy to meet the demand. In spite of this clear relationship between total energy intake and the adequacy of dietary protein intake, however, many athletes ingest large quantities of protein consisting in foods and expensive protein supplements. Protein supplements can be bought in the form of pills, bars, powders, drinks and shakes, but protein powders account for a major part of the nutritional supplement sales to athletes. (Lemon)1995

There are a large number of athletes who take daily protein supplements, the most common being **Whey protein.** Whey protein is a mixture of globular proteins isolated from whey, the liquid material created as a by-product of cheese production -the watery portion of milk that separates from the curds when making cheese. Whey protein is used for improving athletic performance, as a food supplement, as an alternative to milk for people with lactose intolerance, for replacing or supplementing milk-based infant formulas, and for reversing weight loss. Whey protein is commonly marketed and ingested as a dietary supplement, because is a rich source of naturally occurring branched chain amino acids, which are important for those who have an active lifestyle. Whey protein is likely safe for most adults when used appropriately. High doses can cause some side effects such as increased bowel movements, nausea, thirst, bloating, cramps, reduced appetite, tiredness (fatigue), and headache.

A 2009 study at McMaster University in Ontario, Canada found that, despite being at rest, subjects who consumed whey had nine times greater muscle repair and growth than those who ate other types of protein (casein and soy). After exercise, the same whey group saw a 122 percent greater muscle protein synthesis compared to the casein group and 31 percent greater than the soy group.

Casein which is commonly found in mammalian milk, making up 80% of the proteins in cow milk and between 20% and 45% of the proteins in human milk.

An attractive property of the casein molecule is its ability to form a gel or clot in the stomach, which makes it very efficient in nutrient supply. The clot is able to provide a sustained slow release of amino acids into the blood stream, sometimes lasting for several hours, it prevents catabolism while asleep by emptying slowly and steadily. Casein is a great snack for those who want to pack on muscle mass because it doesn't give a feeling of fullness. New research found that casein when it's taken post workout, boosts muscle protein synthesis much like whey does. It's even suggested that a whey and casein protein shake taken after training increases muscle growth better than either protein taken alone. (nyhealth.gov)

Amino Acids

Amino acids are the building blocks of protein, the body breaks consumed protein into amino acids in the stomach and intestines. Amino acids in particular are used specifically to build muscle and can produce impressive results in an entirely natural way. Supplements have become increasingly popular, because nutrient quantities absorbed with normal food generally do not suffice to cover the increased demands of athletesThe most important amino acid for athletes is leucine which is responsible with the regulation with the growth and repair of tissues, skin, bones and muscle. (Cristea, 2006).

Branched-chain amino acid (BCAA) are among the nine essential amino acids for humans, accounting for 35% of the essential amino acids in muscle proteins and 40% of the preformed amino acids required by mammals. The term branched-chain amino acids refers to leucine, isoleucine and valine, the absolute most important amino acids for repairing and building muscle tissue. Leucine is the most critical of the three, as research shows that it can stimulate muscle protein synthesis on its own. It is recommended to take all three together, since they work in synergy to provide a multitude of benefits, including muscle growth, increased energy during workouts, the blunting of cortisol (a catabolic hormone that inhibits testosterone and increases muscle breakdown) and decreased delayed-onset muscle soreness. BCAA are

used especially by athletes who want to maintain muscle mass while on a calorie-deficit diet. (Lemon, 1995)

Carnosine (beta-alanyl-L-histidine) is a dipeptide of the amino acids beta-alanine and histidine. It is highly concentrated in muscle and brain tissues. Carnosine is important for many normal body functions including the proper function and development of the muscles, heart, liver, kidneys, brain, and many other organs. . Research shows that when muscles have higher levels of carnosine, they have more strength and endurance. Carnosine appears to increase the muscle fibers' ability to contract with more force, and to do so longer without fatiguing. Several studies reported increases in muscle strength and power in athletes who took beta-alanine. One recent study found that subjects who took beta-alanine along with creatine gained more muscle mass and lost more bodyfat than subjects who took only creatine.

ZMA (Zinc monomethionine and aspartate and Magnesium Aspartate) is a supplement used primarily by athletes, gymnasts, and bodybuilders. It is most often used as a recovery aid. ZMA claims to raise strength levels and may enhance hormonal profiles. The study most often used to support the hormone effects of ZMA is one done at Western Washington University. Dr. Lorrie Brilla (and a ZMA supplement manufacturer) studied 12 football players who took ZMA nightly during an eight-week spring training program and a separate group assigned a placebo pill. The athletes taking the ZMA had 2.5 times greater muscle strength gains than the placebo group; the ZMA group increased by 11.6 percent compared to only 4.6 percent in the placebo group. The ZMA group also had 30 percent increases in testosterone levels (compared to 10 percent in the placebo group).

Beta-ecdysterone, also called ecdysterone or 20-hydroxyecdysone, is a naturally occurring steroid found in plants such as spinach, where its main function is to protect the plant from insects. Russian scientists discovered many years ago that beta-ecdysterone has anabolic properties. In fact, it's similar in structure to hormones found in insects and crustaceans, but beta-ecdysterone doesn't behave like a hormone in the body, but rather works by stimulating protein synthesis and therefore muscle growth. Anecdotal reports suggest that it's very effective for producing increases in both muscle size and strength, it's used widely by body builders with hopes to build muscle or lean body tissue. It's also often marketed as a natural alternative to steroids with claims that it's a powerful growth promoter with no negative hormonal consequences.

High Molecular-Weight Carbs. Molecular weight is a term that refers to the mass of one molecule of a substance. Therefore, high molecular-weight carbs (HMCs) are essentially made up of very large, heavy molecules. HMCs such as the patented Vitargo brand are typically made from waxy maize (corn) starch. What makes these carbs so special is their ability to rapidly pass through the stomach to the intestines where they can be absorbed and enter the blood. Research shows that HMCs pass through the stomach at a rate almost 100% faster than sports drinks. This is important after exercise because consuming carbs at this time blunts cortisol levels, prevents muscle breakdown and raises insulin levels to help promote muscle growth and replenish muscle glycogen levels. (Maganaris, 1998).

Creatine

Creatine. Manufacturers claim they can build muscles, and improve strength and stamina, without the side effects of steroids. Dietary supplements are not regulated by the Food and Drug Administration (FDA) and are not held to the same strict standards as drugs. If abused, they can have harmful effects.

Creatine supplies energy to the cells and muscles for a limited amount of time and it is an organic acid naturally occurring in the body. A number of scientific studies have shown that creatine can improve strength, energy, muscle mass, and recovery times. In addition, recent studies have also shown that creatine improves brain function, and reduces mental fatigue. Unlike steroids or other performance-enhancing drugs, creatine can be found naturally in many common foods such as herring, tuna, salmon, and beef. Creatine increases what is known as cell volumization by drawing water into muscle cells, making them larger. Creatine is sold in a variety of forms, including creatine monohydrate and creatine ethyl ester, amongst others. Though all types of creatine are sold for the same purposes, there are subtle differences between them, such as price and necessary dosage. Used a long period of time it can cause short-term cramping and diarrhea. While less is known about long-term use, creatine has been linked to muscle injury and kidney problems. Creatine has different effects on each individual person. Some people will use it and see effects within a week, others will use this and it will take a longer period of time to see results. There is no determination of how the product will affect a person. (Hultman, 1996)

Conclusions

Today the supplement market is very large and diverse and it is very hard to predict the future. Sport nutrition companies are in the early stages of developing gender based products in order to reach the mainstream female consumer and today they are more cost-effective, safe, natural and efficacious. Until now the vast majority of products have targeted men as can be seen on the packets as well as the formulation. The new generation represent a new market opportunity and companies are more preoccupied to satisfy the needs of the younger athletes generation when it comes to dietary supplements. Today companies and in a continuous race to offer new products, brands and packaging offering these products in supermarkets, coffee houses, outdoor stores and of course pharmacies.

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Original article

THE ROLE OF MIRROR THERAPY IN THE IMPROVEMENT OF UPPER LIMB FUNCTION IN POST-STROKE PATIENTS – CASE STUDY

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Abstract

Purpose: Mirror therapy has been introduced as an effective rehabilitation mean after limb amputations. Different researches have also shown positive effects in the functional rehabilitation of the upper limb in post-stroke patients. The aim of this case study paper is to analyze the extent in which integrating mirror therapy sessions in the rehabilitation program of a 56 year old post ischemic stroke patient contributes to the improvement of his upper limb functionality.

Methods: The research methods we used are: the bibliographic research, the observation method and the case study method. For the assessment of the subject's upper limb function we used the Fugl-Meyer test. The study begun in September 2013 and is still in progress. For the paper, we will report to the evolution of the patient by the end of November. In the rehabilitation program we integrated Bobath therapy, PNF therapy and Mirror therapy. The subject was hospitalized for a month and afterwards he continued rehabilitation at home where he underwent a number of 3 rehabilitation sessions per week. Mirror therapy was integrated after the discharge.

Results: So far, the results of the study we are conducting are positive. The patient was assessed at the end of November. We noticed an improvement in the shoulder, elbow, wrist and hand movements as well as an increase in the precision and execution speed.

Conclusions: Mirror therapy is a useful tool for the functional rehabilitation of upper limb in post-stroke patients. The positive results we had so far are enabling us to continue the research and in the end extend it on larger groups of subjects.

Key words: mirror therapy, upper limb, rehabilitation, stroke.

Introduction

Stroke is one of the leading death and disability causes worldwide, though up to 80% of all cases may be prevented by reducing the individual's risc. Stroke incidence differs by region. It is decreasing in Western Europe and North America and has an increasing trend in Eastern Europe and Asia.

There are approximately 16 million new stroke cases each year, causing a total of 5.7 million deaths.

Romania is amongst the first 10 european countries regarding the number of new stroke cases occuring each year, with approximately 200 new cases/100000 inhabitans. According to statistics, in 2010, there were 49305 deaths, from which 6055 affected individuals under 65 years of age (Nichols, et. al., 2012).

Worldwide, 40 to 50% of total deaths amongst young adults are attributed to haemoragic strokes while for a third of the cases the causes are unknown (Love, Biller, 2009).

From the late 1990s, the number of stroke survivors has increased. 50-60% of them have subsequent neuro-motor sequelae which decrease the quality of their life and are a real burden for the national economies (Adamson, et. al, 2004). On average, 0.27% of gross domestic product is spent on stroke by the national health systems (Di Carlo, 2009).

In the EU countries, the total annual cost with stroke is estimated at 38 billion euros. In 2009, Romania had the lowest cost/stroke patient from all the EU countries, respectively 6 euros (Nichols, et al., 2012).

Functional rehabilitation is the main objective of a physical therapy program after stroke. It is very important to have an up to date understanding and approach of the impairment in order to be able to conceive an individualized rehabilitation plan tailored on the specific needs of each patient. It is the only way in which we can contribute to the improvement of the patient's quality of life.

The literature is rich in studies that focus on the optimal functional rehabilitation of post-stroke patients. There have been conducted many comparative studies of different aproaches, all of them aiming to determine which approach is more appropriate (Young, Forster, 2007).

A meta-analysis on the importance of long term post stroke physical therapy (for at least six months after the debut) included 15 studies, on a total of 700 research subjects (Ferarrello, 2010). The results showed an improvement of the gait pattern and an increase of the subjects'ability to perform daily tasks independently.

In another comparative study, the authors analized

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how functional rehabilitatin programs contribute to the improvement of the subject's motor control (Langhorne, et. al., 2009). The selected studies had their limitations, but the authors could draw satisfactory conclusions about the rehabilitation of gait and upper extremity function. Therefore, the most efficient strategies for the upper limb functional rehabilitation seem to be the constraint therapy, the electromyographic biofeedback, the mental imagery and the robot-mediated therapies. Gait patterns can be improved through repetitive tasks, in high intensity rehabilitation sessions.

Mirror therapy consists in creating the illusion of perfect bilateral synchronization. Mirror therapy gives better motor capacity and autonomy scores for tasks involving the upper limb and the acquired results last for 6 months. It has been introduced as an effective rehabilitation mean after limb amputations. Lately, different researches have also shown positive effects in the functional rehabilitation of the upper limb in post-stroke patients (Yavuzer, et. al., 2008, Thieme et. al., 2012).

Through this case study we aim to determine whether mirror therapy can be used as an useful tool in the post stroke functional rehabilitation process of the upper extremity of a 56 years old subject.

In Romania there are no studies regarding the effectiveness of this rather new rehabilitation concept so our scope is to determine whether it can be suitable for other individuals recovering after a stroke.

Methods

The subject is a 56 year old male patient, diagnosed with left hemiplegia secondary to a 6 months old ischemic stroke. From the 16th of September to the 11th of October he was hospitalized in the Department of Rehabilitation of Ilfov Emergency County Hospital in Bucharest where he was submitted to a functional rehabilitation session a day. After discharge, from the 14th of October to present he continued rehabilitation at home three times a week.

The subject has high blood pressure and dyslipidemia and is in treatment with Cerebrolizin, Norvasc 10mg, Crestor, Sintrom and B1 and B6 vitamins.

He was informed about the objectives and the scope of the present study and he accepted freely to participate into the research.

The research methods we used in the study were: the bibliographic research, the case study method, the observation method, the Modofied Ashworth Scale for spasticity and the Fugl-Meyer test for the assessment of the subject's upper limb function. To draw the conclusions of this paper we related to the evolution of the patient by the end of November.

The subject was assessed at hospitalization and discharge as well as at home, on the 29th of November.

The initial assessment was tailored on collecting data about the patient's disability through specific tools such as:

- Patient history form;
- Modified Ashworth Scale for spasticity;
- Fugl Meyer test for the assessment of the upper limb function;
- Postural Assessment Scale for Stroke (PASS) for the assessment of the patient's static and dynamic balance;

The patient's blood pressure was monitored before and after each rehabilitation session.

In accordance with the results of his initial assessment, the rehabilitation plan consisted in analgesic electrotherapy (interference current), ultrasound therapy and individualized physical therapy.

The objectives of the functional rehabilitation program were:

- The improvement of the patient's posture and walking performance;
- The improvement of his static and dynamic balance;
- The improvement of his upper limb function;
- The improvement of the patient's coordination.

The rehabilitation strategy we applied was individualized in order to maximize the patient's functional independence and personal daily routines. It included functional tasks performed from sitting, four point kneeling, kneeling and standing designed to improve the patient's balance skills and upper arm movements, PNF techniques for his upper arm, head and trunk, exercises at the Rocher cage designed for the improvement of the subject's walking pattern and upper arm movements and exercises at the quadriceps bench for the inhibition of the lower limb extensor spasticity.

The upper arm exercises required a minimum of aditional equipment consisting in a Bobath Ball and a towel. Mirror therapy was introduced after the discharge and was not associated with other upper arm rehabilitation strategies.

We asked the patient to perform simple shoulder, elbow, wrist and hand movements with his unaffected limb and to permanently concentrate on the movements while watching the mirror. We also integrated grasping and reaching movements. We used objects with different sizes and textures such as paper sheets, pencils, cilinders and small balls.

In the hospital, the functional rehabilitation program lasted for 4 weeks with a frequency of 5 times per week. One session lasted for 1 hour and a half and included a maximum of 6-8 exercises, according to the patient's physical status and level of fatigue. Each exercise was performed in 1-5 sets of 5-10 repetitions each and had a low to moderate intensity in order to avoid the instalation of neuromuscular fatigue. Rest time in between sets varied from 60 to 120 seconds.

At home, the physical therapy program had a three times a week frequency. We related to the same parameters regarding the effort intensity, number of sets, repetitions and rest time. Mirror therapy had a 30

minutes duration. We continued to monitor the subject's heart rate before and after each rehabilitation session.

The assessment we had at the end of November was tailored on collecting only data about his upper limb function.

Results

For a better understanding of the patient's impairment we collected and systematized the results of the initial assessment in Table 1.

Table 1. Initial assessment results

Variables	Results
Initials	A.N.
Gender	Male
Age (years old)	56
Blood pressure (mmHg)	140/80
Heart rate (bpm)	75
Diagnosis	Left hemiplegia after primary ischemic stroke
Risk factors	High blood pressure, dyslipidemia, sedentary lifestyle, smoking
Family history	No
Modified Ashworth Scale score	1
PASS score – maintaining a posture	14
PASS score – changing a posture	21

From the analysis of the data above results that, at the moment of the initial assessment, the subject's heart rate and blood pressure were normal. He had a history of both modifiable and nonmodifiable stroke risk factors such as: high blood pressure, dyslipidemia, chronic smoking and a sedentary lifestyle.

Regarding the spasticity, we could detect a slight increase of the muscle tone mostly in his lower limb. The patient could easily maintain and change different postures and had a relatively good independent walking function even though he relied on a walking stick for longer distances.

To assess the subject's upper extremity function we used the Fugl Meyer test. The results of the initial, interim (at discharge) and final (at home) assessments are summarized in the table below (see Table 2).

Table 2. Fugl Meyer Assessment for the Upper Extremity results

Variables	Assessment		
	Initial	Interim	Final
Reflex activity	4	4	4
Volitional movement within synergy, without gravitational help	15	15	16
Volitional movement mixing synergies without compensation	3	3	5
Volitional movement with little or no synergy	2	2	3
Wrist	2	4	7
Hand	5	5	12
Coordination/speed	3	3	3
Total motor function upper extremity (…/66)	34	36	50
Sensation	12	12	12
Passive joint movement	22	24	24
Joint pain	20	24	24
Total Fugl Meyer – Upper Extremity (…/126)	88	96	110

From the analysis of the data available in Table 2 we may draw the following conclusions:

- At the initial assessment the motor function of the subject's upper extremity represented 51% of the normal one. He could only partially perform movements such as lifting his hand from the contralateral knee to the ipsilateral ear or putting his hand on his lumbar spine.
- The patient had no sensory deficit in his upper extremity.
- We found a limitation of the shoulder passive internal and external rotation and the movements generated a small degree of pain. The patient also experienced some pain at the passive shoulder flexion and wrist extension.
- The Fugl Meyer Test for the upper extremity had a score of 88 points, which represented approximately 70% of the total one.
- After the 4 weeks of functional rehabilitation in the hospital the subject's upper extremity motor function improved with 3%. We registered an improvement of his wrist function as well as a diminisment of the pain he experienced at different passive movements of the upper limb. All passive movements mentioned above could be performed at full range of motion.
- The interim result of the Fugl Meyer test improved with 6%.

Even though he could perform various movements with his affected upper limb, the subject did not use it for his daily routines.

Discussions

As we stated above, we introduced the mirror therapy after the subject's discharge. In order to obtain conclusive results this was the only functional rehabilitation strategy for the upper limb that we have used at home.

The figure below shows the evolution of the subject's upper limb function at the moment of each assessment (see Fig.1.).

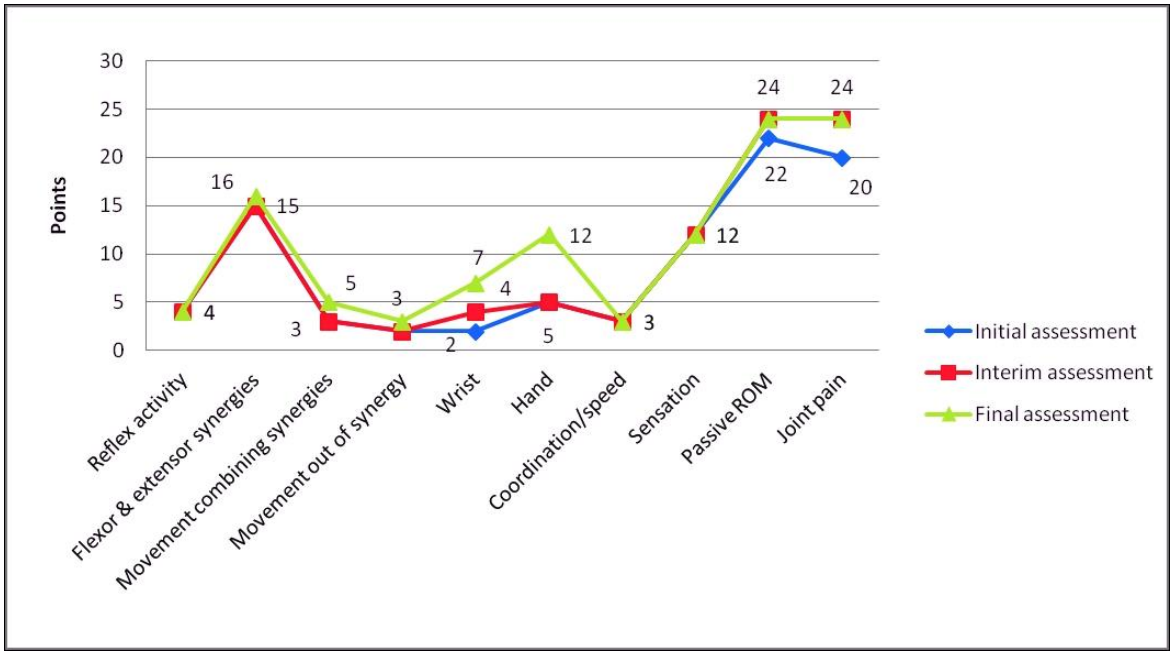

Figure 1. Fugl Meyer Assessment for the Upper Extremity results

At the final assessment we could notice an improvement of the upper extremity overall movements. The total motor function increased with 25%. He could perform complete shoulder flexion from 0^0 to 90^0 with his elbow extended. His supination also improved and was able to do complete pronation-supination movements keeping his elbow in a 90^0 flexion.

The subject found it easier to perform the requested tasks while his precision and movement speed increased with 50%. The greatest improvement was obtained in his hand and wrist movements, therefore his grasping and grabbing skills became more finely honed. For example, the subject was able to hold a cilinder and spherical object against a tug and he managed to hold a pencil. He could perform mass hand flexion and extension at full range of motion and was able to fully dorsiflex his wrist at 15^0 against minimum resistance. We also noticed a diminishment in the upper limb tremor while performing the movements.

After only a month and a half of mirror therapy our subject's upper extremity function improved with 17.3%.

Conclusions

Our case study research revealed positive results. We determined that mirror therapy is a useful tool for the functional rehabilitation of upper limb in post-stroke patients.

The positive results we had so far are enabling us to continue the research and, at some point, extend it on larger groups of subjects.

Unfortunately, at present, it is quite difficult to use it in the hospital due to the lack of materials (mirrors) and the large number of patients needing to be treated simultaneously.

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Original article

EFFECT OF USING DIFFERENT TRAINING STYLES ON DEVELOPMENT OF BADMENTON SERVING ACCURACY

MAZIN AHMAD[1], SARAHANG ABDULLAH[2]

Abstract

*Problem Statement***.**Different training styles results in a substantial development in performance of badminton serving accuracy. Distributor and intensive exercises are important training styles to improve badminton high and low serves and accuracy of serve. However, it is indistinct whether distributor and intensive exercises are sufficient to improve high and low serve skill and accuracy of serve in badminton.

*The aim of the research***;**Presentstudy aimed to investigate whether distributor and intensive exercises conferred any greater alterations in accuracy of high and low serve skills performance.

*Methods of research***;.**Sixteen badminton players completed a set of performance tests in the week before and after a 4-week training period. Performance tests consisted of high and low serve test and accuracy of serve test. After pretesting, pair matched participants were randomly assigned in two experiment groups. First experiment group undertook distributor style training and second experiment group undertook intensive style training.

Results. Results of current study revealed that the maximum (mean (SD)) high serve, low serve, high serve performance, and low serve performance tests recorded during the tests were 6(0.32), 7(0.64), 4(0.45), 3(0.55) respectively. Mean (SD) values for intensive group at the study variables after training were 13(1.42), 12(0.42), 7(0.43), 6(0.46) respectively. T-test calculated on the basis of these data is presented in Table (3) 8.14, 6.22, 5.02, 4.33 respectively.

Conclusions. Researchers concluded the intensive exercise group reported improvements in all tests better than distributor exercise group. Then, different training styles appear to lead to worthwhile growths in high and low and serving accuracy test with badminton players.

*Keywords***.** Different training styles, Badminton and Serving accuracy.

Introduction

Badminton is a racquet sport played by either two opposing pairs (doubles) or two opposing players (single), who take positions on opposite halves of a rectangular court that is separated by a net. Badminton has been an Olympic sport with five events: men's and women's doubles, men's and women's singles, and mixed doubles. The sport demands excellent fitness: players need strength, precision, agility, speed and aerobic stamina. It is also a technical sport, requiring the improvement of sophisticated racquet movement and good motor coordination (Salim *et al*., 2010). One of the typical and powerful badminton techniques to offensive the opponent is the low and high serves.

Today, badminton can consider as one of the well-known sport in the world. Among sports, serving accuracy is very important in the badminton skills and techniques, low and high serve are consider most powerful badminton technique (Mazin et al., 2013). Sport skills are dependent to learning and training to structure a level of basic sport activities. Different training styles have important role in motor skills learning, which one of them is the serving accuracy of learning. Important issue in serving accuracy is the training styles (e.gdistributor and intensive) that are most sensible way to accelerate the process of individual success (Mahjoub., 2000). Correct training and learning of a skill by using different instruments and styles are expeditedlearning high level of skill (Mohamed., 1987).

Since training program can't be completedwithout study of the many variables which accompany with training, for example, type of activity and skill, level of learning, experience, gender, and training methods. Many authors and examination studies about badminton training and learning have been carried out by many faculties of physical education. Most of the journals published and available through the internet review the studies involve badminton training and learning such as interval training, continuous training, random learning, and etc, on differences between elite players and collegiate players, notational analysis of competitions, injuries and so on.Mustafa(2009) showed that partial, thorough, and mix methods are new styles to improve performance of badminton skills which involving (ongoing, random, stable, changeable, intensive, and distributor exercises). Hamdan (2011) was investigated the effect of learning styles (e.g intensive and distributor exercises) on flick serve, he reported that

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happened a more positive learning of flick serve through using these styles. Also, Jassim and Mohammad (2010)were examined the intensive and distributor exercises on throwing skills in 12 years old youngers and the results of their work indicated has increased greatly high serve.

In current study, the aims were to investigate whether distributor and intensive exercises conferred any greater alterations in accuracy of high and low serve skills performance. Furthermore, identify the best exercise of these exercises intensive or distributor.

Methodology

This research was conducted field and experimental methods.

Participants

The participant groups involved in this project were male, mainly selected among sport Akad club. Participants were selected with controlled parameters, where they are in ideal 5Ml level (10-15) and good physical condition, age from 12 to 16. The participants have basic knowledge in badminton. Sixteen juniorplayers, served as the participants for this project. They were assigned randomly into two groups each group involves 8 subjects (Intensive style group and distributor style group). The racquet used in this project is YonexCarbonex. The participant was directed to stand on the position of the serving area which was within the measurement. Participantwas given time for warming up with some basic strokes, and to slightly adjust their location of serving and serve to perform in a more comfortable way during the test.

In order to adjust some of the variables which affect the accuracy of the study results for the purpose of adjusting and identify the differences and isolate the independent variable (the methods of Exercise), the researchers conducted a homogeneity and equal to the sample in the following variables which may affect more on the serve learning in badminton as shown in table (1 and 2).

Table (1) shows homogeneity of the study participants.

Groups	Intensive style group				distributor style group			
Variables	Mean	SD	Median	Skewness Coefficient	Mean	SD	Median	Skewness Coefficient
Height\ cm	153	2,31	148	0,370	152,7	**Article I.**	1,98	146	0,33
Weight\ kg	39,05	2,17	38,5	0,18	38,27	**Article II.**	1,75	38,5	0,42
Medical ball throwing	69,9	2,18	70	0,36	70,4	**Article III.**	1,26	69,4	0,22

Skewness Coefficient arrange (3±), it means homogeneity of the study participants.

Table (2) demonstrates T-test of pre-tests between two groups.

Groups	Intensive style group		distributor style group		Calculate T	Tabulate T	Significant Level	Statistic significant
	Mean	SD	Mean	SD				
High serve	6	0.32	5	0.46	1,22	2,26	0,05	No
Low serve	7	0.64	6	0.64	1,88	2,26	0,05	No

Calculate T is less than tabulate T, this means the differences are no significant between groups in pre-tests.

Measurements

High and Long-Serve Test: (Tamer., 2004)

- The purpose of test was measure the ability to serve accurately with a high and long placement (degree of serving skill should be developed before the test is administered).Validity and reliability coefficients reported. Serve must pass between rope (20 inches above net) and net and land in target area. Court markings showed in Figure 1.
- Tools: Badminton court, Badminton Rackets, Measure tape, Information form, Signs to know the degrees, Rope sticky in pillars, Table to place the shuttlecock.
- Descriptive of Performance: After explained the tests to the players, the players are given appropriate time for warm up and then the player get (5) experiment attempts.

* Player stand up in determined area with (X).
* Player begin serving with high and long to cross shuttlecockthe net and then upove rope to falldown in determinded area.
* Player is given (12) attembts and calculate the best (10) attempts only.

- Evaluation of Performance:

* Player is given (5) points in the case of the fall of shottlecock in the determined area with distance (4.5 cm) outside the boundaries of the court on the background increase (40 cm) within the boundaries of the court after the back line of the yard directly.

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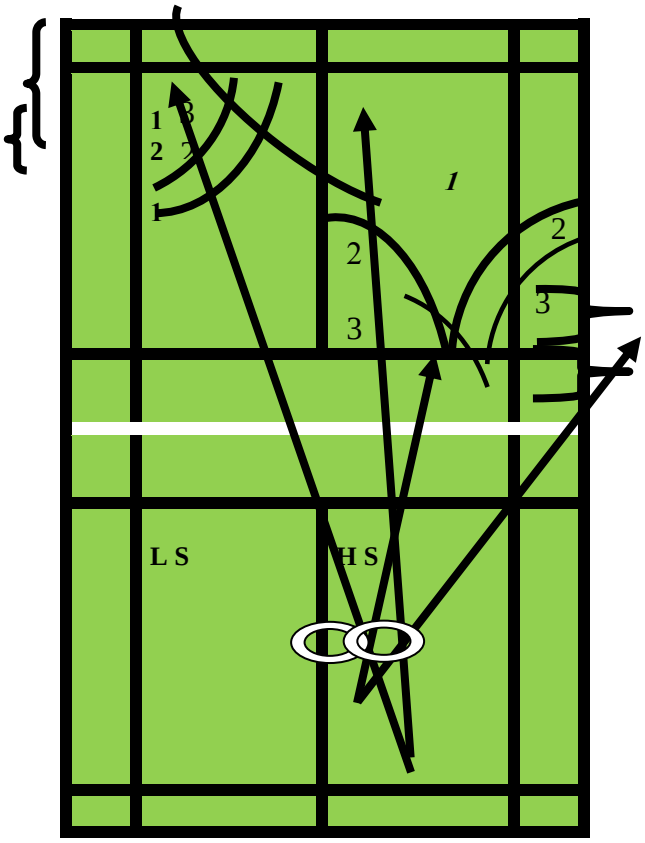
* Player is given points (2,3,4) in the case of the fall of shotllecock in specific areas with distance (40 cm), respectively, after the determined area (5) points.
* Player is given (1) point in the case of the fall of shottlecock in the determined area with distance (175 cm), which starts from the end of zone 2 and to the imaginary line down the rope.
- Subtraction one point for every attempt does not shuttlecock pass over the rope.
- In the case of the fall of shottlecock on the line between the two areas gives the highest degree.
- A shottlecock which coming out beyond the borders of the court (except the determined area) or hang to the net are not given any point.
- Total 10 best attempts are (50 points).

Short-Serve Test

The purpose of test was measure the ability to serve accurately with a low and short placement (degree of serving skill should be developed before the test is administered).Validity and reliability coefficients reported. Serve must pass between rope (20 inches above net) and net and land in target area. Court markings showed in Figure 1, Researchers were followed the same steps of long serve test but different ball fallen area.



Coach

Pl

Line movement of the ball

Measurements of area numbered 3= 91.4 cm and numbered 2= 61 cm.

Figure 1.Shows badminton court

Pre-Test

Subjects were instructed to perform 12 serves for each test from the baseline into the service court, following a 10min warm-up protocol on March 1, 2013.

Learning curriculum

Our curriculum included (8) learning units, (2) units a week, time of each learning unit (90m) assigned into three sections:

- Preparatory section of (10) minutes.
- The main section of (70) minutes.
- Concluding section of (10) minutes.

Players need to use badminton rackets and shuttlecock through learning. One of Groups used intensive style and other used distributor style, the training started on March 2, 2013 to April 26, 2013.

Post-Test

Subjects were instructed to perform 12 serves for each test from the baseline into the service court, following a 10min warm-up protocol on April27, 2013.

Statistical analysis

Furthermore using descriptive tests, such as mean, standard deviation, and median were used of the inferential tests. Paired t- test to compare pre-test and post-test in both groups and took advantage from independent t-test for comparison between groups. Significant level was considered in all parts P <0.05.

Results

The results obtained for the intensive group before and after training are presented in Table (3). The maximum (mean (SD)) high serve, low serve, high serve performance, and low serve performance tests recorded during the tests were 6(0.32), 7(0.64), 4(0.45), 3(0.55) respectively. Mean (SD) values for intensive group at the study variables after training were 13(1.42), 12(0.42), 7(0.43), 6(0.46) respectively. T-test calculated on the basis of these data is presented in Table (3) 8.14, 6.22, 5.02, 4.33 respectively. T-test coefficients were compared with the corresponding coefficients derived from the rank order list. There was a high improvement between pre and post training (P > 0.05).

The baseline characteristics and performance for distributor group are depicted in Table (4). There were in substantial differences in performance in all tests of skills between pre and post training. However, there were high improvements in each of high serve, low serve, high serve performance, and low serve performance tests in the same group. T-test calculated on the basis of these data is presented in Table (4) 4.18, 5.22, 3.12, 2.77 respectively.

The baseline features and performance for both groups in post-tests are described in Table (5). There were in significant differences in current study variables. However, high serve, low serve, high serve performance, and low serve performance tests were improved in intensive group more than distributor group.

Table (3) shows pre and post-tests for intensive group in study variables.

Variables	Pre-test		Post-test		Calculate	Tabulate	Significant
	Mean	SD	Mean	SD	T test	T test	
HS	6	0.32	13	1.42	8.14	2.57	S
LS	7	0.64	12	0.42	6.22	2.57	S
HS performance	4	0.45	7	0.43	5.02	2.57	S
LS performance	3	0.55	6	0.46	4.33	2.57	S

Significant at level of (0.05) and freedom degree (7).

Table (4) shows pre and post-tests for distributor group in study variables.

Variables	Pre-test		Post-test		Calculate	Tabulate	Significant
	Mean	SD	Mean	SD	T test	T test	
HS	5	0.46	11	0.64	4.18	2.57	S
LS	6	0.33	10	1.22	5.22	2.57	S
HS performance	4	0.44	6	0.33	3.12	2.57	S
LS performance	4	0.37	5	0.42	2.77	2.57	S

Significant at level of (0.05) and freedom degree (7).

Table (5) shows post-tests for both groups in study variables.

Variables	Post-test of Intensive group		Post-test of distributor group		Calculate T test	Tabulate T test	Significant
	Mean	SD	Mean	SD			
HS	13	1.42	11	0.64	4.18	2.18	S
LS	12	0.42	10	1.22	5.22	2.18	S
HS performance	7	0.43	6	0.33	3.12	2.18	S
LS performance	6	0.46	5	0.42	2.77	2.18	S

Significant at level of (0.05) and freedom degree (14).

Discussion

The results showed that both groups in learning of accuracy skills performance have been improved through 8 learning units, 4 learning units of high serve and 4 learning units of low serve and were repeated as possible player as. Also suitable feedback using through faults correction, using the tools correctly, helpful of working team, clear target and dealing with junior were resulted in develops of performance. Since beginners' faster progress in skills learning and superior to sports techniques performance in skilled persons depends on the use of different training methods for more success in sports (Fouad., 1989).

The results of this study showed that intensive exercise is the best exercise which contributed to improve accuracy of high and low serves. In this field can be expressed feedback, was cause to improve performance.Signer (1980) demonstrated that repeat performance alone doesn't lead to required learn, but needs to provide feedback necessary. However, intensive style leads to faults corrections of the player during performance. About the usefulness of serving accuracy, be seen who can applying both serves high and low are more successful than incorrect applying. In addition, when there wasno rest time through training leading to develop skills due to gives enough time to the learner to adjust and repeat the skill.Schmidt and Wrisberg(2000) displayed that teachers or coaches encourage learners to the performance of the largest possible number of attempts to exercise as much as possible to improve their performance level. Moreover, the results exposed that the serving accuracy were significant difference between two styles and in favor of intensive style. These results are contradicting the Fouad findings. For he believes the intensive style is best than other styles in learning. Ports in research that was done on learning styles concluded that the intensive and distributor styles are higher effect in serving from other learning styles (Tariq., 2010). In generally, several theories have been advanced to explain the possible reasons for the important of learning methods.

Conclusion

The inclusion, 2 times per week, of either intensive exercise or distributor exercise programs to normal badminton training sessions represents an effective means of increasing performance-related serving accuracy in junior-level badminton players. The intensive style inducedgreater improvements in high and low serves-specific accuracy and distributor led toa significant improvement in high and low serves. Despite the provenefficiency of the distributor style in improving specific demands forbadminton players (i.e., high and low serves), from a practical point of view,a combination of different learning strategies appears to be moreeffective because several requirements are involvedduring badminton. However, the intensive exercise group reported improvements in all tests better than distributor exercise group. Also, different training styles appear to lead to worthwhile growths in high and low and serving accuracy test with badminton players.

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Original article

THE COMPARISON OF CERTAIN BIYOMOTORIC CHARACTERISTICS OF THE 11-14 YEAR-OLD SEDENTARY CHILDREN

MEHMET BEHZAT TURAN[1], MEHMET AYDOĞAN[2]

Abstract

The purpose of this study is to compare certain biyomotoric characteristics of the 11-14 year old children who are sedentary.

Methods. 280 boys and 221 girls (Boys; age: 12,8 years, height: 158,1 cm, weight: 50,2 kg and Girls; age: 12,7 years, height: 155,6 cm, weight: 48,7 kg) volunteered to participate in this study. Independent T test was applied in order to determine whether the differences among the level of hands grip strength, leg strength, the height of vertical jump and long jump by standing of test subjects are significant or not according to gender variable, and one way Anova test was applied in order to determine whether all of these differences are significant or not according to age variable.

Results. Test results showed that right hand grip, left hand grip, leg strength, vertical jump height and standing long jump height of the boys were significantly higher than girls.($p<0,05$). There were significant differences found for height, right hand grip, left hand grip and standing long jump of test subjects according to age variable. ($p<0,05$).

As a result of this study, there were significant differences found for certain biometric characteristics of the 11-14 year-old sedentary children. It is estimated that these differences are cause of each age groups have result from different development features

Key Words: biyomotoric characteristics, age, gender.

Introduction

Growing means to grow up, to change in an orderly manner in terms of body structure and characteristics of emotional quotient and means to reach the level of doing the duty imposed. Growing is defined as all changes that occur in the system of a human from birth till death. It is known that posture and biyomotoric characteristics of human, which are the statements of body structure and its functions, undergo change in development stages of people. Motor development is to facilitate optional movement to the system in parallel with physical growing and development of central nervous system. The term ''motor'' is used to lay emphasis on mechanic factors such as biologic power, balance, speed, flexibility, durability and certain factors that affect movement such as age and gender. Motor development, social consciousness, skeleton structure, body proportion, energy level and muscle strength in 7-9 old year children starts to show similarities with adults.(Belmann, Peile, 2006) As the motor development of children is analysed in the sense of nerve musculature, it is seen that motor behaviours progress coordinated but complicated and related to aging. The most typical characteristics of 6-12 old year children in which they start school is to progress of motor and sensory system towards bigger organization and increasing in length and weight is stable and slow. This period goes on puberty in which girls reach until about 12 ages, boys reach until about 13 ages. Fast growing stages start at when girls get to about 9 age, boys get to about 11 ages. This period goes on until 11 ages for girls, about 14 ages for boys.

Strength is the amount of power produced during one unit of muscle or muscle group contraction. Muscular force is all important for productive ability to move, balanced working of joints, and minimization of injury risks. (Winnick, Short, 1985) Anatomic field of muscles or muscle groups, type of its fibril, its distribution, tension ability of particular muscle that is affected from the quantity of incapable contract structures, the number of active motor unit and mechanic factors cause differences in the strength of muscle.(Miller at al. 1993) According to Meusel, strength is the basis characteristic of human; he can move something, he can go beyond resistance, or he can resist with muscle strength.(Sevim, 1997) It is emphasized observing that muscle strength of children and adolescences prominently increase with age and the biggest development occur in adolescence. In girls, strength rate increase until 17 age in the ratio of ¼ whereas in boys, the children and adolescences is 2/3 although their weights and powers are the same practically until 13-14 years old. (Moğulkoç et al., 1997)

Jumping force can be defined as jumping up of sportsmen to the as far as possible (horizontal) and as high as possible.(vertical). Jumping force is a combined ability and it is directly related to explosive force of extensor muscle, flexibility of muscles that

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take part in jumping and jumping technique.

The basis biyomotoric characteristics of human are the total of body power, ability and complicated qualification of a person. It is the ability of practicing the movements such as strength, endurance, speed, flexibility, coordination and activity. They change according to adaptability and efficiency ratio of organism. These characteristics are in essence, they cannot be learned; however they can be developed (Sevim,1995)

It can be seen that the motoric characteristics of children have influence on joining to the branch of sports in the view of such information in literature. The purpose of this study is to compare the strength of right hand grip, left hand grip, foot, the characteristics of vertical jumping, standing long jump according to gender and age of sedentary children at between 11 -14 ages with the light of those information.

Method

Research Group: 280 boys and 221 girls who do not do sport volunteered to participate in this study. (Boys; age: 12,8 years, height: 158,1 cm, weight: 50,2 kg and Girls; age: 12,7 years, height: 155,6 cm, weight: 48,7 kg)

The body weights of subjects were measured using tefal (a trade mark)weighing machine of which accuracy degree is 0,001 and their tall statures were measured using fixed stadiometer of which accuracy degree is 0,001.(Holtain Ltd, UK).

Physical Tests Out to Sportsmen: Takei hand dynamometer (a trademark) was used in order to determine the maximal grip force of left and right hands. Maximal grip strength was measured by starting from right hand when the sportsman was standing and his hand's position was stretched and with 15 degree angle. Each measurement was done over three time and sportsmenhad a rest during thirty seconds between each measurement. The maximum measurement value was recorded as the result of measurements among three of them.

Takei (a trademark) leg dynamometer was used in order to determine the isometric leg strength. After subjects crossed their legs on dynamometer table by bending their knees softly, they hold bar which was tied to chains on a line with their pelvis bone in such a way that their heads and backs were upright. Subjects pulled the bar applying maximum force. Each measurement was done over three time and sportsmen got rest during thirty seconds between each measurement. The maximum measurement value was recorded as the result of measurements among three of them.

Sargeant jump test was used in order to measure maximal vertical jumping distance. When the test was applying, the belt of the instrument was tied to loin of subject and subjects were supposed to jump as high as possible by standing up to their arms which were downward and their legs bended from their knees.Each measurement was done over three time and sportsmen got rest during thirty seconds between each measurement. The maximum measurement value was recorded as the result of measurements among three of them.

Tape measure was used in order to measure the best long jump distance. When the test was applying, the subjects were supposed to jump to onwards with their feet as far as possible by bending their knees, their feet were close and their hands were downward.Each measurement was done over three time and sportsmen got rest during thirty seconds between each measurement. The maximum measurement value was recorded as the result of measurements among three of them.

Data Analysis

Descriptive statistics dependent to all variables were given in table (X ± SS)by calculating as standard deviation (SS) and arithmetic mean.($\overline{X}$) Onaway ANOVA was applied in the level of α=0.05 to the test subjects in order to determine whether the differences between physical and biyomotoric characteristics of subjects are significant or not according to age variables. When any differences were found at the result of the variance tests, tukey test was used in order to determine which age group causes these differences.

Independent T test was applied in order to determine whether the differences among the level of hands grip strength, leg strength, the height of vertical jump and long jump by standing are significant or not according to gender variable, and one way Anova test was applied in order to determine whether all of these differences are significant or not according to age variable.

All statistics process were done in SPSS 15 packaged software for Windows and level of significance was used as $p<0,05$.

Findings

The physical characteristics of test subjects were presented in table 1. The average of boy's age was founded as 12.8, average of height was founded as 158.1, average of body weight was founded as 50,2 while the average of girl's age was founded as 12.7, average of their height was founded as 155.6 average of body weight was founded as 48.7. (see table 1)

Table 1: The physical characteristics of test subjects

Variables	Gender	N	X ±	SS
Age	Boy	280	12,8	1,02
	Girl	221	12,7	1,01
Height	Boy	280	158,1	9,6
	Girl	221	155,6	7,6
Weight	Boy	280	50,2	12,3
	Girl	221	48,7	12,1

T test in the level of α=0.05 was applied in order to determine whether the differences among the level of hands grip strength, leg strength, the height of vertical jump and long jump by standing of test subjects are significant or not.

Table 2: Biyomotoric characteristics of test subjects according to their gender

Variables	Gender	N	X ±	S.S.	t
Height (cm)	Boy	280	158,1	9,6	3,189*
	Girl	221	155,6	7,6	
Weight(kg)	Boy	280	50,2	12,3	1,373
	Girl	221	48,75	12,1	
Right grip strength (kg)	Boy	280	22,1	6,6	6,387*
	Girl	221	18,6	4,9	
Left grip strength (kg)	Boy	280	21,9	6,7	6,943*
	Girl	221	18,2	4,7	
Leg strength (kg)	Boy	280	66,9	22,8	11,287*
	Girl	221	46,7	15,3	
Vertical jumping (cm)	Boy	280	36,1	8,9	9,157*
	Girl	221	29,4	7,1	
Long jump by standing (cm)	Boy	280	174,6	27,7	10,536*
	Girl	221	149,9	23,5	

P<0,05*

The results of the test showed that the levels of the height, the right hand grip, the left hand grip, leg strength, vertical jumping and long jump by standing of boys are significantly higher than girls. (p<0,05)

Table 3: The physical and biyomotoric characteristics of test subjects according to age variables

Variables	Age	Average	SS	F
Height (cm)	11	155,72	8,28	3,768*
	12	155,89	7,40	
	13	157,11	8,70	
	14	158,83	9,79	
Weight(kg)	11	48,24	10,57	1,981
	12	48,05	11,28	
	13	50,84	15,13	
	14	50,75	11,46	
Right hand grip strength (kg)	11	19,75	4,66	2,857*
	12	19,74	6,07	
	13	20,79	6,83	

	14	21,60	6,49	
Left hand gripstrength(kg)	11	19,34	4,48	4,916*
	12	19,15	5,73	
	13	20,41	6,97	
	14	21,63	6,38	
Leg strength (kg)	11	54,81	16,55	1,038
	12	56,52	21,93	
	13	58,72	23,71	
	14	59,84	23,10	
Vertical jumping (cm)	11	31,73	8,25	2,442
	12	34,10	7,87	
	13	33,24	8,41	
	14	34,22	9,75	
Long jump by standing (cm)	11	158,35	26,25	5,041*
	12	162,94	24,66	
	13	162,12	32,23	
	14	170,46	28,66	

P<0,05*

The results of the test showed that that the differences in the levels of the height, the right hand grip, the left hand grip, leg strength, vertical jumping and long jump by standing of test subjects according to age variable are significant. (p<0,05) (see table 3).

The results of the tukey test showed that 14 age test subjects' levels of tall stature and long jump by standing are significantly higher than 11 age test subjects; and also 14 age test subjects' levels of right hand grip and left hand grip are significantly higher than 12 age test subjects.(p<0,05).

Discussion

The number of girl test subjects is 221, the number of boy test subjects is 280 and they are studying in Kütahya Elementary School and they do not do sport.The average of boys' tall stature was founded as (158,1 ± 9,6 cm), average of body weight was founded as (50,2 ± 12,3 kg), average of right hand grip strength was (22,1 ± 6,6 kg), average of left hand grip strength was(21,9 ± 6,7 kg), average of leg strength was (69,9 ± 22,8 kg), average of vertical jumping height was (36,1 ± 8,9 cm) average of long jump by standing was (174,6 ± 27,7 cm) while the average of girls' tall stature was founded as (155,6 ± 7,6 cm),average of body weight was founded as (48,7 ± 12,1 kg), average of right hand grip strength was (18,6 ± 4,9 kg), average of left hand grip strength was(18,2 ± 4,7 kg), average of leg strength was (46,7 ± 15,3 kg),average of vertical jumping height was (29,4 ± 7,7 cm),average of long jump by standing was (149,9 ± 23,5 cm).

When it is analysed according to gender variable, the levels of the tall stature, the right hand grip strength, the left hand grip strength, leg strength, vertical jumping height and distance of long jump by standing of boys are significantly higher than girls (p<0,05) whereas there was no significant differences between their body weight. (p>0,05).

When it is analysed according to age variable, the significant differences were found among the levels of the tall stature(F=3,768; P<0,05), the right hand grip strength(F=2,857; P<0,05), the left hand grip strength(F=4,916; P<0,05) and the distance of long jump standing (F=5,041; P<0,05) of test subjects while there were no differences among their body weight(F=1,981; P>0,05), leg strength(F=1,038; P>0,05) and vertical jump height. (F=2,442; P>0,05) The second test,Tukey test was applied in order to understand which group cause the differences in terms of tall stature, right hand grip strength, left hand grip strength, distance of long jump standing. The results of the tukey test showed that 14 age test subjects' levels of tall stature and long jump by standing are significantly higher than 11 age test subjects; and also 14 age test subjects' levels of right hand grip and left hand grip are significantly higher than 12 age test subjects. (p<0,05).

In their research, Yüksel et al., 2006,proved that the boys' strength of right hand grip(41,011±7,7735 kg) were much more than(22,800±3,86 kg) girls'. (t.05; 1,325; P<0,01). In the same research it was also stated that the boys' strength of left hand grip(38,344±6,6667 kg), were much more than (22,113±2,8488 kg) girls'..(t.0,5; 7,016; P<0,01). This research shows parallelism with our research.

In their research, Fişekçioğlu et al. 2008, did not find any significant differences between the

average of boys'(19,31±5,72 kg) and girls'(18,50±5.35 kg) right hand grip(t=1,113, P<0,05). This can be probably related to the fact that their test subjects' number was very few.

According to Aslan's research, 2008, the average of boys' leg strength was 110,76±23,34 while the average of girls' leg strength was 58,14±14,59. This showed the significant difference between them. (t=19,23, P<0,005) This research supported our research showing parallelism with ours.

In their research, Yüksel et al. 2006, found that the levels of boys' jumping were as (46,778±6,8333 cm) while the levels of girls' jumping were as (38,750±5,8002 cm). This showed the significant difference between them(t.05;0,008; P<0,05) This research supported and showed parallelism with our research..

The research of Kalkavan et al. 2006, was put forward that there were no significant differences between girls and boys. (F=0,222;P>0,005). This was because of applying bi-directional Anova test. This did not support our research.

In his research, Pekel, 2006, presented that the average of boys' long jumping was as 181,2±16,2 while the girls' was as 170,8±20,8. This showed the significant difference between them. (t=2,76;P<0,01).

In his research, Zeybek ascertained that the average of boys' long jumping by standing was(15,90) , while the girls' was (14,57). There were no any significant differences between them according to results. This did not show any parallelism with our research. This was because the motoric characteristics of test subjects were at beginner level.

In their research, Gürsoy et al., 2011, proved that (p<0,05). the average of boys' right hand grip strength (43,12 ±6,6 kg) was much more than (28,73±4,74 kg) the average of girls' right hand grip strength. In the same research, they put forward that(p<0,05) the average of boys' left hand grip strength(43,47±7,05 kg) was much more than (26,33±4,59 kg) the average of girls' left hand grip strength. They also stated that (p<0,05)the leg strength of boys (71,76±35,20kg) were much more than the leg strength of girls. (25,40±13,69 kg) Finally, they claimed that (p<0,05)the average of boys' vertical jumping(49,76±8,37 cm) was much more than the average of girls' vertical jumping(41,73±7,23 cm). This research showed parallelism with our research.

Yorulmaz, 2005, stated in his research that (p<0,05)the average of boys' vertical jumping(57,20±6,14 cm) was much more than the average of girls' vertical jumping(41,90±6,63 cm).In the same research, he put forward that(p<0,05) the distance of boys' long jump by standing (227,45±18,13 cm) was much more than (189,15±20,9 cm)the distance of girls' long jump by standing. This research showed parallelism with our research.

In his research Albayrak, 1991, showed that (p<0,05)the average of boys' vertical jumping(63,66 cm) was much more than the average of girls' vertical jumping(53,60 cm).This research showed parallelism with our research.

Tınazcı 2004, proved in his researches that(t.05; -2,130: P<0,05)the average of boys' right hand grip strength (17,90±2,74)was much more than (15,47±2,99) the average of girls' right hand grip strength. In the same research, he put forward that.(t.05; -2,015; P<0,05)the average of boys' left hand grip strength(16,61±2,87)was much more than (14,32±2,66) the average of girls' left hand grip strength. This research showed parallelism with our research.

In his research, Günay et all, 1994,2011, stated that the strength of girls' right hand grip (22,61±4,84)was much more than boys(21,40±4,28). Secondly, he also proved that the strength of girls' left hand grip (21,55±3,6) was much more than boys(20,91±2,76). According to this research, there were not any significant differences between them.

In his research, Saygın et all 2006, found that the strength of boys' legs (60,98±15,53)was much more than girls' leg strength (45,76±11,40) and this showed parallelism with our research. In the same research, he found that the strength of boys' vertical jumping (27,73±5,09)was much more than girls' strength(24,04±4,86) but he did not find any significant differences between them. This did not show any parallelism with our research. It is thought that this was because test subjects had spent their physical and mental energy during training.

In his research, Güler 2006, proved that the average of 14 age test subjects' height (1,53±0,08) was much more than the average of 11 age test subjects' height. (1,42±0,07) This research showed parallelism with our research.

Conclusion

As a result of this study, there were significant differences found for certain biometric characteristics of the 11-14 year-old sedentary children. It is estimated that these differences are cause of each age groups have result from different development features.

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Original article

IDENTIFICATION STANDARD AND NON STANDARD EXERCISES FOR MULTILATERAL PHYSICAL TRAINING TO SOCCER PLAYERS BEGGINERS

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Abstract

*Problem statement***.** In order to implement the best research that is subject to the present work, and creating a framework for scientific standard, according to the knowledge gained and ongoing guidance and consistent scientific coordinator, we considered it important to achieve the following tasks: Establishing a basis for research; Studying literature; Formulating working hypotheses; Establishing the independent variable in the experiment work and how actual work; Establish levels which independent variables to be tested; Choosing the experimental design; Setting subjects undergoing experiment Preparation of planning documents (personal records for each subject); Setting the initial level of psychomotor development by passing control samples specific to subjects; Discussion with experts in the field and improve investigational Protocol; Review draft experiment; Actual conduct of the experiment in the concrete situation; Process; Processing and interpretation of data; Writing conclusions and proposals.

*The aim of the research***.** From Scientific research literature and detach a number of findings that support and serve as working hypotheses based formulation. So both the theoretical - methodological work and the practical reality select the following assumptions:

A premise of paramount importance that we consider to start from: the physical and motor development of individual possibilities achieved in the systematic repetition of exercise; sports training component, which will consist of the development of motor skills, morphological indices - the functions of the body and dominion of an wide and varied skills and motor skills.

*Methods of research***.** The experimental part of the work is largely interrogative and assertions about the research Hypotheses. In this context it WAS Necessary preliminary study on the potential of analysis biometric students selected for our study. Based on the results obtained in the preliminary experiment, a sample composed WAS pedagogical experiment, Which WAS submitted after initial testing to optimize physical training specialized multilateral programs in the pilot experiment.

Results. Analysis of the results of statistical processing data obtained from measurements of specific motility parameters enables us to find the positive developments in the experimental group compared with the control group in most parameters, although the differences are not large in absolute value.

Conclusions. We can confirm the research hypothesis, namely, that the availability of biometric juniors practicing football are the main landmarks of targeting instructional qualities, methods of preparation and assessment tests. The choice of instructional goals is bounded nonspecific located in the four compartments (body development, physical development, functional capacity and motor skills). So instructional objectives are those that determine the choice of non-traditional training methods and physical tests multilateral.

Key words: structural elements, junior football, physical training.

Introduction

From the outset to emphasize some uncertainty or simply, uncertainty and ambiguity specialists in defining and concept. The concepts used are the same as physical training, fitness, physical ability, fitness, etc. Although the problem is widely reported in the theoretical part of the paper we, however, make the following clarifications:

Physical training

a) Level of physical and motor development of individual possibilities achieved in the systematic repetition of exercise;

b) Component of sports training, consisting of the development of motor skills, morphological indices - the functions of the body and the mastery of a wide and varied system of skills and abilities engine. In sports training have two main aspects:

- General physical preparation and multilateral - oriented process ensuring broad-based, multilateral indexes morpho - functional qualities of the motor, movement abilities and skills that provide specific premises preparation of technical, tactical and psychological.

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Methods

Teacher observation. This quantitative and descriptive method was used to identify permanent general motility in groups selected elements junior footballers. This research method preceded and accompanied the experimental operations conducted systematic approach. We could argue that it preceded the formulation of assertions interrogative and then assumptions. This was done during anthropometric assessments, motor, functional and psychological, and during the training process on physical training in general and multilateral in particular. Direct observation was conducted by personal attendance at all activities of the composition of the working groups and training. As the evaluation work and especially for training classes were made "Protocols of observation" in different variations.

Questionnaire method. In order to clarify the concepts and especially to identify operational strategies aimed at continuously improving the multilateral level physical training we applied a questionnaire containing nine questions on a total of 15 football coaches specialists who train teams of children and youth.

Tab.nr.1.Sistemul measurements and tests used

- Specific physical training -Processor selective development indices morpho - functional qualities of body and motor in accordance with the specific characteristics of each branch effort or sports events and sports performance requirements (EEFSR 2002, Volume IV, p. 296).

In its practical work - as such, we deal with these manifestations of physical training: General physical preparation (synonymous with general motor capacity) is the concept that ensures the development of basic motor skills and overall driving capabilities of the body generally enriches general fund motor skills ensures harmonious physical development of functional indices which determine industry practice sports (A. Dragnea, 1996).

Specific physical training. Aims to increase the functional capacity of the body, developing basic motor skills and motor enrichment fund players. These three basic objectives of physical training are found throughout the preparation and takes different weights corresponding to each stage of training (beginners, advanced, performance) and each period or stage of training (I. Motroc, 1994, p. 117).

Method of measurements and control tests
In this method, there were measured the following categories of parameters:

I. **Anthropometric parameters**	**II. The Physical parameters**
1 Weight (Kg)	1 Body Mass Index
2 height	2 Report T / G
3 Abdomen	3 Index Quatlet
4 Outdoor	4 Amar Index
5 Breast height (cm)	5 Index Erisman
6 Thoracic perimeter (cm)	6 Index Adrian Ionescu
7 Biacomial diameter (cm)	**III. Functional capacity**
8 Bitrohanterial diameter (cm)	1 Vital capacity
	2 F.C Sleep
	3 .F.C Effort
	4 F.C Back

IV. General motility	**V. Technical evidence**
1 - 2 travel speed (10 m and 30 m)	1 Keeping the ball (many repetitions)
3 explosive leg strength (long jump on the spot)	
4.Grade combined driving (4-stroke)	2 Hitting the ball with the foot (strong / weak) - Remote
5 Relative Strength - arms	
6 Force abdominal speed mode (trunk lifts)	
7 force in the extensor muscles of the arms (pushups to support the bank's gymnastics)	3 ball striking technique: the inside to the outside, with shoelace, head lobar (Grades 1-10)
8 explosive arm strength (throwing a rounders)	4 speed with the ball at his feet
9 Running 600 m	5 Throwing two hands (AUT)
10 coxofemoral mobility.	6 Game 5X5 field reduced to small gates

The experimental part of the work is largely about assertions interrogative and the research hypotheses. In this context it was necessary a preliminary study on the potential analysis biomoric students selected for our study. Based on the results from the preliminary experiment, a sample was composed experimental teaching, which has undergone initial testing by optimizing physical training multilateral specialized programs in a pilot experiment.

After this experiment the sample was passed to the random selection of two samples of subjects by checking assumptions made us work. The subjects were divided into two samples which are equal in terms of numbers and value, we called experimental group and control group. The two groups have worked as teaching the same curriculum analitcă Expected FRFotbal football, and renowned specialists in the field, namely: M.Radulescu, V. Cojocaru, S.Cioalcă, I.Motroc, etc Then, according to the first hypotheses (after taking measurements on a significant sample) was passed to start the soccer program for children ages 10 -12 years junior.

The two groups have conducted training in parallel, with the same amount of work and number of workouts during the same period (May-October 2013). Unlike gupa control and experimental group performed a special physical training consists of exercises multilateral non-traditional, non-specific "borrowed" from different branches of gymnastics, in athletics, judo and other sports.

Place and the conditions of the experiment

Initial testing was performed on a total of 80 junior (18 control group, 18 group experiment) aged between 10 and 12 years, players in football teams: FC Middlesbrough, F.C. Iron, F.C. Real Năvodari and F.C. Elpis Constanta and to general schools. 28, 12, 7, 2 criteria for membership in this sample were related to children's health and desire for playing football. Initial testing of the two groups was performed at the onset of the preparatory period of a competitive year. Thus, of the 80 players surveyed, we made two groups, experimental group (FC Lighthouse Constanta and iron) and control group (Elpis Constanta Real Năvodari), each group with a total of 18 players.

Tab.nr.1 *The experimental group*

Nr. Crt	Name	COD	Born	School	Proffesor	Edcation Learn	Note physical education	Opinion medical
1	B .C	B. C.	2001	NR.28	C.M	7.38	10	APT
2	A. S	A.S.	2001	NR.28	. C.M	7.95	10	APT
3	C. E	C.E.	2001	NR.35	S.M	6.85	10	APT
4	C. B	C.B.	2002	NR.12	S.D	8.25	10	APT
5	H. C	H.C.	2000	NR.28	C.M	6.65	10	APT
6	A. B.	A.B.	2000	NR.28	C.M	7.15	10	APT
7	C. A	C.A.	2000	NR.12	S.D	7.00	10	APT
8	M. R	M.R.	2000	NR.12	S. D	8.93	10	APT
9	H. M	H.M.	2000	NR.12	S. D	9.15	10	APT
10	N. S	N.S.	2000	NR.12	S. D	9.25	10	APT
11	R. A	R.A.	2001	NR.28	C.M	7.45	10	APT
12	A. S	A.S	2001	NR.28	C.M	8.32	10	APT
13	O. E	O.E.	2001	NR.28	C.M	8.65	10	APT
14	C. V	C.V.	2002	NR.12	S.D	8.00	10	APT

15	C. A	C.A.	2002	NR.12	S.D	9.65	10	APT
16	D. S	D.S.	2001	NR.35	S.T	8.25	10	APT
17	I. G	I.G.	2002	NR.12	S.D	9.35	10	APT
18	M. S	M.S.	2001	NR.28	C.M	7.18	10	APT

Tab.nr.2 *The control group*

Nr. Crt	Name	COD	Born	School	Proffesor	Edcation Learn	Note physical education	Opinion medical
1	P. S	P.S	2002	NR.2	O.M	8.33	10	APT
2	R.C	R.C	2001	NR.7	T.I	7.95	10	APT
3	l.S	L.S	2002	NR.2	O.M	8.25	10	APT
4	L.S.	L.S	2000	NR.52	C.A	6.32	10	APT
5	M.E	M.E	2000	NR.17	P.A	9.10	10	APT
6	B.T	B.T	2001	NR.17	P.A	8.00	10	APT
7	M.C	M.C	2001	NR.2	O.M	7.66	10	APT
8	S.R	S.R	2001	NR.52	C.A	8.39	10	APT
9	Z.C	Z.C	2001	NR.52	C.A	9.16	10	APT
10	P.C	P.C	2001	NR.52	C.A	6.34	10	APT
11	T.C	T.C	2000	NR.2	O.M	6.55	10	APT
12	S.M	S.M	2000	NR.2	O.M	7.83	10	APT
13	L.C	L.C	2000	NR.52	C.A	8.96	10	APT
14	N.I	N.I	2001	NR.2	C.A	6.55	10	APT
15	O.C	O.C	2000	NR.2	O.M	7.25	10	APT
16	C.C	C.C	2001	NR.2	O.M	6.33	10	APT
17	M.U	M.A	2002	NR.2	O.M	9.25	10	APT
18	C.T	C.T	2001	NR.52	C.A	7.12	10	APT

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Results

Tab.nr.3. *Analysis of statistical data in general motility parameters control group*

Parameters	Test	Media	Dif. F-I	Ab. Std.	Cv (%)	Size effect	t	p	Research hypothesis
Running speed 10 m	I	2.09	-0.09	0.09	4.31	high to very high	4.02	< 0.05	accepted
	F	1.99		0.06	2.90				
Running speed 30 m	I	4.97	0.07	0.19	3.84	small to medium	1.43	> 0.05	is rejected
	F	5.04		0.17	3.42				
Long jump	I	180.78	4.44	7.26	4.02	small to medium	2.40	< 0.05	accepted
	F	185.22		10.28	5.55				
Test 4 times	I	13.71	-0.33	0.36	2.65	medium to large	2.95	< 0.05	accepted
	F	13.38		0.52	3.90				
Explosive force	I	33.67	1.00	2.20	0.07	medium to large	3.19	< 0.05	accepted
	F	34.67		1.75	0.05				
Pushups	I	12.94	0.94	3.83	29.56	medium to large	3.31	< 0.05	accepted
	F	13.89		2.95	21.23				
Crunches	I	17.50	0.72	2.96	16.89	high to very high	4.08	< 0.05	accepted
	F	18.22		2.67	14.65				
Explosive force arms	I	27.99	-0.43	1.68	0.06	small to medium	1.54	> 0.05	is rejected
	F	27.56		1.01	0.04				
Running resistance 600 m	I	2.49	-0.05	0.06	2.23	medium to large	3.07	< 0.05	accepted
	F	2.44		0.07	2.92				
Mobility coxofemoral	I	3.72	0.51	0.65	17.38	high to very high	4.49	< 0.05	accepted
	F	4.23		0.40	9.55				

The experimental group

Tab.nr.4. *Analysis of statistical data in general motility parameters group experiment*

Parameters	Test	Media	Dif. F-I	Ab. Std.	Cv (%)	Size effect	t	p	Research hypothesis
Running speed 10 m	I	2.02	-0.09	0.05	2.27	mare spre foarte mare	5.90	< 0.05	accepted
	F	1.93		0.05	2.76				
Running speed 30 m	I	4.99	-0.08	0.16	3.25	mare spre foarte mare	4.65	< 0.05	accepted
	F	4.90		0.13	2.60				
Long jump	I	173.94	12.67	7.76	4.46	mare spre foarte mare	9.14	< 0.05	accepted
	F	186.61		10.04	5.38				
Test 4 times	I	13.49	-0.82	0.46	3.43	mare spre foarte mare	7.61	< 0.05	accepted
	F	12.67		0.47	3.73				
Explosive force	I	32.28	3.72	2.30	7.11	mare spre foarte mare	9.44	< 0.05	accepted
	F	36.00		1.88	5.22				
Pushups	I	12.56	5.00	4.85	38.66	mare spre foarte mare	9.32	< 0.05	accepted
	F	17.56		5.65	32.18				
Crunches	I	19.72	2.11	3.27	16.57	mare spre foarte mare	5.86	< 0.05	accepted
	F	21.83		2.66	12.19				
Explosive force arms	I	28.16	0.38	1.68	5.98	mare spre foarte mare	5.25	< 0.05	accepted
	F	28.54		1.67	5.84				
Running resistance 600 m	I	2.47	-0.13	0.06	2.42	mare spre foarte mare	8.66	< 0.05	accepted
	F	2.34		0.06	2.38				
Mobility coxofemoral	I	3.56	0.67	1.03	28.90	mare spre foarte mare	3.89	< 0.05	accepted
	F	4.22		0.60	14.20				

Group control – experiment

Tab.nr.5. *Statistical analysis motility parameters general-experimental control group*

Parameters	Test	Media	Dif. E-M	Ab. Std.	Cv (%)	Size effect	F	p	Research hypothesis
Running speed 10 m	M	1.99	-0.06	0.06	2.90	small to medium	11.5	< 0.05	accepted
	E	1.93		0.05	2.76				
Running speed 30 m	M	5.04	-0.14	0.17	3.42	very low	7.42	< 0.05	accepted
	E	4.90		0.13	2.60				
Long jump	M	185.22	1.39	10.28	5.55	very low	0.17	> 0.05	is rejected
	E	186.61		10.04	5.38				
Test 4 times	M	13.38	-0.71	0.52	3.90	small to medium	18.1	< 0.05	accepted
	E	12.67		0.47	3.73				
Explosive force	M	34.67	1.33	1.75	0.05	very low	4.9	< 0.05	accepted
	E	36.00		1.88	0.05				
Pushups	M	13.89	3.67	2.95	21.23	very low	5.96	< 0.05	accepted
	E	17.56		5.65	32.18				
Crunches	M	18.22	3.61	2.67	14.65	small to medium	16.5	< 0.05	accepted
	E	21.83		2.66	12.19				
Explosive force arms	M	27.56	0.98	1.01	0.04	very low	4.5	< 0.05	accepted
	E	28.54		1.67	0.06				
Running resistance 600 m	M	2.44	-0.10	0.07	2.92	small to medium	20.5	< 0.05	accepted
	E	2.34		0.06	2.38				
Mobility coxofemoral	M	4.23	-0.01	0.40	9.55	very low	0.00	> 0.05	is rejected
	E	4.22		0.60	14.20				

From the results of statistical processing data obtained from measuring general motility parameters, that the subjects of the two groups between the two tests were positive developments in each group there is significant progress in the interval between the two tests, in most parameters Motrici measure.

We note that following the ANOVA test comparing the final results of the two groups, significant differences in all parameters except the long jump in place and the hip mobility. It follows that the research hypothesis is accepted 8 of 10 parameters.

We also note that the differences between the means of the two groups in all parameters except the hip mobility confirms a much better experimental group.

We can observe that the results of the two groups are mostly homogeneous with respect to each parameter.

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Parameters specific motor
Group control – experiment
Tab.nr.6. *Statistical analysis to specific motility parameters control group, experiment*

Parameters	Test	Media	Dif. E-M	Ab. Std.	Cv (%)	Size effect	F	p	Research hypothesis
Juggling ball	M	16.39	8.39	4.34	26.48	mediu spre mare	40.1	< 0.05	accepted
	E	24.78		3.57	14.42				
Hitting the ball with his right foot from distance	M	21.61	1.50	2.25	0.10	foarte mic	4.47	< 0.05	accepted
	E	23.11		2.00	0.09				
Hitting the ball with his left foot from distance	M	17.00	0.17	2.79	16.39	foarte mic	0.05	> 0.05	is rejected
	E	17.17		1.72	10.04				
Hitting the ball on foot interior	M	5.78	0.72	0.65	11.19	foarte mic	5.05	< 0.05	accepted
	E	6.50		1.20	18.47				
Hitting the ball with the foot: the outside	M	5.89	0.67	0.76	12.88	foarte mic	5.19	< 0.05	accepted
	E	6.56		0.98	15.00				
Hitting the ball on foot with the front leg	M	5.94	0.56	0.80	0.13	foarte mic	4.40	< 0.05	accepted
	E	6.50		0.79	0.12				
Hitting the ball with the head	M	5.83	0.67	0.71	12.12	foarte mic	7.16	< 0.05	accepted
	E	6.50		0.79	12.09				
Hitting the ball with the foot: lobar	M	5.39	1.11	0.85	15.77	mic spre mediu	16.6	< 0.05	accepted
	E	6.50		0.79	12.09				
Throwing away	M	9.83	0.39	1.20	12.21	foarte mic	0.61	> 0.05	is rejected
	E	10.22		1.73	16.96				
Dribbling the ball at his feet 30 m	M	6.24	-0.20	0.27	0.04	foarte mic	5.92	< 0.05	accepted
	E	6.04		0.23	0.04				
Game	M	5.78	0.78	0.55	9.49	mic spre mediu	11.9	< 0.05	accepted
	E	6.56		0.78	11.96				

Discussion

The problem is less known use nontraditional means our coaches. From the survey it appears that outside resources specific athletic and gymnastics (and they more centralized skills and basic motor skills or abilities peak, other specific means mostly) complementary sports are very little used. Poor use of nontraditional means is determined by the appearance that our coaches do not know the multilateral effects they can have on the bio-psycho-motor parts of the body.

A methodological problem and so little known, poorly applied criteria by which to choose exercises. So, according to the notion that physical training and physical training multilateral is selective - we can support that resolution multilateral physical training in the junior groups will use mainly those exercises (nontraditional) that subsidizes driving structure of the game:

- Short-distance sprints 10,20,30 ... 50 m
- Accelerations, decelerations, that stops and starts, followed by recovery by running back or change direction (agility The structure entering)
- Jumping from one foot beat or two feet to achieve objectives
- Rolling-plonjoanele and all driving acts underlying the specific driving prowess football.

Making physical training multilateral using nontraditional means removes monotony states that you could install using the same specific exercises football. This is a much needed methodological goal in the early stages that the means and methods they use to be "in love" football and practice it with pleasure.

The practice of using non-traditional exercises coupled with complementary practice of sports has come true more than effective. Many athletic events, gym exercises, exercises swimming, basketball, etc., have enabled and encouraged participation in lessons body workout.

Conclusion

The conclusions of the experiment are closely related to check the working hypothesis and, of course, the fulfillment statistical data taken with the

initial and final phase. Depending on these two factors the following conclusions:
Regarding somatic and anthropometric dimensions, the most important parameters are: height, weight. These four dimensions facilitates accurate concrete components designating objectives and content of physical training multilateral. This confirmation of the hypothesis allows us to further develop these findings:
All four components and structural dimensions are specified physical training multilateral objectives, these objectives entail certain content, working methods, and evaluation tests often. All these assemblies (content objectives, methods-tests) can be converted into physical training multilateral programs.
The means and program development should occur only after a prior measurement (test) of all distinct elements of the four components. Thus, the measurement items discussed were developed physical training programs multilateral valid only for the experimental group.

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Original article

EFFECT OF FUNCTIONAL STRENGTH TRAINING ON CERTAIN PHYSICAL VARIABLES AND PERFORMANCE LEVEL OF HAMMER THROW

NAGLAA ELBADRY[1]

Abstract

Objective. Functional strength training has become a popular buzzword in the fitness industry. Unfortunately, it is also subject to wide interpretation.At the extreme, some individuals believe that by mimicking the explosive, ballistic activities of high-level competitive athletes, they are training in a functional manner. All too often, however, such training programs greatly exceed the physiological capabilities of the average exerciser, which ultimately increases the possibility that an injury might occur.Most would agree that there is nothing functional about sustaining an injury due to improper training.In many respects, functional strength training should be thought of in terms of a movement continuum. The aim of this study was to investigate that Effect of functional strength training on certain physical variables for female college students.

*Methods.*Twenty female students fromSecond Grade at the Faculty of Physical Education for Girls, Helwan University for the academic year 2013/2014 AD, divided into (2) group. The experimental group (n = 10) performance functional strength training and control group (n = 10) performed traditional exercise. Subject's parents and coaches were required to read and complete a health questionnaire and informed consent document; there was no history of injuries, diabetes or recent surgery.

Results. The experimental group had significantly higher than the control group in core stability test, balance. In addition, No significant difference was found between the experimental group and the control group in power and strength.

Conclusion. Under the condition of our study, functional strength intervention for eight weeks has a beneficial effect on core stability test, balance of hammer throwplayers.

Key word: Functional Training, Hammer throw, Strength. Balance.

Introduction

Became athletic achievements and records achieved and shatter before going to the competitions on the athletic fields, according to the findings of the studies and scientific research, and thus became the competitions are in scientific laboratories.

Sports movement has seen in recent decades has made a big leap limit of human capabilities beyond all barriers and elevate to achieve the figures in the past of pure imagination.

Athletics is an exclusive collection of sporting events that involve competitive running, jumping, throwing, and walking. The most common types of athletics competitions are track and field, road running, cross country running, and race walking. The simplicity of the competitions, and the lack of a need for expensive equipment, makes athletics one of the most commonly competed sports in the world. Athletics is mostly an individual sport, with the exception of relay races and competitions, which combine athletes' performances for a team, score, such as cross-country.(Halliwell, & Gutteridge, 1999)

The hammer throw is one of the four throwing events in regular track and field competitions, along with the discus throw, shot put and javelin.

The effectiveness of the chucking part of the activities of the field, where it is divided to several sports such as (discus, javelin, shot put, hammer topple) and the need for the various components of fitness and different proportions among them according to the type of competition.

In addition, refers Jones, 2003, to be functional strength training is one of the forms of training recently used in the field of sports.

Cunningham, 2000, added that in the past ten years has become a functional strength training commonly used in the field of sports, and it uses under several names, such as functional training and integrated functional training.

The idea behind functional strength training is that the body is integrated, with hundreds of muscles working together to perform a variety of functions. Functional programs are designed to mimic everyday activities. These activities range from moving furniture to swinging a golf club.(Ron,2003)

Schmidt &Wulf, 1997, refers that all forms of kinetic origin of the spine. He adds that the term (functional) seems unclear slightly, functional are movements lead such movements that body is designed to perform in life, and so on trained athletes who use power drills functional with their athletes need to recognize the geometry of the human body and how it

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works in ordinary life.

Functional training is old news in the sports and rehabilitation world, but it was not until just a few years ago that it really came to my attention because I started seeing it catch on in a big way inside our health clubs. All of a sudden, the trainers had medicine balls, core balls, core boards, rubber tubing, stability balls, rollers and foam pads all over the place, whereas just five years ago, there wasn't a ball to be found in the entire joint (Michael, 2004).

Functional strength training simply means training our bodies to better perform the types of movements we use for everyday living. The time spent developing this specific strength; flexibility and agility have the optimum carry-over into daily activities (Mackelvie, et al., 2002).

Functional Strength is a combination of all elements of fitness to produce peak performance for your specific needs. Whether your goal is to look better, feel better, or perform better - Functional Strength Training will help you achieve your fitness goals. Functional Strength begins with a thorough evaluation of your current fitness level to uncover your strengths and weaknesses. Based on the results of your evaluation, a program will be designed to complement your strengths and improve your weak points (Michael, 2004).

Comana, 2004, as a movements integrated and multi-level (frontal, transverse and sagittal) include acceleration and installation and deceleration, in order to improve motor ability, the central force (means the spine and the mid-body) and the efficiency of nerve and muscle

Refers .Hofe, 1995, to that strength training functional fit all individuals with different levels of training and aims to improve the relationship between the muscles and the nervous system by converting the increase in the strength gained from one movement to other movements, therefore motor control exercises is a necessary and important.

Sees Comana, 2004, that the functional strength exercises are a combination of strength training and balance exercises lead in the timing of one .

The aim of this study was to investigate that Effect of functional strength training on certain physical variables for female college students.

Material and Methods

Experimental Approach to the Problem

Two groups (experimental and control) performed a pre and post - training designed intervention in which Vertical Jump Test (VJ), Seated Medicine Ball Throw (SMBT) , leg strength (LS) back strength (BS) by the dynamometer , Dynamic strength test (DST) and Performance levels of hammer throwwere recorded. The experimental group (EG) (10 female students) trained 1 hour per day 3 times a week on functional training for eight weeks. The control group (10 female students) continued their normal training, while the experimental group completed a functional training program to see whether this type of training modality would have a positive or negative or no effect on physical variables.

Samples

Twenty female students fromSecond Grade at the Faculty of Physical Education for Girls, Helwan University for the academic year 2013/2014 AD, divided into (2) group. The experimental group (n = 10) performance functional strength training and control group (n = 10) performed traditional exercise.

Subject's parents and coaches were required to read and complete a health questionnaire and informed consent document; there was no history of injuries, diabetes or recent surgery.

Conditions of sample selection :

- Do not chronological age for at least 17 years and not more than 19 years .
- Have a desire to participate in the search and regularity until the end of the experiment .
- Do not have a previous history of patients or their injuries predecessor .
- Student's developments and non-survivors of the restart .
- Is enrolled in a school that people are taught by the researcher.

Testing Procedures

Subjects were assessed before and after eight weeks of functional strength training program all measurements were taken one week before and after training at the same time of day. Tests followed a general warm-up that consisted of running, calisthenics, and stretching.

The Core Muscle Strength & Stability Test

The objective of this evaluation is to monitor the development and improvements of an athlete's core strength and endurance over time. To prepare for the assessment will need:

- Flat surface
- Mat
- Watch or clock with second counter

Conducting the Test

- Position the watch or clock where you can easily see it
- Start in the Plank Exercise Position (elbows on the ground)Hold for 60 seconds
- Lift your right arm off the ground Hold for 15 seconds
- Return your right arm to the ground and lift the left arm off the groundHold for 15 seconds
- Return your left arm to the ground and lift the right leg off the groundHold for 15 seconds
- Return your right leg to the ground and lift the left leg off the groundHold for 15 seconds
- Lift your left leg and right arm off the ground Hold for 15 seconds
- Return you left leg and right arm to the ground
- Lift your right leg and left arm off the ground Hold for 15 seconds

- Return to the Plank Exercise Position (elbows on the ground)Hold this position for 30 seconds

Good Core Strength

- If you can complete the test fully, you have good core strength.

Poor Core Strength.

- If you cannot complete the test fully, your core strength needs improvement.
- Poor core strength results in unnecessary torso movement and swaying during all other athletic movements. This results in wasted energy and poor biomechanics. Good core strength indicates that the athlete can move with high efficiency.
- If you are unable to complete the test practice, the routine three or four times each week until you improve.
- By comparing your results over time, you will note improvements or declines in core strength.

Static strength test (LS) (BS)

A Takei leg and back dynamometer was used to measure the static leg strength. The subjects stood on the dynamometer platform and crouched to the desired leg bend position, while strapped around the waist to the dynamometer. At a prescribed time they exerted a maximum force straight upward by extending their legs. They kept their backs straight, head erect and chest high. 3 trials were allowed to the subjects and the best score was taken. Subjects had a rest between the trials (Jensen &Fisher).

Hand Grip Strength Test

The purpose of this test is to measure the maximum isometric strength of the hand and forearm muscles.

The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required - the base should rest on first metacarpal (the heel of the palm), while the handle should rest on middle of four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort.

Dynamic balance

Dynamic balance is very important in sports which need too many joint awareness, and overall proprioception. Balance test investigated by 5 m-timed-up-and-go-test (5m-TUG). Subjects performed 5-TUG with time taken to rise from a chair, walk a set distance 5 m, turn around, walk back and sit down. Each subject was given 2 practice trials performed to familiarize. All subjects completed three trials with 1 min recovery between trials. The less time for each trial was recorded.**Statistical analysis.**All statistical analyses were calculated by the SPSS statistical package. The results are reported as means and standard deviations (SD). Differences between two groups were reported as mean difference ±95% confidence intervals (meandiff± 95% CI). Student's t-test for independent samples was used to determine the differences in fitness parameters between the two groups. The $p<0.05$ was considered as statistically significant.

Results

Table 1. Anthropometric Characteristics Training experience of the Groups (Mean ± SD)

Group	N	Age [years]	Weight [kg]	Height [cm]
Experimental	10	18.33 ± 0.5	69 ± 2.9	167 ± 2.95
Control	10	18.29 ± 0.8	68 ± 3.1	168 ± 3.11

Table 1 shows the age and anthropometric characteristics of the subjects. There were no significant differences were observed in the anthropometric characteristics and Training experience for the subjects in the different groups.

Table 2. Mean ± SD and "T" Test between the two Groups (experimental and control) in Dynamic balance, Hand Grip Strength, Static strength test (LS) (BS)andPerformance level of running a shoot

Variables		Experimental group		Control group		Sign.
		Before	After	Before	After	
Dynamic balance	Deviation to the right(A)	9.27 ±1.75	7.43 ±1.86	8.63 ±1.92	8.24 ±1.93	S
	Deviation to the left (A)	12.32 ±1.82	8.11±1.92	10.57 ±1.73	9.52 ±1.82	S
	Deviation to the right(B)	13.35±2.35	9.68±2.15	13.62 ±2.33	11.69 ±2.43	S
	Deviation to the left (B)	14.35 ±2.58	10.91 ±2.77	15.75 ±2.95	14.41 ±2.81	S
Core strength		5.00 ±1.00	7.00±1.00	5.00 ±1.00	6.00±1.00	S
Handgrip Strength		20.53±2.37	22.40±2.44	20.46±2.42	21.39±2.51	NS
Static strength test (LS)		78.17±7.75	86.00±8.91	78.29±6.62	80.20±7.81	NS
Static strength test (BS)		58.12±4.87	65.72±5.73	58.38±5.31	59.65±4.83	S
Performance level		9.12±0.27	10.24±0.24	9.14±0.17	9.25±0.23	S

Table 2 shows that:

1.Significant Difference between the experimental group and control group in Dynamic balance. Static strength test (BS) core strength and Performance level of hammer throw for posttest to the experimental group.

2.No Significant Difference between two groups in Handgrip Strength and Static strength test (LS)

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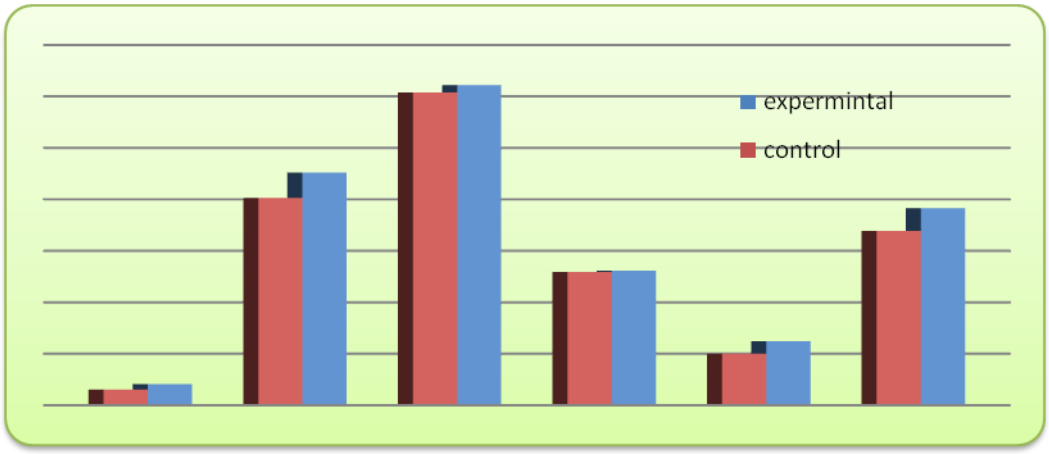

Fig 1 shows the differences between the two groups (experimental and control) in Dynamic balance, Hand Grip Strength, Static strength test (LS) (BS) core strengthandPerformance level of hammer throw.

Discussion

This study assessed the effects of aneight weeks functional training program, on the powerful, complex movement performances, Experimental results indicated that all variables were significantly increased in the experimental group only after the functional training program.

The researchers believed that, the training program which designed and implicated on the experimental group were affected and improvement this variable. In addition, the functional training work on the accuracy of neural signals flying to muscle fibre, which would generate daytime systolic intramuscularly works to raise the other sensory organs, thereby increasing the number of motor units in the working muscles on these joints, which is one of the necessities of consistency of performance at full speed and less effort.

Both research and anecdotal evidence suggest that functional strength training leads to better muscular balance and joint stability, which in turn results in fewer injuries and increased performance

Current research shows that using natural, continuous, and integrated movements incorporating the use of gravity along with your own body weight or free weights is the best approach to building strength. This type of strength training is called "functional strength training".

The importance of functional strength training explains Scott Gaines, 2003 that all training programs should include exercises functional strength, and proves it by saying that if we noticed the players during their competitions. We find that the centre of gravity of the body is a constant and ever changing, especially in the activities that require movement's front and rear

And the difference between the quality of training and functional training refers Cunningham, 2000, to be functional training exercises performed on the movements of the exercises quality is typically on the muscles, especially the nature of the performance, in addition, they are considered a key part of the basics of job training.

The researcher believes that the contest topple the hammer is one of the hardest and most enjoyable field competitions, and due to the multiplicity of stages of technical performance, and the muscles play a major role in the centre achieve athletic achievement.

Based on the foregoing, the researcher conducting the study titled "The Impact of functional strength training on some of the variables of physical and digital level to overthrow the hammer with students in the Faculty of Physical Education.

This is confirmed Vom Hofe, 1995, that muscle strength and balance of the key elements of the exercises functional, Integration between muscle strength and speed motor resulting in the ability of muscle or strength characteristic speed, the integration between muscle strength and balance is produced by the strength and functional.

Schmitz, 2003, refers to that functional training has the characteristics and attributes of the most important:

- Increase bone density, thereby reducing the risk of injury due to osteoporosis.
- Improve coordination through the development of proprioceptive feedback mechanisms .
- Develop systems of muscles rather than individual muscles, thereby reducing the risk of tears in ligaments and tendons.
- Increase the strength and power to perform throughout a range of motion for a specific sport or activity.
- Increase resting metabolic rate by increasing lean body mass so more calories will be burned during inactivity.
- Improve use of oxygen throughout the body.
- Improve appearance through overall muscle tone.

Conclusion

Under the condition of our study, functional strength intervention for eight weeks has a beneficial effect on core stability test, balance of hammer throwplayers.

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Original article

SPORT COLLABORATION AS A TOOL IN CULTURAL DIVERSITY

NAPOLITANO SALVATORE[1]

Abstract

Purpose :Text Our society is presented with propaganda of aesthetic standards nearing perfection, exalting models of efficiency based on the excellence of the results of their competitive capacity, on the maniacal and narcissistic exhibition of winning models, especially in the world of sports where clearly the disabled are excluded.

From this collective knowledge comes the idea to create activities within the school system that foresee the reality of disabilities.

The experiment was carried out in an institute in Naples and involved two fourth grade classes, twenty students per class. Controlled recreational activities were introduced, where body movement and motor skills were limited.

The goal of the project was to create a spontaneous relationship between children with normal abilities and those with handicaps.

Methods Adequate athletic activities were carried out, under form of recreation, guided by a teacher, necessary to carry out the tasks: children without disabilities were put in a position where they were able to live the disability of another child.

Results. The results of the data collected through the systematic observation and that of a survey show the predisposition of the child without physical impairments with regards to the disability, eliminating through a natural process the concepts of "acceptance" and "tolerance" and the internal existence of two worlds.

Conclusions. This experience can surely be a starting point to create and elaborate the culture of diversity already at a young age.

Keyword : collaboration ,primary school, motor limited activities.

Introduction

Our society is presented with propaganda of aesthetic standards nearing perfection, exalting models of efficiency based on the excellence of the results of their competitive capacity, on the maniacal and narcissistic exhibition of winning models, especially in the world of sports where clearly the disabled are excluded. (Raiola, 2012)

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The goal of the project was to create a spontaneous relationship between children with normal abilities and those with handicaps.

Adequate athletic activities were carried out, under form of recreation, guided by a teacher, necessary to carry out the tasks: children without disabilities were put in a position where they were able to live the disability of another child. (Raiola., et al. 2013)

The results of the data collected through the systematic observation and that of a survey show the predisposition of the child without physical impairments with regards to the disability, eliminating through a natural process the concepts of "acceptance" and "tolerance" and the internal existence of two worlds.

This experience can surely be a starting point to create and elaborate the culture of diversity already at a young age.

The role of the mediator of the group is fundamental for the equilibrium of the sense of competition that might occur.

"Instructive mediation becomes active instructive thought among peers when generated from the need to produce new knowledge even in children with minor physical and cognitive resources.' (Vigotskij 1999)

When it is necessary to create a collaboration among peers adding the difficulty of including a disabled subject, the instructor's ability to create alternate recreational situations is

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fundamental. These allow the normal subject to develop and offer the best results capable (Tursi D. and al. – 2012)

Methods

Taking this into consideration, it was decided to suggest our work be carried out in a elementary/middle school in Naples, attended by students coming from the same social economic and cultural environment, and having as participants two fourth grade classes (8-9 years), twenty students in each class.

This school holds standard, full hour classes, forty hours per week, that children attend from 8:45-16:15, Saturdays excluded.

Following the systematic observation, the team of teachers had seen and inadequate atmosphere among students and those with deficiencies.

Students with deficiencies present in the two sections are effected by motary deficiencies, one with Perthes disease, restricted to the use of a tutor for his legs, and the other is hemiplegic.

In both sections this program began as motary instruction from October to May during the two hours of physical activity as in the instructional ministry plan.

The program was proposed in different ways in the two sections. In fact, one saw adapted sports activities as its protagonists, while the other implemented the physical education program proposed by the ministry for primary schools. Section A saw traditional programs involving individual and group sports and games was .

Section B saw recreational activities conditioned throughout weekly programs that involved activities carried out in a slow manner, where movements were closely monitored through systematic observation.

This allowed the students to inhibit the full expression of movement, having them become the actors of motor study, working towards the creation of new knowledge and the couple's and group's abilities limiting the use of one or more limbs, and moving solely and exclusively by crawling on the floor.

Exercises suggested were:

-Orienteering: create a course that will be realized with the use of gym equipment.

Such a course could be carried out in couples, but one of the subjects in the couple must be blindfolded. The time it takes to carry out the activity is not important, but its completion.

-Throwing the ball in couples and catching with one hand.

-Throwing the ball and catching w it with the help of an upside down cone.

-Throwing the ball in couples, limiting children's movements to a circle.

-Throwing the ball in a group of 5-6 remaining seated inside a circle.

-Circuit training: a circuit composed of 4 work positions in which the students will rotate and perform the activities.

Subjects must crawl from position to position.

The rules of the game indicate the correct execution of the exercises in the different positions, penalty points for errors, and the subject with the least errors is the winner.

There was no need to have the child with the disability rotate because all the students were forced to move with limited movements.

The purpose was to create problems and disabilities where there were none, limiting students' movements, aiming towards a better collaboration with disabled students and new initiatives regarding physical and sports activities.

The possibility to impose limitations in each phase of the game in section B allowed the participants to respond at their best, and meeting all requests.

The motivation towards the study in finding new motory answers has given these students the possibility to create new motory stimulus, even in their disabled team mate, allowing him to participate not only in the idealization of the game, but also in its execution.

Contrarily, in section A, the disabled student did not find vast creative space due to classmates who were not trained in adapted sports activities and thus showing closure towards the disabled student, and preferring an individual game.

Results

During the implementation of the two work programs systematic observation was carried out, as well as circle-time and guided discussions that offered new ideas for teachers.

Descriptors with evaluation tables were handed out upon entry and upon conclusion of the trial to compare the work in both classes.

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TABLE N. 1	INITIAL OBSERVATION			FINAL OBSERVATION		
Class IV A	**Yes**	**no**	**Partly**	**si**	**no**	**Partly**
Show difficulty in relating to the disabled?	8	10	5	14	3	3
Interacts spontaneously with a disability?	10	4	6	15	2	3
Spontaneous collaboration offers the disabled?	8	6	6	14	2	4
If called on by the teacher, working with the disabled?	5	3	12	16	2	2
During the early stages of the game is concerned to include the disabled?	5	3	12	15	3	2

Grafh n.1

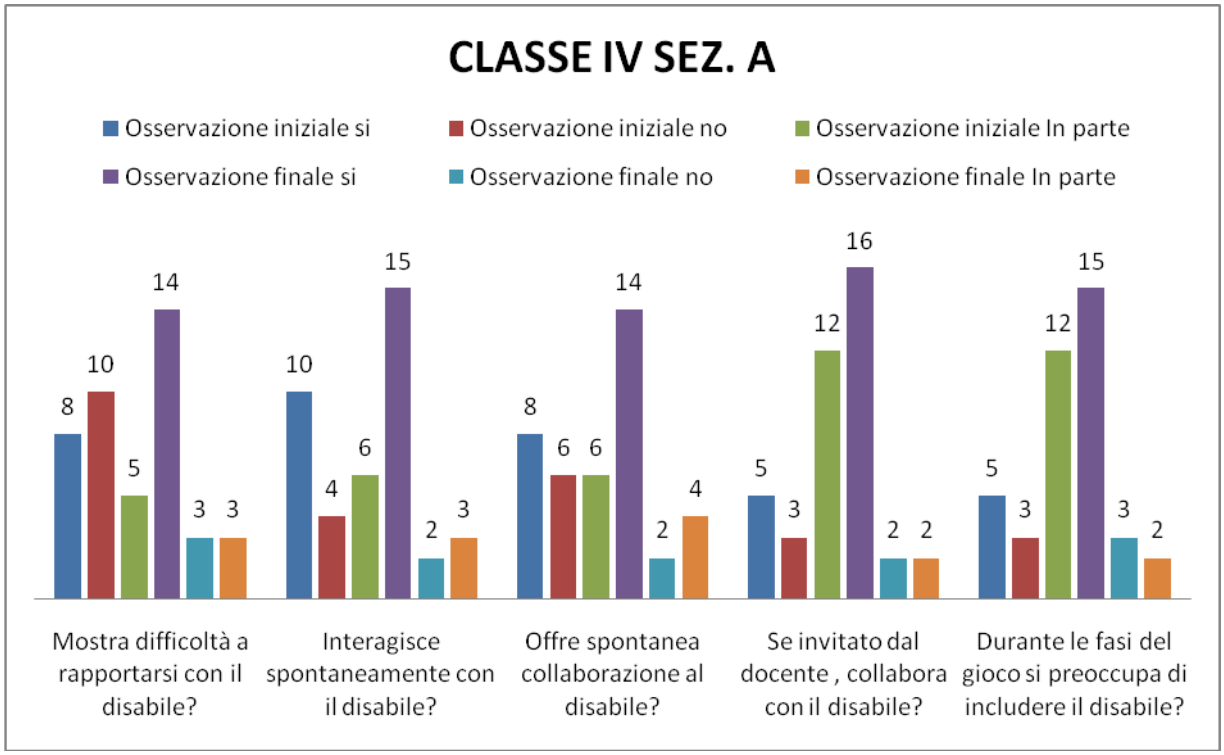
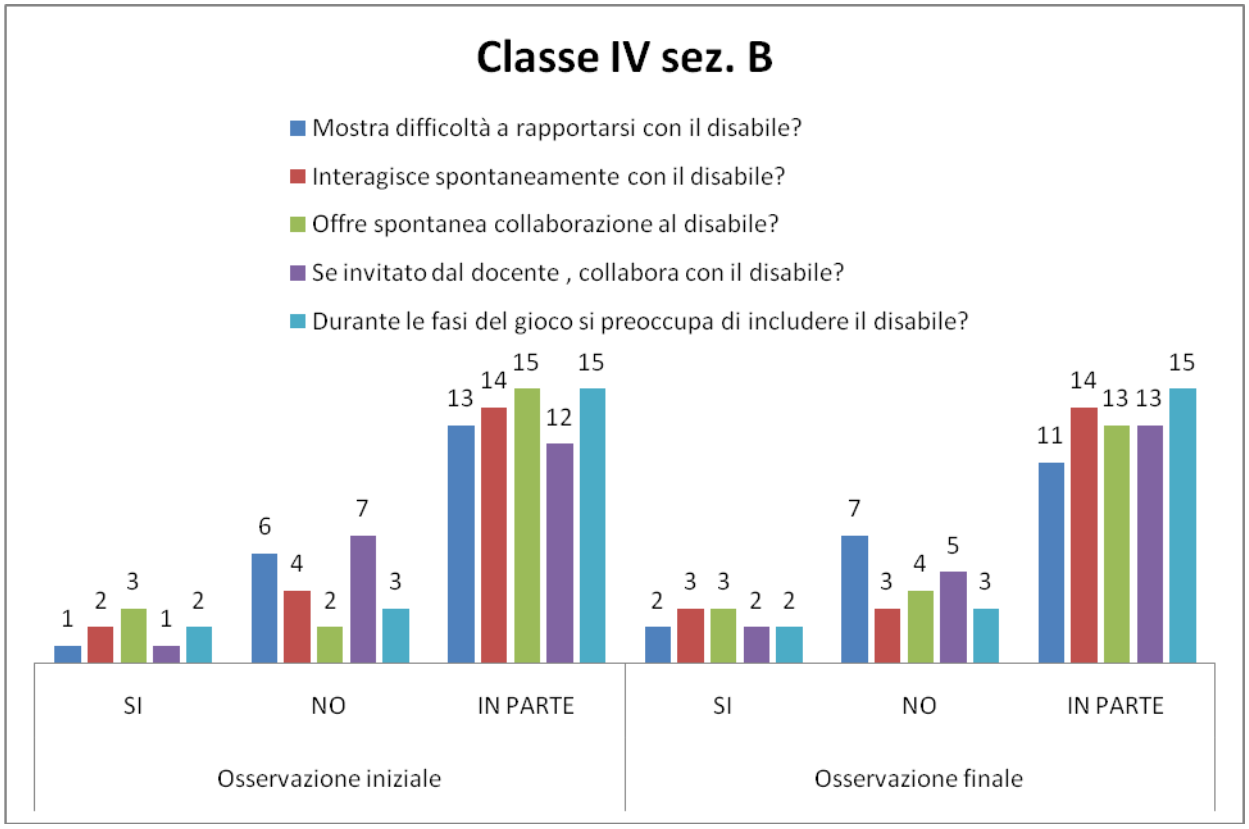


Table 2	INITIAL OBSERVATION			FINAL OBSERVATION		
Class IV B	**Yes**	**no**	**Partly**	**Yes**	**No**	**Partly**
Show difficulty in relating to the disabled?	1	6	13	2	7	11
Interacts spontaneously with a disability?	2	4	14	3	3	14
Spontaneous collaboration offers the disabled?	3	2	15	3	4	13
If called on by the teacher, working with the disabled?	1	7	12	2	5	13
During the early stages of the game is concerned to include the disabled?	2	3	15	2	3	15

Grafh n. 2



Discussion

A clearly positive result has emerged from the data collected.

We can see from the descriptors seen above how section B saw an increase in final positive results regarding all questions, almost twice the initial levels.

In section A it is clear that the level of negativity exists at the beginning of the study and persists until the end. In section A there were no changes in composure and attitude towards disabled students,who in some cases was also excluded from games for his inabilities.

Section B saw greater openness and acceptance of the students towards the disabled, creating a new kind of empathetic communication that enriched the class into one single group, without exclusions.

Conclusions

This experience can surely be a starting point to create and elaborate the culture of diversity already at a young age.

The concepts of "acceptance" and "tolerance" were abolished in a natural way, being open to different worlds.

Such an experience can surely be a starting point for the birth and growth of culture in diversity at a young age. (Esposito A.M., and al. 2013)

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Original article

THE REALIZATION OF A SPORTS EVENT FOR THE DISABLED

NAPOLITANO SALVATORE[1], TURSI DANIELA[1]

Abstract

Purpose. The difficulties involving the insertion of the disabled in sports and activities keeps growing. Disabilities, minor and major, concern one in six people in the European Union (EU); that is, about 80 million people are not able to fully participate in everyday social and economic life. (Communication from the European Commission-European Disability Strategy 2010-2020: A renewed commitment to a barrier-Brussels 2010). The organization of events therefore becomes a movement of significant importance to which innovation and new identity is necessary. Our research was based on the validity and the return of a sports event called "Una giornata abilmente…diversa" ("An ably diverse day"), dedicated to the disabled.

Methods. Three associations for the disabled participated in the event, as well as secondary schools of the commune Santa Maria Capua Vetere.

The event took place at the public pool of Santa Maria Capua Vetere on May 15, 2013 and saw:

- Recreational activities
- Activities linked to water autonomy
- Activities regarding lifesaving

Subjects without disabilities also took part in the events.

Results. The analysis and the elaboration of the data, as well as a survey given to the disabled subjects, the operators, family members and managers of the associations involved in the event, found that such an initiative results in moments of true inclusion, and the possibility to take advantage of certain structures and therefore carry out physical activities.

Conclusions. The organization of the event demonstrated that the synergy between the players, the local organizations, the universities and schools, sports associations and social associations, can bring about moments of confrontation and development to allow the realization of a consolidated program for the physical activities for the disabled.

Key words: collaboration ,primary school, motor limited activities.

Introduction

In the last thirty years, those who have found themselves or are part of the world of the disabled has taken part in a change in vocabulary. Each of these has symbolized the way in which the person was defined (handicapped, disabled, person with a disability) or the theoretic and operative thought that moved politics and the actions in favor of these people. So, in the 70's, the word was inclusion, in the 80's it became integration. In the last few years, thanks to the UN convention on the rights of the disabled of 2007, we have witnessed a new change: the new word is inclusion.

Sports is the gym of life, fundamental element in social and relational instruction, a time to meet and confront different realities. Sports bring together and aids the comprehension, characterizing the values of reciprocal respect and loyalty.

Sports become an instrument of insertion for the disabled, for those young people who, although having different capabilities compared to their peers, practice sports, and through this overcome the limits that destiny has given them. (Giugno., et al. – 2013)

The difficulties regarding insertion of the disabled in sports activities and environments is increasing.

The project "Una giornata…abilmente diversa" takes into consideration the needs of young people and of those if deficient conditions who are in an even greater need of participation, integration and socialization through recreational activities-sports that respond to their needs. Furthermore it aims to offer innovative instruments for both the cognitive learning and to strengthen the met cognitive sphere, as well as the recovering from the vast area of the handicap and unease.

One problem that affects society is without a doubt is that of protecting the disabled population. Intense sport, as a moment of pure fun, pleasure, or simply the will to play, represents a gratifying activity

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that transmits a feeling of wellness to the disabled and helps them in the acceptance and understanding of their limits, sometimes able to be overcome. Sports can contribute to developing social integration offering relationships with friends, adults, sports instructors, disabled and not, and constitutes an further evolving dimension in which the subject can experiment.

The dimension of Free Time represents an indicator of quality and today the quality of life is at the core of social health politics and, in the declaration of Madrid (2003), the European Union affirmed that "sports and free time are equal to school and work."
It is on this principle that sports activities should be thought of as a true from of integration; integration that has already been seen in other fields.

Disabilities, minor to major, affect one in six people of the European Union (EU), that is about 80 million people that often don't have the possibility to fully participate in social and economic life (Communication of the European Commission-European Strategy for the disabled 2010-2020: a renewed task for a Europe without barriers-Brussels 2010). The organization of events becomes a moment of significant importance. It is necessary to recognize new characteristics and a new identity.

In 2004, ISTAT conducted a study on people with disabilities that live in families to gather, on one hand, the social integration of the disable din their social context (relationships, school, work, free time, etc.), on the other hand, the factors that create barriers for these integrations (Mobility limitations, lack of necessary support, etc.)

The world of the disabled, has experienced many transformations in the last 30 years, beginning in the 70's with a call for the renovation of the services and the interventions, and coincides with the first phase of devolution of the competence of the state to the region. To make the community aware of the problems regarding the world of the disabled and the help that sports could give them, because sports is the only reality that does not create distinctions among its participants.

Understanding the psycho-physical and social disadvantage deriving from the condition occurring with "being handicapped" and that this situation can be overcome through the acquisition of a "different" culture. (Raiola, et al. 2013)

We can highlight specific and instructional objectives
-Instructional objectives are those to educate through aquatic activities; contribute to a balanced development of the personality (cognitive, emotional and relational areas)
-Specific objectives are those to educate to the water, through the acquisition of abilities in the following specific areas:

Autonomy in the water

Learning swimming techniques

Elements of water polo and synchronized swimming

Fundamentals of life saving and under water swimming through understanding the aquatic environment

Fundamental elements of assistance and first aid. (Tursi, and al. – 2012)

Method

Twenty associations for the disabled and some secondary schools from the commune of Santa Maria Capua Vetere participated in the event.
The event was held at the public pool of Santa Maria Capua Vetere on 15 May 2012 and saw:

Recreational activities

Activities linked to aquatic autonomy

Life saving activities

Subjects without disabilities also participated in the events.

The participants were gathered and divided into equal groups, considering age and disability.
Each group was guided by 5 operators and the activity coordinator.

All groups carried out the following activities:

Swim competitions (long pool)

Aquatic games (12 x 8 mt pool)

Games aimed in the acquisition of motary patterns (10 x 6 mt pool)

Therapeutic treatments (pool for motary rehabilitation)

Activities aimed in the autonomy in deep water and understanding of the principle motions for assistance and life saving techniques.

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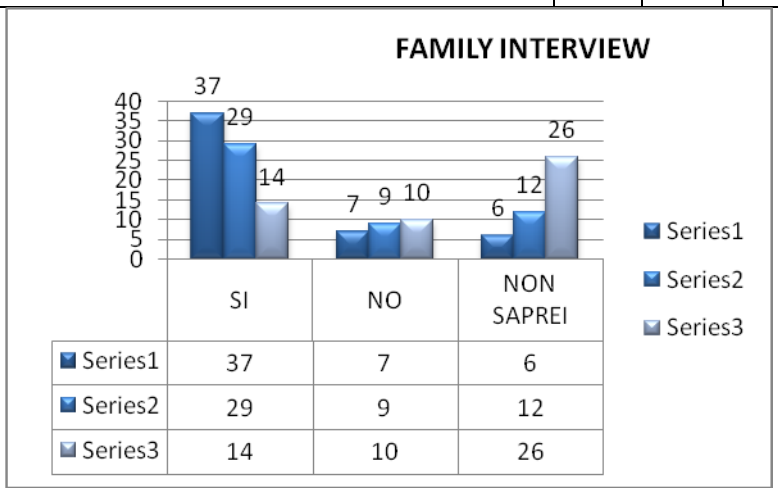
Result

Two interviews were handed out, one for the families and one for the disabled subjects, structured on three

Table 1 Family Interview

Family Interview			
Question	Yes	NO	Doesn't know
Do you think this was a positive experience for your family member?	37	7	6
Can such events favor the social autonomy of the disabled?	29	9	12
Do you consider the aquatic experience adequate for your family member's needs?	14	10	26



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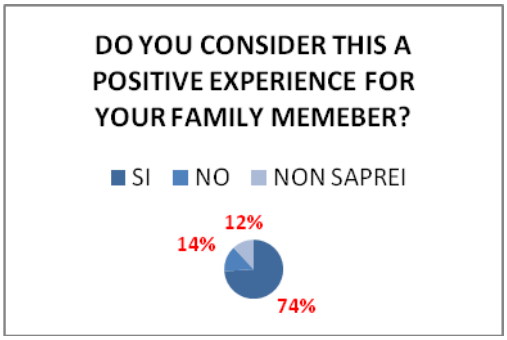

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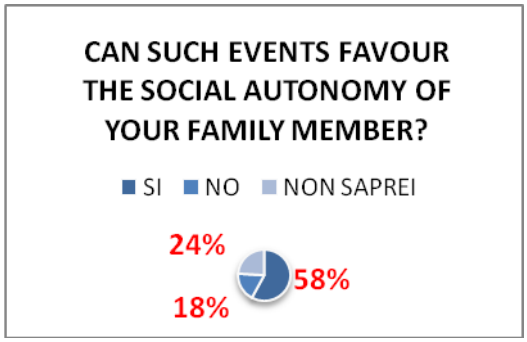

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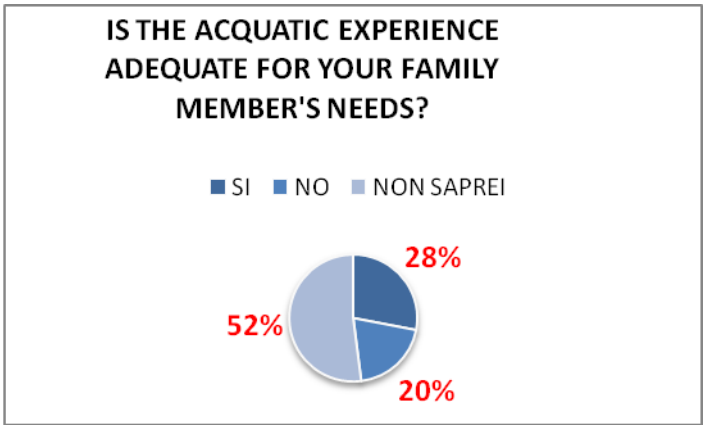

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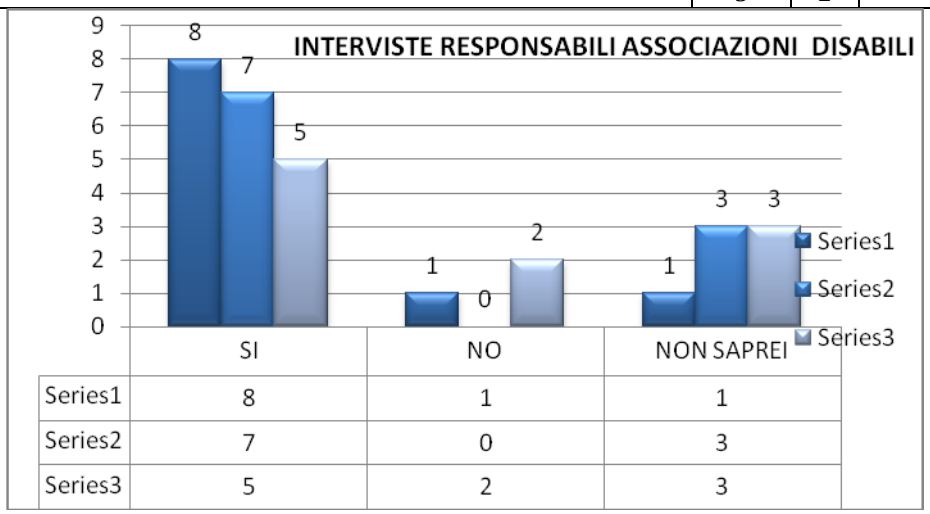
And one interview was handed out to the directors of the associations of the disabled participants, always based on three questions.

Table n. 2 INTERVIEW DIRECTORS DISABLED ASSOCIATIONS

INTERVIEW DIRECTORS DISABLED ASSOCIATIONS			
QUESTION	YES	NO	DOESN'T KNOW
Do you consider this initiative positive towards the improvement of your members' self esteem?	8	1	1
Has this event favored the process of socialization and integration of your members?	7	0	3
Do you consider the aquatic experience adequate for your members' needs?	5	2	3



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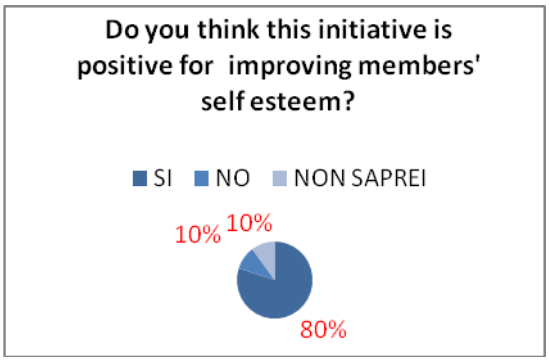

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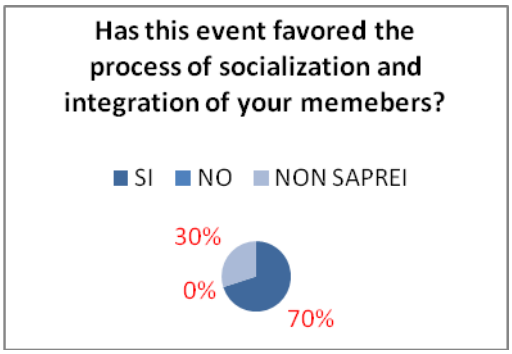

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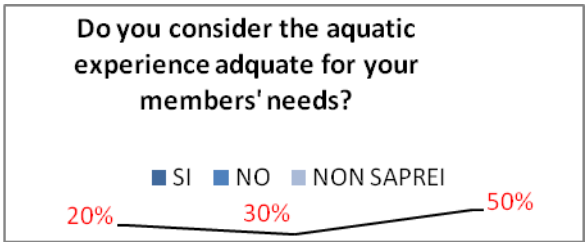

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The data collected shows a great interest and high percentages in activities of this kind, by both the families and the representatives of the associations of the disabled involved.

Discussion

The data collected allows us to affirm that our hypothesis has been verified. In fact, the numerous participants, disabled and non, were active and positive. Both the family members and the representatives of the Associations were pleased with the event, but above all they saw a new way of easing integration and inclusion.

It appears to be evident that the regular reoccurrence of these events are the weak link of out project, but at least we were able to prove the validity of such an event.

We can highlight as a strong point:

The Association ACFFADIR (association for parents of the autistic), which , following this event, asked for biweekly meetings for their members to carry out and practice aquatic activities. It has almost been one year that 11 autistic subjects routinely attend the swimming facility of Santa Maria Capua Vetere.

Conclusions

The organization of the event demonstrated that the synergy between the players, the local organizations, the universities and schools, sports associations and social associations, can bring about moments of confrontation and development to allow the realization of a consolidated program for the physical activities for the disabled.

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Original article

IMPACTS OF AQUATIC TAIJI EXERCISES ON BONE MINERAL DENSITY FOR POSTMENOPAUSAL WOMEN

NAZIK KADHIM MINATI[1]

Abstract

Purpose. Aquatic Taiji is described as a form of meditation in movement and involves gentle and fluid exercises that focus on the inherent flow of the limbs, arteries and muscles, opening up the meridians of chi so that chi can circulate freely throughout the body. It aims to reduce stress and still the mind, bringing balance, health and rejuvenation. The exercises can be practiced on land or in water and assist with weight loss, stimulate the metabolism, increases energy, improves the skin, massages and tones the muscles and joints, free up and deepen breathing, improves the posture, and develop intuition and insight. The purpose of this study was to investigate the effects of aquatic Taiji exercises on bone mineral density among Postmenopausal women.

*Methods.*The sample consisted of 20 female (54 ± 5.36 years old; 162 ± 5.03 cm height; and 75 ± 7.30 kg weight), from Kurdistan Iraq . Subjects were required to read and complete a health questionnaire and informed consent document; there was no history of coronary heart disease, diabetes or recent surgery.

Results. The major findings from this study were the significant Increases in bone mineral density (hip and backbone) measurements, balance and flexibility in the experimental group, which proved the aquatic Taiji exercises efficacy.

*Conclusions.*The aquatic Taiji exercises improved the balance, flexibility and bone mineral density for hip and backbone but no change in the strength for the sample.

Key words: Aquatic Taiji, Flexibility, Bone Mineral Density, Balance.

Introduction

Osteoporosis is a subject, which should be near and dear to the hearts of most masters' swimmers, but which many choose to ignore. Many swimmers think it will not affect them, either because they feel fine, or because they exercise. They are only partially right, and what they do not know can hurt them. (World Health Organization, 2004).

Osteoporosis is a disorder that affects the entire skeleton. It characterized by a significant loss of bone mass leading to an increased susceptibility to fractures of the hip, spine, and wrist. It affects up to 24 million Americans, of which 80% are women. It estimated that currently 10 million individuals already have osteoporosis, with 14 million more having low bone density (osteopenia). That means that approximately 1 in 4 women and 1 in 8 men over the age of 50 have osteoporosis.

As it is a painless condition, most people are unaware they have osteoporosis. Often the first sign of significant bone loss is a fracture, usually of the hip, forearm, or vertebra. About 32% of women and 17% of men in the United States who live until age 80 experience a hip fracture. The risk of vertebral fractures is even higher. Hip fractures in the elderly are far more than an inconvenience 1 in 4 patients over the age of 50 dies within the year following a hip fracture. (Helena Johansson, 2011).

Although some cases of osteoporosis are due to drugs (i.e., steroids) or the result of a disease (i.e., rheumatoid arthritis), most cases are due to either older age (senile osteoporosis), or to a drop in estrogen (postmenopausal osteoporosis). If one of your parents had a hip, forearm, or vertebral fracture you can pretty much assume that you are at risk for osteoporosis. However, the converse is not necessarily true.

Bones are constantly remodeling. While in space, astronauts' bodies respond to the lack of gravitational stress on the bones by decreasing their bone mass. On the other end of the spectrum, weightlifters experience an increase in bone density due to the stress of the extra weight on the bones. The more stress placed on the bones over a period of time, either through heavy weights and/or by impact, the more the body responds by increasing the bone density.

The process is actually a bit more complex than that. Not only does the body lay down more bone, it actually remodels the structure of the bone along the lines of stress. If you take up running, eventually your body will remodel the structure within the bones in response to the new stress. Stress fractures often caused by running too much, before the body has had a chance to remodel the bones based on the new stresses (Dawson-Hughes, et al. 1997).

It has become important for the treatment of any pathology consider the repercussions of disease on

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the quality of life of individuals. Exercise, calcium and vitamin D supplementation can help protect women from bone loss. By engaging in regular weight-bearing exercise, women lose less bone than those who are sedentary (Puntila, et al.2001). Supplementing a woman's diet with at least 1200 mg of calcium daily can help protect her from menopausal bone loss. Adequate vitamin D levels are also crucial for calcium homeostasis. Cholecalciferol (vitamin D3) 1000 IU or more should be taken daily to assure adequate vitamin D stores. This is particularly important for women who do not have sufficient sunlight exposure (at least 15 minutes per day to non-sun screened skin) and women over 60 years of age (Harush, &Rotstein, 2004).

Oriental medicine believes that the balance of Yin and Yang is fundamental for quality of life. Aquatic Taiji is a good foundation for creating balance for both body and mind, as well as feeling the smooth movement of life energy. Through Clinical Aquatic Taiji (EASY), we will consciously connect with the universal energy of Yin and Yang by inviting it into our bodies and minds (Konno, 1997).

The method Aquatic Taiji (AT) was created by Jun Konno in Japan in 1996 from the combination of Tai-Chi and Qi Gong concepts with Watsu techniques, and is performed standing in shoulder-depth warm water using a combination of deep breathing and slow, broad movements of the arms, legs, and torso (Márcia, et al. 2010).

AT is a physical activity performed in the water that originated for health, self-defense and spiritual growth. Graceful movements, slow tempo, relaxed yet dynamic in beautiful natural postures. It is recommended as a perfect activity for the elderly due to its low or moderate intensity, its health benefits, its calm and non-competitive character, the fact that it does not require specific equipment and its enormous flexibility with regard to time devoted to practice and where it can be performed (Ruth Sova, 2004).

Aquatic Taiji is a water-based total body strengthening and relaxation progression that bridges East and West philosophies, and integrates mental, physical, and spiritual energy. It is believed that the physiologic and therapeutic effects provided an Aquatic Taiji method would allow an improved metabolism and blood circulation, increasing oxygen consumption, which will benefit these patients, calming the mind and reducing stress and insomnia, provided- them a better quality of life (Alonso, et al. 2007).

Chinese physicians have long prescribed Aquatic Taiji as physical therapy as "gymnastic medicine," in combination with herbs, acupuncture, and acupressure to provide a holistic treatment for disease. The often-amazing results of proper practice suggest that, in some way not fully known to Western science, Aquatic Taiji can indeed relieve many chronic ailments and impart longevity (Chang, et al. 2008).

The purpose of this study was to investigate the effects of aquatic Taiji exercises on bone mineral density among Postmenopausal women

Methods

Experimental approach to the Problem

Two groups (experimental and control), performed a pre and post-training designed intervention in flexibility, balance, strength tests and bone mineral density (BMD) recorded. The experimental group (EG) (10 women) trained 1 hour per day 2 times a week on Aquatic Taiji training for eight-weeks. The control group (CG) (10 women) continued their daily life, while the experimental group completed the Aquatic Taiji training program to see whether this type of training modality would have a positive or negative or no effect on flexibility, balance, strength and bone mineral density.

Participants

The sample consisted of 20 female (54 ± 5.36 years old; 162 ± 5.03 cm height; and 75 ± 7.30 kg weight), from Kurdistan Iraq . Subjects were required to read and complete a health questionnaire and informed consent document; there was no history of coronary heart disease, diabetes or recent surgery.

Training Protocol

The eight-weeks training program consisted of Aquatic Taiji (AT).

Procedures

Subjects assessed before and after the eight-week training program. All measurements taken one week before and after training at the same time of day. Tests followed a general warm-up that consisted of running, calisthenics, and stretching.

Training Protocol

1) Special Considerations for Aquatic Taiji practice

- Maintain adequate core temperature of participants. Water movements performed approximately 4 times faster than comparable land movements.
- Position in mid-rib cage to chest depth water to allow for stabilization.
- Optional wearing of water shoes for improved traction, footing, grounding and protection.

2) Movements Techniques for Aquatic Taiji

- Works with spring loaded joints
- Uses only the amount of energy needed to execute movements, adds the quality of relaxation.
- Works from a lower center of gravity, softening knees.
- Creates circular movements to work intrinsic muscles, gently expanding the range of motion.
- Shift and transfer body weight as you move to integrate leg power.
- Develops coordination of arm and hand motions to the whole body, moving as if your spine was a third arm.
- Moves from the center, using the abdominal muscles. The center is the energy source.

3) Aquatic Taiji Exercises

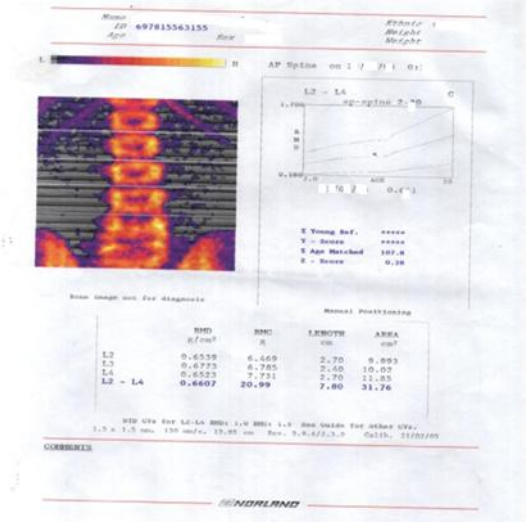
- Brush Knee Push
- Part the Wild Horses Mane
- Double Cloud Waving Hands
- Single Cloud Waving Hand
- Five Animal Qigong
- Five Element Qigong
- Lifting Pressing Water
- Single Whip
- Sweep The Sea

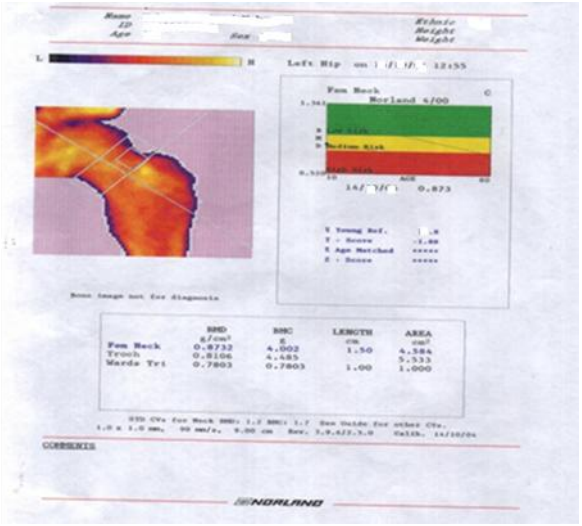
Testing Procedures

Subjects assessed before and after an 8-week training program Tests followed a general warm-up that consisted of running, calisthenics, and stretching.

BMD measurement.

Regional BMD was measured by a bone densitometer (QDR-1000®, Hologic Inc., Waltham, Massachusetts, USA) using dual-energy x-ray absorptiometry. DXA scans used primarily to evaluate bone mineral density. Also **use DXA** scans to measure total body composition and fat content with a high degree of accuracy comparable to hydrostatic weighing with a few important caveats. However, it suggested that, while very accurately measuring minerals and lean soft tissue (LST), DXA might provide skewed results because of its method of indirectly calculating fat mass by subtracting it from the LST and/or body cell mass (BCM) that DXA actually measures. The measured regions where lumbar spine (L2, L3, L4) and the femoral regions of the left leg, neck (NECK), trochanter (TROCH), ward's triangle (WARDS). The region "lumbar spine" (L2-L4) is defined by the mean value of L2, L3 and L4; the coefficient of variation was < 1.5percentage.





Sit and Reach Flexibility Test (SRFT).

This test involves sitting on the floor with legs stretched out straight ahead. Shoes should remove. The soles of the feet placed flat against the box. Both knees should locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance recorded. No jerky movements. The score recorded to the nearest centimeter at the distance reached by the hand.

Star Excursion Balance Test (*SEBT*).

The Star Excursion Balance Test (SEBT) is a dynamic test that requires strength, flexibility, and proprioception. It is a measure of dynamic balance that provides a significant challenge to athletes and people who are physically active. The test can used to assess physical performance but can also use to screen deficits in dynamic postural control due to musculoskeletal injuries like chronic ankle instability. It could use to identify athletes at greater risk for lower extremity injury. It is also possible to use the test during the rehabilitation of orthopedic injuries in healthy, physically active adults.

The SEBT could use to compare balance ability among different sports and to assess physical performance. Research have suggested use the SEBT as a screening tool for sport participation on the one hand and as a post-rehabilitation test to ensure dynamic functional symmetry on the other hand. It is also been showed that the performance of SEBT improves after training. It is important, that the test capture the greatest amount of information of instability in the shortest amount of time.

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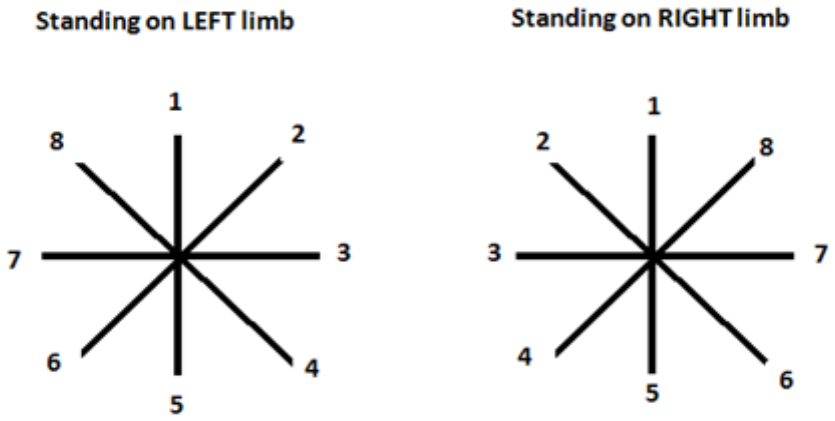

Fig 2 explain the Star Excursion Balance Test

Statistical Analysis

All statistical analyses calculated by the SPSS statistical package. The results reported as means and standard deviations (SD). Differences between two groups are reported as mean difference ± 95% confidence intervals (mean diff ± 95% CI).Student's t-tests for independent samples were used to determine the differences in physical variables between the two groups. A P-value <0.05 was considered statistically significant.

Results

Table 1. Age and Anthropometric Characteristics of the Groups (Mean ± SD)

Group	N	Age [years]	Weight [kg]	Height [cm]	BMI [kg/m2]	Menstruation status
Experimental	10	55 ± 3.2	82 ± 8.9	166 ± 7.1	29.76 ± 2.46	8.23± 2.8
Control	10	54 ± 4.9	85 ± 7.1	161 ± 5.2	32.81 ± 2.55	7.89± 3.1

Baseline measurements showed homogeneity in age, anthropometric variables, and menstruation status between the Experimental and control groups.

Table 2. Mean ±SD for BMI, BMD measurements, Back flexibility, Leg flexibility and Dynamic balance in the experimental group.

Variables	Experimental			T SIGN
	pre	post	change%	
BMI	29.76 ± 2.46	28.11 ± 1.55	6.02	Sign
BMD of Fem Neck	0.421 ± 0.016	0.425 ±0.011	0.950	Not sign
BMD of Troch	0.389 ± 0.018	0.392 ±0.017	0.771	Not sign
BMD of L2-L4	0.402 ± 0.019	0.409 0.010	1.49	sign
Back flexibility	13.12±0.93	14.99±0.63	14.25	Sign
Leg flexibility	42.55±1.89	44.67±1.25	4.98	Sign
Star Excursion Balance Test (SEBT)	15.35±2.58	11.91±2.63	23.90	Sign

Table 2. Showed significant differences between pre-and post-training scores for all variables in the experimental group (P≥ 0.05) in L2-L4 BMD, SRFT and SEBT. In addition, no significant differences shown in the other variables. And the highest improvement in Dynamic balance Test (SEBT) 23.90%

Table 3. Mean ±SD for BMI, BMD measurements, Back flexibility, Leg flexibility and Dynamic balance in the control group.

Variables	Control			T SIGN
	pre	post	change%	
BMI	32.81 ± 2.55	32.15 ± 1.88	0.09	Not sign
BMD of Fem Neck	0.422± 0.011	0.420 ±	0.474	Not sign

BMD of Troch	0.391 ± 0.017	0.392 ± 0.017	0.767	Not sign
BMD of L2-L4	0.407 ± 0.018	0.402 ± 0.010	1.25	Not sign
Back flexibility	13.36±0.74	13.33±0.74	0.22	Not sign
Leg flexibility	42.41±2.02	42.36±2.11	0.12	Not sign
Star Excursion Balance Test (SEBT)	15.22±2.49	15.12±2.70	0.66	Not sign

Table 3. Showed No significant differences between pre-and post-training scores for all variables in the control group (P≥ 0.05).

Table 4. Mean ±SD for BMI, BMD measurements, Back flexibility, Leg flexibility and Dynamic balance in the control and experimental groups

Variables	Control	Experimental	T SIGN
	post	post	
BMI	32.15 ± 1.88	28.11 ± 1.55	Sign
BMD of Fem Neck	0.420 ± 0.017	0.425 ± 0.011	Not sign
BMD of Troch	0.392 ± 0.017	0.392 ± 0.017	Not sign
BMD of L2-L4	0.402 ± 0.010	0.409 ± 0.010	sign
Back flexibility	13.33±0.74	14.99±0.63	Sign
Leg flexibility	42.36±2.11	44.67±1.25	Sign
Star Excursion Balance Test (SEBT	15.12±2.70	11.91±2.63	Sign

Table 4. Showed a significant difference between pre-and post-training scores for all variables (P≤ 0.05) except Fem Neck and Troch for the experimental group.

Discussion

The main findings from this study were the significant Increases in BMD measurements, (SRFT) and (BBT) in the experimental group, which proved the Aquatic Taiji-exercises efficacy.

There are a number of potential explanations for these findings.

Exercise is not just important to general health, it helps build bone mass in youth and slows down bone loss in adults. Exercise is also a factor in helping to reduce the risk of falls as it strengthens muscles, increases flexibility, and improves coordination and balance. During physical activity, bones receive messages that they need to work and be strong. When there is a lack of exercise, bones do not receive these messages and lower bone mass can result. Regular physical activity on a long-term basis maintains the benefits for bone health (Dawson-Hughes, et al. 1997).

Aquatic Taiji-exercises are a low-impact activity; it is a good exercise for older people who may have joint degeneration and other physical problems. In addition, it practiced in the water that in fact produces weight-bearing force and thus helps maintain and often increase bone density (Márcia, et al. 2010). Moreover, it recommended for anyone who has difficulty with land-based exercise. According to Harush, and Rotstein, (2004) the water exercise could effect on bone density among Postmenopausal Women.

Ruth Sova, (2012) indicated that Aquatic Taiji was created to help aquatic practitioners (including aquatic exercise instructors, personal trainers, and aquatic therapy and rehabilitation practitioners) and students enjoy the water in a flowing yet powerful progression. An efficient exercise program increase oxygen and caloric consumption through correct form and positioning in the water, a perfect relaxation technique for highly stressed, over-challenged clients, and is ideal for creating improved range of motion and mobility (Konno, 1997).

In addition, Flexibility and core (abdominal) strength are the benefits most mentioned by aquatic exercise instructors. The trunk stabilization/balance and pain management benefits of the program are the two most frequently cited by aquatic therapists. Clients' comments include "a soothing experience," "mind and body relaxation," and "a symphony for my body." Such benefits increase with practice (Devereux, et al. 2005). As a person becomes more familiar with the program, relaxation will improved, with a focus on the smallest movement of the hand, wrist, or eyes, and improved mental alertness. Water lessens edema in the joints, which allows clients to improve range of motion and mobility. (Howe, et al. 2007).The soft, round flowing motions strengthen core muscles while providing a soothing experience, and the circular movements create harmony, based on a principle of yielding to, rather than resisting the natural flow. The flowing movements of Aquatic Taiji can increase metabolism and blood circulation. Studies show that simply breathing while submersed to the shoulder in the water can increase oxygen consumption from seven to 25 percent. This, in turn, increases caloric consumption. (Takeshima, et al. 2002)

Practical Applications

Two months of Aquatic Taiji technique improved the balance, flexibility and bone mineral density for hip and backbone in the elderly independent.

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Original article

EXERCISES FOR SKILL DEVELOPING FOR WOMEN BASKETBALL TO 13-14 YEARS OLD

NEGREA VALENTIN[1], POPA CRISTIAN[1], HANU ELENA[2], NEGREA MIRELA[3], DUȚĂ DANIEL[1], OCHIULET DORIN[4]

Abstract

Aim. In the present study we propose to verify that to apply a skill intensive exercises for 8 weeks leads to better training of women's basketball at the age of 13-14 years.

Methods. We proposed that this research will form the experiment and training process to apply a system of general and specific exercises in order to develop the quality of motor skills.

Results. Results obtained by statistical calculation performed demonstrates that the program applied was efficient, being structured methodical, with a good selection and dosing of exercises used.

Conclusions. The application of a intensive program of specific exercises skill development for eight weeks can lead to higher education in the game of women's basketball at the age of 13-14 years. Using motion gaming, structures containing technical and tactical game under close game resulted in dynamic learning process at a more active participation of children in the training.

Key Words: women's basketball, experiment, the skill development, 8 weeks.

Introduction

The skill composition comes a set of qualities particularly important in the game play basketball: orientation in space, flexibility, mobility, coordination, and balance.

In the literature we find many definifii of skill.

Ability to coordinate or movements of body segments or moving actions involving the entire musculoskeletal system. (Siclovan, 1984)

Complex expression is a form of performance capacity by quickly learning new moves and rapid adaptation to different situations according to the specificity of each branch of sport or other basic motor skills and practical. (Dragnea, Bota, 1999)

We conclude that it is a quality driving skills are complex and individual's ability to perform actions himself driving with different difficulty levels, conducting accurate and economic movements in time and space, speeds and required tension, in full compliance with the conditions requirements and situations that arise during the course of the action. We can say about a student / athlete that is handy if you have orientation in space, perfect coordination of movements, mobility, flexibility and an appropriate balance of skill and intelligence and resolve unexpected situations that may occur.

Playing technique, in his opinion Bompa (2003), is a system of integrated in automatic movements and skills used to achieve an objective offensive or defensive. During a game, the player uses the driving technique or movement and ball skills made. Modern technology can be executed from a stationary position (basketball free throw) or action (pass, shooting while running or shooting from huge).

Engineering a sports game is "all of the specific motor skills (also known under the names: technical skills, techniques, technical gestures sport) used for the purpose of practicing the game with maximum efficiency" (Predescu, Gradinaru, 2005).

Dragnea and Teodorescu (2002) states that a branch of sport technique includes all actions executed ideal driving in terms of their effectiveness. In other words, rational and economical technique involves performing a certain type of movement specific branches of sport.

Technology includes a specialized structure formed according to the regulations of each sport driving to achieve higher efficiency in competitive activity (Siclovan, 1984).

Colibaba-Evuleț and Bota (1998) defines technology as a game system or integrated motion a chain of partial movements (acts, gestures, skills, abilities) and specialized automated by which solve the purpose and tasks of ofensive and defense game.

The characteristics training in women range from specific female body. Scientific understanding of these features provides additional opportunities for increasing the efficiency of training (Predescu, Ghițescu, 2001).

Apart from physical capacity should be taken into account and the psyche athletes who play a very important role on performance.

Experienced coaches believe that this factor is

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more important in women than in men. Performance capacity is determined by the specific anatomic, physiological and psychological woman.

Women do not have stability in performance equal to men - often surprising, some weaker stocks, even excellent players.

The disadvantages women relate to men and reaction speed and accuracy of movement as an example that does not move the ball quickly, do not react quickly to adverse movements, this is based mostly on the fact that transportation stimulus is made slow, which directly affects the reaction rate.

Stands and a reduced capacity for execution of movements of force and strength in speed mode.

Training Methodology recommended that in preparing the players to take into account the following:

• Absolute differentiation necesara.indozarea training load that has implications on content and structure. Particular attention will be given exercises to strengthen muscles and abdominal muscles vertebrate ditches. Back pain that often accuse athletes of performance are generated by mismatch between muscle performance capability and load, and the movements efectuaii wrong;

• to respect the necessary recovery breaks physiologically. Research has confirmed that the overall resistance is poorly developed in most sports;

• in the female sports activities performance must take into account the hormonal activity that directs the menstrual cycle.

Methods

We proposed that this research will form the experiment and training process to apply a system of general and specific exercises in order to develop the quality of motor skills.

The experiment was organized during the eight weeks in which 12 basketball player to aged 13 to 14 years were subjected to a program for skill development.

The players are part of the club's basketball CSS1 Constanta.

Initial testing was conducted on 05.03.2014 and on 30.04.2014 the final test subjects participated with interest the evidence.

The samples were:

1. Passing the wall during 15 seconds to 3 m away.

2. In place in the lower position Dribbling during 15 seconds.

3. Dribbling through cones on the distance of 10 m return. Four cones were located at a distance of 1 meter, 4 meters, 7 meters and 10 meters from the start line.

Samples were made by two or registering the best results.

Exercises used to develop skill:

- Rolling the ball with one hand, two hands, huge trying to avoid objects scattered on the ground;
- Wwalking, throwing and catching the ball before it touched the ground immediately;
- Walking, throwing the ball and recovering it immediately;
- Throw the ball up and catching her by clapping several times, in front, behind, in front and back, between the legs;
- The same year, but after reaching the ground grip, one hand, two hands, after a full pivot;
- Wall Throwing and catching them;
- Throw the ball into the wall, beating palms forward and grip without the ball to fall (applause back touches the floor, pivot);
- In pairs taking hand, huge place, and the motion;
- Roll run and catch the ball before it reaches the target;
- Roll easy ball and run around it;
- Exercise throwing up, applaud, jumping on two feet and on one foot;
- Makes beating a rhythm;
- With his back to the wall, throws it into the wall, swivel and catch the ball;
- Throw the ball up and try to get under it whenever you can (possibly over a lane or line;
- Knock the ball down and pass with a forearm around her;
- Drive the ball on your head (above his head) let her fall back and catch it before it hit the ground;
- Spinning ball on finger;
- Walk, passing the ball from one hand to another;
- Feet apart, knocking the ball down between your legs, turn around and catch the ball;
- Care about the earth through the feet and grip the back and vice versa;
- Dribbling in place with two balls alternately;
- Same as huge in running;
- Reverse and huge with two balls;
- In pairs, 2 huge balls, the balls whistle change;
- Dribbling in place with feet drawing figure 8;
- Pairs 2 balls per pair, A passes to B with the ground, and B to A with two hands to the chest;
- In pairs, A and B makes it mimics the mirror and then change the roles;

Results

Table no. 1 - Physical characteristics of the subjects

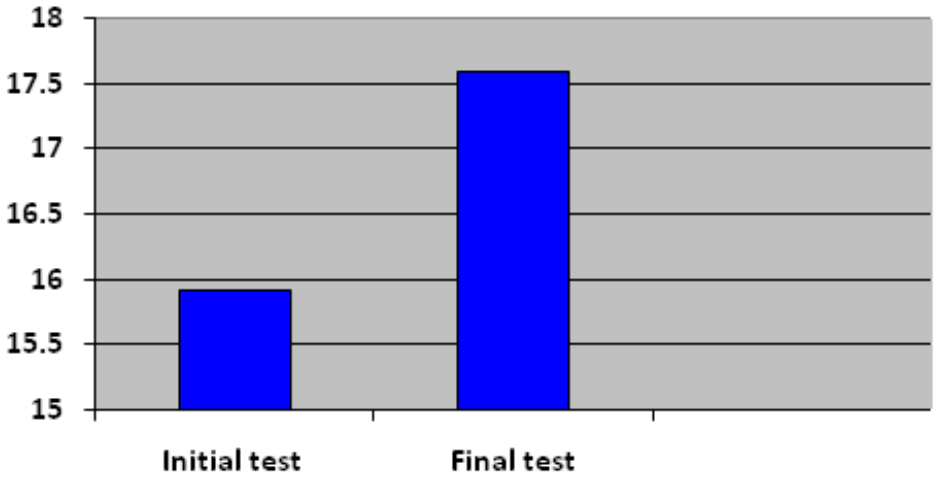
	Indicators	Body height (cm)	Body weight (kg)	Scale arms (cm)
The experimental group	M	164,917	54,833	167,25
	S.D.	9,229	10,861	9,44
	C.V.	5,59%	19,81%	5,64%

Looking at the coefficient of variation in table no. 1 we observer that the experimental group has a higher homogeneity in terms of height and scale. The coefficient of variation for weight instead indicates average homogeneity of the subjects.

Table no. 2 - Analysis of recorded data on tests of skill

		Passing the wall in 15 seconds	Dribbling in place in 15 seconds	Dribbling through cones
Initial test	M ± SD	15,917 ± 1,782	44,833 ± 4,569	5,813 ± 0,221
	C.V.	11,19%	10,19%	3,80%
Final test	M ± SD	17,583 ± 1,379	47,417 ± 4,522	5,703 ± 0,195
	C.V.	7,84%	9,54%	3,42%
	t	5,863	5,946	7,795
	p	p < 0,001	p < 0,001	p < 0,001

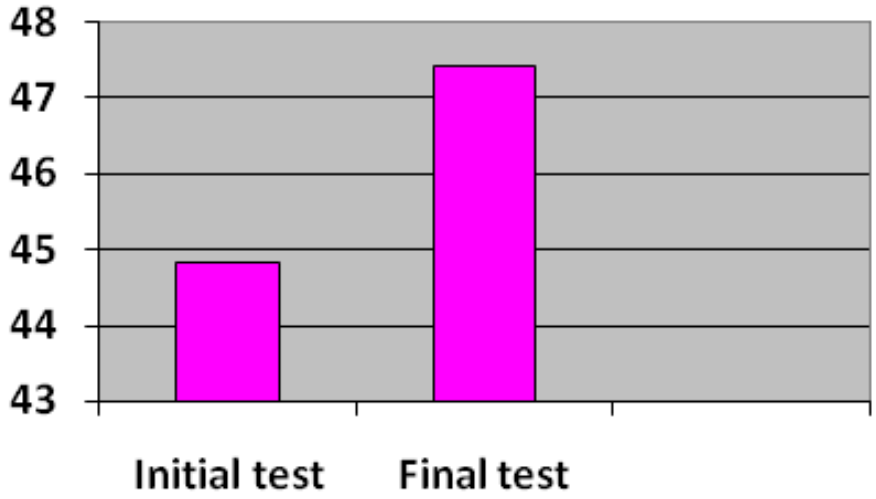
As shown in the table no. 2, between the initial and final testing experimental group significant differences for tests of skill.



Graph 1 - Passing the wall in 15 seconds

The test passes the wall in 15 seconds in the experimental group was an average performance of 17,583 executions final testing to 15,917 executions initial testing, the value of "t" is the 5,863 which is a statistically significant difference at a threshold significance of p <0.001.

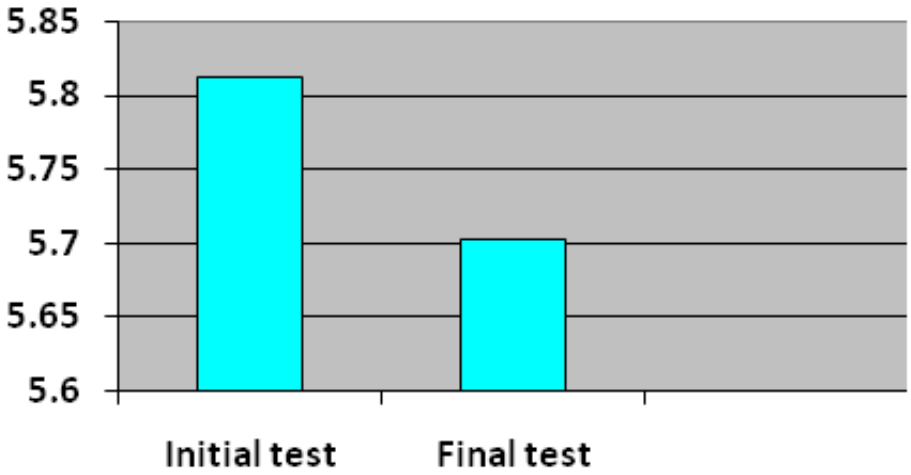
The coefficient of variation indicates average initial testing homogeneity and high homogeneity final test group subjects.



Graph 2 - Dribbling in place in 15 seconds

When testing dribbling in place in 15 seconds, analyzing chart. 2, the experimental group was an average performance of 44,833 and 47,417 executions initial testing to final testing execution, the value of "t" is for 5,946 which is a statistically significant difference at a significance level of p <0.001.

The coefficient of variation indicates average initial testing homogeneity and high homogeneity final test group subjects.



Discuss

When testing dribbling through cones, analyzing table. 2 and chart. 3, the experimental group was an average performance of 5.813 seconds and 5.703 seconds from initial testing to final testing, the value of 't' is the 7,795 which is a statistically significant difference at a significance level of p <0.001.

Regarding the coefficient of variation, it was at values below 10 percent which indicates higher homogeneity.

We can thus say, looking at driving tests, it was found to improve the level of training of the initial testing to final testing.

Conclusions

The application an intensive program of specific exercises to develop skill for 8 weeks may result in a higher education in the game of women's basketball at the age of 13-14 years.

The points obtained from the statistical calculation performed demonstrate that the application program has been effective, the well-structured method by a good selection and dosing of exercise used.

Skill is a very complex motor quality (psycho-motor). Containing a very rich component plays a critical role in harmonious physical development and hence in achieving training and competition in the age group 13-14 years.

Before moving on to learning, strengthening and improvement of key technical and tactical elements should create a sense subjects ball. For this we present the so-called "school ball" specific sports. After acquiring the elements of "school ball" shift technique to make learning easier and with higher efficiency.

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Original article

COACHES TURNOVER TENDENCY REVIEW OF JOB SATISFACTION AND ORGANIZATIONAL COMMITMENT AT PROGRAM IN THE NATIONAL SERVICE (PHD THESIS PROPOSAL)

NUZSEP ALMIGO[1], RAHMATULLAH KHAN ABDUL WAHAB KHAN[1], HAZALIZAH HAMZAH[1]

Abstract

Objective. This study aims to determine the relationship impact between job satisfaction and organizational commitment with coaches' turnover tendency.

Methods. The analysis use regression for correlation and the study sample consisted of research on the 300 coaches at Program in The National Service. Research instruments use turnover tendency questionnaire consisting of two main factors are planning to leave the company in the future and try to survive in the company to future. Job satisfaction questionnaire consisting of five factors are a job, a promotion, salary, supervisors, and co-workers. And organizational commitment questionnaire consisting of three main factors are strong belief and acceptance of the purposes and values of the organization, ability and willingness to work hard for the organization, and as well as the desire to survive as a member of the organization.

Results. The assumption is there are relationship between coach's turnover tendency, job satisfaction and organizational commitment at program in the national service.

Conclusions. This research predicts the relationship between turn over Tendency, job satisfaction and organizational commitment. Many research shows that there is a relationship between variables that were studied.

Keyword: turnover tendency, job satisfaction, organizational commitment.

Introduction

Human resources are an invaluable lesson. Human civilization becomes the point of measuring progress, and trends are always changing so it requires a precision that is appropriate to increase the potential of every individual. The tendency of individuals to change and the dynamic process refers to a phenomenon that needs to be researched and examined as a dynamic balancing process of an organization or public services.

In particular, the organizational life of the human factor is the main problem. Therefore, it should be taken seriously from every angle behavior changes in your life organized. This is because there is a common thread between the human aspects of the organization of endeavor. Dynamic life will be realized in the organization and become its own phenomenon. In an effort to enhance the progress of the organization, and for the purpose, role and the need of those who are in them. Cooperation and perseverance in work is an important factor for the development of the organization

The issue of this work is a tendency to stop common problems that occur in every organization. Often a tendency to stop working a stooge influence is likely to increase and decrease in earning an organization. If not resolved properly then the organization or public service will likely experience a significant decrease. Great public service as NS has around 3,500 coaches (Utusan, 22 February 2014) the above condition does not close the possibility develops. A condition associated with many elements in this organization is its own problems in its development.

National Service has a lot to give training course for coaches from each zone and area. Coaches are given a fair chance to get the appropriate training courses to improve their skills in their respective fields. The training includes training in citizenship, basic counseling training, physical training, and so forth. But the sort of training that is not supported by individuals and the top and the willingness to apply the knowledge acquired, this is likely not the same maximum. Thus there is a need of views on job satisfaction itself and commitment from its employees. The problem is most likely a tendency turnover in the public service NS.

The Borneo Post (2011), reported that the current position is as a coach in the NS contract position. This resulted in between 30 to 40 percent NS trainers have many stop working due to pick another career more secure. Because many NS coach resigned, JLKN losses as has been 'invested' to force NS trainers. Become a coach training program, is not easy because they (coaches) will receive training and courses to be eligible to coach in NS. This is according to Zeffane (2003), says that the intent Turnover refers to the voluntary the intention of an employee to leave an organization. Supported by Tet and Meyer (1993) gave a definition that is the intention of the intention to leave

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the employees to leave the organization as a conscious and deliberate intention of the employee to leave the organization (Rodly, 2012).

Turnover intentions are the tendency or intention of employees to quit his job to work from. Further explained Mobley, Horner and Hollingsworth, (1978) in Grant et al., (2001) desire to move can be used as the first signs of the turnover in a company. Intention exit (turnover intensions) can also be interpreted as the movement of labor out of the organization. Turnover can be a resignation, transfer out of the unit organization, dismissal or death of members of the organization. According to Grant et al Bluedorn, (2001) turnover intention is an attitude tendencies or the degree to which an employee is likely to leave the organization or voluntarily resign from his job.

Increased tendency to stop working coach will also have consequences for public services. When coaches increased tendency to stop working then work will decrease, which will also eventually result in weak public services. Orientation of this work is to stop the coach quit his job and find another job. One cause of the cessation of an employee stops working is because there is no commitment in the organization and satisfaction at work even there. Organizational Commitment is important, this is because the people that work has been chosen for the job was joining the company or organization as a form of self-recognition for the organization. Organizational commitment reflects how an individual identifies himself with the organization and tied to their goals (Robbins, 2001). The manager recommended increasing job satisfaction in order to obtain a higher level of commitment, furthermore, when high commitment to facilitate the realization of higher productivity (Kreitner and Kinicki, 2003). Therefore it is essential commitment to work in every individual working. In this case, the organization must develop and understand his job as a union of charitable organizations must be maintained

Efforts to improve this as a basis the progress together in an organization, this organization commitments often tend not to correspond to the actual state or condition of the employee. This also eventually results in the public service. If left quest then this will tend to result in increased tendency to stop working. As a result of public services will suffer deterioration in productivity.

Not immune problems job satisfaction, job boredom, social jealousy, social inequality which is a factor that can be realized when it is not resolved amicably. Robbins and Judge (2009) defines job satisfaction as positive feelings about the job as a result of the evaluation of characters such work. Problems does the perceived job satisfaction of staff, inadequate consideration and inappropriate, and there are problems between staff either new or already seniors often occur. This problem is also likely to have on staff training programs. As a result of dissatisfaction with what is perceived by employees will result in the employee's performance will directly affect the tendency to stop working, so it is held constant will create an impact on the staff of the consideration received. Consideration will be felt less satisfied on the basis of performance available.

Based on the review above problems, the researchers want to make a research on "Coaches Turnover Tendency Review of Job Satisfaction and Organizational Commitment at Program in the National Service". Based on previous research, previous studies only examined about job satisfaction, appreciation and a tendency to stop working. Since then researchers prioritize on two aspects that have to do with a tendency turnover in the form of job satisfaction and organizational commitment. According to the researcher's knowledge, no one has studied the job satisfaction and organizational commitment to the tendency turnover a research sample is NS trainers.

Method

This study represents a survey. Descriptive research design of ex-post facto been adopted in this research. Ex-post facto research is systematic empirical inquiry in which the researcher does not have direct control over variables because their manifestations have occurred or because they did not manipulated. In conclusion, the variables are made without direct interaction from a variety of independent and dependent variables together (Kerlinger, 2000). The population of this study was overall NS trainers (coaches) available in Malaysia. The sample totaled 300 NS trainers. The method is to take samples using random sampling methods. A sample taken on the categorization that is has been a coaches at least one year.

The instrument uses a tendency turnover a questionnaire consisting of two factors: (1) plan to get out of the company who, in turn will come, (2) trying to survive in the enterprise to the future. Job satisfaction questionnaire consisting of five factors: (1) work itself, (2) promotion, (3) salary, (4) supervisors, and (5) co-workers. And organizational commitment questionnaire consisting of three main factors: (1) a strong belief in and acceptance of the purposes and values of the organization, (2) the ability and willingness to work hard for the organization, and (3) is also a desire to survive as a member organization.

Questionnaires tendency turnover, job satisfaction, and organizational commitment have movement from 1 (lowest) to 4 (highest). Once the questionnaire is made, the pilot study will be conducted. This pilot study aimed to determine the reliability and validity of a measuring instrument. By testing the questionnaire, the questionnaire is valid for use on samples to be measured.

This study uses multiple regression analysis correlation and path analysis. Regression analysis technique is used to see how big the correlation between each independent variable with the dependent variable. Regression analysis technique is used to see how big the correlation between each independent

variable with the dependent variable. This analysis technique belong to the category of collective model to be obtained correlation coefficients between the independent variables with the dependent variable, a significant degree coefficient, regression line equation, the correlation between each predictor variable of sub and effective contribution (Hadi, 1994). Path Analysis of a large used to test how variables affect other variables. The analysis used was SPSS 21.0 for Windows 8.

Results

In this study the hypothesis is no significant relationship between job satisfaction and organizational commitment with a tendency to stop working. The higher job satisfaction and organizational commitment, the lower the tendency to stop working. And the lower the job satisfaction and organizational commitment, the higher the tendency to stop working. Based on previous research, Olusegun (2013) demonstrated that the result of the study shows that the linear combination effect of job satisfaction and turnover intentions was significant (F (2,223) = 20 846; R = 0397; R2 = 0.158; Adj. R2 = 0.150, P> 0.05). This suggests that there is a significant relationship between job satisfaction and propensity to quit. Other than that, the research Etnaningtiyas (2011), demonstrated that group cohesiveness, personality-job fit, job satisfaction influences employee turnover intention with R Square = 0:45 p = 0.000 (p, 0:01). Based on this study that group cohesiveness, personality-job fit, job satisfaction affects the employee turnover intention.

Further research done by Wulandari & Martdianty (2013) who found that there was a significant relationship between organizational commitment (EC) of voluntary turnover intention with big significance p = 0.00 (p <0.05), but the variable job satisfaction (JS) is not related significant with p= 0.4239 dependent variable (p> 0.05).

Further research by Ilona (2012) shows the results of the hypothesis test is performed using partial correlation techniques available, there is a highly significant negative relationship between job satisfaction with pay to handle the intense turnover with of work shown by rxy = -0821, p = 0.000 (p, 0.01). Based on the above studies indicate that there is a relationship between job satisfaction and organizational commitment with a tendency turnover

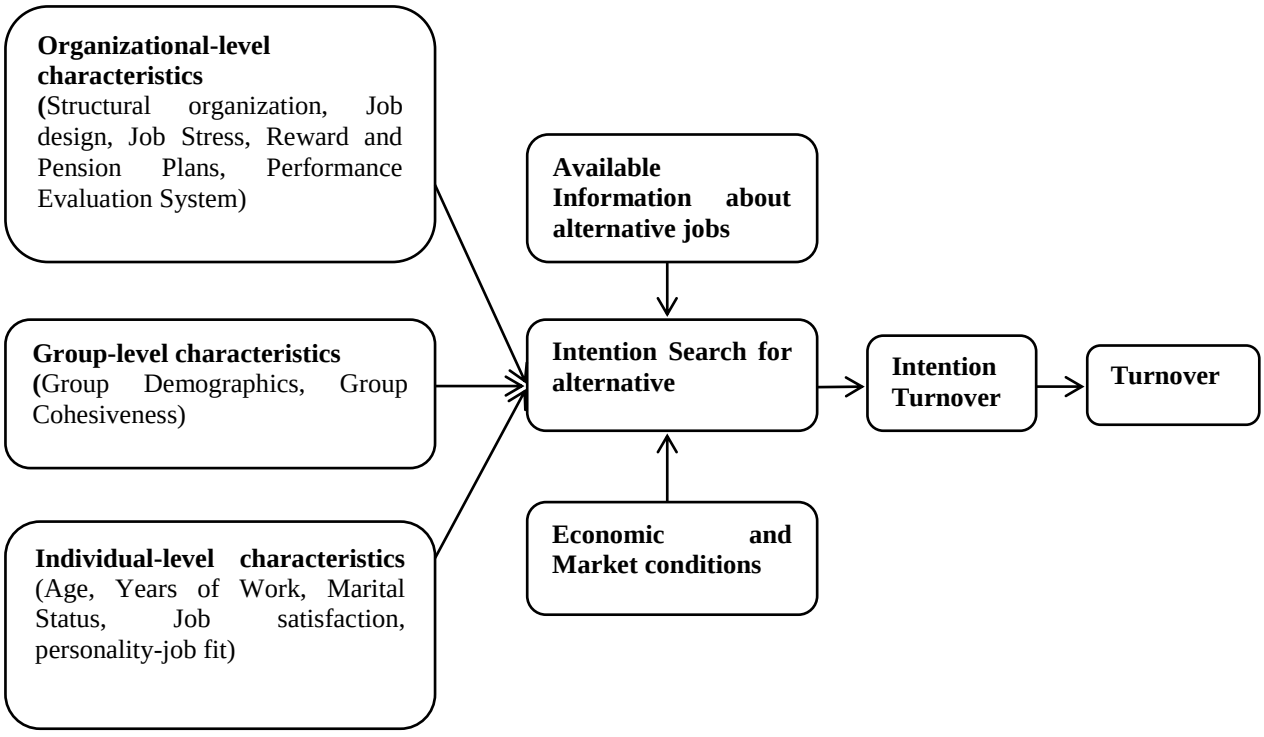

Figure 1: Explaining and Predicting Turnover by Robbins, (1986)

Discussion

Turnover intention is called desire or plan to leave the organization (Cuskelly & Boag, 2001) employees. Plan to leave this organization is one of the causes of the decline of labor productivity. Sousa-Poza further and Henneberger (2002) defines turnover intention as the probability that an employee will resign his current work within a specified period.

Mobley et al (1986) stated that many factors that cause employees to move from his place but the determinant factor is the desire to move them (Rodly, 2012) :

1. Job Satisfaction, at the individual level , satisfaction is a psychological variables most often studied in a model of intention to leave . Aspke satisfaction is found to be related to the individual's

desire to leave the organization would include wages and promotion satisfaction , satisfaction with the supervision received , satisfaction with co-workers and job satisfaction and the content will work

Organizational commitment, Because of the relationship of job satisfaction and the desire to leave the workplace to explain only small part process model variants it is clear the intention to – leave the employee must use other variables beyond job satisfaction as the only explanatory variable. Subsequent developments in the study of intention to leave incorporate the construct of organizational commitment as a concept that helps to explain the process as a form of behavior, organizational commitment can be distinguished from job satisfaction. Commitment refers to the emotional response (affective) individual to the whole organization, whereas satisfaction leads to an emotional response over specific aspects of the job.

According to the determinants of turnover intention is monitoring support, flexibility, participation, job autonomy, and working conditions of working. This will not cause a high level of turnover intention if employees receive appropriate care, encouragement and support from employers, comfortable and satisfactory working conditions, the possibility of exerting influence on organizational issues, safety, and protection of the overstrained and not challenged (Perez, 2008).

Meanwhile, according Griffet (1995), that almost all models of intention to leave due to the level of job satisfaction and organizational commitment is low are: (1) Job satisfaction is an attitude that most influence the intention to leave. The study results showed that job satisfaction is closely related to cognition processes withdraw (pre withdrawal cognition), intention to leave and concrete action in the form of a decision to get out of the workplace, (2) Organizational commitment is the most influential factor on the intention to leave than job satisfaction.

Meanwhile, according to Robbins (2001), concluded that the intensity of turnover influenced by several factors such as the turnover in figure 1.

Based on figure 1 above, Robbin explains the factors that influence the propensity of an employee stops working grouped into three are Organizational-level characteristics (Structural organization, Job design, Job Stress, Reward and Pension Plans, Performance Evaluation System), Group-level characteristics (Group Demographics, Group Cohesiveness), and Individual-level characteristics (Age, Years of Work, Marital Status, job satisfaction, personality-job fit). All three of these factors affect the intensity changed jobs frequently among employees.

Conclusion

From each of these factors will ultimately affect the intensity of someone to start looking for new employment alternatives. Intensity is not yet fully manifested in behavior. In addition to these factors, there are several other factors, such as economic factors and the information received about the job offer income and better facilities, can encourage a person to want to get out of the company. If these demands continue to press one, then it is possible that the employee will eventually quit his job.

It can also occur in NS trainers. For the job as coach of their status is a contract, then there is possibility they even think to call it a day and find other employment. This was of course for national service training department would be very detrimental. Because the cost to be borne from the start of recruitment to training courses for coaches and facility expansion will be just useless.

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Original article

THE EFFECT OF ADVENTURE BASED COUNSELING (ABC) OF SELF- EFFICACY TRAINERS IN THE HEALTHY LIFESTYLE PROGRAM AT PROGRAM IN THE NATIONAL SERVICE

NUZSEP ALMIGO[1], YUSOP AHMAD[2], NORKHALID SALIMIN[2], MD AMIN MD TAFF[2], GUNATHEVAN ELUMALAI[2]

Abstract

Objective. This study aims to determine the impact of Adventure Based Counseling (ABC) on the level of self-efficacy in obese trainees before and after on Healthy Lifestyle Program.

Methods. The study sample consisted of research on the 2471 trainees Healthy Lifestyle Program. The instrument uses the self-efficacy questionnaire consisted of four main factors of cognitive, affective, motivational, and selected.

Results. The analysis showed there was a significant difference in Self-Efficacy before and after the Healthy Lifestyle Program (p=0.00, M-before=31.4 and M-after=38.8) indicated by increasing Self-Efficacy in the program.

Conclusions. There is a difference between Self-Efficacy before and after treatment adventure based counseling training. This proves that the training ABC a positive impact on increasing self-efficacy participants in NS.

Keyword: self-efficacy, adventure based counseling.

Introduction

Obesity is increasing year by year. This caused fewer tendencies to focus on health, resulting in less controlled diet and do sports to be less. Health Organization (WHO) in 2003 noted that approximately one billion people of the world suffer from overweight and at least 300 million are clinically obese suffer . According to the study that between the years 1976-1980 to 1999-2000 there was an increase in the prevalence of overweight from 46 % to 64.5 % (Malnick and Kobler, 2006). This is very disturbing and not infrequently leads to death.

Lifestyle improvement at a particular batch causes eating patterns changed. Improvements will reduce the level of economic levels of physical activity and dietary changes also result in more and more people turn to suffer overweight and obesity (Almatsier, 2006). Similarly, according to the WHO (2015) predicts 2.3 billion adults will suffer from overweight and 700 million are obese. Given that Malaysia is also ranked sixth Among Asian Countries with high adult obesity rate, according to the World Health Organization (WHO).

Self-regulation skills are very important in the treatment of weight loss in addition to cognitive restructuring skills and stimulus control is Self-Efficacy. Competence cans vary from one situation to another (Frank, 2011). Self-Efficacy is a belief in one's self in the effectiveness in performing certain tasks that are consistent with social cognitive theory. Based on studies that increase self-efficacy would lead one to control and nutrition and increase physical activity (Annesi, 2011).

Phenomenon occurs among teenagers in Malaysia are also experiencing the same thing, that the increase in obesity. One of the programs for this weight revealing the Healthy Lifestyle Program has been launched in adolescents following National Service (PLKN) throughout Malaysia. Healthy Lifestyle Program is conducted by researchers from Universiti Pendidikan Sultan Idris (UPSI), which aims to reduce youth obesity issues in Malaysia and promote a culture of healthy living to help the country overcome the problems associated with obesity.

This healthy lifestyle program pioneered by researchers at UPSI work Cutting over the NS (which became a sponsor in this research) to give full support to the implementation of this program. Because this will affect the life growing inside of a better life in adolescents, in the form of a healthy lifestyle for the intern obese in NS or in everyday life. Healthy Lifestyle Program is purported activities Calisthenics Exercise Stretching and flexibility are implemented by modules that have been made for and set. Apart from the physical activity, the intern program Healthy Lifestyles given module Adventure Based Counseling (ABC). ABC module is a module with the organization Therapy relaxation made in such a way in a simulation activity that characterized the game, challenge, and fun in an effort to bring greater self-image.

This study aimed to determine the level of self-efficacy in obese trainees before and after the module Adventure Based Counseling on Healthy Lifestyles Program. This study is to find an answer to the question of identifying the different levels of self-efficacy before and after the program Adventure Based

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Counseling in the Healthy Lifestyle Program at Camp National Service

Method

This study represents a survey. Samples weighed using Omron Body Fat Analyses. The samples have been weighed in the regulation of body fat determined that the sample was obese. The study population consisted of NS trainee camps across Malaysia 2012/2013. Samples of 2471 stated obese.

Then the sample treatment with Adventured program based Counseling (ABC) in the form of simulation activity in the increased confidence, motivation, affective and skills in selecting social conditions encountered in the effort to adapt.

The questionnaire used is a self-efficacy questionnaire. Self-efficacy Questionnaire used based on four factors that affect Self-Efficacy of Cognitive, Affective, Motivational, and Selective. The questionnaire is divided into research samples before and after implementing the Healthy Lifestyle Program.

Results

In an effort to achieve its objectives in the Healthy Lifestyle Program, the trainees are in the obese category must have an optimal level of self-efficacy. Based on the above, a survey of self-efficacy among obese NS (PLKN) trainees participating Malaysian Healthy Lifestyle Program was implemented at the beginning of this program, which at the time of the pilot study in which the implementation of the Healthy Lifestyle Program be implemented Counseling Based Adventure (ABC) Camp Geo Kosmo and Pelangi Hills.

Study by Bandura (1997), confidence in the ability of individuals belonging to affect how individuals react in certain situations and conditions. Factors of Cognitive self-efficacy (ability to make a positive and realistic attitudes to the potential of in order to perform the duties, restrictions, or social desire), Affective (ability in the management of mental, emotion and mood), motivation (determination and ability level of the in order to achieve the purpose or goal) and Selective (ability to choose the social conditions confronting and coping with the situation).

Based on the normality test samples (Table 1) using the analysis sample KS test (Kolmogorov Smirnov) found p = 0:00 and Z = 6283. Normality test samples show normal.

Table 1: Normality Test Samples

	Z	***p***
Self-Efficacy	6.283	0.00

The study of the level of self-efficacy trainees obese category are shown in Table 2. There is a difference in self-efficacy are very significant pre-(M = 31.42, SD = 7:26) and after (M = 38.83, SD = 7.12) Healthy Lifestyles Program (p = 0.00). In self-efficacy factors of Cognitive, there were significant differences before (M = 7:22, SD = 1.80) and after (M = 9:38, SD = 2:18). There are significant differences in Motivation before (M = 7.84, SD = 2:03) and after (M = 9.85, SD = 2:03). There are significant differences Affective before (M = 8.1, SD = 2:07) and after (M = 9.99, SD = 1.91). There are significant differences Selective before (M = 8.24, SD = 2.29) and after (M = 9.55, SD = 1.72) in Table 2 below:

Table 2: Paired Samples T-Test

Variabel	**Before (n=2471)**		**After (n=2471)**		**t(df)**	***p*value**
	M	**SD**	**M**	**SD**		
Self-Efficacy	31.42	7.26	38.83	7.12	-41.74(2471)	0.00***
Cognitive	7.22	1.80	9.38	2.18	-41.26(2471)	0.00***
Motivation	7.84	2.03	9.85	2.03	-37.98(2471)	0.00***
Affective	8.10	2.07	9.99	1.91	-39.21(2471)	0.00***
Selective	8.24	2.29	9.55	1.72	-30.18(2471)	0.00***

*p<0.05; **p<0.001; ***p<0.0001

Based on the analysis above, it shows that there is significant self-efficacy before and after Program Adventure Based Counseling Program Healthy Lifestyles (p = 0.00) with increasing degree of 7:41. Rising before and after on Cognitive aspects of 2:16. Increase before and after the 2:01 aspect of Motivation. Increase before and after the affective aspect of 1.89. As well as increased before and after Selective aspects 01:31.

Discussion

Result showed based on an analysis, there is difference between Self-Efficacy trainees before and

after the follow the program Adventure Based Counseling (ABC) at the Healthy Lifestyle Program. It is demonstrated that there is a positive impression over the ABC program.

According to Schultz (1994), Self-Efficacy is individual feelings towards adequacy, efficiency, and our ability to cope with life. While Bandura (1997) said that the Self-Efficacy is the individual's ability to self-confidence will affect the way individuals react to certain situations and conditions. Self-efficacy is the belief, perception, power to affect a person's behavior, beliefs that may be able to overcome the situation and produce positive results will affect the way individuals react to certain situations and conditions.

Baron and Byrne (2000) suggested that self-efficacy is an individual assessment of the ability or competence to perform a task, achieve a goal, and produce something. Further Lahey (2004) said that the Self-efficacy is the perception that the individual is able to do things that are important to achieving the objective. This includes the feeling of knowing what to do and also emotionally able to do so.

So it can be concluded that self-efficacy is the feeling, belief, perception, confidence in the ability to cope with a given situation which will affect the way individuals cope with the situation.

Furthermore, the influence of Self-Efficacy (Bandura (1997) is the process of cognitive, motivational, affective and selection processes. These factors will greatly influence the increase of self-efficacy of an individual that involves the willingness and efficient in fulfilling a duty or face problems. Self-Efficacy is also not directly related to the efficiency factor of the individual, but only involves self-assessment about what to do, without relating to efficiency owned.

Measuring the level of obesity and obesity are based on Body Mass Index or Body Mass Index (BMI) to calculate the weight in kilograms (kg) and divided into high in meters squared (m2). In addition, obesity can also be measured by the percentage of body fat percentage figures contained in the human body. The calculation is the amount of body fat weight per total weight multiplied by 100. Body fat percentage can be measured by using Omron Body Fat Analyzer. Obesity is the accumulation of abnormal or excessive fat can interfere with health (WHO, 2011). Myers (2004) also stated that a person is said to be obese when there increase or expansion of their body fat cells.

In the study of obesity, that physical exercise is a key factor in weight loss for the long term. But exercise behavior also influenced by the achievement of goals. Achievement of this target will mean the creation of short-term and long-term. Thus, self-efficacy with clear goals, and means the individual will feel that they are competent, confident on the ability to organize and implement actions for the purpose set forth, and sought to assess the extent and strength of all the action and context (Bandura, 1997).

Adventure Based Counseling (ABC) is a model - oriented counseling through outdoor games or conducted in a group with the aim of togetherness, trust, help yourself and others, and can motivate themselves and other people's motives. According to Anderson et al (1997), a longitudinal study over two and a half years demonstrated that outdoor adventure programs produce positive changes in social and personal relationships improve patient disabilities. The next course of a study conducted by Bennett et al (1998) stated that 13 men and women with drug dependence in residential program for three days with adventure therapy intervention program, therapeutic camping, and relapse prevention showed a significant negative result on automatic arousal in the experimental group, frequency of negative thought, and alcohol craving. This study shows that there is a positive improvement after joining the ABC program. In addition, research conducted by the Cross (1999), the adolescents demonstrated that following the experience in the outdoor adventure program in the experimental group experienced less alienated than the control group . The results of this study indicate that treatment Cross done on strengthening personal control experimental group teen giving a positive effect on feelings of alienation and control.

In this study, Adventure Based Counseling on Healthy Lifestyles Program is used in the form of a game simulation activity. The game is in the form of a model oriented counseling to adolescents and direct experience obtained while following a series of challenging games and is specifically designed to be implemented in the open. This activity contains a classical game presentation, discussion, trust building, dynamic group, which has low elements and high elements. After that process is divided into three components, namely briefing (introduction of the game), leading (implementations game), and debriefing (reflections game experience).

Based on a review is conducted , the researcher can know definitely an increase in Self-Efficacy were high before and after following the Adventure Based Counseling on Healthy Lifestyles Program . With activities in the form of a simulation game that includes pleasure and value in every game along debrief conducted for a trainee who follows the Adventure Based Counseling program then trainees can improve their self – efficacy. Self-Efficacy is needed in the design of intervention programs for Healthy Lifestyles Program for Obese trainee. This is because individuals who have high self - efficacy namely individuals feel confident that the individual is able to cope with the problem effectively to events and situations they encounter , diligent in completing tasks , adapt to new situations , set goals , strategies faced and ready to accept failure , and able to escort him. While individuals who have low self -efficacy will feel inadequate, easily sad , anxious , shy away from the challenge and the task at hand, it is easy to give up on

the difficult situation , there is no firm commitment and slow to restore a state of failure (Bandura, 1997) .

Havighrust (1961) says that the level of individual development is a task Which arises at or about a Certain periods in the life of the individual, Success and Achievement of Which leads to his happiness and to success with later tasks , while failure leads to unhappiness in the individual , disapproval by society and Difficulty with later tasks. Trainee, who is a teenager, is still at a developmental stage. If obese as a form of personal problems for adolescents, the adolescent development process will be interrupted. This will impact on the disruption of confidence, feel isolated, and not well-liked among the other teens, the discomfort will distract teenagers who suffer from obesity, especially in dress and activity. Of activity will be very difficult for example in relation to the environment. As a teenager will become more depressed and aloof, not wanting to see or merge with another youth group because it was obese. Therefore need a program that can help teenagers who have this problem.

In the aspect of self-efficacy, cognitive role of trainers is the ability to respond in a positive and realistic than the potential of the business task, obstacle, or social desirability. This indicates that, the action stems from a lot of rethinking to imagine either success or failure. It shows that the trainees think about success when following the Healthy Lifestyles program will add a good life, learning about health and believe positively after joining the program as well as more confident. Furthermore, the role of affective aspect is the ability to trainee in the management of mental, feelings and moods which demonstrated that the trainee is able to control the situation themselves and do not think about negative things. The role of motivation is the ability of trainees to the seriousness and duration in order to achieve the purpose or goal. Motivation is very important to us and should help motivate others. Motivation is very useful in improving self-confidence, and looked trainees are able to cope with the existing situation. And the role of selective aspects of the trainee's ability in choosing the social conditions confronting and coping with the situation. Relating these selective trainees volunteered for the program and is confident that the results for the trainees are positive results in achieving success (Bandura, 1997).

Accordingly, the success of Adventure Based Counseling on Healthy Lifestyles Program, one of the programs that help teens (obese trainees) to reduce weight and increase self-efficacy trainees. According to Kirk (2008) states that students who have high self-efficacy prefer to challenge themselves to deal with the difficult tasks and have high internal motivation in the program organized. In other research which Agusman (2012) says, teen self esteem will be faster and easier to adapt to the environment and be able to undergo a diet program as a form of effort to create the desired outcome. Trainees enrolled in this program show enthusiasm and confidence and believe that the Adventure Based Counseling program at the Healthy Lifestyle Program to enhance self-efficacy and healthy lives.

Conclusions

The findings of this study demonstrate the implementation of Adventure Based Counseling program at program Healthy Lifestyle in PLKN has a strong impact on increasing self-efficacy trainees obese. The increase of teens showed how to think, motivational, affective and selective in enhancing the reliability of self and success ahead. Hopefully trainee can make sure to go through all the challenges and obstacles during the program and after the program to maintain existing revenue. Adventure Based Counseling Program on Healthy Lifestyles program is to be compiled based on the ability to build self-efficacy are more positive among the trainees in the program so that the effect of impact on living a healthier

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PHYSICAL ACTIVITY AT CHILDREN WITH AUTISM

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Abstract

Problem statement: This paper aims to describe important aspects of specific behaviors related to physical activity and not only, in children with autism and ways of therapeutic intervention.

Autism affects 1 in 150 children in the United States (according to the Center for Disease Control of Atlanta and of the 600,000 people affected by autism in the UK 80,000 are of school age (under the Youth Sport Trust, 2008). In Romania there are no statistics the number of children with autism.

*The aim of the research***:** Autistic disorder was considered to be more common in higher socioeconomic classes, but newer studies proving that this statement was made under the influence of preconceived ideas, unrealistic.

Autism , according to several studies , is more common among boys than among girls , the rate of 3:1 or 4:1 being. ("Link" store, no. 34/2002, Autism Europe).

Conclusions: Sometimes children with autism have associated problems can include problems with hearing, vision, motor coordination weak or nonexistent , which affects the need for education and access to physical education and sport in schools where they are enrolled.

*Key words***:** *autistic children, physical activity, therapeutic intervention.*

Introduction

Therapy for children with autism elements is based primarily on education. It must be adapted to each child with autism separately, depending on symptoms and needs, because each autistic child presents its own particularities.

Due to the broad spectrum of manifestations of a child with autism, we have to mention that exercise is not a method of treatment / recovery for all children.

Exercise reduces aggression, hyperactivity and stereotypic behavior in children with autism and it's universally accepted among specialists that physical activity is a key component when working with such children. (Ozonoff S., Dawson, G., McPartland, G.)

It is possible that certain improvements to occur only as a result of normal development and, therefore, not as a result of therapy. Such improvements are more the result of a larger amount of attention that was given to individual children (no matter what type of therapy is used).

A number of international declarations and documents stipulates the right of all children to education, the need to integrate children with disabilities in compulsory education regardless of type and level of disability, their right to " a full and decent life, in conditions which ensure dignity and autonomy and in conditions that facilitate their active participation in community life." (UN Convention on the Rights of the Child).

Based on the specific needs of children with autism regarding education and given the new orientation of educational policy in special education in Romania (in an attempt to render the romanian educational system with european standards, the law consider "integration as a fundamental principle of the Romanian education school activities" and encourages the integration of the children with disabilities in society by considering public school the first chance at education for them regardless of their learning abilities), we consider it appropriate to integrate children with autism into a physical activity program, that will allow the continuity of the existing therapy (http://www.oecd.org).

Our desire is that these children to have the same opportunities and rights as typical children, this requirement arising from the fact that studies in education of children with autism demonstrate the positive impact of children without disabilities in improvement of the social interaction, for the children that have autism. We also try to develop a role model from the typical children for the children with autism, a model that adults can not provide regardless of the methods used.

Aspects of Autism Spectrum Disorder (ASD)

Is the job of all children to play. Through play they learn about the world, how things work, their bodies, and relationships.

Due to the specific particularities of learning the autistic children, the structure of individual programs for learning is very important.

Characteristics of learning for autistic children require composition of some programs, because the

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autistic children:

- do not understand verbal explanations on what will happen next;
- do not remember sequences of events, so they cannot predict;
- feel uncomfortable not knowing what will happen next;
- have difficulties in any change due to the uncertainty of what will be;
- their activity depends on the context in which learning was accomplished.

Also, autistic children have difficulties to organize themselves beyond known space, in making choices (they try several things at once), to initiate play with a toy alone and knowing how to use the materials independently (Schetter, P).

Autistic children have problems understanding group instructions. They cannot follow the group and they require individual instructions. They can't understand the words from the instructions, songs, activities, and also they cannot wait too much without doing something, they always wait for feedback and they cannot predict when it's their turn.

Unforeseen changes in the program, like the absence of the teacher, for example, creates problems and confusion for them.

The program models which organize the information that prepare children for the upcoming events lead to increased motivation and reduce behavioral problems associated with confusion and stress. In consequence, the program becomes the structure on which new activities are developed.

In composition of the individual programs we must alternate the favorite activities with the ones that the child likes less, or not at all. An activity that the child does not like should be planned before the one preferred by the child because it is considered that, in time, the child will come to value the one that initially was unpleasant for him. Also, actions that are not approved by the child may attend after an indifferent action (familiar for the child).

Children with autism need multiple information based on different levels (programs organized by days, months, weeks). Some of them require even more detailed programs.

Young children need a program that includes activities for the whole day, in their sequence, and a mini-program for the period of work (directed activity).

For those who have already learned the routine of the day, creating a mini-program specifying the difficult periods (core activities) is also very necessary.

The time allocated to each activity depends on the age and the focus of the child and also depends on how much he prefers or not that activity. Time spent in unwanted activities should be very short.

Dancing on music improves body image. Music and dance games involving different limb movements lead to improvement of the psychomotricity.

Communication and social interaction are great challenges for children with autism. Many children with autism develop special interests, and these special interests often provide years of pleasure and fulfillment. The child may need encouragement to play with toys, textures, or people outside his comfort zone or apart from special interest. If an activity is perceived as too complicated or too long, many children will not engage. To be motivated, they need to perceive activities as being fun because the children who don't have a clear picture of where to begin and where the activity is heading will reluctant to participate. Therefore one of the keys when teaching a child a new game or activity is to break the activity exclusive to the other parts. Once a child understands and mastered one part, you cans start adding more parts to the activity. (Grandin,T.)

Children with neurological difficulties often do not track to established developmental-age charts. When deciding which activities will best promote a child's development, it is important to remember that a child's skill level may be different from his or her chronological age.

Some children require more opportunities to learn in a direct manner since they are not as likely as other children to learn through observation. When introducing the concepts that set up learning in specific areas such as mathematics and reading comprehension, it makes sense to infuse them into fun activities that capitalize on the strengths or sensory needs of the child; that way, they can generalize information. Thus, introducing or solidifying academic concepts through fun games and activities will help increase the child's opportunity to learn them.

Three dimensional manipulation of objects and one's body as a way of learning is not the norm as the children progress up the grade levels. Within a few years of the child's entering school, most learning becomes pen-and-paper based (two dimensional) or computer based (one dimensional). But as we've known, children with autism, Asperger's or sensory disorders learn best in the three-dimensional world, by interacting in or with the environment, which is often a prerequisite to two- and one dimensional learning. Learning in a three-dimensional way allows the brain and body to internalize complicated concepts to such a degree as to be able to understand the gestalt of the concept, thus allowing generalization of the information to other settings. Further learning through experience, meaning active engagement in the learning process,

has a much more powerful and residual imprint on our brain and body, thus establishing a stronger base for higher-level processing. (Sage,G.H.)

Programs of physical activities for ASD children. General aspects

Motor learning. If a child appears not to know how to make his or her body do what a teacher is asking, then the child's brain may not be able to learn more tasks by observation only. Physically teach the child by moving his or her body through the new activity while verbally saying what the child's body is doing.

Visual cues. One of the most powerful tools to use when teaching anything, new or familiar, with all children is a visual schedule. It has been well documented that children on the spectrum rely heavily on their visual systems to understand their environment. Visual cues are powerful tools to any child to increase the understanding of what to expect from a situation or what is expected of him or her. When verbal or physical directions are accompanied by visuals, a child has something to refer to if he or she is not able to retain the auditory information. Picture can be used to show the sequence of an activity or even the rules of a game.

Play with peers. When introducing peers into new game or activities, start with a small amounts of time and familiar activities. Learning from peers has been widely encouraged by many professionals working with children with autism, because this peer learning usually occurs in numerous settings, is dynamic, and lends to increased generalization to other people and environments.

Programs of physical activities for ASD children. Practical aspects

Sensory development.

All senses depend on each other and are integrated with other. As such difficulties in one system are likely to impact another system. Difficulties in systems can also impact a child socially, because where and how a person's body relates and interacts to its surroundings is the kind of information he or she will likely need to feel secure in new environments and around new people. If a child is sensitive to touch, he will likely experience difficulties with fine motor skills that are related to academics and self-care skills.

Activity no.1

Bonding rock. Two adults lock arms to create a hammock and hold the child between them in a horizontal position. Be sure both of adults are close enough to apply a small amount of pressure to the child with their bodies. The entire time sing a familiar song. The key is to maintain constant deep pressure on child's body while maintaining eye contact with child.

The two adult bodies provide deep proprioceptive input, which is calming in much the same way swaddling a baby provides comfort. The rocking back and forth provides controlled vestibular input. This basic activity encourages early eye contact while jointly taking part in an activity with another person.

Activity no.2

Making hot dog. Lay a heavy blanket on the floor and tell the child that you're going to make hot dogs and he or her is the hot dog. Then have the child lay at one end of the blanket on the floor, making sure that the child's head is off the blanket before you start rolling him or her in the blanket. Keep talking constantly with the children. Then apply pressure to arms, back and legs while saying "I'm putting ketchup on the hot dog's right arm/leg…". Finally pull one end of the blanket so the child rolls out of the blanket, which will make him/her laugh. If the child becomes anxious being rolled up, have him/her put him/her arms outside the blanket.

Wrapping the child in a blanket and applying the "condiments" provide deep pressure that stimulates proprioceptive receptors, thus having a calming effect on the nervous system.

While physically interacting with the child you are also helping him/her indentify body parts. While unrolling the child at the end of the game, you are eliciting rotary motion of the head and body, which excites the vestibular system.

Rotary input is alerting to the nervous system and can be overwhelming to children who are sensitive to movement. But in this activity, rotary input is linked to proprioceptive input, which is calming to the nervous system.

Activity no.3

Tic-tac-toe. On a flat surface cover an area of approximately 15cm by 15cm with shaving foam about 1cm thick. Have the child draw the four lines (two vertical, two horizontal) to create the tic-tac-toe grid in the shaving foam. Play tic-tac-toe in the shaving foam. At first you can practice just making 0's and X's in the boxes.

Shaving foam provides a tactile environment to practice fine motor skills. This activity requires the child to use the whole hand to establish the shaving foam surface, but then the child needs to use the pointer finger in isolation to make X's and 0's. this activity involves also planning and organization, as well as strategy, of where to place the X's and 0's.

Gross motor skills.

What many people do not realize is that there is more to gross motor skills than the simple act of moving. Gross motor skills rely on effective sensory processing of a number of different skills and systems, especially body senses: tactile, proprioceptive and vestibular processing. They also require an understanding of the properties of our physical world. Coordinated gross motor actions also call for sufficient muscle tone, trunk control and muscle strength. If all of this is present, then the key to good gross motor skills is effective motor planning.

Activity no.1

Jumping bears. Place a small number of same-colored bears on the mini-trampoline. Be sure that the child has him/her shoes on for this activity. Then hold the child's hand and ask him/her to show to the bears how to jump. It may be needed physically cue to the child to jump. Once he/she is jumping encourage her to keep jumping until all the bears have jumped off.

Since the child has to think about how to jump to get the bears to bounce off, the activity requires increased motor planning. Watching the bears jump off requires following the bears' movements as they "jump off".

Jumping on a trampoline increases deep pressure input to the body, which has an integrating, calming impact on the nervous system. The child use his/her eyes to scan while his/her feet are off the ground.

Activity no.2

Balloon soccer. Have the children play balloon soccer, where they use their knees and their head to keep the balloon afloat. This is geared toward older children because it requires more motor coordination and is more physically taxing as well. The advances activity requires and stimulates core strength and is much more motivating than sit-ups.

Activity no.3

Floating balloon. Bat a large balloon back and forth a few times at first until the child gets the concept of the game. Then integrate peers. Have all participants hit the balloon to keep it afloat as long as possible. For added challenge the adult calls out which hand the children use to hit the balloon.

These two activities require trunk rotation to turn and hit the balloon. A key to gross motor coordination is readying the body to respond to things or people moving around it. Keeping the shoulders and arms in an extended periods of time helps promote physical endurance. These activities require the child to use both sides of the body to hit the balloon. The child must also integrate the auditory information and translate it into motor action. It also allows children who struggle with language skills to participate in an interactive game with a peer.

Activity no.4

Biking through the maze. Using chalk, draw a zigzag path on the ground. Put the child navigate the path on the tricycle. Increase the difficulty over time by drawing paths with ever more turns and sharper turns. (First the child must learn to pedal the tricycle. Once the skill for pedaling becomes automatic, introduce the path. This will further challenge his/her body and brain because he/she will have to think about when and how to steer the tricycle in order to keep it on the path.)

This is an excellent activity for strengthening the pelvic region and legs. It is required to the child to focus the eyes forward to follow the chalk path. This activity is alerting the vestibular system since the child's feet are away from the ground while they are in motion.

Activity no.5

Pillow balance. Put the child keep the pillow balanced on his/her head while walking in a straight line. Increase the difficulty by having the child walk heel to toe while balancing the pillow on his/her head while walking on a straight line.

This activity requires body control around the midline, which demands that the musculoskeletal system respond to the changes in the child's movement to keep him or her balanced. Midline is the invisible plane that separates a person's right from left and is roughly located about where the nose is. By adding a proprioceptive input to the head (the pillow), the vestibular-proprioceptive-visual systems must integrate to maintain balance.

Fine motor skills

"Fine motor skills" is a term used to describe how hands work. Many therapist and medical professionals use this term to talk about the muscles, coordination, and dexterity of the hands. The hands are observed when they are doing something, not when they are at rest. Most of the activities we do on a daily basis can be categorized as fine motor skills. Some of these skills include dressing, hygiene, school, and craft activities. As the child develops he uses his hands to learn about the world and about himself. Children with autism may be reluctant to use their hands for a variety of reasons. Some of those include lack of interest, weakness, or a dislike of how things feel. The delay of hand use causes the many small muscles of the hand to remain immature or weak. Encouraging hand use in a variety of ways allows the child to explore the world. As he is exploring the world, he is learning and helping those hand and finger muscles to grow strong.

The ability to hold on to something and to use it effectively comes after a great deal of learning and development, such as holding a pencil, a crayon, or eating utensil. The hand needs to develop and then learn the proper way to manipulate a tool and use it as intended. As a child manipulation skills continue to develop, the child increase his or her sensory development because the nervous system takes in more detailed information about the properties of the people and objects in the surrounding environment. It is essential that the children with neurological difficulties, who may avoid fine motor activities, be encouraged to develop these skills in fun ways with various materials.

Activity no.1

Grab a piece of the action. Lay stuffed animals, squishy balls, beanbags out on the floor, and have the child pick them up with the tongs (barbecue type) and put them in the bag. Next place the items under and on top of various places throughout the gym hall. The child picks them up using the tongs.

Have the child chase a small car around the gym hall, and let him/her win if he/she can pick it up with the tongs before it stops.

Another option is to have the child try to pick up objects off the floor using the tongs while bouncing or lying on the bouncy ball with the items spread out in front of her.

Grasping the bag in one hand and stuffing objects into the bag with the other hand develops bilateral coordination. This activity develops strength in the hand as well as fine motor skills. The motor response to visual input both fixed and moving, challenges the eyes and hands to work together to grasp the items.

Activity no.2

Coins in the piggy bank. Have the child pick up coins using the pincer grasp (thumb and index finger). Child places the coins in the plastic "piggy bank". Next put a coin in the palmar surface of the child's hand, and instruct him/her to move the coin to the tips of the fingers without using the other hand, which must stay on the table.

If the child continues to rake the coin using the whole hand instead of just the fingers, tell your child that the pinky and ring finger are going to sleep and only three workers are the index finger, middle finger, and the thumb. Isolate the two other fingers by wrapping them in gauze or plastic adhesive bandages.

The child must use the arches of the hand to control the coin without the assistance of the other hand.

The shoulders must be stable so the arms can move away from the body in a controlled manner to allow precise movement of the hands and fingers.

Activity no.3

Pickup speed. Have the child pick up the small items by using tongs or tweezers. Have the child put the items in the toy dump truck. Have the child transport the items in the truck to the piece of construction paper and dump them out. The child is done when the construction paper is covered (or almost covered). You have to keep in mind that the item's size will determine whether the child will use tongs or tweezers. Once the child understands the game and is able to use the tongs and the tweezers, you can add a timed element.

This activity helps develop grip strength, which is essential for handwriting and other fine motor tasks.

This activity develops good thumb opposition to first finger (prerequisite for handwriting).

Activity no.4

Walks and talks. There are innumerable ways to make a hike interesting, especially as a mean to elicit communication.

Walk behind, in front of, or next to each other and talk about the prepositions: for example, "I'm next to you." This is the best way – concrete and three dimensional – for the child to understand these concepts.

Pick-up sticks along the way, and analyze the stick collection: for example, "Which one is longer (shorter, heavier, lighter, sharper, or smoother)?" For more advanced children, this can take form of a question-and-answer game: for example, "Who has the longest stick?"

Alternate fast-slow walking, and describe the rate of walking and any changes such as stopping, turning, or taking big or small steps.

Use counting steps as a mean to teach direction, and follow by saying things like, "two steps forward, four steps back." For children who have difficulty with directions – specifically children who have receptive language or motor planning difficulties – it may have to motor them through it. Hold the child's hand while you walk him/her through the directions.

Play the "look up and down" game. Ask, "What do you see?" For example, use the carrier phrase, "I see a something…" to start a conversation.

To make the hike into a game, choose an object and see how many you can count. For example, ask, "How many pine trees do you see?"

Play "follow the leader" as you walk around the neighborhood.

Count the cars in the driveways. Chose and find a house or car of certain color.

Conduct the walk in the park whenever possible. The sensory experience and opportunity for expand language opportunities are nearly infinite.

Although walking requires very little praxis and is done quite naturally, hiking in an unfamiliar environment or over a new terrain requires the brain and body to work together to navigate the novel environment.

Having the child hike up a hill provides a significant amount of proprioceptive input, as compared to walking on a level terrain that is familiar to the child's brain and body.

Having the child learn to comment on him/her environment is a great conversation starter and is essential for the development of social language.

This activity sets the stage for teaching expanded language, specifically questions about what is being observed and answers to questions.

This activity promotes visual-spatial understanding of the environment by attending to similarities and differences in the properties of things the child sees every day. It also links words with observations.

Use of dance and movement lessons

Dance/movement lessons are ideally suited for working with autistic population (Levy,F. J.).

Movement is a universal means of communication. All children move in some way, and those who are autistic are no exception. Because the autistic child usually has not developed communication speech, but has a unique movement "language", nonverbal communication is an effective means of contact.

"Few experiences involve the total person as completely as that of dance action: the body, the emotions, and the mind. Moving with other people in a similar rhythm often helps relationships to form" (Chace, 1957, as cited in Sandel, Chaiklin, and Lohn, 1993).

Communication through movement helps a child to be more aware of him or herself and more able to interact with others. Through various techniques, dance work towards the development of trust and the formation of a relationship between the child and the teacher.

Body image is one of the most fundamental concepts in human growth and development and one that appears to be lacking in children who are autistic. The more defined one's body image, the better one is able to differentiate oneself from the environment and from others. This differentiation is necessary for the formation of relationships. (Schilder,P. 1950). Therefore, movement and the body image are two of major concerns when addressing the needs of children with autism.

The initial goals of dance or movement lessons are to reach the child at the level at which he or she seems to be functioning-the sensorimotor level, to establish a relationship, and to work toward the formation of a body image. These goals are concurrent and ongoing, woven into the fabric of interactions between teacher and child.

Mirroring, a form of reflecting back but not imitating another's movements, provides a powerful means to understand a child's experience, on a body level. The teacher does not mirror a child who is out of control, or when action does not seem to offer the possibility for a positive change in either the relationship or movement pattern. The teacher constantly monitor the mood, tone, and energy level of the child in order to assess when to change or modify activities or movement intervention.

In addition to mirroring, the use of eye contact, touch, vocalization, rhythmic body action, music, various props, and a variety of sensorimotor activities all contribute to the building of a relationship, as well as to the development of body image.

The session begins with a warm-up, which, in time becomes an opening ritual, something familiar and secure that the child anticipate, and something that sets this time apart from the rest of the day.

The warm-up is both an emotional and a physical preparation for what is to follow. It varies in length and type of movement, depending on the level of functioning, energy, and awareness of the child.

During the warm-up, the child is usually seated in a chair because it is often difficult to remain focused while sitting on the floor or standing. Eye contact is encouraged.

Integration of body parts to whole-body awareness is developed through rhythmic movement-by bending, stretching, swaying, swinging, shaking, and stamping.

The child progress from moving body parts while seated to moving the entire body in a contained space to moving through space in the gym hall. It is helpful if props and materials are kept out of sight until ready for use.

As the session progress a higher level is often reached. This part of session, he development, is a time for working on concepts, developing themes, teaching and practicing motor skills, and developing socialization skills (if the lesson is for a group of children).

The closure of the session brings back to the chair. It is a time for calming and for singing a "good bye" song, which repeats the format of the "hello" song. It is also a transition that helps the child to return to their classroom with a sense of completion and accomplishment.

Music and props are two important things in a lesson. It is important to use music with a simple rhythmic structure as more complex rhythm may confuse an already fragmented or disorganized child. Serene or meditative type of music may

promote a mood of quiet at the end of the lesson or whenever deemed appropriate by the teacher.

Lesson structure provides the child a sense of having experienced something "whole" – with a clear beginning, middle, and end. When the structure is predictable and secure, the child feel safe enough to begin to take more risks in movement exploration and growth. Furthermore, the use of such reliable and repeated structure facilitates the development of trust in the relationship between child and teacher.

Conclusions

In much of the literature on autistic children, it is written that they do not form relationships with others. If one approaches these children with an open mind and heart, however, one can see that they have their own ways of relating. Their ways of relating are so unconventional that anyone coming into contact with them will inevitably have many questions. "The children hold the answers, and one must accept their way to find those answers". (Erfer Goldsand, Weinstock, 1988).

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Original article

PHYSICAL EDUCATION–AN EFFICIENT WAY FOR SCHOOL ADAPTATION OF THE TEENAGERS

OPREA VIOREL[1]

Abstract

This research has in view the school adaptation as a way of adapting from a social perspective.Physical education for teenagers through its objectives and contents helps in achieving the efficient join between school performance, the value of the obtained results and complying with the norms, rules and behavior values that function inside the educational environment.

Keywords: physical education, adaptation,efficiency, social perspective.

Introduction

The adaptation concept refers to a very diverse phenomenon, having a very large domain and contents, being studied by a lot of disciplines, each having its own specificity. If we refer to the biological adaptation, this has been defined as the totality of the modifications appeared to the structure and function level of the living organisms, but also to the environmental level, with the purpose of maintaining the balance, inside the organism and also with the environment.

From a sociological point of view, adaptation represents the conformation and assimilation of information by the individual, forming of skills necessary for a positive answer to the requests and also to comply with the requires imposed by the new social environment where the individual is about to integrate (Cretu, 1999).

The physical education, regarded as an instructive process and also as a way of forming the man, accomplishes the matching between the individual developing requests and the social life exigencies. Physical education, through fulfilling its objectives and contents, prepares the young man for future, for defeating all the obstacles met during his individual and social life(Albu, 2002).

Objectives

We wish to prove that through its objectives and contents, physical education of the teenagers contributes to the accomplishing of the positive relationships between school efficiency, the quality of the obtained results, observing the norms, rules and behavior values which function in the school environment.

Methods

We have used methods as documentation and study specialty literature, the questionnaire, discussions and statistic-mathematic methods. Starting from the definition of the school adaptation concept and that for the physical education, we have established that from the point of view of physical education concept role in accomplishing the school adaptation as teenager, we can find two dimensions: pedagogical adaptation and relational adaptation.

Organizing the research

We have made a series of analyses on a specimen made of 87 pupils from three classes of ninth form, which attend a high school in Ploiesti city,during school year 2011-2012. From the total group of 87pupils, 55 (63.22%) were boys and 32 (36.78%) were girls.

It is found that 30 pupils were between 16-18years old, from which 34.48%,were already 16; 28from them, representing32.18% were 17, and 29pupils, meaning33.33%were already 18years old.

The general average, as comparison indicator, at the specimen level, by the end of the first semester was 9.40. It was found a difference at the average level on gender (the boys group: 9.29and the girls group: 9.39). On ages, the highest grade was in the group that already 16years old.

The results obtained and their interpretation.

As regard the variable *internalization of norms and behavior rules specific to the socio-school environment, to* question „At school, is your behavior good? a) during classes and breaks for other subjects; b) during physical education training classes, because…", we have recorded the results shown in table 1.

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Table 1 Answers for variable - internalization of norms and behavior rules specific to the socio-school environment

Category of answers	a	b	Average
I listen to the teachers because they tell me so and because I must	22	9	9,32
I am afraid to being punished	15	6	9,19
I know it is right	31	58	9,14
Other answer	4	1	9,67
NS/NR	3	1	9,53
Total	87	87	9,37

Regarding the variable that targets the capacity of communicate and relate with other pupils, to question „When you wish to talk to a colleague how easy is for you to communicate with him?: a) during classes and breaks for other subjects; b) during physical education training classes,",there have been recorded the following results: a) very easy: 28pupils (32.18%); easy: 39pupils (44.82%); difficult enough: 15pupils (17.24%); very difficult: 5pupils (5.75%); b) very easy: 51pupils (58.62%); easy: 28pupils (32.18%); difficult enough: 8pupils (9.19%); very difficult: no answer.

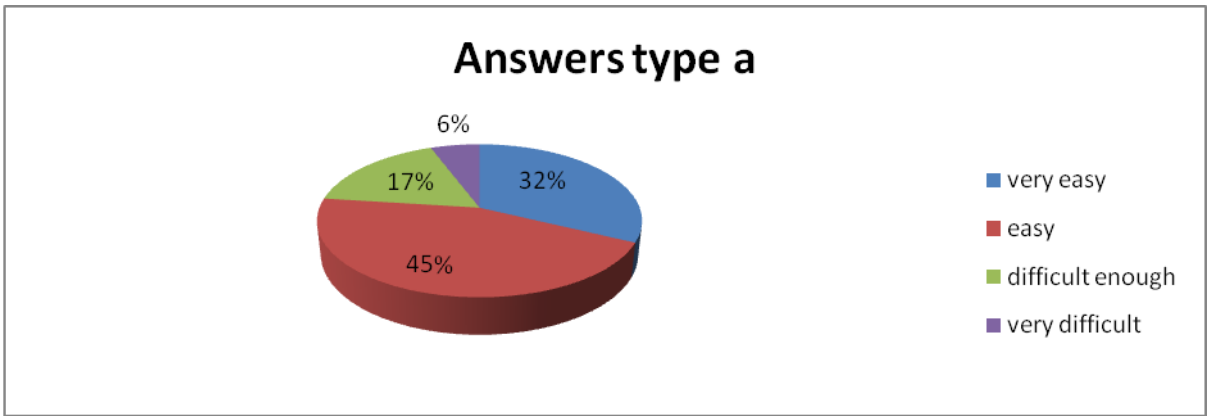

Figure 1. Graphical representation of the results for answer type a

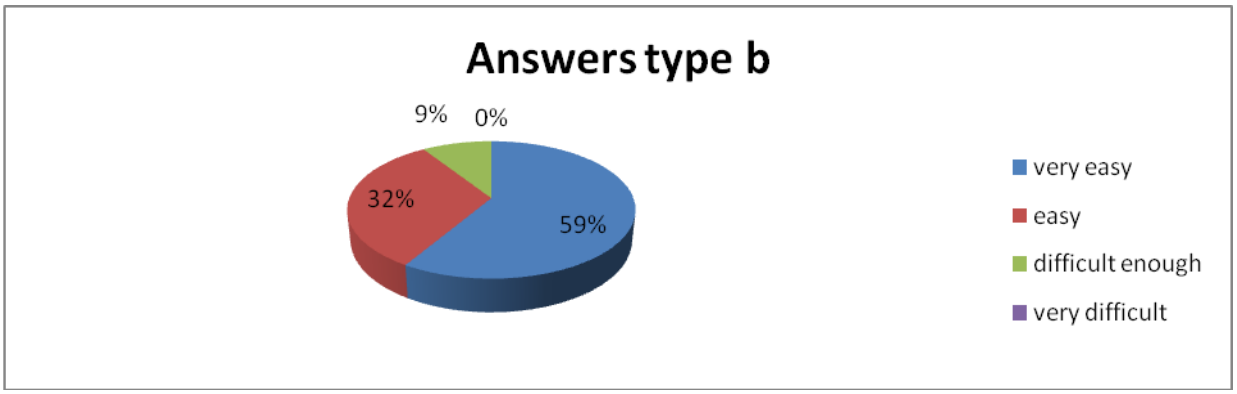

Figure 2. Graphical representation of the results for answer type b

Correlating *the capacity to relate of the pupils shown relative to the other colleagues*,with the quality results obtained in the school activity, it has been found that the highest average (9,28), in both cases, was given to the pupils that said they find very easy talking to a colleague and the lowest average was given to the group that said they find difficult enough talking to other colleague. Thus we consider that there are pointed out the dynamism, liberty of action and communication, desire to collaborate determined by the

origin to a group, trust in own actions or collective ones, characteristics of the physical education activities.

As regard to the variable *capacity to relate to the teachers*, reflected by the question „When you want to ask your teachers something or you want to communicate something, how easy is it for you to talk to them?: **a) during classes and breaks for other subjects; b) during physical education training classes"**, there have been recorded the following results: a) very easy: 22pupils (25.29%); easy: 40pupils (45.98%); difficult enough: 15pupils (17.24%); very difficult: 10pupils (6.89%); b) very easy: 59pupils (67.81%); easy: 19 pupils (21.84%); difficult enough: 9pupils (10.34%); very difficult: no answer. Thus we have found out that the school results expressed by averages were not correlated positively with the capacity to communicate and to relate to the teachers.According to our specimen pupils declarations, the group of pupils with higher average (9.39) find it difficult enough to communicate with the teachers than the group with the lowest average (9.18).

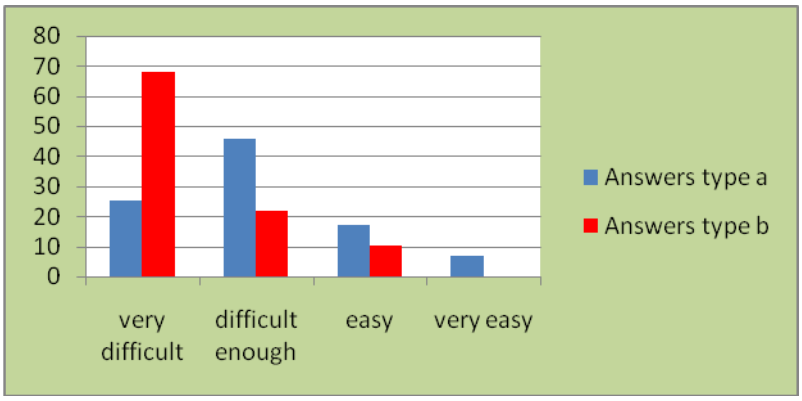

Figure 3. Graphical representation of the results for answer type a and type b for the variable - *capacity to relate to the teachers*

Another variable introduced in the research has been *families concern and interest regarding the physical movement education of their children*.In this respect, it has been applied a questionnaire which questions have targeted: number of hours devoted into children education; information sources used in children education; priority activities in order to accomplish this; information sources regarding physical movement education of the children; motivation for guiding the children to practice a sports discipline. The results regarding the information sources and the parents' motivations are shown in the graphics below.

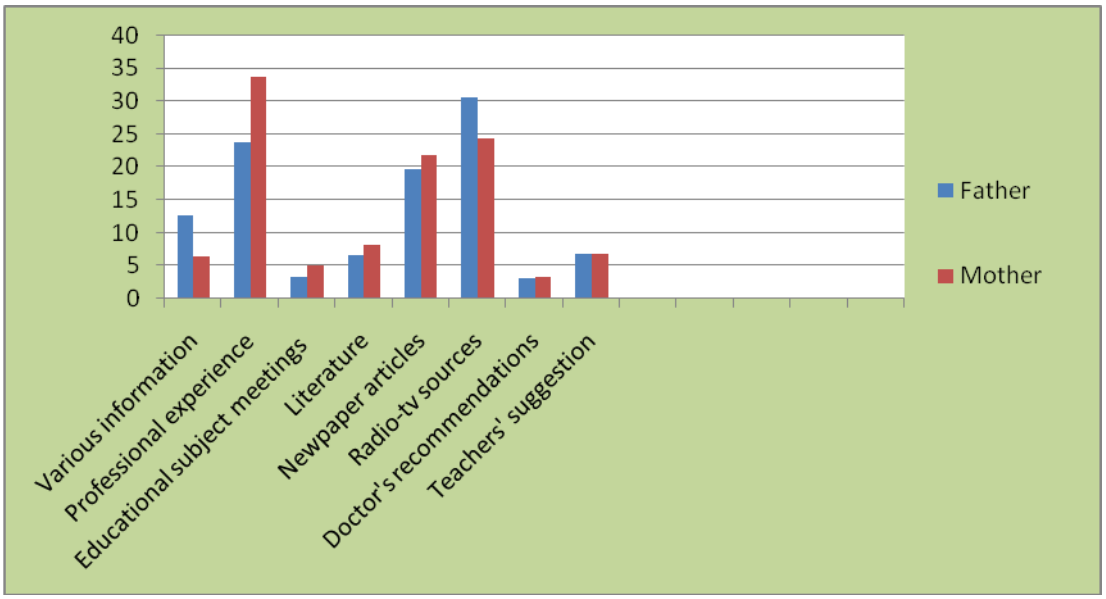

Figure 3. Graphical representation of the results for answering the variable *families concern and interest regarding the physical movement education of their children* – parents information sources

It is noticed from the data above that first, the parents conception regarding the influence of physical movement upon health and harmonious development of children. This opinion is common for more than half of the parents. It results that the orientation of the way of life towards a harmonious development depends a great deal of the pedagogical knowledge of the parents.

The reserved attitude of some parents (especially mothers) shown regarding the guidance of children towards practicing physical exercise is connected, first of all, to the household duties and the low level of their sporting capacities. Among the daily routines of the parents regarding the children the priority activities oriented towards the development of the intellectual capacities.The weekends change somehow the parent's attitude. From the questioned parents, about 35% from fathers and 31% of mothers are preoccupied of their children's physical activity, using motion games, walks, trips, etc. In order todevelop the interest regarding the sporting activities, parents use and facilitate the learning of basic movements. It is interesting that fathers affect more time to the regular movement activities comparing to mothers, during weekdays and during weekends.

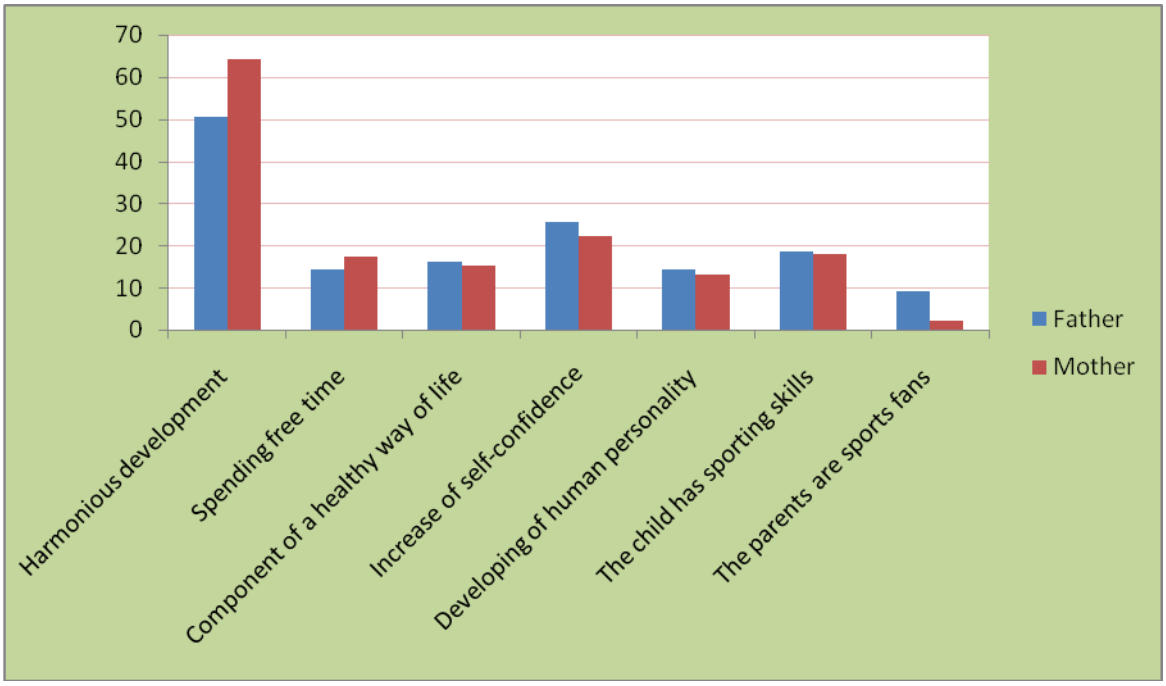

Figure 4. Graphical representation of the results for answering to variable -*families concern and interest regarding the physical movement education of their children*- parents' motivations

A large number of parents, whose children are involved in sports, are not interested in theoretical knowledge, leaving themselves be guided in their children's education only by the personal experience.This may be explained by the fact that parents, after integrating the children in schools, transfer a large part of the education concern to the school and other educative institutions.The preference for exercise (for practicing physical exercises) appears at children also by the power of example given by their parents and their passion for sports.

Discussions

If integrated rational into the instruction process, the influences of the physical exercises and sports activities, could overrun the sphere of the strictly delimited movement, acting on large scale and influencing favorably the intellectual, moral-volitional and affective sides of the pupils.The develop of an educative-instructive process in accomplishing physical education and sports, using collective actions, encourages the capacity of integration into a group, useful later in work activity and in social life.During the organized physical education and sports activities, it is possible the checking and intervention for corrective measures and the forming, orienting educative-instructive knowledge are diverse and instantly.Thus it is created the possibility of knowing the results of education and also to intervene in order to orient the behavior and manifestations of the pupils in accordance with the social life requirements.

A public school-based **physical activity** intervention offers a good opportunity to work with a large group of average children irrespective of their parents' behavior and attitudes towards **physical activity** and health, and irrespective of their socioeconomic background. This is important for many reasons. Although cross-sectional studies have

emphasized the role of the family regarding **physical activity**(Trost Kerr, Ward, Pate, 2001),and some of the consequences of insufficient **physical activity** such as childhood obesity, approaches focusing on changing individual or family behaviours have been shown to be time-consuming and costly, and have only yielded few successes (Summerbell , Waters, Edmunds, Kelly, Brown, Campbell, 2005).

Interventions to change lifestyle habits through a change in environment, such as the school environment, are found to be more successful, especially if they take place early in life (Rosenbaum , Leibel,1998).

Conclusion

The increase in **physical activity** during school hours for all children and our attempt to encompass out-of school behaviour allows us to test, whether a compensatory decrease in **physical activity** outside school can be avoided, and whether outcome is different in children with different weight status, different degrees of **physical activity**and differentsocio-economic background.

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Original article

COMPARISON OF SPRINT, REPEATED SPRINT AND JUMPING PARAMETERS OF DIFFERENT LEVELS HANDBALL PLAYERS

SEZEN ÇIMEN POLAT[1], ELIF ÖZ [1], OZLEM ORHAN[1], IMDAT YARIM[1], EBRU CETIN[1]

Abstract

The aim of this study was to examine sprint, repeated sprint and jumping parameters of handball players at different levels.

Methods. The study included 16 male senior handball players aged 22.6±3.8 and 13 male junior handball players aged 16.1±0.8. Age, height, body weight, 20m sprint test, repeated sprint test and counter movement jump (CMJ) test data were obtained. Sigma Plot 12.0 (Systat Software Inc.) software was used for data analysis.

Results. One-Way Anova Repeated Measures of Variance and non-parametric Holm Sidak test were used for intragroup comparison of senior and junior male handball players. Mann Whitney U test was used for intergroup comparisons. Jumping parameters of senior athletes were evaluated.

CMJ after repeated sprint (43.0±4.8 cm), and 20 m sprint test (46.9±4.2 cm) of senior athletes were found to be significantly lower than CMJ values after warm up (45.8±6.0 cm) ($p<0.05$). There was a significant difference between CMJ of junior handball players after 20 m sprint (49.5±3.9 cm) and repeated sprint test (46.2±3.8 cm). Comparison of jumping heights of the subjects between the groups showed no statistically significant difference. It was found that the last two performances of both groups (Senior: 5.41±0.25, 5.42±0.24 sec and junior; 5.43±0.17, 5.56±0.20 sec), were significantly higher than their first sprint performances (Senior: 5.63±0.16, 5.60±0.20 sec and junior; 5.66±0.29, 5.65±0.29 sec) after repeated sprint.

Conclusion. Sprint and jumping are known to be important for handball game. However, experience and game tactics should support combination of these important abilities with repeated sprint and jumping performance during the game.

Keywords: Counter movement jump, Repeated sprint, Handball.

Introduction

Sprints are necessary 1/3 to effective game time in team sports. Handball consists of successfully defensing opposing team's shootings at the goal by sprint and various elements of sprint, exit speed, running towards the pass or reaction speed (Akan et al., 2002:17-22).

Repeated sprint skill, on the other hand, is defined as ability supported by short resting periods and provides production of maximum sprint effort (Girard et al., 2011:673-694).

Handball players can be active or passive according to varying degrees of running performance during the match.

Thus, the most important requirement for the score is the ability to recover in the shortest time between repeated sprints (Cherif et al., 2012:21-28).

Motoric, physiologic and anthropometric parameters are the factors affecting the development of this skill (Soydan, 2012:45-68). Although sprint is a congenital skill, especially repeated sprint can be improved by training.

Jumping ability is one of the most important components where jumping height and repeatability can affect the score in a sport like handball (Hutchinson et al., 1998:1543-1547).

The shootings of the athletes to the goal by horizontal of vertical jumping play an important role to win the game (Buchheit et al., 2010:3-17).

Jumping height is also considered as a performance index in team sports and can be regarded as a distinctive variable of different competitive standard. Game characteristics of handball require extra combined training such as sprint and jumping.

Including combined workouts with repeated sprints in training programs can have benefits for especially jumping and ball speed (Cherif et al., 2012:21-28).

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A review has shown that sprint and jumping parameters and different combinations of these gradually gain prominence to achieve a success in team sports.

Cherif et al. (2012:21-28), examined the effect of drop jump performed after repeated sprint training and found that repeated sprint and drop jump training applied for 12 weeks positively affected vertical jump and sprint performance (Cherif et al., 2012:21-28).

Buchheit et al., (2012:555-562) analyzed repeated sprint performances from different aspects and evaluated the relationship between lactate, heart rate, time parameters and angles. They found that repeated sprint time showed variations according to angles and that sprint time extended as the angles increased.

Comparison of sprint times revealed significant differences between sprints and repeated sprint times and the first and the last performance of repeated sprint (6.72%).

Buchheit and Ufland (2011:293-301) examined the effect of endurance training program on repeated sprint performance and muscle reoxygenation ratio.

They applied an endurance program including 8-week 10 km running and 2-15 repeated sprint running. Infrared spectroscopy was used to evaluate muscle reoxygenation ratio between the sprints before and after the 8-week program.

Results have shown that 8-week program enhanced maximal aerobic speed and endurance capacity of trained males.

Furthermore, the program improved repeated sprint performance. It was concluded that the improvement in repeated sprint ability was correlated with acceleration in muscle reoxygenation ratio after the sprint (Bucheit and Ufland, 2011:293-301).

Marques et al., (2011) attempted to examine the relationship between short sprint time (5m) and countermovement jumping strength of 25 amateur athletes in football, futsal and handball branches using a group of linear transformers. They emphasized a positive relationship between 5m sprint and maximal lower body strength (Marques et al., 2011:115-122).

Buchheit found a large body of research on repeated sprint. However, sport scientists and trainers aim to reach the most ideal recovery time by making considerable changes in frequency, duration, degree and number of repeated sprint for game success especially in team sports (Buchheit et al., 2012:555-562).

This study aimed to examine sprint, repeated sprint and jumping performances of handball players at different levels and evaluated 20 m run, 6 repeated 2x15 sprint and CMJ performances after both sprints of male senior and junior handball players.

Method. Subjects

The study included 16 male super league handball players. Age, body height, body weight and sport age of super league players were 22.6±3.8 years; 18.4±8.2cm; 83.7±8.9 kg and 10.4±5.1 years respectively.

The study also included 13 male junior league handball players with an age of 16.1±0.8 years, body height of 179.4±5.5 cm, body weight of 69.9±8.5 kg and sport age of 6.3±1.2 years. Participation to the study was voluntary.

Inclusion criteria were being super league or junior league players and not having experienced any injury in the last six months.

All the subjects signed an informed consent form prior to testing, detailing the contents of the study. They were free to withdraw from the study at any time without giving any reason.

Measurements

20 m sprint performances of subjects were measured on rubber floor in multi-purpose sport hall. Photocell (Newtest Power Timer, 2000) was used to record 20 m sprint and repeated sprint times in seconds. Sensorized Free Jump (Rome, Italy) was used to determine jumping performances of subjects by CMJ test.

General and special warm up was done for approximately 20 minutes before the tests (Mendez Villanueva et al., 2011). CMJ test started when the subjects were in standing position with their hands in their waists and feet open at shoulder length.

The subjects took squat position after the signal (maintaining knee joint at 90^{o}) and completed jumping. The subjects were asked to keep their hands on their waists during jumping time. After 5 min. resting, 20 m sprint and CMJ was applied. Repeated sprint performances after 5 min resting included 6 repeated 2x15 m sprints running in 20 seconds (Buchheit, 2005:42-47; Cherif et al., 2012:21-28).

The subjects did passive relaxation in approximately 14 second resting period between the sprints. The subjects were warned to get ready 3 seconds before the start of each sprint. Measuring CMJ immediately after repeated sprint test completed the protocol.

Statistical analysis

Descriptive statistics and hypothesis tests and Sigma Plot 12.0 (Systat Software Inc.) software were used for data analysis. One-Way Anova Repeated Measures of Variance, non-parametric Holm Sidak tests were used for intragroup comparisons of senior and junior male

athletes. Mann Whitney U test was used for intergroup comparisons *(p<0.05)*.

Findings

20 m sprint and repeated sprint times of senior handball players were found to be 3.18±0.10 sec and 32.93±0.20 sec respectively. CMJ were found to be 45.8±6.0 cm after warm-up, 49.9±4.2 cm after 20m sprint and 43.0±4.8 cm after repeated sprint. 20 m sprint and repeated sprint times were found to be 3.15±0.15 sec, and 33.26±0.22 sec for junior athletes.

CMJ of junior handball players were found to be 48.5±4.3 cm after warm up, 49.5±3.9 cm after 20 m sprint and 46.2±3.8 cm after repeated sprint.

CMJ of senior handball players were found to be significantly lower after repeated sprint when compared to CMJ after warm up and 20 m sprint ($p<0.05$).

As for junior handball players, there was a significant difference between CMJ after 20m sprint and CMJ after repeated sprint test. The highest CMJ in both test groups was obtained after 20 m sprint test. Comparison of CMJ of subjects between the groups revealed no statistically significant difference.

An examination of repeated sprint times showed that the last two sprint performances (Senior: 5.41±0.25, 5.42±0.24 and Junior; 5.43±0.17, 5.56±0.20 sec) of both groups were significantly higher than their first sprint performances (Senior: 5.63±0.16, 5.60±0.20 and Junior; 5.66±0.29, 5.65±0.29 sec).

Discussion

The study evaluated 20 m sprint, 6 repeated 2x15 sprint and CMJ performances after both sprints of senior and junior male handball players. The highest CMJ performance was obtained after 20 m sprint in both groups. We found no difference between the groups.

However, 20 m sprint times of junior handball players were better than those of senior. The highest CMJ were obtained after 20 m sprint, warm up and repeated sprint in descending order in both groups.

An analysis of repeated sprint times in both groups revealed a significant decrease between the first two sprint performances and the last two sprint performances. We found no difference between the groups.

However, 20 m sprint times of junior athletes (junior: 3.18±0.10 sec, senior: 3.15±0.15 sec) and repeated sprint times of senior students were found to be better (Total sprint time for junior: 33.26±0.22 Total sprint time for senior: 32.93±0.20). The researchers reported 20 m sprint performances of handball players as 3.09±0.11 sec.

This sprint time is lower than we obtained in the present study. In another study, 30 m speed of 24 handball players with a mean age of 12.0±0.6 who did regular exercises for three years was reported to be 4.65±0.48 sec.

The fact that sprint in this study are higher than the previous studies is believed to be associated with the age of the subjects (Koç et al., 2010:227-231)

Although junior male handball players showed a similar speed performance similar to those of senior male handball players indicate their good condition status, success in handball game is determined by a combination of characteristics such as endurance, skill, coordination and mobility instead of only conditional characteristics such as speed and conditional status.

An examination of CMJ performances of male handball players after 20 m sprint and 6 repeated 2x15 sprint showed that the highest CMJ was obtained after 20 m sprint in both groups. A similar result was reported by Buchheit et al. (2005), in a study on 122 handball players.

The researchers measured CMJ of handball players after warm up and after 6×(2×12.5-m) repeated sprint performance with 25 sec intervals.

They found that the best sprint time (100.1 ±1.8%) and jumping height (98.9 ± 2.2 %) during the test were obtained after warm up performance. However, there was no significant difference between the measurements.

Similar results were obtained in another study that evaluated research on different team sports and on elite female football players.

Haugen et al., (2012:340-349) examined sprint and CMJ characteristics of elite female football team players.

The researchers conducted 40 m sprint test after standard warm up. CMJ was found to be 28.1-±4.1 cm. CMJ after repeated sprint test were found to be 27.9-±3.1 cm (Haugen et al., 2012:340-349).

CMJ measured after sprint, repeated sprint and after both of them of junior and senior male handball players showed no significant difference between the groups. Gabbet, (2002:334-339) examined 159 athletes (88 junior and 71 senior athletes) playing rugby, which is another team sport.

The study analyzed 10m, 20m and 40m sprint performance, vertical jump, agility and maximum VO_2 of junior and senior athletes.

Evaluation of results found no significant difference between the groups in vertical jumping and agility.

Senior athletes were found to have higher muscle strength, agility, speed and max VO_2 parameters than junior athletes. However, there was no statistically significant difference (Gabbet, 2002:334-339).

In another study, squat jumping of male elite handball athletes were found to be higher than those of non-elite athletes elite: 23.8±4.4cm, non-elite: 18.1±3.1cm (Atabek et al., 2010:36-45).

Conclusion

In conclusion, sprint and jumping are known to be important for handball game. However, experience and game tactics should support combination of these important abilities with repeated sprint and jumping performance during the game.

Practical Application

Sprint is one of the most important requirements for handball game. Based on an evaluation of sprint, repeated sprint and jumping performances, it can be stated that both junior and senior athletes reached the best performance after 20 m sprint and that fatigue had a negative impact on CMJ performance in both groups.

It can be stated that endurance is the most significant difference between senior and junior athletes.

It was observed that repeated sprint and CMJ after repeated sprint of senior athletes were better than those of junior athletes. However, the difference was not statistically significant.

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TABLES

Table 1: Characteristics of subjects

	Senior players	Junior players
Age (years)	22.6±3.8	16.1±0.8
Body height (cm)	184.4±8.2	179.4±5.5
Body weight (kg)	83.7±8.9	69.9±8.5
Body Mass Index (kg.m^{-2})	24.6±1.9	21.9±2.1
Fat %	12.6±3.9	12.8±4.1
Years of experience (years)	10.4±5.1	6.3±1.2

Table 2: Sprint, repeated sprint and jumping performance of the subjects

	Senior players	Junior players
Warm up after CMJ (cm)	45.8±6.0	48.5±4.3
CMJ after 20 m sprint test (cm)	46.9±4.2	49.5±3.9
CMJ after RS (cm)	43.0±4.8	46.2±3.8
20 m sprint test (sec)	3.18±0.10	3.15±0.15
RS1 (sec)	5.41±0.25	5.37±0.16
RS2 (sec)	5.42±0.24	5.43±0.17
RS3 (sec)	5.40±0.18	5.56±0.20
RS4 (sec)	5.47±0.17	5.59±0.22
RS5 (sec)	5.63±0.16	5.66±0.29
RS6 (sec)	5.60±0.20	5.65±0.29
Total RS Time (sec)	32.93±0.20	33.26±0.22

CMJ: Counter movement jump, **RS:** Repeated sprint test.

Table 3: Jumping

	Senior players	p	t	Junior players	p	t
[a] CMJ (cm)	45.8±6.0 [c]	0.002	3.851	48.5±4.3		
[b] CMJ after 20 m sprint test (cm)	46.9±4.2 [c]	0.018	2.795	49.5±3.9 [c]	0.008	3.345
[c] CMJ after Repeated Sprint test (cm)	43.0±4.8 [a,b]			46.2±3.8 [b]		

Significant difference among groups (p<0.05). CMJ: Counter movement jump. **[a]:** Counter movement jump after warm-up, **[b]:** Counter movement jump after 20 m sprint test, **[c]:** Counter movement jump after repeated sprint test.

Table 4: Repeated sprint test

	Senior players	Junior players
[a] RS1 (sec)	5.41±0.25 [e,f]	5.37±0.16 [c,d,e,f]
[b] RS2 (sec)	5.42±0.24 [e,f]	5.43±0.17
[c] RS3 (sec)	5.40±0.18 [e,f]	5.56±0.20 [a]
[d] RS4 (sec)	5.47±0.17	5.59±0.22 [a]
[e] RS5 (sec)	5.63±0.16 [a, b, c]	5.66±0.29 [a,b]
[f] RS6 (sec)	5.60±0.20 [a, b, c]	5.65±0.29 [a,b]

Significant difference among groups (p<0.05). RS: Repeated sprint test. **[a]:** First repeated sprint, **[b]:** Second repeated sprint, **[c]:** Third repeated sprint, **[d]:** Fourth repeated sprint, **[e]:** Fifht repeated sprint, **[f]:** Sixth repeated sprint.

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Original article

THE INFLUENCES OF PSYCHO ABILITY IN EDUCATION OF YOUNG PEOPLE

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Abstract

It is universally recognized in scientific papers published over the years, that psycho ability along with other qualities involved in environmental awareness in the early years and then continue the development of man's relation to society and the environment.

Human personality is studied both from the ability (harmonious physical development) and mental (aspect of personality development) for development and socio-professional integration.

The ability, with all its components, enrich the biologically and psychologically heritage of the young. Exercise, as the main instrument is the biological stimulus which by addition provides morpho-functional development of harmonious, balanced education of motor skills and acquiring skills and driving skills (basic, applicative specific branches of sport).

In basketball game, mental activity is asked for: cognitive functions related to perception and referral situations and choosing the most effective techniques in attack or defense, will and its qualities about overcoming fatigue and negative emotions efforts, affectivity in closely related to specific situations or imagined, both in terms of the satisfactions provided by the game itself and the successes and bitter fear of failure or the superiority of the opponent.

The aim of the research: highlighting the role of intellectual development psycho ability young adults with physical exercise and sports in personality development for socio-professional integration.

Research methods: bibliographic documentation, experiment, statistical and mathematical method, graphical method.

Results: Statistical and mathematical processing for the purposes of research confirms that subjects undergoing experimental program had better results in the control group.

Conclusion: Practicing basketball game at the young age significantly influences intellectual performance and guide the youth trends-resolution analytical strategies in specific cases and inventive abstract situations.

Ability activity by practicing various sports exercise contributes to the development of intelligence, memory and creativity of those who practice them systematically.

Key words: psycho ability, smartness, cognitive, basketball game.

Introduction

It is universally recognized in scientific papers published over the years, that psycho ability along with other qualities involved in environmental awareness in the early years and then continues the development of man's relation to society and the environment.

By Dragnea, Bota (1999) concept of motility is defined as expressing an *"appropriation of human innate and acquired to react with the musculoskeletal system of internal and external stimulus in the form of a movement."*

Motility is seen from two perspectives: as a phenomenon observed from the outside and from the inside as a process - a study of the psychology and the second vision - which asserts the unity of the physical motor development - motor and psychic individual.

Psycho ability is shown both as aptitude but a control complex function of individual behavior. We can say that it includes the participation of various processes and functions that provide both mental reception of and proper execution of the instrument response.

By practical activity, young people develop memory in all forms: short, medium and long due to the accumulation of personal experience.

Psycho ability is defined as the integration of mental and motor functions in the nervous system maturation effect, aimed at the report, "subject to his body (Epuran, 1996).

After Epuran (1976), the components of psychomotor are:

- body scheme
- Segmental dynamic and general coordination;
- Laterality;
- Static coordination-balance;
- Perceptive coordination (the perception of space, rhythm and movements);
- Rapidity of movements;
- Ideomotor like dynamic synthesis of corporal scheme and perceptive coordination with motor task.

Fleishman (quoted by Epuran, 1976), gives the

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following dimensions of the domain of psychomotor:

- The precision of control, the ability to execute appropriate movements, putting into action important muscle groups.
- Coordination with many segments, the ability of combining the action of several body segments;
- Choice of response, the ability to select the right answer.
- Simple and fast reaction time;
- The speed of the movement, especially the arms movement;
- The ability to appreciate an object's speed movement;
- Manual dexterity, the ability of manipulate very small objects;
- Stability of the arm during an exercise;
- "Tapping", the possibility of quick and accurate execution of the movements of the wrist;
- The ability to make an individual adjustment by-passing someone.

Horghidan, in his works, says that by psycho ability education is aimed both developing body scheme ("reflexive aspect") and organizing ego to the world („extensive aspect"), so developing human personality.

At the beginning of psycho ability learning, visual and verbal information prevails. Subsequently, information from kinesthetic analyzers plays an increasingly important role. (Wineck, 1995)

Psycho ability scheme, developed on ability thinking plays a decisive role in practic activities meaning that it offers the young a self control on learning.

A properly controlled ability process takes place both on the circle of internal and external control. The exterior controls the programming conscious of routing and tuning, while the interior motor mastered the details of the ability process.

Psycho ability appears as being an aptitude and a complex control function to set an individual behaviour. We can say that it includes the participation of various processes and functions that provide both mental reception of and proper execution of the instrument response.

The ability activity through practicing exercises in different disciplines,contributes to a development of intelligence, memory and creativity of those who practice it systematically.

Personality as a system involves individual psychic structures human body and also the social relations in which man operates and cultural resources.

Personality is the human subject seen from three phases as Neveanu-Popescu, & contributors (1996): pragmatic topic, one that transforms the world, epistemic subject, who participate in the process of knowledge achieved by mankind and axiological topic at which exceeded entering nature giving a superior culture empire's life.

As man is a complex bio-psycho-socio-cultural we believe that "intelligence system has the property that it can adapt itself to new situations, has the ability to reason, to understand the connections between facts, discover meanings and recognize the truth "(Gagea, 2007).

According DEX, intelligence is the ability to understand easily and well, to refer to what is essential to solve situations and new problems based on previous experience.

For Piaget quoted Gagea (2007) intelligence is a continuation of the practice behaviors acquisition, assimilation of sensor-motor force the figurative. Practical intelligence, sensor-motor and reflective intelligence adapts assimilating world objects surrounding the subject. From a biological perspective, adaptation is a balance between accommodation and assimilation.

Intelligence is in its essence, a live and active operations system. "It is the most advanced mental adaptation, meaning an indispensable tool of trade between the subject and the universe when their circuits beyond the immediate and momentary contacts to achieve comprehensive and stable relationships" (Gavriliu, 2001).

Epuran, M. (1996) defines the ability inteligence as being *"mental ability of the subject to solve theoretical and practical, in a perfectly adequate action driving problems in new or different situations. Intelligence is a synthetic motor cognitive-motor, intuitive nature or operations that use knowledge representations, habits, reorganized after the necessities of the situation. "*

One of the basic characteristics of human intelligence is the *factor g*. The concept of "g" was proposed by Spearman in 1904 and continued by other psychologists such as Carroll, Jensen, aso. He also launched the idea that native intelligence would be based mental energy, the energy that expresses the validity of the factor g (general intelligence) and the factor s (special intelligence features some of its manifestations) (Gagea, 2007)

Intelligence comes in many ways: the way of knowledge, capacity problems and possible resolutions above average thinking.

In 1956, Guilford, quoted by Neacşu, I. (1999) developed the *structure of creativity and three dimensional theory of inteligence.* The author believes that there are two groups of intellectuals' factors for creativity: thinking and memory. In 1959 he shows the "complete theoretical model of intellectual structure" while saying *that intelligence is hard to define, it's multidimensional, with many components.*

Niculescu, (1993) uses the term *sports inteligence.* In his opinion, succes or failure in game sports are a consequence not only of general inteligence but especially sports inteligence.

The research hypothesis: practicing sport/exercises lead to the development of motor ability

and human personality: inteligence, thinking and creativity.

Exercise is a completely different action than is used as a repetition and practice in intellectual skills training. Any topic will not only by verbal or just witnessing someone else performing that movement, learn a move or improve one already learned.

As highlights Cerghit,1997, exercise is not simply to skills training (driving), a well-established modes of action, but also serves other tasks.

Although in many cases exercise is carried stereotype, it should not be understood as a rigid mechanism but rather the subject has the possibility of variations taught or performed as adaptive responses to certain external or internal situations.

Exercises are means or action instruments, whose content, shape and management leads to stable functional effects.

The game of basketball is part of the sport characterized by varying actions. In this case technical mastery is closely linked to the tactical training. Mastery means not only mastering the techniques but also the ability to choose the time of their application based on prudence and required actions by the opponent, also accompanied by the ability to disguise their intentions.

In game of basketball the mental activity is full required: cognitive functions related to perception and referral situations and choosing the most effective techniques in attack or defense, the will and his/her qualities about overcoming fatigue and negative emotions efforts, affectivity in closely related to specific situations or imagined, both in terms of the satisfactions provided by the game itself and the successes and bitter fear of failure or the superiority of the opponent.

By practicing, basketball offers to the young concrete situations of tactic thinking and creative adaptation in game relationship under adversity.

It is necessary to fund specific motor control of the game of basketball rich and good capability of selecting those techniques that can increase the efficiency of the technical and tactical question.

The experiment was carried out with a program to develop ability skills of young students using state basketball game with specific programs.

Subjects: The experimental group consisted of 51 students who practiced systematically exercise and 51 physical education students exempted.

Ability at a young adult, with all its components, enrich biologically and psychologically heritage.

This period is related to the acquisition of the status of adult and is characterized by intense development of the personality, all this in the context of removal under the tutelage of family and school.

Training remains important for most young people, but it is nuanced according to personal interests. The process of intellectualization is widening amid the aspiration to spiritual and cultural independence. In terms of functional, coordination structures of neuro-endocrine system matures, significant fact in balancing the driving actions.

The maturation of neurocerebral mechanisms and the development, in the earlier stages, of retrieval systems have prepared the new level of memory which is characterized by: increasing memory volume; logical memory domination; enhance capacity to memorize the sides of abstract and general knowledge; increasing the active nature of memory; active replication of knowledge (Predoiu, doctoral thesis, 2012).

The young adult evaluates his chances of success and makes reasonable predictions with regard to his own driving performances.

Exercise, as the main instrument is the biological stimulus and by accumulation provides morpho-functional development of harmonious, balanced education of motor skills and acquiring skills and driving skills (basic, applicative specific branches of sport).

Biological, intellectual and moral maturation conduct is felt progressively displayed, search itself being substituted by self-assertion. Located peripheral body image in childhood becomes consistent, polarizing the attention of young that are constantly looking to improve the picture.

In this research, we developed a complex methodological treatment for determining various aspects of psychomotor's influence in intellectual education of young students from A.S.E. Bucharest with specific programs.

Concretely, we have identified strategies focused on operational objectives which communicate methods and methodological processes, forms of training in operational structures that increase the efficiency of the process of teaching the game of basketball in higher education and the development of the driving intelligence of students.

I selected operating systems and I have developed specific programs to the game of basketball, in accordance with the requirements of the psycho-pedagogical characteristic to youth stage in order to increase the effectiveness of the lesson of physical education for students. We have included in the specific programs technical and tactical actions game to stimulate students ' creativity and intelligence.

The specific programs have been designed in compliance with the goals and objectives of the reference frame of the game of basketball in the physical education curriculum for higher education.

Two tests were applied: Matorin test and Raven test.

Statistical and mathematical processing and interpretation of the results is presented in tables and graphs that are in the pages below:

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Table 1. Statistic- table Matorin test – right turning control vs experiment

Statistic indicators	Results (grades)		**ANOVA test single factor**	
	Control	Experiment		
Mean	359.41	392.65	α (confidence threshold set)	α = 0.05
Median	360.00	390.00	H_0 (the null hypothesis)	m_1-m_2=0
Standard deviation	16.18	12.94	H_1 (the research hypothesis)	m_1-m_2#0
Maximum value	380	440	df_1 (between groups)	1
Minimum value	320	380	df_2 (within groups)	100
Amplitude	60	60	Number of subiects	102
Variation coefficient	4.5%	3.3%	F reference	3.94
The average difference		33.24	F estimated	131.31
Effect size (Cohen)		1.15	P-value	0.0000

In the final tests, the average obtained by the experimental group is higher than control group with 33.24 average grades, average is 392.65 in the experiment and 359.41 in the control group. Data dispersion is homogeneous in both groups. Variance ANOVA test showed that the average difference reached statistical significance threshold, p = 0.0000 < α. Sized effect (1.15) shows a very large difference between the means of the groups. In this context we reject the null hypothesis (H_0) and accepted research hypothesis (H_1). Graphical representation of the results is presented below.

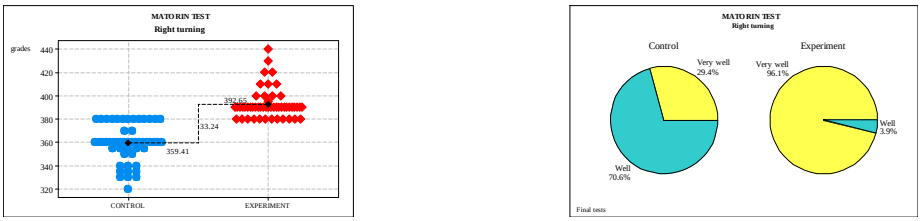

Figure 1. Matorin test – right turns –/- Percentage control vs.experiment

Table 2. Statistic –Matorin test – control left turns vs experiment

Statistic indicators	Results (grades)		**ANOVA test single factor**	
	Control	Experiment		
Mean	361.08	409.12	α (confidence threshold set)	α = 0.05
Median	360.00	410.00	H_0 (the null hypothesis)	m_1-m_2=0
Standard deviation	12.58	23.47	H_1 (the research hypothesis)	m_1-m_2#0
Maximum value	380	450	df_1 (between groups)	1
Minimum value	325	380	df_2 (within groups)	100
Amplitude	55	70	Number of subiects	102
Variation coefficient	3.5%	5.7%	F reference	3.94
The average difference		48.04	F estimated	166.00

In the final tests, the average obtained by the experimental group is higher than control group with 48.04 average grades, average is 409.12 in the experiment and 361.08 in the control group. Data dispersion is homogeneous in both groups. Variance ANOVA test showed that the average difference reached statistical significance threshold, p = 0.0000 < α. Sized effect (1.29) shows a very large difference

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between the means of the groups. We reject the null hypothesis (H_0) and accepted research hypothesis (H_1). Graphical representation of the results is presented below.

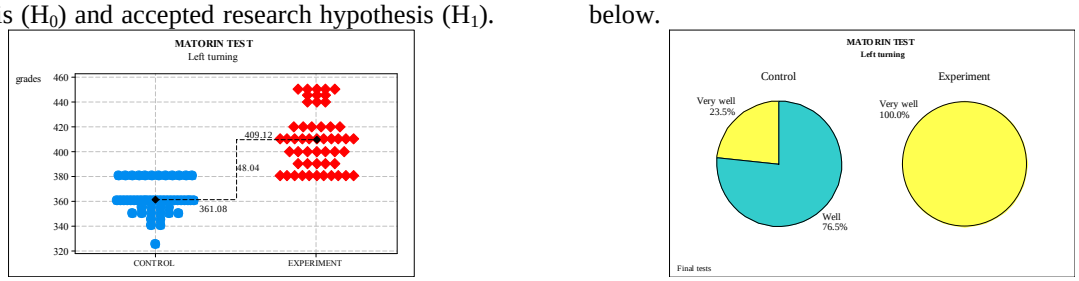

Figure 2. Matorin test – control left turns vs experiment

Table 3. Statistic table Raven progrssive matrix control errors vs. experiment

Statistic indicators	Results (errors) Control	Experiment	**ANOVA test single factor**	
Mean	7.88	2.02	α (confidence threshold set)	α = 0.05
Median	8.00	2.00	H_0 (the null hypothesis)	m_1-m_2=0
Standard deviation	3.40	1.05	H_1 (the research hypothesis)	m_1-m_2#0
Maximum value	14	5	df_1 (between groups)	1
Minimum value	2	1	df_2 (within groups)	100
Amplitude	12	4	Number of subiects	102
Variation coefficient	43.1%	51.9%	F reference	3.94
The average difference		-5.86	F estimated	138.62
Size effect (Cohen)		1.18	P-value	0.0000

The arithmetic mean of the experimental group is 5.86 less than the control group. Average final test is 2.02 errors for the experimental group and 7.88 for the control group. Data dispersion is heterogeneous in both groups. Variance ANOVA test showed that the mean difference is statistically significant, p=0.0000 <. α.. Effect size (1.18) shows a very large difference between the means. We reject the null hypothesis (H_0) and accept research hypothesis (H_1). Graphical representation of the results is presented below.

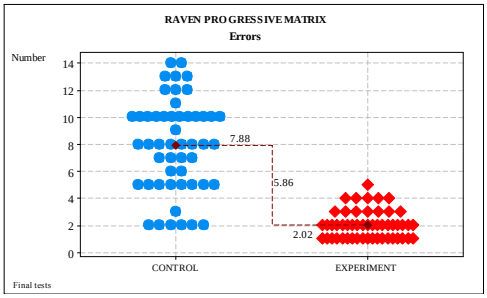

Figure 4. Raven progrssive matrix control vs. experiment error

Table 4. Statistic table aven progressive matrix – points control vs experiment

Statistic indicators	Results (points) Control	Experiment	**ANOVA test single factor**	
Mean	52.12	57.75	α (confidence threshold set)	α = 0.05
Median	52.00	58.00	H_0 (the null hypothesis)	m_1-m_2=0
Standard deviation	3.40	1.23	H_1 (the alternative hypothesis)	m_1-m_2#0
Maximum value	58	59	df_1 (between groups)	1

Minimum value	46	55	df_2 (within groups)	100
Amplitude	12	4	Number of subiects	102
Variation coefficient	6.5%	2.1%	F reference	3.94
The average difference		5.63	F estimated	123.67
Size effect (Cohen)		1.11	P-value	0.0000

The arithmetic mean of the experimental group is 5.63 higher than the control group. Average final test is 57.75 points for the experimental group and 52.12 for the control group. Data dispersion is homogeneous in both groups. Variance ANOVA test showed that the mean difference is statistically significant, p=0.0000 <. α.. Effect size (1.11) shows a very large difference between the means. We reject the null hypothesis (H_0) and accept research hypothesis (H_1). Graphical representation of the results is presented below.

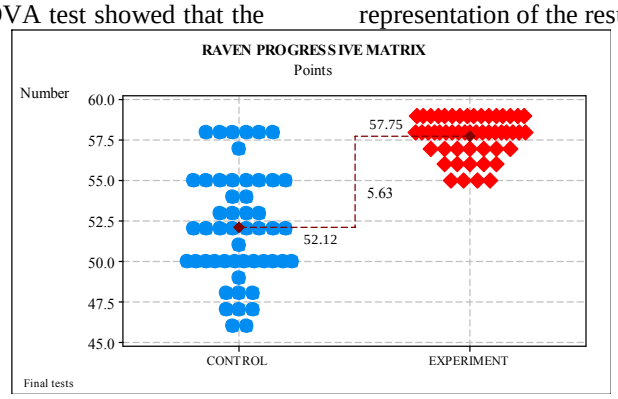

Figure 5. Raven progrssive matrix control vs. experiment points

Disscusin

Paraschiv, 2012 in his doctoral thesis entitled: "Psychomotor and motor intelligence in adolescence. Educational strategies for training and development" states that "motor intelligence depends largely on achieving a stable, deep, creative and innovative educational process".

Goleman, 2001 quoted by Paraschiv, 2012 states that traditionally the brain power is given by IQ, but as the world becomes more complex, EQ (emotional intelligence) goes first.

Spirituality, like emotion, has various degrees of depth and expression. It can be conscious or unconscious, developed or undeveloped, healthy or pathological, naive or sophisticated, advantageous or dangerously distorted ("Psychology TODAY" magazine, February 2006).

As a result of investigations and studies carried out, several authors (Epuran, Gavriliu, Horghian) have come to the conclusion that the motor intelligence is expressed through:

- Operational thinking ability;
- the power of anticipation-decision-action in situations of adversity;
- high speed of implementation of items;
- an excellent spatial orientation;
- motor perception capabilities
- superior coordination;
- capacity to estimate the time;
- excellent dynamic balance.

Conclusion

1.Practicing basketball game at the young age significantly influences intellectual performance and guide the youth trends-resolution analytical strategies in specific cases and inventive abstract situations.

2.Ability activity by practicing various sports exercise contributes to the development of intelligence, memory and creativity of those who practice them systematically.

3.The complexity of the organism, and in particular psychological factors such as motivation, will, capacity, a.s.o decision, enforcement of the regulation provides reverse motor and ability learning the game of basketball, appears as an integrative synthesis of cognitive and motor links available depending on the situation, the correlation with the team and need to adapt to the actual situation in relation to opponents.

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Original article

THE EFFECT OF ELECTRONIC EDUCATIONAL PROGRAM IN LEGAL KNOWLEDGE AND REFEREEING PERFORMANCES ARBITRAL FOR FUTSAL FOR BEGINNERS

RAED FAEQ ABDUL JABBIER[1], MAJEED KHADAYAKHESH[1]

Abstract

Aim: Preparation of an educational program in electronic legal knowledge and performance arbitral. Identify the impact of electronic educational program in legal Knowledge and refereeing performances arbitral for futsal for beginners. Identify the differences in the results of the tests before and after between the control group and the experimental variables in the search.

Method: while the research community has determined students third stage / Department of Physical Education Basic / University of Sulaymani, totaling 39 students divided into two divisions (A) and (B) were selected Division (B) sample research a random lottery style's (20) students were divided into two groups by the sample (10) students per group, The parity was conducted for groups of legal knowledge and performance award, the experimental group learn manner disks, which include electronic materials futsal law and how to apply them in the yard playing either the control group to learn in a traditional Method, the program prepared It is a law of futsal materials lounges have been photographed filming bale and then burn them to (CD) and presented to the experts and then distributed to the experimental group that you will learn in this way, Gave researchers two units induction of the sample and then a pre-test for the collection of knowledge and performance award and the application of the approach by (8) units and then a post-test was reached several conclusions

Results: the control group, the value of (T) calculated for variables of cognitive achievement and performance a legal arbitral is the smallest of levels of significance (0.05) this means that the significant differences between the results of pre and post tests and in favor of the post. The experimental group, the value of (T) calculated for variables of cognitive achievement and performance a legal arbitral is the smallest of levels of significance (0.05) This means that the significant differences between the results of pre and post tests and in favor of the post. the experimental and control groups, the value of (T) calculated for variables of cognitive achievement and performance a legal arbitral is the smallest of levels of significance (0.05) this means that the significant differences between the results of the post tests and in favor of the experimental group.

Conclusion: appeared to use the techniques of computer technology and the goal is to positively impact the development of cognitive achievement and performance award with Experimental group. Appeared to use the techniques of computer technology and the goal is to positively impact the development of cognitive achievement and performance award with Experimental group. Appeared to use the techniques of computer technology and the goal of more effective compared to the traditional method used in the learning process for the development of cognitive achievement and performance award for the research sample

Key words: Electronic educational, and refereeing performances arbitral , futsal for beginners.

Introduction

The world is experiencing a revolution in technology, especially the world of electrons as it has become one of the means necessary to help rights in all areas of his life and cannot be dispensed with because it is conducive to learning and expand the perceptions of learners through the display means multiple and that are easy to use and can be used everywhere with ease, "as the teacher can use many electronic educational devices help him achieve his goals for education by relying on multiple devices, including movies and audio-visual aids, and so on to achieve the greatest degree of learning. (Al-Janabi, 1993).

The process of diversity in the styles modern learning is a conflict against time to shortcut the process of teaching students the best way and achieve the goals required of course, is futsal of games that received global attention in most countries of the world being a popular game and wants to practice and watch most of the age groups and both sexes "(Zuhairi, 2009).

The decisions of the curricula Physical Education, which is considering the substance of arbitration, which is difficult for students of the specificity of some of their material, and in order to succeed referee in the administration of the matches should have the legal knowledge of the game and the practical application derived from practice and watch the many cases of arbitration as well as other staples such as personal fitness physical and health condition, Now a student at graduating from college will face professional life in the schools, which requires him to arbitration are many games that should be aware of all the legal materials in theory and has skill in the management of matches in order to succeed and shine

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and achieve justice and win the confidence of the players so deliberately researchers to prepare an educational program using modern technology through the computer, and here lies the importance of the research.

The process of preparing the students and teach them the law of Futsal as a subject in the third year of a difficult process need to be a high possibility of the subject teacher in order to be able delivering legal knowledge into the minds of the students and the possibility of success in the management of the games, Especially if we know that the game of Futsal is one of the games, which are conducted its championship school each year and cost the school material Physical Education judged these games so must be setup process enjoys a high standard of workmanship based on the advanced technology of filming a video display means display sophisticated so is the problem of searching through the following questions: Is the use of e-learning will affect the learning of legal knowledge and performance arbitral among a sample search.

Experimental protocol

The researchers used the experimental method to design the two groups equal to the control and experimental suitability and the nature of the research. Have been identified research community of third-year students of the school students in the Department of Physical Education - basic - Sulaimaniyah University for the academic year 2013 - 2014's (39) - Divided on (2) two divisions (A - B) and that the material Arbitration futsal are their courses of study for students this year, Was selected research sample of Division (b)'s (20) students were divided into two groups, a control and experimental of (10) students per group note that the process of selection of the sample and divided were using the random method and style of the draw and the percentage of respondents (51.29%), (Note that the sample is homogenous in terms of age and lack of exercise Arbitration earlier and not those of the club player), was conducted for the two groups control and experimental parity in the variables of search legal knowledge and performance arbitral and appeared to have differences randomized results of the tests and the table below shows that.

In order to identify the legal knowledge of the students adopted the researchers to test for cognitive achievement trophy (Stephenson ,2001), which consists of 30 questions to be answered through multiple choice gets lab-on-one degree at correct answer and zero at the wrong answer.

Either evaluate the performance of the arbitration shall be summons during the filming of the students and presented to the arbitration Chiropractors □□ in order to give grades to students note that the highest score (30) degrees. the researcher to conduct an exploratory to make sure the legal knowledge test on a sample of (5) students from the Division of (a) who were excluded from the sample dated 6/10/2013, and the goal of the experiment: See how individuals understand the research sample of the content of the questions. - Knowledge of the extent and clarity of test instructions and paragraphs. - Determine the time it takes for the test

The researchers designed a tutorial electronic depending on the decision of the curriculum for substance football halls for students of the school year the third consisting of international law for the football lounges, which include (17) Material bar the material (11), it has not been touched upon in international law and that the lack of substance to infiltrate in the rules of the game.

Data Analysis

The data distribution was tested with the Kolmogorov-Smirnov test. The statistics of variables were briefly reported by using mean and standard deviation. The groups were compared with one-way analysis of variance (SPSS) and to determine the source of the differences Tukey HSD test was conducted since the variances were homogeneous. An independent samples t-test was used for two-group comparisons. Significance level was taken as 0.05.

Results

Table 1. Comparison of Reaction Time Scores According to Age Categories.

Variable	*TesTs*	*n*	*X±SD*	*F*	*p*
Cognitive achievement a legal	**Pretest**	9	5.30 ± 1.49^{a}	14.71	0.000*
	Posttest	9	17.40 ± 2.63^{b}		
Performance arbitral	**Pretest**	9	6.00 ± 1.55^{b}	17.51	0.000
	Posttest	9	15.50 ± 1.58^{b}		

Upon the degree of freedom (9) the level of significance is less than or equal to (0.05).

Seen from the table above in connection with the control group, the value of (T) calculated for variables of cognitive achievement and performance a legal arbitral is the smallest of levels of significance (0.05) this means that the significant differences between the results of pre and post tests and in favor of the post

Table 2. Comparison of Reaction Time Scores According to Status

Variable	*TesTs*	*n*	*X±SD*	*t*	*p*
Cognitive achievement a legal	**Pretest**	9	5.60 ± 1.07	24.16	0.000
	Posttest	9	20.90 ± 1.52		
Performance arbitral	**Pretest**	9	5.50 ± 1.08	29.44	0.000
	Posttest	9	21.60 ± 2.07		

**p<0.05

Seen from the table above regarding the experimental group, the value of (T) calculated for variables of cognitive achievement and performance a legal arbitral is the smallest of levels of significance (0.05) this means that the significant differences between the results of pre and post tests and in favor of the post.

Table 3. Comparison of Reaction Time Scores According to Gender

Variable	*TesTs*	*n*	*X±SD*	*t*	*p*
Cognitive achievement a legal	**Pretest**	18	17.40 ± 2.63[b]	7.416	0.000
	Pretest	18	20.90 ± 1.52		
Performance arbitral	**Pretest**	18	15.50 ± 1.58[b]	3.933	0.000
	Pretest	18	21.60 ± 2.07		

**p<0.01

Seen from the table above regarding the experimental and control groups, the value of (T) calculated for variables of cognitive achievement and performance a legal arbitral is the smallest of levels of significance (0.05) this means that the significant differences between the results of the post tests and in favor of the experimental group.

Discussion

Seen from the tables (1-2) that there are significant differences between pre and post tests for the control and experimental groups that applied to them electronic educational program, and researchers attribute the reason for this is to:

The program of educational electronic materials legal Futsal under study excellence by numerous pros that led to the emergence of significant difference in the side of the collection of knowledge of legal, since the use of the computer as a means for display may be provided to the learner enough time acceptable to the needs of the learner debutante which became has the right time to perform the operation the focus of attention, as it (the time to focus attention associated with several variables, including the amount of effort involved in absorbing performance motion) (Frahat, 2001).

`The use of the learner's computer as an educational tool has led to improve the capacity of the focus has, since to draw attention to a specific area, rather than a wide range, because the focus of attention Designated leads the learner to be vigilant of any has the ability to direct his attention toward a small area or one particular thing (Salary, 2000).

That the use of techniques technology helps to spread the spirit of competition and increase the capacity to focus on the content of Article cognitive Legal helping the learner to overcome some ideas unwanted that occur during the lesson as a result of the debate among the educated side, accompany the process of concentration of attention, so must try to overcome on these ideas, leading to noise, since the intermittent sounds that rotates among the educated affect the weak capacity of concentration and observation (Melegy, 1968).

The use of such a method helps learners to acquire the expertise knowledge and arbitral variety of educational through interaction with technology -Tec electronic educational goals are diverse educational and practice and practical application , that the use of this technique reduces boredom and increases the spirit of competition and the thrill of knowing that fit the needs of learners and their interests and abilities , in addition to the possibility of improving the quality of feedback that originates from the learner himself to improve and develop teaching methods of legal materials, and that e-learning provides various alternatives to provide learners

with feeding due continuous observation through the senses increases

Concentration attention on the performance of the arbitration theory and practice at the same time . Because the note is one of the methods of feedback that increase the performance of any educated observation and meditation affect the focus of attention and the ability to recognize the educational materials to be (Zaki et al, 2002).

Seen from the table (3) and private tests comparing the two groups in the post in the collection of knowledge of legal and arbitration that the performance difference was significant for the experimental group, the researchers attribute the reason for this is to:

The tutorial - electronic user helped to deliver all the information and paragraphs cases involving legal materials for the football game Foote contacted by supply electronic material legal and paragraphs and how to decide when errors and irregularities by computer, any accompanied by commentary accompanying the performance, which helped educated in how to take a decision and their awareness and understanding of the substance of legal.

The computer provides educational material to train and incorporate appropriate to the capacity of learners and provides opportunities for interaction and dialogue education , including , as it can be educated of the selection and implementation of activities and experiences appropriate to their interests and desires , with the provision of colors , sounds and moving images, making the learning process more fun (Al Sharhan, 2002).

The presentation of the material legal concurrent with the explanation together, led an active role in increasing the legal knowledge and deliver it to the minds of learners, and contributed to the development of duty arbitration and understanding, and led to the assimilation of legal and acquisition clearly, because the construction of electronic programs help create curriculum privileged use sound and movement image and text together as the necessary requirements in learning techniques to provide technology that evolved from visual concepts, and should coincide with the e-learning presentation and explanation accompanied by text that includes verbal clarify the relationship between the relative supply and texts (Al-Mousa , 1999) .

When the comparison between the two groups , we note that the experimental group used twice senses sighted and blind inside modules , which was another reason for their excellence , " the greater the number of catalyst exciting the senses involved in the completion of the process of teaching and learning , whenever Ada that activate memory in the form of good and perform movements arbitration to be learned in better , leading to directed learning process better and more accurate as a result of remembering and attention .

Since the use of techniques of technology and objective computer leads to prolong the period of remembering and reduce forgetfulness any retention have performance and proficiency rather than lead to the perception of performance the workmanship and legal materials, making it easier Achieving maximum possible educational adequacy (Abdul-Jabbar ,2008) .

Conclusions

By the results of the tests that have emerged and that the researchers were discussing reached several conclusions as follows:- appeared to use the techniques of computer technology and the goal is to positively impact the development of cognitive achievement and performance award with Experimental group.

Appeared to use the traditional method (used) also has a limited impact on the development of cognitive achievement and performance award with the control group. appeared to use the techniques of computer technology and the goal of more effective compared to the traditional method used in the learning process for the development of cognitive achievement and performance award for the research sample .

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Original article

SOME SOCCER ASPECTS OF DEL PIERO'S CAREER

RAIOLA GAETANO[1], TAFURI DOMENICO[1]

Abstract

*Purpose.*The aim of this study is to individualize during Alessandro Del Piero's long career the significant aspectss that can be referable to a particular development of the results in terms of absolute.

*Methods.*Case study with ethnographic approach. It uses data on specific aspects and theoretical argumentativeby deductive way.Adequate athletic activities were carried out, under form of recreation, guided by a teacher, necessary to carry out the tasks: children without disabilities were put in a position where they were able to live the disability of another child.

Results. Preliminary results showed, that the long career of Alessandro Del Piero, a football season that stands out above all for continuity (and therefore appearances: 47), combined with prolificacy (goals scored: 32). This season no injuries occurred, except for the last match of the season which then lead to the athlete's precarious conditions in the World Championship which took place in France 1998.

Conclusions. The data emerging from a long career as one as that of Alessandro Del Piero, are very significant. The sporting history of an athlete is closely linked to specific events that accompany the athlete's life.

Keywords: perfomance analysis, hetnograpic approach, case study.

Introduction

Soccer is a sport about situation, subject to many dependents variables like field, adversary, teammates, presence of ball and more. Aspects that significantly affecting the training in this sport are: conditional aspect, psychological and technical-tactical.

Team sport activity is composed of conditional,technical,tactical features of performance and uses the periodization to put in practice strategies,methods and teachings to develop the abilities of the individual and the collective group with the aim to get the best goals.

An interesting statistic about given by the Professional Footballers' Association (PFA**),** says that 35 is the average age that football players stop playing professional football. Their career usually lasts for about 8 years. So since one does not start playing at the age of 27, there will be football players that reach playing professional football for 15 years and instead others that score only a few series of attendances to eventually be forgotten while remaining to play on the team. Injuries certainly determine the quality and duration of a player's career, in particular for those football players that play on certain areas of the football field, like the position of the striker, which may prove decisive for the outcome of their team. The unprejudiced summary of this study is to individualize during Alessandro Del Piero's long career the significant aspects that can be referable to a particular development of the results in terms of absolute performance. Most important aspects is the periodization training (Raiola, Napolitano 2013) that could have the influence on career. Furthermore, team sport has the similar variables specifically among soccer, waterpolo (Napolitano et al. 2013), basketball (Izzo et al. 2013), volleyball (Raiola 2012), futsal (Polidoro et al., 2013). In the same way, the method training has the priority on the career for the specific skill learnings on qualitative aspects, such as in futsal basketball, volley, soccer training.

The aim of this study is to individualize during Alessandro Del Piero's long career the significant aspects that can be referable to a particular development of the results in terms of absolute performance. The investigation of career is a generally aspects of soccer player, because of the attention that people give to performance. The long career, often, have to research exactly some aspects to take in relationship to performance to explain the results. Preliminary investigation is the starting of the process to examine the if it is centered the issue. In this case, it would give a focus for success study in the logic of step to steps.So, too often the investigation paradigm does not have a strict understanding. Traditionally, it bases on notational analysis and match analysis (Tursi et al. 2013). In performance analysis issue the motor control and learning have to be investigated in a complex method to understand also the relationship between stimulus and behavior. The approach to learn the sport skill is the other aspect that could be consider in case inestigation (Raiola 2014). In the same way, the method training has the priority on the career for the specific skill learnings on qualitative aspects, such as in futsal basketball, volley, soccer training.

The investigation of career is a generally aspects of soccer player, because of the attention that people give to performance. The long career, often, have to research exactly some aspects to take in relationship to performance to explain the results. Preliminary investigation is the starting of the process to examine the issue. In this case, it would give a focus for success

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study in the logic of step to steps.For further, investigation it could be necessary to organize the whole issue to analyze a new perspective of performance analysis. This new vision must have the holistic paradigm according to heuristic learning in opposition to prescriptive teaching. Teaching method of Physical education in school has to be considered according to the ministerial documents (Raiola 2011ab, Raiola 2012ab). In this way, the knowledge is quickly developing and the changed are too fast to include in revision. It is useful to involve scholars in applied study in educational field of school and of sports club to have the same scientific idea. Too often, the world of school and the sports one are too away each other to collaborate. Cognitive approach is an usual way to understand the movement, that is the historical way to study and investigate the issue in behaviorist/cognitive interpretative key. Ecological Dynamic approach is an extraordinary way to understand the movement, that is the innovation way to study and investigate the issue in gestalt/phenomenology interpretative key.The aim of this study is to individualize during Alessandro Del Piero's long career the significant aspects that can be referable to a particular development of theresults in terms of absolute performance.

Methods

The method is case study. The case study, leads the researcher to focus on the 'fact-finding investigation of a "situation" that may be indicative compared to a larger sample.This way, it is the researcher who distinguishes the "case", making it become through a series of inquiries the object of understanding, application and analysis. It defines historical circumstances, environmental and contextual reaching conclusions that have no claim to finality (Kemmis 1980).

Stenhouse identifies different types of "case studies", including the ethnographic model in which the observer carefully studies the individual case (Stenhouse 1985). In this way, it can consider the ethnographic approach is the best way to analyze the all data and give them the properly way in context that the fact were done. This approach examines the data in development of the time and its relation to the environment.

Results

YEAR	Attendeces	GOAL	GAME TIME	INQUIRY	ITALY CUP	UEFA LEAGUE	COP.. INTR	CHAMPIONS LEAGUE	ITALY SUPERCUP
93/94	14	5	442	No	1pr-0gol	2pr0 Gol			
94/95	50	10	3331	No	10-1	11-1			
95/96	43	13	3123	No	2-1			11pre 6gol	
96/97	35	15	2489	Uno	4-0		1pre 0gol	6-4	
97/98	47	32	3890	Uno***	4-1			10-10	1pr0gol
98/99	14	3	1134	Uno	1-0			4-0	1-1
99/00	45	12	3433	No	2-1				
00/01	33	9	2324	Uno	2-0	6-1		6-0	
01/02	46	21	3657	No	4-1			10-4	
02/03	38	23	3055	No				13-5	1-2
03/04	31	14	1784	Uno	4-3			4-3	1-0
04/05	41	17	2723	No	1-0			8-2	
05/06	45	20	2393	No	4-5			7-3	
06/07*	37	23	2768	No	2-3				
07/08	41	24	3031	No	4-3				
08/09	41	21	3322	No	3-2			8-5	
09/10	29	11	1910	Uno	1-2			2-0	
10/11	45	11	2654	No	2-0	3-0			
11/12	28	5	960	No	5-2	6-3			
12/13**	24	14	2035	No					

Serie B*
Sidney Fc**

Infortunio Finale Champions League ***

Preliminary results showed, that the long career of Alessandro Del Piero, a football season that stands out above all for continuity (and therefore appearances: 47), combined with prolificacy (goals scored: 32). This season no injuries occurred, except for the last match of the season which then lead to the athlete's precarious conditions in the World Championship which took place in France 1998. Considering this information we can see how the football season 1997/1998 is the one where the athlete was the heart of the matter since there were no injuries and for his amazing technical skills, reached very high performing levels, establishing himself as one of the major talents of international football. Linking the data that we can find for the football season 1999/2000 the athlete was recovering from a very serious injury to the ligaments in his left knee, while he still had a high number of attendances (45). Unlike, his performance levels declined and he carried out only two actions during the whole season (99/00).

From the long career of Del Piero come out more details in terms of performance, in terms of realization.

Del Piero (09/11/1974) total goal squadra di club 315

STEP 1

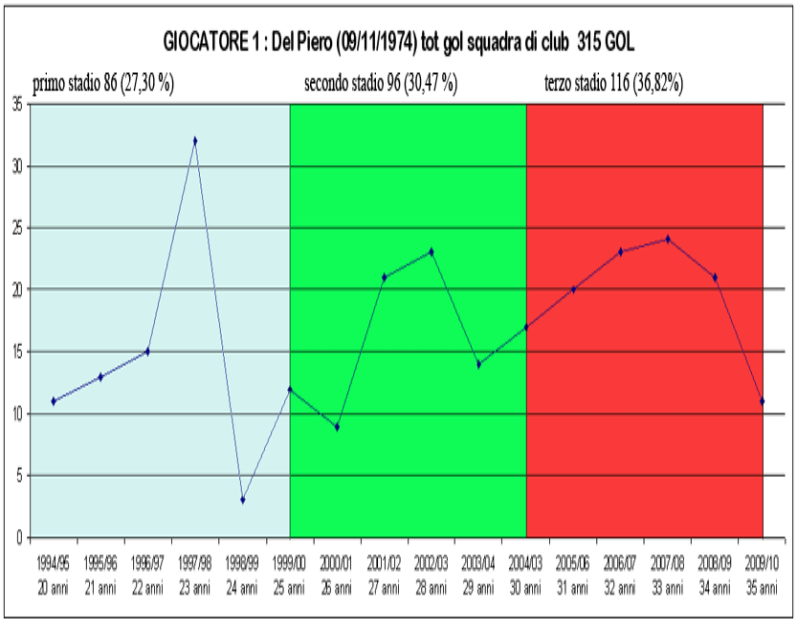
age	year	goal
20	1994/95	11
21	1995/96	13
22	1996/97	15
23	1997/98	32
24	1998/99	3
25	1999/00	12
% 27.30		TOT : 86

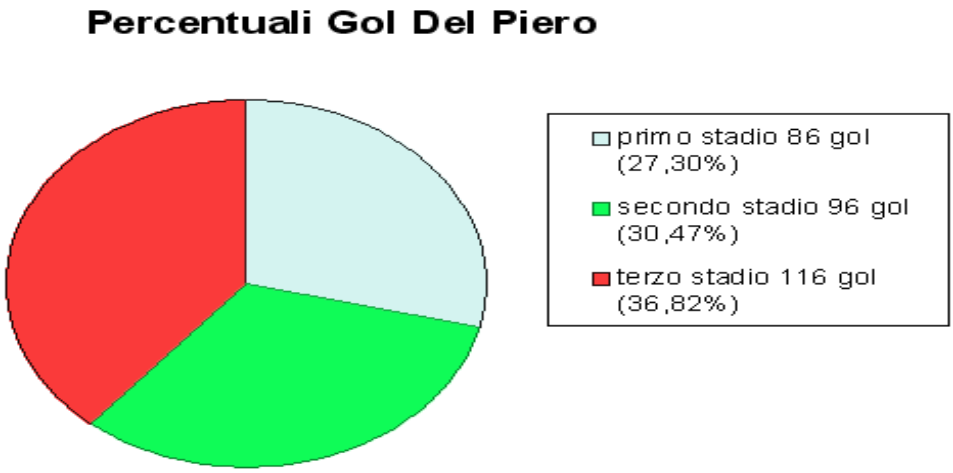
STEP 2

age	year	goal
25	1999/00	12
26	2000/01	9
27	2001/02	21
28	2002/03	23
29	2003/04	14
30	2004/03	17
% 30.47		TOT : 96

STEP 3

age	year	goal
30	2004/05	17
31	2005/06	20
32	2006/07	23
33	2007/08	24
34	2008/09	21
35	2009/10	11
% 36.82		TOT : 116





Discussion

The data emerging from a long career as one as that of Alessandro Del Piero, are very significant. The sporting history of an athlete is closely linked to specific events that accompany the athlete's life. Footballer Del Piero, has achieved in his career 343 goals. In this study, it takes as a sample 260 goal, no to mention 62 goals scored from the penalty.

The video images, are not always good did not allow the precise location of 11 other goals. Analizing the data we have that: Del Piero has achieved the highest percentage of goals from center-left area. It is from that area of the field where Del Piero has expressed the most of its tecnical /tactical and athletic. Another fact is very important for this study, is the number of expulsions from the playing field that Del Piero has had on his carrer. There are only two red cards given to Del Piero in twenty years of his career and only one for misconduct.

Del Piero is a player correct a messenger of good values on the field and off the field. It is engaged in charity as the fight against cancer together with the AIRC (Italian association cancer research). If it thinks to how small the portion of the field where Del Piero has expressed its best you understand well the purposes of this study.

Everyone from birth plays a role, has children and we are trained to be children. You become students have educating, parents, teachers, then employed professionals. What is very important is the educational aspect of each of us is oblie to comply with certain rules, to have respect for people in their diversity and uniqueness. Respect their role as in a football team, respect the rules of the game, opponents playmates, the coach, their specific role.

In this way, each individual can make the most of his potential throughout his life and the sport easily able to convey these values. Returning to the vicarious function, the substitute, think of the youth sector of the Barcelona "*cantera";* Small boys brought up to respect a specific form of the game, its role. The results are immediate and positive. The sport, from motives which in other contexts is not able to have. It is not just the accident itself that can lead to a decrease in the performance levels, but we can just have a look how at the athlete's data to understand how the psychological factor, the lack of clarity, due to a physical condition which is not optimal, can lead to difficulties to accomplishing technical skills that only months before he was able to do naturally.

This study becomes important even in those professions where one needs to develop protocols. It is therefore acceptable as "standardized" working protocols proving to be absolutely inconclusive in terms of absolute performance.

In conclusion it have to investigate on specific recruitment data to focus the single variable. So on for the many variables in multiple correction among of them. Between the aspects that could affect the performance of an athlete is the advance of age. From the data that emerge from the career of Del Piero, there is no linearity between advancing age and declining of the performativity in terms of realization.

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Original article

A STUDY ON IMPROVING STUDENTS' MOTIVATION FOR SEMINAR CLASSES

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Abstract

Aim. The aim of this research is to emphasize the motivational expression and development of the Bachelor's degree students, through their involvement in the motivation and self-motivation process during the seminar classes.

Material & methods. This paper is an experimental study carried out on a number of 30 students from two groups, an experimental one (15 students) and a control one (15 students). Results have highlighted a higher level recorded for the experimental group compared to the control group, after the practical intervention regarding the value mean in the assessment of the knowledge and of the results of their skill assessment records. As an objective, we intended to present the motivational development, during a semester (the first semester of the 2013-2014 academic year). As research methods, we used: the bibliographic study, testing, case study, graphical method.

Results. Results have been centralised on age categories, are listed in the tables and graphically represented. They are considered in two groups and highlight the increase of motivation and the behaviour's improvement.

Conclusions. The conclusions drawn underline a positive evolution of students' behaviour towards seminar classes, their collaboration with the teacher and their attitude towards their fellow students. The hypothesis according to which students' motivation during the seminar classes can help to improve their behaviour has been validated.

Key words: motivation, students, seminar, improvement.

Introduction

Achievement of the major tasks related to professional training "cannot be conceived without intervening in the adaptation and formation of a specific behaviour" (Raţă, 2004, p 28).

During the education period of vocational training, there are intensive transformations of the adolescent and they are related to the physical, intellectual, affective, social, moral, aesthetic, functional, motivational features which form the human behaviour.

The motivation as part of the psychological side which must be formed within the teaching-learning process is very important, especially for the career development.

It implies the discovery of personal identity and "it starts by knowing yourself, by knowing who you are and what you want from your life, for you to focus better in the future" (Ciobanu, 2004, p. 27).

A reason is that psychic phenomenon which has an essential role in triggering, orienting and changing behaviour and motivation includes the totality of reasons.

A reason is the main cause of behaviour, but not every cause can also be a reason.

If we want to better understand our students' choices, to understand their position they will adopt in different situations or to exert an educational influence on them, it is necessary to know their reasons for such decisions.

Motivation depends on the capacities, skills, values and attitudes formed and grown over time, but also on the inner predisposition of each individual.

Particularly related to the sports domain, motivation is influenced by the capacity to perceive, understand and adapt to the ever-changing situations. Innate predispositions have a polyvalent characteristic, which means that different psychic features and profiles may be carried out based on the same hereditary background under the influence of environmental factors.

They do not preset certain qualities and traits of human personality, but they provide the necessary basis for learning.

Hypothesis of research

This study started from the hypothesis according to which motivating students during seminars can help to improve their behaviour.

Research tasks

For carrying out this research, the following tasks were established: choosing the groups subject to research; finalizing the complete duration of research; establishing samples of assessment; choosing the intervention manner; elaborating a program to

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support assessments; analysing, processing, interpreting the results; highlighting conclusions; writing the paper.

Subjects, location, time, methods of research and assessment samples

Subjects comprised in this research are represented by 30 students divided into two groups, an experimental one (15 students) and a control one (15 students).

The *location* was represented by the Faculty of Movement, Sports and Health Sciences in Bacau.

Research was carried out over a period of four months (October 2013 - January 2014), with optimal conditions for performing the suggested intervention.

The research methods used were the bibliographic study, testing, case study, graphical method.

The test for assessing behaviour was represented by the observation sheet for assessing the attitude development (towards the methodology for teaching the physical education and sport discipline, towards the teacher, towards fellow students).

This sheet aims to assess: students' behaviour during the appreciated seminar (by means of: positive attitude towards the contents discussed, attention and memory skills, continuous training skill, interest for additional information), students' collaboration with their teacher (assessed by: cooperation, attitude of respect and desire to be noticed) and students' attitude toward fellow students (assessed by: collaboration, a spirit of fair-play and desire to work in a group).

Applied intervention

This research is an experimental study on motivational expression and development of the students, based on systematic observation during the seminar classes.

For increasing students' interest and motivation to prepare for the seminars, the experimental group was involved in the process of assessing their fellow students, in leading and carrying out seminars and in the assessment at the end of each of the lessons.

After the first assessments and self-assessments, students have become more realistic regarding their professional level and evolution development, which have motivated them in their efforts.

Processing, analysis, interpretation and presentation of results

The results have been collected in table no. 1 and include the average values of the two groups. Related to students' behaviour during the seminar, there can be observed different values for the two groups:

- for the *positive attitude* towards the contents discussed, the experimental group recorded 11 subjects in the initial assessment and 15 subjects in the final assessment, with a difference of 4 subjects between the two, and the control group recorded 10 subjects in the initial assessment and 11 subjects in the final assessment, with a difference of 1 subject. A negative difference of 4 subjects can be observed in the experimental group in the initial assessment, and zero subjects in the final assessment, but in the control group, 5 subjects in the initial assessment and 4, in the final assessment;

- regarding *the attention and memory skills* in the experimental group, 13 subjects were attentive in the initial assessment and 15 subjects in the final assessment, with a difference of 2 subjects between the two tests, and in the control group, 13 subjects were attentive in the initial assessment and 14 subjects in the final assessment, with a difference of 1 subject. A negative difference of 2 subjects can be observed in the experimental group in the initial assessment, and zero subjects in the final assessment, and in the control group, 2 subjects in the assessment and 1 the final assessment;

- regarding *the continuous practice*, the experimental group recorded 9 subjects in initial assessment and 14 subjects in the final assessment, with a difference of 5 subjects between the two. The control group recorded 10 subjects in the initial assessment and 11 subjects in the final assessment, with a difference of 1 subject. A negative difference of 5 subjects can be observed in the experimental group in the initial assessment, and 1 subject in the final assessment, and in the control group, 5 subjects in initial the assessment and 4 - in the final assessment;

- regarding the *interest for additional information*, the experimental group recorded 6subjects in the initial assessment and 11 subjects in the final assessment, with a difference of 5 between the two subjects. The control group recorded 5 subjects in the initial assessment and 7 subjects in the final assessment, with a difference of 2 subjects. A negative difference of 9 subjects can be observed in the experimental group a negative difference of 9 subjects in the initial assessment, and 4 subjects, in the final assessment, and in the control group, 10 subjects in the initial assessment and 9 to final assessment.

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Centralizing table no. 1 – Students' Attitudinal Development

ASSESSMENT ITEMS		Positive			Negative	
		I	F	Dif	I	F
Students' behaviour during the seminar class						
Gr. E	Positive attitude towards the discussed contents	11	15	4	4	0
Gr. C		10	11	1	5	4
Gr. E	Attention and memory skill	13	15	2	2	0
Gr. C		13	14	1	2	1
Gr. E	Continuous practice skill	9	14	5	6	1
Gr. C		10	11	1	5	4
Gr. E	Interest for additional information	6	11	5	9	4
Gr. C		5	7	2	10	9
Students' collaboration with their teacher						
Gr. E	Cooperation	7	15	8	8	0
Gr. C		8	11	3	7	4
Gr. E	Respect attitude	11	14	3	4	1
Gr. C		11	12	1	4	3
Gr. E	Desire to be noticed	6	15	9	9	0
Gr. C		7	12	5	8	3
Students' attitude towards their fellows						
Gr. E	Collaboration	5	15	10	10	0
Gr. C		5	14	9	9	1
Gr. E	Fair play	6	15	9	9	0
Gr. C		8	13	5	7	2
Gr. E	Desire to work in a group	12	15	3	3	0
Gr. C		11	14	3	3	1

Discuss.Regarding the *students' collaboration with their teacher*, there are different values in the two groups:

- for *cooperation*, the experimental group recorded 7 subjects in the initial assessment and 15 subjects in the final assessment, with a difference of 8 subjects between the two, The control group recorded 8 subjects in the initial assessment and 11 subjects in the final assessment, with a difference of 3 subjects.

There is a negative difference of 8 subjects in the experimental group in the initial assessment, and a subject in the final assessment and in the control group 7 subjects in the initial assessment and 4 in the final assessment. According to Elien Waite (2014), cooperation should be the spirit animating the classroom, its law of existence, but also the teacher's main objective;

- for the *respect attitude*, the experimental group recorded 11 subjects in the initial assessment and 14 subjects in the final assessment, with a difference of 3 subjects between the two, and the control group recorded 11 subjects in the initial assessment and 12 subjects in the final evaluation, with a difference of 1 subject. It can be observed in the experimental group a negative difference of 4 subjects in the initial assessment, and 1 subject in the final assessment, and in the control group, 4 subjects in the initial assessment and 3 in the final assessment Respect is "an attitude or esteem, consideration or special appreciation towards someone or something" (https://www.google.ro/search), *an attitude which influences and ensures the normal development of society*;
- for *the desire to be noticed*, the experimental group recorded 6 subjects in the initial assessment and 15 subjects in the final assessment, with a difference of 9 subjects between the two. The control group recorded 7 subjects in the initial assessment and 12 subjects in the final assessment, with a difference of 5 subjects. It can be observed in the experimental group a negative difference of 9 subjects in the initial assessment, and zero subjects in the final assessment, and the control group, 8 subjects in the initial assessment and 3 in the final assessment.

Regarding the students' attitude towards their fellows, there are different values in the two groups:

- for *collaboration*, the experimental group recorded 5 subjects in the initial assessment and 15 subjects in the final assessment, with a difference of 10 subjects between the two. The control group recorded 5 subjects in the initial assessment and 14 subjects in the final assessment, with a difference of 9 subjects. A negative difference of 10 subjects can be noticed in the experimental group in the initial assessment, and zero subjects in the final assessment, and in the control group, 9 subjects in the initial assessment and 1, in the final evaluation;
- for the spirit of fair-play, the experimental group recorded 6 subjects in the initial assessment and 15 subjects in the final assessment, with a difference of 9 subjects between the two, and in the control group it recorded 8 subjects in the initial assessment and 13 subjects in the final assessment, with a difference of 5 subjects. There is a negative difference of 9 subjects in the experimental group in the initial assessment, and zero subjects in the final assessment, and in the control group, 7 subjects in initial assessment and 2 - the final assessment;
- for *the desire to work in a group*, the experimental group recorded 12 subjects in the initial assessment and 15 subjects in the final assessment, with a difference of 3 subjects between the two. The control group recorded 11 subjects in the initial assessment and 14 subjects in the final assessment, with a difference of 2 subjects. There can be noticed a negative difference of 3 subjects in the experimental group in the initial assessment, and zero subjects in the final assessment, and in the control group 3 subjects in the initial assessment and 1 subject in the final assessment.

Students' behaviour is influenced by "the behaviour of the teaching staff shaping their personality and influencing their life's evolution." (Botezatu, Rata, 2008, pag 54).

Forming a positive attitude towards the discussed contents, educating the capacity of attention and memory, getting used to the capacity of permanent training, raising the interest for additional information, improving students' collaboration with their teacher are essential elements in the process of vocational training, but they also increase motivation for the teaching act.

The academic environment constitutes the determinant factor for developing motivation, since it comprises all the natural, social, cultural elements contributing to the formation of professional motivation.

Conclusions

Based on the data analysis, we have drawn the following conclusions:

- the hypothesis according to which the students' motivation during the seminar classes can help to improve behaviour has been validated;

- the number of students in the experimental group has recorded a higher level than in the control group on the three criteria for the assessment of behaviour;

- the number of subjects who have improved the aspects regarding the attitude towards the discipline, towards the teacher and towards their fellows has increased;

- these results would not have been obtained, without their involvement in the assessment process and without students' help to know and to form their own personality.

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Original article

TENDENCY FOR OBESITY IN STUDENTS WITHIN12-15 YEAR OLD AGE GROUP

SHATKU ROZETA[1], TARE MIMOZA[2]

Abstract

Purpose. In the past decade, in Albania, there has been an increase in the percentage of overweight and obese children. Some of the causes influencing obesity are the technological development, unhealthy eating habits, passive lifestyle, etc.

The purpose of this study is to analyze and define the body mass index for students in the middle school averaging from 12 to 15 years of age. The results of this study will help define the objectives of the physical education course that will improve health and wellbeing in children belonging to this age group.

Methods. For this study, 120 male and female students were randomly selected. The study took place in "Jeronin De Rada" middle school. For every participant the following information was gathered: height, weight and waist line. The data processed in excel and the results were reflected in tables and graphs.

Results .Male students belonging to 12 year old age group have the highest percentage of underweight at about 33.3%, whereas male students belonging to the 15 year old age have the highest percentage of obesity at about 10%. On the other hand, female students belonging to the 12 year old age group score within the normal weight range with about 63.3%, whereas female students belonging to the 15 year old age group have the highest percentage of obesity with a percentage of 23.3%.

Conclusions. After the age of puberty, an increase in weight beyond the normal parameters is noticed in both male and female students. There has been a significant increase in the number of overweight male and female students between 12 and 15 years of age averaging 13% and 6.7% respectively.

Keywords: overweight, obesity, student, body mass index.

Introduction

Obesity is an excess accumulation of body fat, often 20% or more, over the ideal weight level, which may have an adverse effect on the normal functions of organs in the human body, leading to health problems and reduced life expectancy. Overweight adolescents aged 12-15 years consume between 700 to 1,000 more calories per day than what's needed for the growth, physical activity and body function of a healthy weight teen. Over the course of 10 years, this excess can pack on 57 unnecessary pounds (Wang, Gortmaker, Sobol, and Kuntz, 2006).

In our country, obesity as a concern has been only recently escalated at a national level, even though its signs have been present for some time.

These findings have been supported not only by various studies, but also by the fact that today Albania is an open society and there is an abundance of information related to the issue at hand. Many of the developed European countries have recognized obesity as an issue long before and have taken various preventive measures against what they call the disease of the century.Albania is in the initial stage of recognizing the issue of obesity and it is mainly focused on the conduct of scientific research about the issue at hand. Nowadays in Albania, even though there is an increase of obesity in school age children, there has been a significant decrease in the physical education activities incorporated as part of school curriculum. We believe that this is a paradox which needs to be fixed.

Although traditionally viewed as an "adult" illness, the rise in childhood overweight and obesity has corresponded to an increasing proportion of youths with type 2 diabetes, particularly among adolescent minority populations (The Writing Group for the SEARCH for Diabetes in Youth Study, 2007).

Rapid economic growth has improved the nutritional, socioeconomic and health status of many countries (Freedman, Dietz, Srinivasan, Berenson, 1999).

Every year, in other developed countries hundreds of thousands of dollars are invested on funding preventive initiatives against obesity in children. In the past two decades, most of these initiatives have been aimed at increasing the physical activity in schools especially up to 12thgrade level. It seems like only Albania is an exception in the massive fight against obesity.

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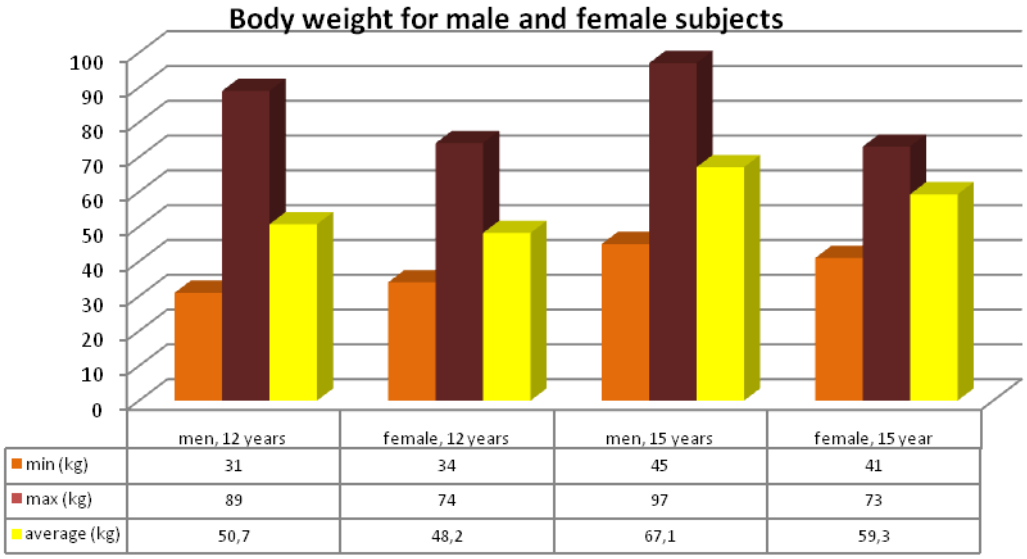
Methods

The objective of this study was the measurement of the height, weight and waistline in a group of 120 male and female students between 12 and 15 years of age from "Jeronin De Rada" middle school.

The subjects in this study were tested under the same optimal conditions. Theywere not suffering from any medical condition and they were not they taking any type of medication at the time of study. For all 120 students in the study, the BMI measurement was based on three indicators: weight, height and waist line.

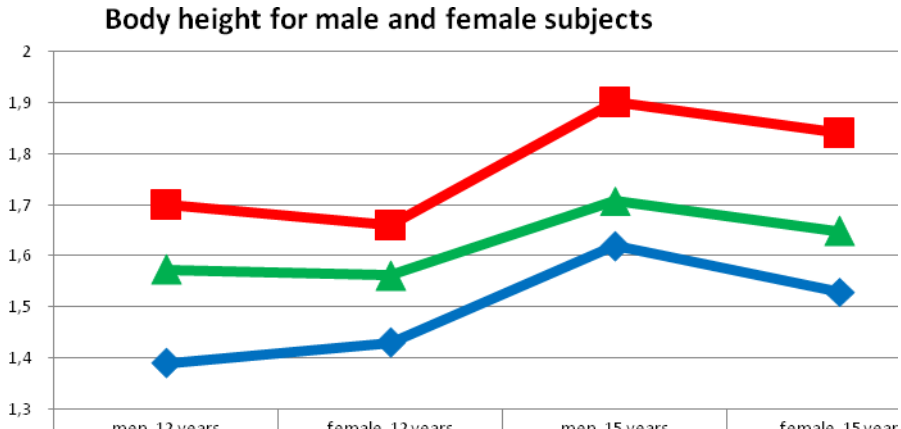
The measurements were taken during January-February 2013 and they are evidenced in the respective tables. The data were analyzed and used to calculate BMI and Obesity levels in formulasspecified by American College of Sports. The data were processed in excel and the findings are reflected in the respective graphs.

Results



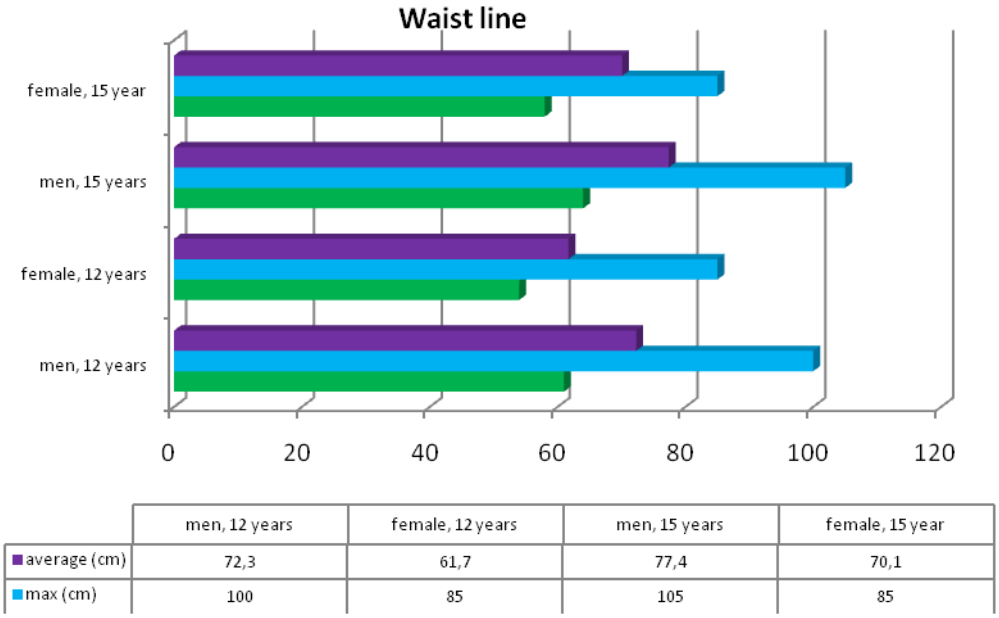
	men, 12 years	female, 12 years	men, 15 years	female, 15 year
min (kg)	31	34	45	41
max (kg)	89	74	97	73
average (kg)	50,7	48,2	67,1	59,3

Figure 1. This graph depicts the average body weight in kg for the male and female subjects in the study belonging to the 12-15 year old age group. It is obvious that in this age group the increase in body weight higher in the female subjects compared to the male subjects.



	men, 12 years	female, 12 years	men, 15 years	female, 15 year
min (m)	1,39	1,43	1,62	1,53
max (m)	1,7	1,66	1,9	1,84
average (m)	1,573	1,562	1,708	1,649

Figure 2. This graph depictsthe body height for ages 12 to 15. from age 12 to 15, the biggest increase in body height is noticed in the male group compared to the female group. this indicator is also related to the fact that female bodies develop at a faster pace up to age 12 which is the age of puberty. in males, body growth reaches its highest peak after the age of 12.



	men, 12 years	female, 12 years	men, 15 years	female, 15 year
average (cm)	72,3	61,7	77,4	70,1
max (cm)	100	85	105	85

Figure 3. This graph depictswaist line results gathered from all subjects in this study. A higher increase in the waistline is noticed in the female group between age 12-15 compared to the male subjects in the same age group. The smaller increase in the waist line of the male subjects is also explained by the fact that males' body height increases faster compared to the females in this age group.

Body mass index

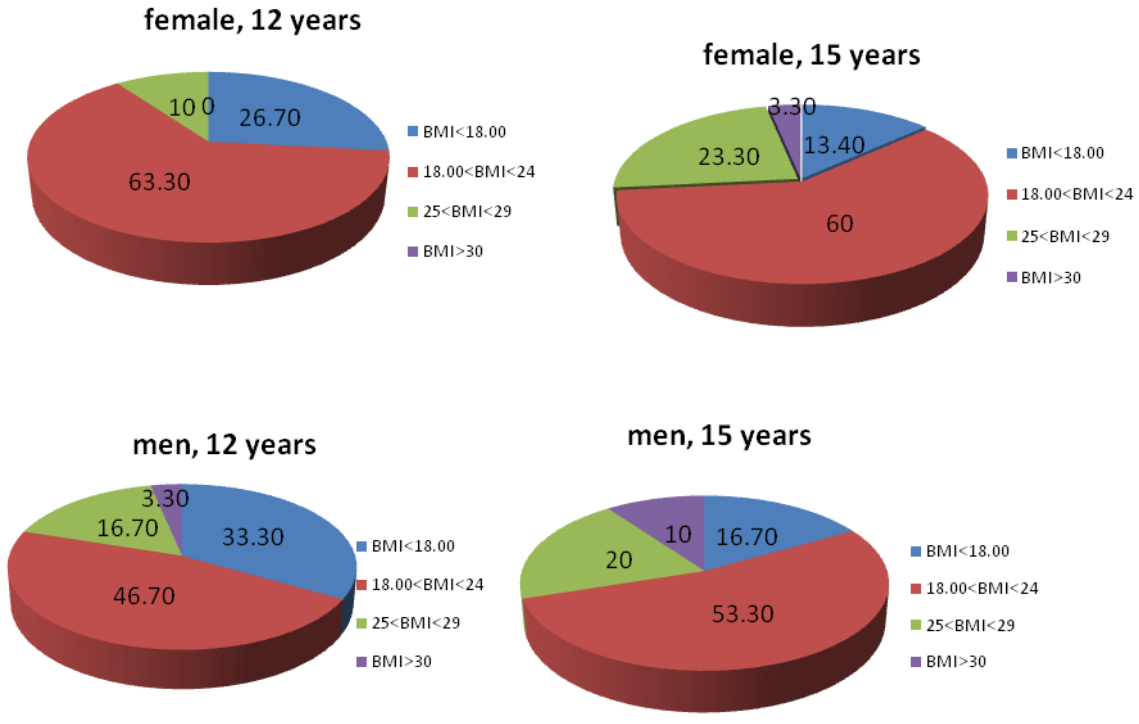


Figure 4. This graph depicts thebody mass index percentage for both male and female subjects.

Females belonging in the 12 year old age group have the highest percentage of normal weight level with about 63.3%, whereas females in the 15 year old age group have the highest level of obesity of about 23.3%.

Discussion

Previous comprehensive reviews have looked at prevalence levels of obesity in pre-school children (27/29) and in school-age children (Lobstein, Baur, Uauy, 2004).

The average biological age of the females was 12.3 to 15.1 whereas for the males it was 12.6 to 15.2. Based on the data gathered with respect to highest, lowest and average BMI index and obesity levels, we can further discuss present conditions, future developments of these indicators and the high importance of physical education/activity in our times. These findings will help us understand our children's lifestyle trends from year to year. Males in the 12 year old age group have the highest level of underweight of about 33.3%, whereas males in the 15 year old age group have the highest level of obesity of about 10%. Females in the 12 year old age group have the highest percentage of normal weight level with about 63.3% whereas females belonging to the 15 year old age group have the highest overweight levels with about 23.3 %.

The average body weight has increased by 11kg or about 18.7% in the females group and by 16.4kg or 24.4% in the male group (see Fig.1). The increase in body weight is higher in male group with about 5.3kg or 5.7% more than their female counterparts and this increase has an influence in their personality development. Despite these findings, the conclusion would be inaccurate if we did not correlate the body weight with body height. It has been noticed that the indicator of body height from age 12-15 has an increase of 8.7cm in the female group and 13.7cm in the male group of the same age. This means that the growth of body height, on average, is 5cm or 3.6% more in males than in females in the 12-15 year old age group.

Therefore, in this age group, males show a faster development in height and weight, which pays a role in their physical appearance as well as in the development of their personality and mentality. Body mass index increases from age to age. While at age 12, the body mass index in females is 19.75 and in males 20.53, at age 15 BMI increases to 21.8 for females and 23.14 in males.

It looks like BMI index increases either because there is a lack of the physical activity as required for each age group, or because the time spent on physical activity does not change as age progresses. The gap is more obvious in female group, by 11%, and it gets wider as age progresses, especially when females reach high school age.

Conclusion

After age of puberty, females and males alike, show an increase in body weight beyond normal levels. Obese children are at a higher risk for psychosocial problems, fatty liver, orthopedic-related problems and sleep apnea (Kershnar, Daniels, Imperatore, 2006). A higher increase in obesity is noticed in females with 13% compared to 6.7% in males of the same age group, i.e. 12-15 years of age. During school age, especially after 5th grade (12 year old age group), males experience a faster anthropometric development that their female counterparts. As measured in our experimental group, males had 5.7% more body weight and 3.6% more body height compared to the female group.

The fast development in weight and height serves as a factor in the development of personality in males of this age group.Overweight and obesity are associated with a 52% and 60% increased risk, respectively, for new diagnoses of asthma among children and adolescents (Gilliland, Berhane, Islam, 2003).

Based on the results of this study, I believe that physical education classes should be incorporated as part of school curriculum at junior school level.Although the prevalence values of childhood obesity in this study are lower than those of other studies from similar settings (Chhatwal, Verma, SK. Riar, 2004; Kapil, Singh, Pathak, Dwivedi, Bhasin, 2002).This will serve as an early exposure to physical activity for our students and in time will definitely improve the health of the 12-15 year old age group. Lack of didactic measures at schools coupled with lack of sports and recreational areas are one of the main causes of obesity in males and females alike. The sedentary lifestyle of children and adolescents have been attributed mainly to television viewing, computer games, internet, overemphasis on academic excellence, unscientific urban planning and ever-increasing automated transport (Bar-Or, Foreyt, Bouchard, Brownell, Dietz, Ravussin, 1998). There is also a lack of motivation shown by parents and society in general; young people are more interested in computerized games and television; another negative factor is unhealthy eating habits, fast food and an increase in the quantity of contaminated foods. Inactivity and passive lifestyle in this age group has increased enormously and has largely contributed to the increase of obesity as a disease of our modern society. Educational institutions should design policies that help in the development of sports as an urgent preventive measure towards obesity, a threat that our society may have to face in the near future.

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Original article

THE EFFECT OF THE PHYSICAL ACTIVITY AND OTHER FACTORS ON MORTALITY IN ALBANIA FROM 1990 TO 2012

SHEHU ZYLFI[1], FERUNAJ PERPARIM[2], GALO ALPIN[3], JANO DANIEL[4]

Abstract

*Objectives.*During the last 10 years the private sector in Albania, especially in Capital of Tirana, founded proper conditions to invest a big money in hospitals and pharmacy building. The problematic situation regarding the increase of non effective deseases offered a good chance for a such business. Although these very big investments for healthcare for albanian citizens, reports from Ministry of Health periodically informed albanian population about the increase of different chronical deseases, such as Cardiovascular, type 2 diabet, different cancers and depression. The aim of this study is to analyze the impact of physical activity, nutrition, alcohol, tobacco and environment on morbidity and mortality of albanian population.

Methods. We used questionaries for 2550 male + 1678 female residents of urban cities, and 2219 male + 1840 female, inhabitants of rural areas to compare the impact of physical activity and environment on their mortality. Questions consisted to mortality age, the reason of death, the living place, the status of body weight (normal, overweight, obese), the occupation, daily activity (little, moderate, vigourous) and nutrition and were filled by their relatives.

Results. Our data showed that physical inactivity, used of tobacco, alcohol, malnutrition and poluted environment are risk factors for morbidity and mortality among old people.

Average lifespan was 69.07 years for women in rural areas while in urban areas, 61.63 years. Average lifespan was 68.09 years for men in rural areas while in urban areas 61.74 years. The percentage of the rural areas women that have died naturally was 28.95% while for women of urban areas 17.95%. The percentage of rural areas men that have died naturally was 20.55% while for men lived in urban areas, 14.96%. The others have died from heart disease, cancer, diabetes, suicide, etc.

Conclusions. Considering the data of our survey, exept other factors, the main cause of deaths was two fold 1) the influence of environment and 2) the influence of physical activity (or inactivity). Thus, old people of urban areas should be encouraged to change their behaviour and to imitate the life style of their peers living in rural areas, doing more physical activity and choosing natyral nutrition. On the other hand, public institutions should take necessary projects to make the living of old people in urban areas more healthy.

Key words: albanian population, mortality, physical activity, nutrition.

Introduction

During the last 22 years, the time period which coresponds with the change of political system from dictatorship to democracy, albanian population destribution has moved towards urban cities, with a tendency the capital, Tirana. This change has been associated with the change of lifestyle, as well. It is well known that the population living in urban cities live a more sedentary lifestyle than those living in rural area, making them prone to higher risk of premature morbidity and mortality. On the other hand, people living in rural areas are obligated to do more physical activity than those living in urban cities, just for the simple reason to provide daily nutrition. It is well known the linear doseresponse relationship between the volume of physical activity and all-cause mortality rates (I-M.Lee, Skerrett,2001; Blair, 1989). Aging is a very complex process, caused mostly from genetic, damage or gradual imbalance deteroriation (Spirduso, Francis, & MacRae, 2005).

In contrary, there is a sound of information about the influence of physical fitness in minimizing the risk of cardiovascular disease, type 2 diabetes, osteoporosis, stroke, breast cancer, colon cancer, depression, as well as disability itself (Carlson, 1999; Hubert,1993). Data from INSTAT show the average age of death for both men and women in Albania, but they do not give the reason. Although we are concious that the reason of morbidity and mortality of albanian population is a complex issue,

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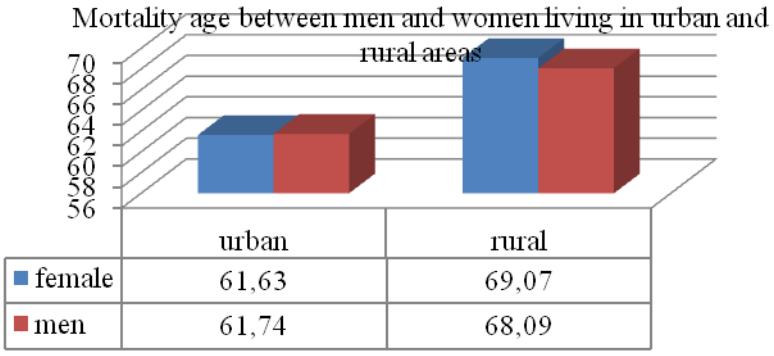
we are trying for the first time to understand in this study the influence of environment and physical activity in this matter. Culture of aging is a factor, but not the target of our study.

Methods

We used questionnary from the relatives of died people (2550 male + 1678 female residents of urban cities, and 2219 male + 1840 female, inhabitants of rural areas). The selection of Albania's cities is done rondomly, including Kukësi, Tirana, Durrësi and Korça. We used questionnaireis in both urban and rural areas. Questions consisted to mortality age, the reason of death, the living place, the status of bodyweight (normal, overweight, obese), the occupation, daily activity (little, moderate, vigourous). Nutrition, alcohol and tabacco.

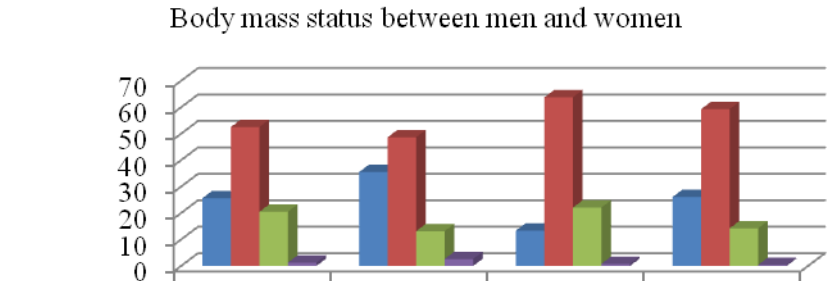
Results

The data of our investigation showed reduced age of death in persons living in urban areas and higher rates of death of sedentary people



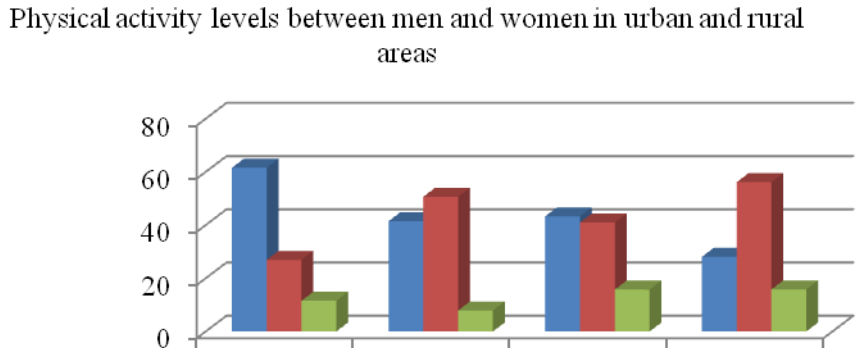
	urban	rural
female	61,63	69,07
men	61,74	68,09

Figure 1. The data show that men and women live longer in rural areas, respectively (68.09 and 69.07 years) than those living in urban cities (61.74 and 61.63 years)



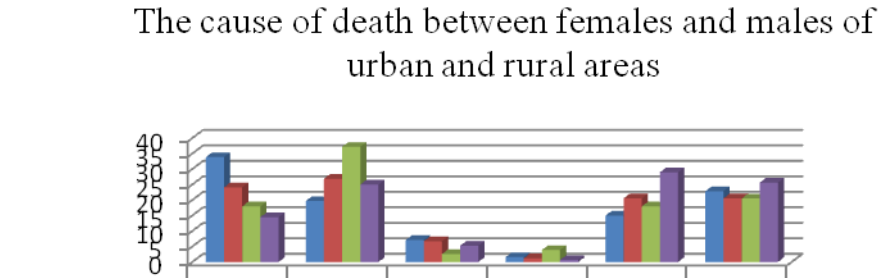
	female urban	female rural	men urban	men rural
light	25,64	35,53	13,38	26,09
normal	52,56	48,68	63,78	59,29
overweight	20,51	13,16	22,05	14,23
obese	1,29	2,63	0,79	0,39

Figure 2. In this graph. is evident that percentage of overweight men and women is higher in urban areas than rural ones, while normal weight body mass is higher in men for both urban and rural areas.



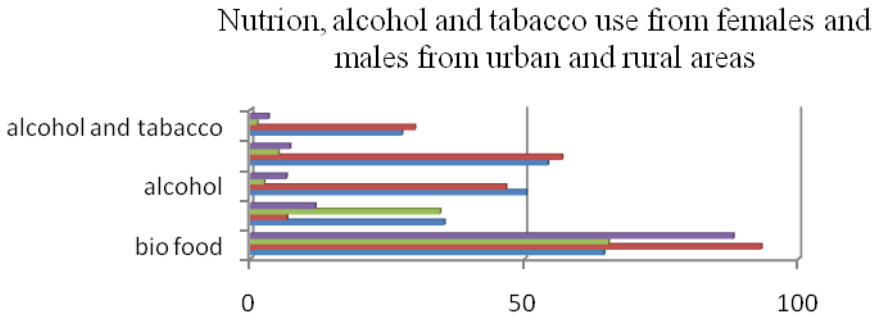
	female urban	female rural	men urban	men rural
light PA	61,54	41,45	43,31	28,06
moderate PA	26,92	50,66	40,94	56,13
vigorous PA	11,54	7,89	15,75	15,81

Figure 3. It is shown in this graph. that urban females and males have lower % of moderate PA levels, whereas in vigorous PA men for both urban and rural areas have higher percentage than women.



	cardiovascular	cancer	diabet	suicide	naturally	other deseases
men urban	33,86	19,69	7,09	1,57	14,96	22,83
men rural	24,11	26,88	6,72	1,19	20,55	20,55
female urban	17,95	37,18	2,56	3,85	17,95	20,51
female rural	14,47	25	5,26	0,66	28,95	25,66

Figure 4. It is shown in above graph that males and females of urban areas have higher percentage of death from cardiovascular diseases. The number of deaths caused from cancer are higher in urban females followed from rural males.



	bio food	processed food	alcohol	tabacco	alcohol and tabacco
female ural	88,16	11,84	6,58	7,24	3,29
female urban	65,38	34,62	2,56	5,13	1,28
men ural	93,28	6,72	46,64	56,92	30,04
men urban	64,57	35,43	50,39	54,33	27,65

Figure 5. In above graph the higher values of bio food belongs to males of rural areas, whereas in higher values of processed food use are males of urban areas. Higher percentagvge of alcohool use belongs to males of urban areas, whereas for tabacco use males of rural areas.

Discussions

After the fall of comunist system in Albania after 1990, some changes in lifestyle and food use occurred in our population. All these changes influenced directly in health status and longevity of albanian population. During this time the use of processed food was increased year after year. In addition the use of alcohool and tabacco was increased, too. On the other hand the technologic revolution during these years, especially the last 10 years, made the number sedentary people and low physical activity to increase year after year.

In fact, to our knowledge, there is no study in Albania to investigate the influence of physical activity and environment to morbidity and mortality of our population. Thus, we consider the strength of our study analising such a very important matter for public health**.** However, the weakness of the study is limited urban and rural areas population, only in Tirana, Durres, Kukes and Korca regions. Furthermore, propably this limited investigated population is the reason of decreasedd longevity of population compared to data from INSTAT, which showed the longevity 72.1 for men and 78,6 for women. In addition, the reason of our data showing the mortality age for men and woman, respectively, 65 and 65.4, can be explained of biggest percentage or our subjects of Tirana, which is known for the worst polution situations and sedentary lifestyle compared to other areas of Albania. The need of coping everyday life in rural areas is related to increased physical activity. Thus, under the psychological point of view, we consider that it is difficult to confirm higher motivation in physical activity envolvement of rural population compared to urban counterparts, because the last ones have more access to find ready food in market.

The factors influencing in death of our population are complex. As shown in graph no. 4, 33.86% of males of urban areas died from cardiovascular diseases, while for men or rural areas the percentage wase 24.11%. Compared with females of rural and urban areas, in men the number is higher. The females of urban areas was 37.18% from cancer (dominant breast cancer). Men of rural areas have higher rates of death from cancer compared to rural females. Regarding the diabet, we have lower values, respectively 7.09% to urban areas men and 2.56% to urban areas females. Considering all factors, the lowest percentage of death belongs to suicide (3.85% urban females). The interesting finding in respect of natyral causes of deaths was to rural areas females, which was 28.95%, while for men of urban areas this value was14.96%. Other diseases was the cause for death for 25.66% of rural areas females, while for urban areas femaes this number was lower.

In graph. No 5 regarding the bio food use, the highest values belong to rural areas, for both men and females respectively,93.28% and 88.16%. the use of processed food wass within men anf ffemales of urban cities, respectively 35.43% dhe 34.62%.

Conclusions

Although the complex issue of many different factors of death age in both populations, we founded that longevity of people living in rural areas was higher

than those living in urban areas. This is partly explained by environment where they live, physical activity and bio nutrition status. Although during the last 10 years the number of private hospitals and pharmacies were increased in number in Tirana, capital of Albania, this has not helped to increase longevity of its habitants. Other studies have reported that in an urban society a wide variety of physical, social, and economic factors exhibit interrelationships while also affecting the health of residents (Breeze, 1999; Takano 2001). Data from our study show that the predominant factor to increase longevity is not the improvement of technology and health care of citizens of urban cities (increase in number for hospitals and pharmacies) but the environment and physical activity level and education level of individual to understand the benefits of active lifestyle. Thus, people living in rural areas, showed the level of physical activity higher than those living in urban cities, a factor that can be related with body mass status. In addition, it is well known that the food consumed is more contaminated in urban residents than rural ones. The growing population in urban cities in Albania, especially in Capital of Tirana, was associated with increased cars and buildings and food requirements. This situation has caused environmental hazards such as pollution and food contaminants, which increase the risk of cancer, heart disease, asthma, and many other illnesses. In addition, this urbanisation of the cities brings about a sedentary lifestyle, the key risk of premature morbidity and mortality (Blair ,1989). A sound information exists today about the factors of aging, such as biological, including the damage of DNA, associated with diet, lifestyle, pollution, radiation and other outside influences (Panno, 2005). It is well known that prevention of desease is more helpful than curing to improve the longevity and data from our study can be used from different state organisations and institutions responsible for public health to sensitize population for high values of physical activity and environment for the prevention of chronic deseases, and as consequence, for their higher longevity.

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Original article

RELATIONSHIPS BETWEEN QUICKNESS AND SPEED PERFORMANCE IN AMPUTEE FOOTBALLERS

TASKIN MINE [1], TASKIN CENGIZ [3], KAPLAN TURGUT [2], TASKIN HALIL [2]

Abstract

Problem statement.Nowadays, rehabilitation of individuals with disabilities includes many sports activities such as soccer and basketboll. The purposes of this study were to examine relationships between quickness and speed performance in amputee footballers.

Methods.Ten amputee footballers volunteered to participate in this research. The mean (SD) age was 25,80±4,32 years, high was 1,77±0,09 m, and body weight was 69,90±10,337 for the 10 amputee footballers; the mean (SD) quickness was 1,18±0,10 second and speed was 5,27±0,37 second the for amputee footballers. We applied a testing procedure that included measurements of the quickness and speed. Photocells were placed at the start, 5 m (quickness), and 30 m (speed) in order to collect sprint times over the 2 distances.

Results.A significant positive correlation existed between quickness with speed ($r = 0,645$; $P<0,05$).

In conclusion, when amputee players have highest output speed, they can more success in speed. Speed effected output speed (quickness).

Key words: Amputee, velocity, speediness, soccer.

Introduction

Speed and quicknes are important components of sport performance. Speed and quickness training is perfect for seniors because it will condition fitness aspects that are generally lost with age-speed and quickness (Miller et al. 2001).

Quickness is considered both a multidirectional skill that combines explosiveness, reactiveness, and acceleration and agility while incorporating flexibility, strength, and neuromuscular coordination by allowing the athlete to move at a higher rate of speed (Brown and et al. 2000).

Soccer is one of the most widely played sports in the world and is a sport characterized by short sprints, rapid acceleration or deceleration, turning, jumping, kicking, and tackling (Arnason et al. 2004; Bangsbo and Michalsik 2002; Harris and Reilly 1998; Wisloff et al. 1998).

Elite soccer is a complex sport, and performance depends on a number of factors, such as physical fitness, psychological factors, player technique, and team tactics (Rösch et al. 2000).

Furthermore, elite players are mostly characterized by reaction ability in the distances ranging from 5 to 10 m (Sporis et al. 1953).

İndividuals with disabilities, such as lower-extremity amputees and those with spinal cord injury are at an increased risk of cardiovascular disease as a major cause of premature death, which is due to lack of physical activity and a sedentary lifestyle (Devivo et al. 2002; Devivo et al. 1992). An amputee has to wear a prosthesis to walk, but the energy expenditure required to walk with a prosthesis is far higher than that required for an able-bodied person.

The higher the level of amputation, the greater the energy demand (Gailey et al. 1994; Waters et al. 1976; Gonzalez et al. 1974). Nowadays, rehabilitation of individuals with disabilities includes many sports activities such as soccer, basketboll, table tennis. Amputee football (soccer) may seem difficult for a unilateral amputee, but in many countries there is an amputee football federation with its own league.

In amputee football, matches are played between teams of seven players using bilateral crutches. Wearing a prosthetic device is not allowed during match play. For competition in such a condition, players need good conditioning, muscle strength, and coordination of the extremities (Yazicioglu et al. 2007).

We can find no published literature on functional performance which is named, quickness and speed in amputee football. Therefore, the purposes of this study were to examine relationships between quickness and speed performance in amputee footballers.

Material and method

The purposes of this study were to examine relationships between quickness and speed

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performance in amputee footballers.

Ten amputee footballers volunteered to participate in this research. The mean (SD) age was 25,80±4,32 years, height was 1,77±0,09 m, and weight was 69,90±10,37 kg for the 10 amputee footballers. We applied a testing procedure that included measurements of the quickness and speed. Before conducting the investigation, all players were informed of the risks of the study and gave informed consent.

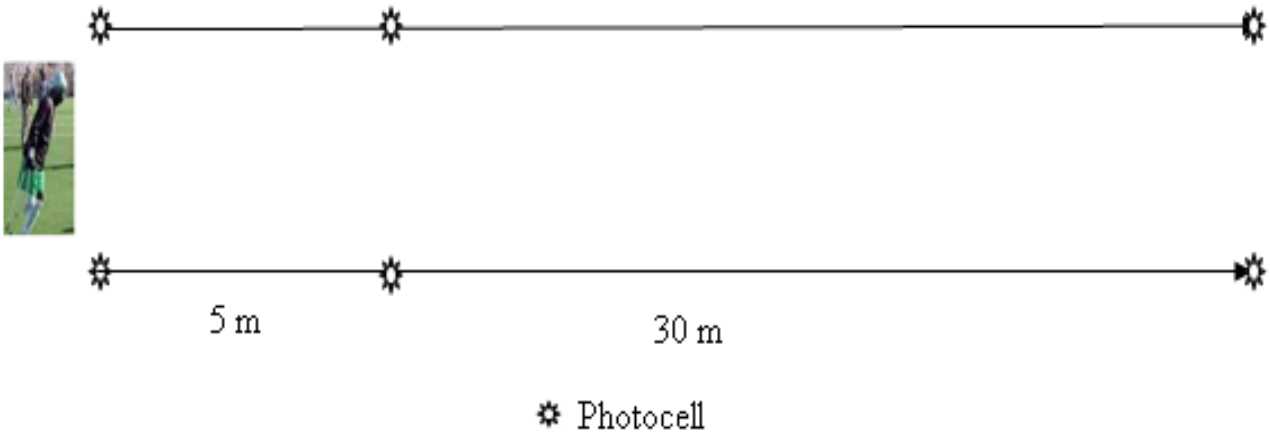
The study was approved by an ethics board and met the conditions of the Helsinki Declaration. Each test was applied three times, with a 3-minute interval, and the best result was recorded. At the beginning of each session, all players, completed a 10 minute dynamic warm-up consisting of jogging, dynamic stretching and submaximal sprints.

Automated timers, cone, and tape measure for distance were used. Timing of all repetitions was measured by an electronic timing system. The beam was set at a height of 0.5 meters above the start/finish line. Players' height is measured with an instrument sensitive to 1 mm. Their body weight is measured with a weigh-bridge sensitive up to 20 g while they are dressed in only shorts (and no shoes). Height variable is in terms of meters, and body weight variable is in terms of kilograms.

Quickness and speed tests

Photocells were placed at the start, 5 m (quickness), and 30 m (speed) in order to collect sprint times over the 2 distances. The starting position was standardized for all players. Players started the approximately 30 cm back from the starting line.

All players wore rubber-soled track shoes. Therefore, Quicness was evaluated for 5-m. Speed was evaluated for 30-m test. Test was applied three times, with a 3-minute interval, and the best result was recorded for statistical analysis.



Statistical Analysis

We summarized the data and evaluated the means and standard deviations. The better of 3 trials was used for analysis for each test. Relationships between quickness and speed was then determined by Pearson correlations. An alpha level of 0.05 was used for all analyses. Statistical analyses were conducted in SPSS 16.

Results

Table 1. Stature characteristics of the amputee footballers and performance

	N	Mean	Std. Deviation
Age (year)	10	25,80	4,32
Height (m)	10	1,77	0,09
Body weight (kg)	10	69,90	10,37
Quickness (s)	10	1,18	0,05
Speed (s)	10	5,27	0,37

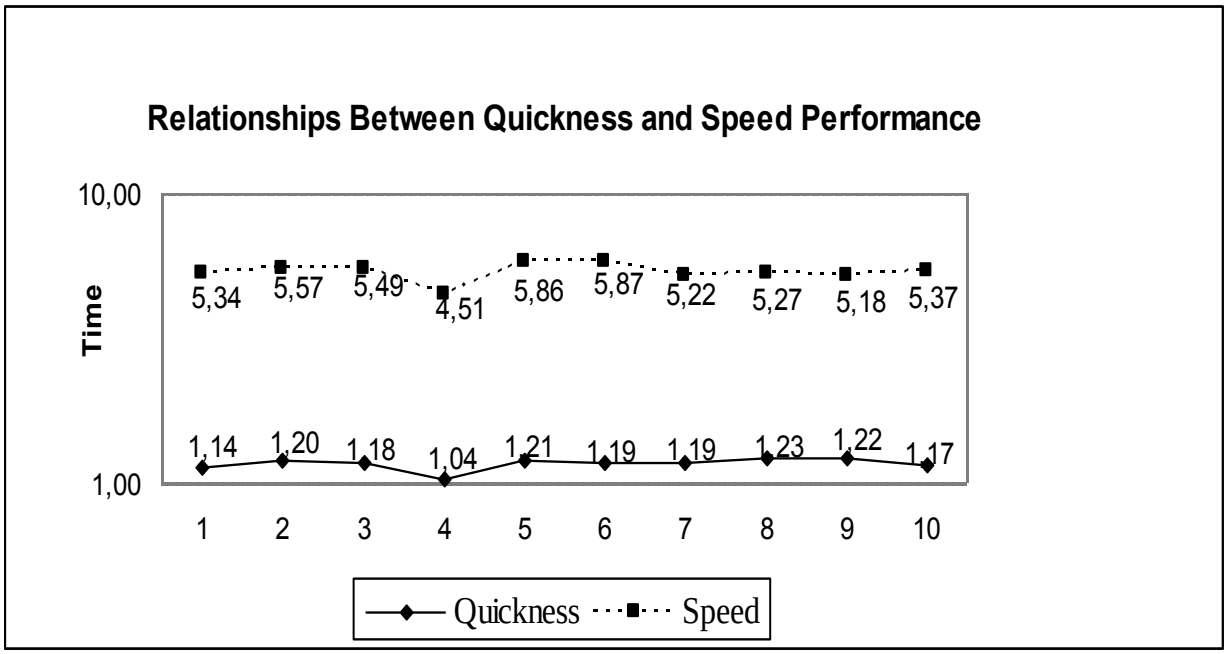
The mean (SD) age was 25,80±4,32 years, high was 1,77±0,09 m, and body weight was 69,90±10,337 for the 10 amputee footballers; the mean (SD) quickness was 1,18±0,10 second and speed was 5,27±0,37 second the for amputee footballers.

Table 2. Bivariate correlations for quickness and speed variables.

		Quickness
Speed (s)	R	0,645*
	P	0,044
	N	10

*P<0,05

Performance results are shown in Table 2. A significant positive correlation existed between quickness with speed (r = 0,645; P<0,05).



Dıscuss

The purpose of the present study was to examine relationships between quickness and speed performance in amputee footballers.

A significant positive correlation existed between quickness and speed (r = 0,645; P<0,05).

Keogh et al. (2009) analyzed a range of anthropometric flexibility and muscular strength measures of low and high handicap players (0.3±0.5 and 20.3±2.4 respectively), reporting that a golf-specific cable wood chop displayed the highest overall association (r = 0.70) with club head speed.

The importance of trunk rotary strength and power has been highlighted previously, with lower handicap players (<0) displaying significantly greater (p<0.001) hip and torso strength than higher handicap players (10–20,25), with the majority of work done on the golf shaft generated from the torso (Nesbit and Serranno 2005).

It has been established in previous studies that physical fitness test data collected from individuals with intellectual disabilities have a high test-retest reliability (r = 0.80) (13,36), and as such, their results can be trusted, repeated, and respected (Barwick et al 2012).

Spearman product-moment correlation coefficients shows significant positive correlation between speed (20 m, 30 m) and quickness (10 m sprint), values of correlation range from r=0.679 to r=0.962 (Sporiš et al. 2011).

In contrast to the results of our research, no significant correlation was found between speed and quickness in a research paper (Young et al. 1996).

A study investigated the relationship between body composition, anaerobic performance and sprint performance of amputee soccer players.

A significant correlation was found between counter movement jump, relative counter movement jump, squat jump, 10 m, 20 m and 30 m sprint performance (P<0,05) (Ozkan et al. 2012).

Little and Williams (2005) found that acceleration for 10 m is 1,83±0,08 s for professional soccer players.

The performances on the 10-m test for acceleration, the flying 20-m test for maximum speed, and the zigzag test for agility were all correlated at high levels of statistical significance (p<0.0005).

In conclusion, when amputee players have highest output speed, they can more success in speed. Speed effected output speed (quickness).

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Original article

EVALUATE THE PHYSİCAL FİTNESS LEVELS OF TURKİSH PRİMARY SCHOOL MALE AND FEMALE CHİLDREN BETWEEN 7-14 AGES

YÜKSEL OĞUZHAN[1], TAMER KEMAL[2], ÇALIŞKAN GÖKHAN[2]

Abstract

Objective. The purpose of this study was to determine and evaluate the physical fitness levels of Turkish primary school male and female children between 7-14 ages.

Method: 1955 female and 2044 male, totally 3999 students participated in this study on a voluntary basis. Height and weight were measured and subjects performed vertical jump test, sit-and-reach test and 30 seconds sit-up tests. 800 meter run and walk test for 7-11 age groups, 1600 meter run and walk test for 12-14 age groups were carried out. The data obtained from the subjects were primarily analyzed through descriptive statistics by gender and age groups, and percentage (percentiles) values were calculated between a very good-very low range. Furthermore, Two-Way ANOVA was used to analyze whether the data differentiate gender and age groups and to compare both gender-related characteristics of the same age; and One-Way ANOVA was used to determine the differences among the age groups for the same gender. Significance level has been recognized at $p<0.05$.

Results: Rapid increases in height were observed in females 9- 12, in vertical jump 11-13, in flexibility 10-12 and in sit-up 9-12 years old. While a rapid increase in height was observed in males between 9-10 and 12-14, in vertical jump between 10-14, in sit-up 9-11, decrease on flexibility was observed 9-13 years old. In this study through analysis of gender-based differences depending on age factor. The results showed significant differences between male and female student's body weight, 800- 1600 meter run-and-walk, vertical jump and 30 seconds sit-up values in favor of males($p <0.001$).

Conclusion: When all the consequences of the research evaluated, the sharp increases were observed in female student's performance at earlier ages compared with male students. On the other hand, it was determined that endurance, vertical jump and sit-up values of males were higher than the females.

Key words: primary school student, physical fitness.

Introductıon

Being inactive in daily life and changing eating habits lead to rise in incident of obesity, a current problem of our era, in all age groups. It causes wasting more time by children and adolescents such sedater activities as watching T.V, sitting in front of computer screen, playing video games in internet cafes. Growth of children depends on genetic factors, biological age, nutrition and ecological environment. Growth may be affected with regard to intensity of physical activities. Increase in intensity of physical activities in puberty and subsequently, variation in growth rate during pubertal period bring about physiologic and physical alterations. Monitoring these alterations is obtained by using physical fitness test batteries. The strength of heart- respiratory systems, muscular force and its strength, body shape and elasticity take place within the scope of physical fitness associated with health. Monitoring children's physical fitness also contributes to the preventative services of health agencies. Physical fitness and its tests reflect the relationship among the health, sport and physical activity.

The importance of schools is increasing in terms of the comprehensive evaluation of levels of physical fitness and physical activity with children and adolescents. As more and more people are evaluated, the criteria used for evaluating physical activities of children in schools may differentiate. In order to make evaluations qualified and to increase their inevitability, many countries, from past to present have worked on standardization for the purpose of determining the physical features of their own societies. Standardization studies are used in quite a few areas. The necessity of creating selection criteria for determining athletic abilities and studies on foundation in sports branches has enhanced normative studies upon children. Yet, owing to excessive physical activity intensity for school age children, rather than selecting their abilities, implementation of tests have role in scanning physical convenience at intervals and in planning new activities according to these results. AAHPERD Physical Best (U.S.A), Fitnessgram-Activitygram (Fitness Test Battery) (U.S.A), Fit Youth Today (U.S.A) ; CAHPER Fitness Performance Test II (Canadian Health, Physical education and Recreation Union) (Canada) President's Challenge (Presidential, National, or Participant Physical Fitness Award) U.S.A), Eurofit (Europe Physical Fitness Test) (Europe) tests are used within the scope of physical fitness.

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Method

Research Group:3999 voluntary human subjects that consist of 1955 female at the age of (n= 1955) (age 7 ;257, age 8;250,age 9 ;249, age 10 ; 235,age 11 ;247, age 12 ; 252, age 13 ;239,age 14 ;226) and 2044 male at the age of (n=2044) (age 7 ;243, age 8; 250,age 9 ;251, age 10 ;265,age 11 ; 252, age 12 ;248,age 13 ;261, age 14 ;274) took part in this study . In the first step, by making written and verbal explanation to the individuals incorporating in study got the individuals' parents to fill the 'voluntary countenance form'. Decision was taken by Osman Gazi Faculty of Medicine Ethics Committee with the 2012/282 resolution number as there is not any ethic inconvenience to carry out this study and students participated in this study on a voluntary basis.

In the interviews the ages of human subjects were determined as day, month, and year according to their official registry. The height measurements of human subjects were measured with Holtain Limited height measurement device while they were resting with bare feet (Sensibility 0.01m). On the other hand body weights just with short and t-short were weighed with Angel electronic weighting machine (Sensibility 0.01 kg). In the human subjects' vertical jumping tests Takai jump meter was used. Each measurement was repeated three times and the best result was saved. For the human subjects' 30 seconds sit-up tests 1/1000 sensibility timekeeper was used. The number of sit-up exercises that were repeated by subjects was saved on verse form. The elasticity measurement of subjects was measured through sit and reach tests. They stayed for 1-2 seconds in the maximum extent position. Repeating the test twice, the higher measurement score was saved . The durability of subjects, the smoothness of the surface and the length of the race track as 800 or 1600 m were determined. Racetrack length and surface features were the same for all human subjects. Students from 1.2.3.4.5 grades (age 7,8,9,10,11) started running on 800 m bowless suitable race track with Ready and Go! instruction, students from 7.8. and 9 grades (age 12,13,14) started running on 1600 m bowless suitable race track with Ready and Go! instruction . 1/1000 sensibility Casio timekeeper was used for the test. Students were free to run, jog or walk. In addition, because the aim was completed the race as quickly as possible, they were constantly motivated orally in order to run and to adjust their running speed. Test results were saved as minute and second. Moreover start and finish points were determined with signs (Cone etc.).

Data Analysis: In the analysis of data firstly according to human subjects age groups; average, standard deviation, minimum and maximum degrees of anthropometric (height, weight) and bio motor features (vertical jump, 30 seconds body sit-up and reach, 800-1600 meter jog and run test) were calculated. In order to examine whether the data obtained from human subjects were separated in terms of their sex and age groups, bilateral variant analysis which is to compare to features of different sexes at the same age groups (Two-way ANOVA) and one-way variant analysis which is to determine differences among the same sex age groups (One-way ANOVA) were done. When meaningful differences were obtained, supplementary test Tukey was used. As an end, so as to figure out anthropometric and bio motor norms of 7-14 age groups male and female students which is the main goal of the research, raw marks and marks out of 100 were calculated. In point of calculating raw marks as percentage point, Z marks were converted into T marks. As a result of this students' norm degrees were determined as quite low (0-20), low (21-40), medium (41-60), well (61-80), quite well (81-100) percentage points. SPSS 20.0 packet program was used for analyzing data. In the point of interpreting statistic process 0.05 was accepted as meaningfulness level.

Fındıngs

(Table 1. According to age groups human subjects Height Rates) Students' sex [$F_{1,3983}$ =26.225, p <0,001] and age differences affect their heights [$F_{7,3983}$= 2320,906 ; p< 0,001]. Analysis results have also shown that sex and age differences have a common effect on students' statures degrees [$F_{7,3998}$ = 9,875, p< 0,001]. According to these results male students obtained higher stature degrees in meaningful level than female students at the age of 7, 8, 10, 14. It has been shown 11, 12, 13 years old female students' stature degrees average is higher than male students. (Table 2. According to age groups human subjects Weight Rates) While students' sexes didn't affect their weight [$F_{1,3983}$ =251, p > 0,05] age factors did [$F_{7,3983}$ = 899,994, p<0,001]. Analysis results have also shown sex and age factors have an effect on body weight in common [$F_{7,3998}$ = 6,738, p< 0,001]. According to these results among male and female students for all age groups but age 12, we couldn't obtain any considerable differences in terms of body weight averages.

(Table 3. According to students' age groups Long Distance Degrees) 7-11 years old students' sex [$F_{1,2489}$ =212,745, p<0,001] and age differences affect 800 meter jog & run degrees [$F_{4,2489}$ =41,805, p<0,001]. Analysis results have also shown sex and age factors have an effect on students long distance degrees in common [$F_{4,2498}$ = 9,804, p> 0,01]. According to these results boys at the age of 7,8,9,10 and 11 obtain considerable high 800 m jog& run degrees in comparison with girls. High degree term is defined as finishing 800 m jog& run test more quickly than others. 12-14 years old students' sex [$F_{1,1494}$ = 188,559, p< 0,001] and age differences affect 1600 meter jog& run degrees [$F_{2,1494}$ = 4,009, p<0,05]. Analysis results have also shown sex and age factors have an effect on students' 1600 meter jog& run degrees in common [$F_{2,1499}$ = 5,109, p< 0,01].

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According to these results when boys are 12,13,14 years old, they obtain considerable high 1600 meter jog& run degrees in comparison with female students. High degree term is defined as finishing 800-1600 m jog& run test more quickly than others.

(Table 4. According to Students' Ages Averages of Vertical Jump and Standard Deviation Degrees) Students' sex [$F_{7,3983}$ =329,586, p<0,001] and age differences affect jump degrees [$F_{7,3983}$=394,433, p<0,001]. Analysis results have also shown sex and age factors have an effect on students' jump degrees in common [$F_{7,3999}$ = 10,082, p< 0,001]. According to these results, male students at all age groups except age 11 obtain considerable high jumping rates in comparison with female students.

(Table 5. According to Students' Ages Average Elasticity Degrees and Standard Deviation Degrees) Students' sex [$F_{1,3983}$ =55,977, p<0,001] and age differences affect elasticity degrees[$F_{7,3983}$=6,900, p<0,001]. Analysis results have also shown sex and age factors have an effect on students' elasticity degrees in common [$F_{7,3999}$ = 7,381, p< 0,001]. According to these results, it is understood that considerable differences of elasticity degrees among female and male students are in favour of female students beginning from 12 years old.

(Table 6. According to Students' Age Average 30 sec. Sit-up Degrees and Standard Deviation Degrees) Students' sex [$F_{1,3983}$ =215,284 p<0,001] and age differences affect sit-up degrees[$F_{7,3983}$= 90,850, p<0,001]. Analysis results have also shown sex and age factors have an effect on students' elasticity degrees in common [$F_{7,3999}$ = 10,810, p< 0,001]. According to these results, while there is not any considerable difference at the age of 8 and 11, among 14-13-11-10-9-7 ages, male students obtain higher sit-up degrees in comparison with female students.

Table 1. According to age groups human subjects Height Rates (cm)

Sex	Age	n	Avr.	ss	Min	Max	Percentage										
							Rather Low			Low		Medium		Well		Quite well	
							5	10	20	30	40	50	60	70	80	90	95
Female	7	257	120,3	4,7	108,0	137,0	113,0	114,0	116,0	118,0	119,0	120,0	122,0	123,0	124,0	126,0	127,0
	8	250	a*** 123,4	5,2	110,0	140,0	116,0	118,0	119,0	120,0	122,0	123,0	124,0	126,0	127,8	130,0	133,0
	9	249	b*** 130,8	5,7	116,0	144,0	122,0	123,0	126,0	128,0	129,0	131,0	132,0	134,0	136,0	138,0	140,0
	10	235	c*** 136,1	5,8	120,0	152,0	127,0	129,0	131,0	133,0	135,0	136,0	137,0	139,0	141,0	143,0	146,0
	11	247	d*** 143,0	7,2	123,0	162,0	132,0	134,0	136,0	139,0	141,0	143,0	145,0	147,0	150,0	153,0	155,0
	12	252	e*** 150,9	7,5	130,0	169,0	140,0	141,0	144,0	146,0	149,0	151,0	153,0	155,0	158,0	160,7	163,0
	13	239	f*** 154,2	5,6	135,0	170,0	145,0	147,0	150,0	152,0	153,0	154,0	155,0	157,0	159,0	161,0	163,0
	14	226	g*** 157,2	5,7	141,0	173,0	148,0	150,0	153,0	154,8	156,0	157,0	158,0	160,0	162,0	165,0	167,0
Male 7* 8** 10** 14***	7	243	122,3	5,1	108,0	131,0	114,0	115,0	118,0	119,0	121,0	123,0	124,0	125,0	127,0	129,0	130,0
	8	250	a*** 125,9	5,4	115,0	150,0	119,0	120,0	121,0	123,0	124,0	125,0	126,6	128,0	130,0	133,0	135,5
	9	251	b*** 131,6	6,1	118,0	155,0	122,0	124,0	126,0	128,0	130,0	131,0	133,0	134,0	136,0	140,0	143,4
	10	265	c*** 138,7	6,7	118,0	162,0	129,0	130,0	133,0	135,0	137,0	138,0	140,0	141,0	144,0	148,0	150,7
	11	252	d*** 142,8	6,4	128,0	164,0	131,7	135,0	137,0	140,0	141,0	143,0	144,0	146,0	148,0	151,0	154,0
	12	248	e*** 149,1	6,4	132,0	165,0	139,0	141,0	144,0	145,0	147,0	149,0	151,0	153,0	155,0	157,0	159,0
	13	261	f*** 153,5	8,1	134,0	176,0	140,0	144,0	146,0	149,0	152,0	154,0	156,0	158,0	160,0	164,0	168,9
	14	274	g*** 160,3	8,3	135,0	178,0	145,0	149,0	154,0	156,0	158,0	160,0	163,0	165,0	168,0	170,0	173,3

Table 2. According to age groups human subjects Weight Rates (kg)

Sex	Age	n	Avr.	ss	Min	Max	Percentage										
							Rather Low			Low		Medium		Well		Quite well	
							5	10	20	30	40	50	60	70	80	90	95
Female 12**	7	257	23,3	3,6	15,0	35,0	18,0	19,0	20,0	21,0	22,0	23,0	24,0	25,0	26,0	29,0	30,0
	8	250	25,0	4,4	18,0	50,0	20,0	20,0	21,0	22,0	23,0	24,0	25,0	26,0	28,0	30,0	33,4
	9	249	b***29,2	5,1	19,0	50,0	22,0	23,0	25,0	26,0	28,0	29,0	30,0	31,0	33,0	36,0	38,5
	10	235	c***33,3	7,2	22,0	68,0	24,0	25,0	27,0	29,0	30,0	32,0	34,0	36,0	39,0	43,0	46,0
	11	247	d***37,2	7,4	24,0	65,0	28,0	29,0	31,0	33,0	34,0	36,0	38,0	39,6	43,0	48,0	52,0
	12	252	e***45,6	10,3	26,0	92,0	33,0	34,0	37,0	39,0	42,0	44,0	47,0	50,0	53,0	59,0	63,0
	13	239	f**48,5	9,5	30,0	88,0	36,0	38,0	42,0	43,0	45,0	46,0	48,0	51,0	56,0	60,0	68,0
	14	226	g***52,4	9,8	31,0	87,0	38,3	42,0	45,0	46,0	48,0	51,0	53,0	56,2	59,0	65,4	72,0
Male	7	243	24,7	3,8	18,0	39,0	19,0	20,0	21,0	22,0	24,0	25,0	26,0	27,0	28,0	29,0	31,8
	8	250	a*27,1	5,0	19,0	48,0	21,0	22,0	23,0	25,0	25,0	26,0	27,0	28,0	29,8	33,0	38,0
	9	251	b*29,5	5,2	20,0	57,0	22,0	24,0	25,0	27,0	28,0	29,0	30,0	31,0	33,0	35,0	38,4
	10	265	c***34,5	8,6	22,0	77,0	25,0	26,0	29,0	30,0	31,0	33,0	35,0	36,0	38,0	43,4	51,4
	11	252	d**37,3	7,7	23,0	69,0	28,0	30,0	32,0	33,0	34,2	36,0	38,0	40,0	41,4	46,0	51,7
	12	248	e***42,8	9,0	29,0	74,0	32,0	33,0	34,0	37,0	39,0	41,0	44,0	46,0	50,0	55,0	62,5
	13	261	f***46,6	9,8	28,0	85,0	34,0	36,0	39,0	41,0	43,0	45,0	47,0	50,0	53,0	59,8	64,8
	14	274	g***50,9	9,7	32,0	83,0	36,8	39,0	42,0	45,0	47,0	50,0	53,0	56,0	59,0	63,5	68,0

Table 3. According to students' age groups Long Distance Degrees (min/sec)

Sex	Age	Distance	n	Avr.	ss	Percentage										
						Rather Low			Low		Medium		Well		Quite Well	
						5	10	20	30	40	50	60	70	80	90	95
Female	7	800 m.	257	5,36	,18	6,12	6,06	6,0	5,36	5,30	5,30	5,24	5,24	5,18	5,12	5,06
	8	800 m.	250	5,30	,18	6,12	6,06	6,0	5,30	5,30	5,30	5,24	5,18	5,18	5,12	5,06
	9	800 m.	249	5,30	,36	6,18	6,12	6,0	5,36	5,30	5,30	5,24	5,18	5,12	4,36	4,24
	10	800 m.	235	5,36	,30	6,18	6,06	6,0	5,36	5,30	5,24	5,24	5,18	5,18	5,06	5,0
	11	800 m.	247	d***5,18	,30	6,12	6,0	5,36	5,30	5,24	5,18	5,12	5,06	5,06	4,30	4,24
	12	1600 m.	252	11,18	1,18	14,12	13,54	12,18	11,30	11,18	11,06	10,36	10,24	10,18	10,06	9,30
	13	1600 m.	239	11,48 f**	2,0	15,24	14,36	13,12	12,18	11,30	11,18	11,12	10,36	10,12	9,36	9,24
	14	1600 m.	226	g**11,18	1,54	15,54	14,30	13,12	11,18	10,30	10,24	10,18	10,12	10,06	9,36	9,24
Male 7***,8***	7	800 m.	243	5,18	,24	6,06	6,0	5,30	5,30	5,18	5,18	5,12	5,06	5,06	4,36	4,30
	8	800 m.	250	5,18	,24	6,06	5,36	5,30	5,24	5,18	5,12	5,12	5,06	5,06	4,36	4,30
	9	800 m.	251	5,24 b**	,30	6,12	6,06	5,48	5,30	5,24	5,24	5,18	5,12	5,12	5,06	4,30
	10	800 m.	265	c***5,12	,36	6,18	6,0	5,30	5,24	5,18	5,12	5,06	5,06	5,0	4,24	4,12
	11	800 m.	252	d***4,54	,36	6,0	5,24	5,18	5,12	5,06	5,06	5,0	4,24	4,12	4,06	4,06

9**,10**	12	1600 m.	248	10,30	1,12	13,18	11,30	11,06	10,36	10,30	10,24	10,18	10,12	10,0	9,12	8,30
11***,12***	13	1600 m.	261	10,24	1,12	12,24	11,36	11,12	11,0	10,24	10,18	10,06	9,48	9,24	9,12	8,24
13***,14***	14	1600 m.	274	10,18	1,24	12,36	12,06	11,12	10,30	10,18	10,06	10,06	9,36	9,30	8,48	8,24

Table 4. According to Students' Ages Averages of Vertical Jump and Standard Deviation Degrees (cm)

Sex	Age	n	Avr.	ss	Percentage										
					Rather Low			Low		Medium		Well		Quite Well	
					5	10	20	30	40	50	60	70	80	90	95
Female	7	257	21,2	5,5	12,0	14,0	16,0	18,0	20,0	21,0	22,0	24,0	26,0	29,0	30,0
	8	250	22,2	5,5	13,0	15,0	18,0	19,0	21,0	22,0	23,6	25,0	27,0	29,0	31,0
	9	249	b ***24,4	4,4	18,0	19,0	20,0	21,0	24,0	24,0	25,0	27,0	28,0	30,0	32,0
	10	235	c***28,2	6,7	17,8	20,0	22,0	25,0	26,4	28,0	30,0	32,0	34,0	37,0	39,0
	11	247	d***31,5	6,3	22,0	25,0	26,0	27,0	29,0	30,0	33,0	34,0	36,4	39,2	43,6
	12	252	31,3	6,1	21,0	23,0	26,0	28,0	30,0	31,0	33,0	34,0	37,0	39,0	42,0
	13	239	f***35,1	6,7	24,0	26,0	29,0	31,0	33,0	35,0	37,0	39,0	40,0	43,0	46,0
	14	226	33,8	7,0	22,0	24,0	27,2	30,8	32,0	34,0	36,0	38,0	39,0	42,0	46,0
Male 7***,8***, 9***,10*** 12***,13*** 14***	7	243	24,1	6,3	13,0	15,0	18,0	21,0	23,0	25,0	26,0	27,0	29,0	32,0	34,0
	8	250	25,2	5,9	14,6	17,0	20,2	22,0	24,0	25,0	27,0	28,7	30,0	32,9	35,0
	9	251	b***27,9	4,7	20,0	22,0	24,0	25,0	27,0	28,0	29,0	30,4	32,0	34,0	36,0
	10	265	c***31,1	7,6	19,0	21,0	25,2	27,0	29,0	31,0	34,0	35,0	38,0	40,4	43,0
	11	252	d*33,1	6,3	23,0	25,0	27,0	29,0	31,0	33,0	34,0	37,0	39,0	41,0	45,0
	12	248	e**35,6	5,9	25,0	28,0	30,0	33,0	34,0	36,0	37,0	39,0	41,0	43,0	44,0
	13	261	f***38,5	7,4	25,0	29,0	32,0	35,0	37,0	39,0	40,0	42,0	44,0	48,0	50,9
	14	274	g***41,7	9,3	25,8	30,0	34,0	38,0	39,0	41,0	44,0	47,0	50,0	54,0	57,0

Table 5. According to Students' Ages Average Elasticity Degrees and Standard Deviation Degrees (cm)

Sex	Age	n	Avr.	ss	Percentage										
					Rather Low			Low		Medium		Well		Quite Well	
					5	10	20	30	40	50	60	70	80	90	95
Female 12*** 13** 14***	7	257	19,2	5,4	10,0	12,8	15,0	17,0	18,0	19,0	20,0	22,0	24,0	26,2	28,1
	8	250	19,5	5,4	10,0	13,0	16,0	17,0	18,0	19,5	21,0	22,0	24,0	27,0	28,0
	9	249	17,7 b**	4,8	10,0	11,0	14,0	16,0	16,0	18,0	20,0	21,0	22,0	24,0	24,5
	10	235	19,1	5,5	9,0	12,0	15,0	16,0	18,0	20,0	20,0	22,0	23,0	26,0	28,0
	11	247	19,0	5,5	10,0	12,0	15,0	16,0	17,0	18,0	20,0	21,0	23,4	27,0	29,6
	12	252	e**20,9	6,1	10,7	13,0	16,0	18,0	20,0	20,5	22,0	24,0	26,0	29,0	32,0
	13	239	19,1 f*	6,3	10,0	10,0	14,0	16,0	17,0	18,0	21,0	23,0	25,0	28,0	30,0
	14	226	20,7	6,6	10,0	13,0	14,2	16,8	18,0	20,0	22,0	24,0	27,0	30,0	33,0
	7	243	19,4	4,8	11,0	13,0	16,0	18,0	18,0	20,0	21,0	22,0	23,0	25,0	26,8
	8	250	19,2	4,6	11,0	13,1	15,0	17,0	18,0	20,0	20,0	22,0	23,0	25,0	26,4

Male	9	251	18,1	4,9	10,0	12,0	14,0	16,0	17,0	18,0	19,0	20,0	22,0	24,0	26,0
	10	265	18,0	5,5	9,0	10,6	13,0	15,0	17,0	18,0	20,0	21,0	23,0	25,0	26,7
	11	252	17,4	5,4	10,0	10,0	13,0	15,0	16,0	17,0	18,0	20,0	22,0	24,0	26,3
	12	248	17,7	6,7	8,0	10,0	13,0	14,0	15,0	16,5	19,0	20,0	22,2	25,0	30,5
	13	261	16,9	5,3	8,0	10,0	13,0	14,0	15,0	17,0	18,0	20,0	21,6	24,0	26,0
	14	274	18,1	5,9	9,0	10,0	13,0	15,0	17,0	18,0	20,0	21,0	23,0	25,0	28,3

Table 6. According to Students' Age Average 30 sec. Sit-up Degrees and Standard Deviation Degrees.

Sex	Age	n	Avr.	ss	Percentage										
					Rather Low			Low		Medium		Well		Quite Well	
					5	10	20	30	40	50	60	70	80	90	95
Female	7	257	14,2	3,6	8,0	10,0	11,0	12,0	13,0	14,0	15,0	16,0	17,0	19,0	20,0
	8	250	15,2	3,4	9,0	11,0	12,0	14,0	14,0	15,0	16,0	17,0	18,0	19,9	20,4
	9	249	16,2	3,6	11,0	12,0	13,0	14,0	15,0	16,0	17,0	18,0	19,0	21,0	23,0
	10	235	16,0	4,6	8,0	10,0	12,0	14,0	15,0	16,0	17,0	18,0	19,0	21,4	24,2
	11	247	^{d*}17,3	4,0	10,4	12,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	22,0	25,0
	12	252	^{e**}18,8	4,5	11,0	13,0	16,0	17,0	18,0	18,0	19,8	21,0	22,0	25,0	26,0
	13	239	17,2 ^{f**}	4,5	10,0	11,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	23,0	25,0
	14	226	17,1	4,4	10,0	12,0	14,0	15,0	16,0	17,0	18,0	19,0	21,0	22,4	24,0
Male 7** 9* 10** 11*** 13*** 14***	7	243	15,7	3,5	10,0	11,0	13,0	14,0	15,0	15,0	17,0	18,0	19,0	20,0	21,0
	8	250	15,4	3,4	10,0	11,0	13,0	14,0	15,0	15,0	16,0	17,0	18,0	19,0	21,0
	9	251	^{b***}17,5	3,8	12,0	13,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	22,0	24,4
	10	265	17,6	4,9	10,0	11,0	14,0	15,0	16,0	17,0	18,6	20,0	21,0	24,0	26,0
	11	252	^{d***}19,5	4,1	14,0	14,0	16,0	17,0	18,0	19,0	20,0	21,1	23,0	24,0	27,0
	12	248	20,0	4,4	13,5	14,0	16,0	18,0	19,0	20,0	21,0	22,0	23,0	25,0	27,0
	13	261	20,2	4,0	14,0	15,0	17,0	18,0	19,0	20,0	21,0	22,0	23,0	25,0	26,9
	14	274	21,2	3,8	14,0	16,0	18,0	19,5	20,0	21,5	22,0	23,0	24,0	26,0	27,0

*** P<0.001 **p<0.01 *p<0.05

^{a} 8-7 ^{b} 9-8 ^{c} 10-9 ^{d} 11-10 ^{e} 12-11 ^{f} 13-12 ^{g} 14-13

All the Table - Note: If the letter is on the right of the number, it means in favour of first age group and if the letter is on the left of the number it means in favour of second age group.

Dıscussıon

In the research undertaken by Carling and his colleagues in France on 160 male children under 14 years old, they determined males' average height as 162.02 ± 8.99 cm. Research results parallel with literature. In the study carried out by Turgut and Cetinkaya, on 776 female students attending different primary schools in Antalya, they identified average height as 123,75± 5,36 cm at the age 7, as 131,12 ±5,91 cm at the age 8, as 136,19 ± 6,29 cm at the age 9, as 141,63± 6,86 cm at the age 10, 145,03± 7,17 cm at the age 11. In the study carried by McMillan and Erdmann in Illinois , average height of girls was determined as 124 ± 6 cm (n=387) at the age 7, as 130± 7 cm (n=381) at the age 8, as 135±7 cm (n=379) at the age 9, as 141±7 cm (n=383) at the age 10, as 149±8 cm (n=409) at the age 11 and average height of boys was determined as 125±8 cm

(n=373) at the age 7, as 131±7 cm (n=370) at the age 8, as 136±7 cm (n=369) at the age 9, as 141±7 cm (n=380) at the age 10, as 148±8 cm (n=409) at the age 11. In the study undertaken by Vandendriessche and his colleagues in Belgium, the average height of 181 male human subjects at the age 7 was noticed as 127,4 ±5,1 cm, of 245 male human subjects at the age 9 was noticed as 137,3 ± 6,0 cm and of 187 male human subjects at the age 11 was noticed as 148,5 ± 7,1 cm. For all age groups except 11, research results include lower degrees than literature. In some literatures it is indicated that between the age 7 and 10 the height and body weight increase both in male and in female children are at the same rate. Life standard and cultural situation of the society hereby may be influenced the physical improvement.

In the study carried out by Pienaar and Viljoen in South Africa on male children between the age 10 and 15 (n=604), the average of body weight at the age of 11,12,13,14 were respectively determined as 29,3 ±7,2 kg-31,2±6,2 kg-35,0 ± 9,2 kg- 39,1±9,3 kg and 44,5±10,9 kg. In the study carried out by Vandendriessche and his colleagues in Belgium on male children at the age of 7 and 11, the average body weight of seven years old boys was determined as 26,7 ± 4,9 kg, of 9 years old boys was determined as 31,9±5,6 kg and of 11 years old boys was determined 40,1 ± 8,4 kg. In the study carried out by Tuncer in Konya on primary school age nine years old male (n=90) and female (n=73) students, he noticed average body weight of female students as 26,8 ± 6,66 kg and of male students as 28,10 ± 6,00 kg. In the study carried out by Karatas and his colleagues in Malatya on 7-11 years old female (n=432) and male (n= 468) primary school students, the average body weight of female students at the age of 7,8,9,10,11 were respectively determined as 21,6±3,4 kg, 23,7±4,2 kg, 25,9±5,4 kg, 29,0±5,0 kg, 34,5±7,1 kg ; the average body weight of male students at the age of 7,8,9,10,11 were respectively determined as 22,7±3,5 kg, 24,9±4,4 kg, 27,7±4,9 kg, 31,4±5,6 kg ve 33,4±5,7 kg. According to literature, research results are higher. It can be said that for girls the increase in the body weight is higher than boys on account of the puberty differences between girls and boys.

Pinero and his colleagues' 1 mile jog& run average values between the 8 and 17 age groups were determined as 8,1 ± 1,4 min,sec among the boys who have 12,1 ±3 age average, as 9,3 ±1,5 min,sec among the girls who have 11,8 ± 3 age average. According to The National Physical Fitness Award's ½ mile jog& run standards, whereas 8 years old girls have 4,56 min,sec degree and nine years old girls have 4,50 min,sec degree, 8 years old boys have 4,22 min,sec degree and 9 years old boys have 4,14 min,sec degree. Research results have lower performance periods in comparison with literature. In the literature it is stated that until 12 years old, aerobic durability increases almost at the same level among both girls and boys but after puberty period it become slower among the girls in comparison with the boys.

In the study undertaken by Pıenaar and Viljoen on 10-15 years old males (n=604) living in South Africa, the average degrees of vertical jumping tests was determined as 23,3±5,8 cm for ten years old, as 23,2±7,7 cm for 11 years old, 23,8±5,2 cm for 12 years old, as 26,1±5,5 for 13 years old and as 29,4±8,5 cm for 14 years old. In the study carried out by Ayan and Mulazımoglu in Ankara on 8-10 years old female (n=1995) having 9±1 average ages, the average of vertical jumping degrees were found as 18, 03 ± 5, 28 cm . Research results among male children have higher average degrees in comparison with literature. In the study undertaken by Nalcakan and colleagues in Izmir on 12-14 years old female (n=21) volleyball players , the average of vertical jumping degrees of 12,3±0,6 age group girls were found as 44,7±5,0 cm and of 14,6 ±1,1 age group girls were found as 41,7±5,3 cm. Research results include lower vertical jumping degrees than literature.

In the study carried out by Nevil and his colleagues in Greece on 12 years old school age girls (n=324) and boys (n=348) , while the average degrees of sit& reach test of 12,2±0,5 female students were found as 18,0±6,8 cm, the average degrees of sit& reach test of 12,2±0,7 male students were found as 13,8±6,2 cm. According to literature, research results have higher degrees. In the study undertaken by Vandendriessche and his colleagues in Belgium on 7-11 years old male children, the average of sit& reach tests were obtained as 19,7±5,4 cm for seven years group (n=181), as 17,6±5,9 cm for 9 years group (n=245) and as 16,8±6,7 cm for 11 years groups (n=187). Research results are parallel with literature.

In the study undertaken by Tinazci and his colleagues in N.C.T.R on 7-11 years old girls (n=104) and boys (n=129) , the average degrees of body sit-up tests for 7,8,9,10,11 years girls were respectively determined as 11,81 ± 4,69 times, 16,52±3,87 times, 18,89±3,57 times, 18,05±3,87 times, 17,67± 6,95 times. The average degrees of body sit-up tests for 7,8,9,10,11 years old boys were respectively determined as 14,48 ±2,74 times, 16,32 ±4,01 times, 19,04±3,26 times , 18,50 ±2,78 times, 20,95 ±5,00 times. Research results show that according to literature, while both boys and girls have higher degrees at the age of 7, have lower sit-up degrees among the other age groups. In the study carried out by Volbekiene and Griciltte in Lithuania on 12-16 years old girls and boys, the average degrees of 30 seconds sit-up test were found as 23,8 ± 4,2 times for 12 years old girls (n=226), as 25,1±4,1 times for 14 years old girls (n=229), as 26,3±4,0 times for 12 years old (n=215), as 28,4±3,5 times for 14 years old (n=187). Research results

include lower average degrees according to literature. In the study undertaken by Vandendriessche and his colleagues in Belgium on 7-11 years old boys, the average degrees of 30 seconds sit-up were determined as 15,6±7,7 times for 7 age group (n=181), as 20,6±6,2 times for 9 age group, as 25,7±6,5 times for 11 age group (n=187). While research results are parallel with literature for 7 age group, have higher degrees for 9-11 age groups. As a result of studies in reference with muscular durability, it is stated that sex differences especially occur after 8 years old.

Conclusion. All the research results are considered, there is rapid increase in girls' performances than boys' performances. On the other hand it is understood that the durability, vertical jumping and sit-up degrees of boys are higher than girls. Depending upon physical development, it is observed that there is an increase in jumping both for girls and for boys; moreover there is also increase in muscular durability for boys.

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Original article

THE COMPARISON OF REACTION TIMES OF KARATE ATHLETES ACCORDING TO AGE, GENDER AND STATUS

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Abstract

Aim: The purpose of this study was to determine and evaluate the physical fitness levels of Turkish primary school male and female children between 7-14 ages.

Method: 1955 female and 2044 male, totally 3999 students participated in this study on a voluntary basis. Height and weight were measured and subjects performed vertical jump test, sit-and-reach test and 30 seconds sit-up tests. 800 meter run and walk test for 7-11 age groups, 1600 meter run and walk test for 12-14 age groups were carried out. The data obtained from the subjects were primarily analyzed through descriptive statistics by gender and age groups, and percentage (percentiles) values were calculated between a very good-very low range. Furthermore, Two-Way ANOVA was used to analyze whether the data differentiate gender and age groups and to compare both gender-related characteristics of the same age; and One-Way ANOVA was used to determine the differences among the age groups for the same gender. Significance level has been recognized at $p<0.05$.

Results: Rapid increases in height were observed in females 9- 12, in vertical jump 11-13, in flexibility 10-12 and in sit-up 9-12 years old. While a rapid increase in height was observed in males between 9-10 and 12-14, in vertical jump between 10-14, in sit-up 9-11, decrease on flexibility was observed 9-13 years old. In this study through analysis of gender-based differences depending on age factor. The results showed significant differences between male and female student's body weight, 800- 1600 meter run-and-walk, vertical jump and 30 seconds sit-up values in favor of males($p <0.001$).

Conclusion: When all the consequences of the research evaluated, the sharp increases were observed in female student's performance at earlier ages compared with male students. On the other hand, it was determined that endurance, vertical jump and sit-up values of males were higher than the females.

Key words: Primary school student, Physical fitness.

Introduction

Being inactive in daily life and changing eating habits lead to rise in incident of obesity, a current problem of our era, in all age groups. It causes wasting more time by children and adolescents such sedater activities as watching T.V, sitting in front of computer screen, playing video games in internet cafes (Hancox, Poulton,2006,Pangrazı,Corbin,2002,Özdirenç, Özcan,Akın,Gelecek,2005,Livingstone,Robson,Wallace,McKinley,2003). Growth of children depends on genetic factors, biological age, nutrition and ecological environment. Growth may be affected with regard to intensity of physical activities(Açıkada,Ergen,1990). Increase in intensity of physical activities in puberty and subsequently, variation in growth rate during pubertal period bring about physiologic and physical alterations(Gökmen,Karagül,Aşcı,1995). Monitoring these alterations is obtained by using physical fitness test batteries. The strength of heart- respiratory systems, muscular force and its strength, body shape and elasticity take place within the scope of physical fitness associated with health (Corbin,Lindsey,2005). Monitoring children's physical fitness also contributes to the preventative services of health agencies. Physical fitness and its tests reflect the relationship among the health, sport and physical activity (Lacy,Hastad,2005).

The importance of schools is increasing in terms of the comprehensive evaluation of levels of physical fitness and physical activity with children and adolescents. As more and more people are evaluated, the criteria used for evaluating physical activities of children in schools may differentiate. In order to make evaluations qualified and to increase their inevitability, many countries, from past to present have worked on standardization for the purpose of determining the physical features of their own societies. Standardization studies are used in quite a few areas. The necessity of creating selection criteria for determining athletic abilities and studies on foundation in sports branches has enhanced normative studies upon children. Yet, owing to excessive physical activity intensity for school age children, rather than selecting their

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abilities, implementation of tests have role in scanning physical convenience at intervals and in planning new activities according to these results. AAHPERD Physical Best (U.S.A), Fitnessgram-Activitygram (Fitness Test Battery) (U.S.A), Fit Youth Today (U.S.A) ; CAHPER Fitness Performance Test II (Canadian Health, Physical education and Recreation Union) (Canada) President's Challenge (Presidential, National, or Participant Physical Fitness Award) U.S.A), Eurofit (Europe Physical Fitness Test) (Europe) tests are used within the scope of physical fitness (Docherty,1996,.James,Morrow,Allen,Dish,2005).

Material and Methods

Subjects

3999 voluntary human subjects that consist of 1955 female at the age of (n= 1955) (age 7 ;257, age 8;250,age 9 ;249, age 10 ; 235,age 11 ;247, age 12 ; 252, age 13 ;239,age 14 ;226) and 2044 male at the age of (n=2044) (age 7 ;243, age 8; 250,age 9 ;251, age 10 ;265,age 11 ; 252, age 12 ;248,age 13 ;261, age 14 ;274) took part in this study . In the first step, by making written and verbal explanation to the individuals incorporating in study got the individuals' parents to fill the 'voluntary countenance form'. Decision was taken by Osman Gazi Tıp Fakultesi Yerel Etik Kurulu with the 2012/282 resolution number as there is not any ethic inconvenience to carry out this study and students participated in this study on a voluntary basis.

Experimental protocol

In the interviews the ages of human subjects were determined as day, month, and year according to their official registry. The height measurements of human subjects were measured with Holtain Limited height measurement device while they were resting with bare feet (Sensibility 0.01m). On the other hand body weights just with short and t-short were weighed with Angel electronic weighting machine (Sensibility 0.01 kg) (Tamer,2000). In the human subjects' vertical jumping tests Takai jump meter was used. Each measurement was repeated three times and the best result was saved (Açıkada,2008). For the human subjects' 30 seconds sit-up tests 1/1000 sensibility timekeeper was used. The number of sit-up exercises that were repeated by subjects was saved on verse form (Pekel,2007). The elasticity measurement of subjects was measured through sit and reach tests. They stayed for 1-2 seconds in the maximum extent position. Repeating the test twice, the higher measurement score was saved (Günay,Tamer,2006). The durability of subjects, the smoothness of the surface and the length of the race track as 800 or 1600 m were determined. Racetrack length and surface features were the same for all human subjects. Students from 1.2.3.4.5 grades (age 7,8,9,10,11) started running on 800 m bowless suitable race track with Ready and Go! instruction, students from 7.8. and 9 grades (age 12,13,14) started running on 1600 m bowless suitable race track with Ready and Go! instruction . 1/1000 sensibility Casio timekeeper was used for the test. Students were free to run, jog or walk. In addition, because the aim was completed the race as quickly as possible, they were constantly motivated orally in order to run and to adjust their running speed. Test results were saved as minute and second. Moreover start and finish points were determined with signs (Cone etc.) (Özer,2001). In the analysis of data firstly according to human subjects age groups; average, standard deviation, minimum and maximum degrees of anthropometric (height, weight) and bio motor features (vertical jump, 30 seconds body sit-up and reach, 800-1600 meter jog and run test) were calculated. to determine them separately.

Data Analysis

In order to examine whether the data obtained from human subjects were separated in terms of their sex and age groups, bilateral variant analysis which is to compare to features of different sexes at the same age groups (Two-way ANOVA) and one-way variant analysis which is to determine differences among the same sex age groups (One-way ANOVA) were done. When meaningful differences were obtained, supplementary test Tukey was used. As an end, so as to figure out anthropometric and bio motor norms of 7-14 age groups male and female students which is the main goal of the research, raw marks and marks out of 100 were calculated. In point of calculating raw marks as percentage point, Z marks were converted into T marks. As a result of this students' norm degrees were determined as quite low (0-20), low (21-40), medium (41-60), well (61-80), quite well (81-100) percentage points. SPSS 20.0 packet program was used for analyzing data. In the point of interpreting statistic process 0.05 was accepted as meaningfulness level.

Results

The level of significance in all tables ; *** $P<0.001$ $^{**}p<0.01$ $^{*}p<0.05$.

(Table 1. According to age groups human subjects Height Rates) Students' sex [$F_{1,3983} =26.225$, $p <0,001$] and age differences affect their heights [$F_{7,3983}= 2320,906$; $p< 0,001$]. Analysis results have also shown that sex and age differences have a common effect on students' statures degrees [$F_{7,3998} = 9,875$, $p< 0,001$]. According to these results male students obtained higher stature degrees in meaningful level than female students at the age of 7, 8, 10, 14. It has been shown 11, 12, 13

years old female students' stature degrees average is higher than male students.

(Table 2. According to age groups human subjects Weight Rates) While students' sexes didn't affect their weight [$F_{1,3983}$ =251, p > 0,05] age factors did [$F_{7,3983}$ = 899,994, p<0,001]. Analysis results have also shown sex and age factors have an effect on body weight in common [$F_{7,3998}$ = 6,738, p< 0,001]. According to these results among male and female students for all age groups but age 12, we couldn't obtain any considerable differences in terms of body weight averages.

(Table 3. According to students' age groups Long Distance Degrees) 7-11 years old students' sex [$F_{1,2489}$ =212,745, p<0,001] and age differences affect 800 meter jog & run degrees [$F_{4,2489}$ =41,805, p<0,001]. Analysis results have also shown sex and age factors have an effect on students long distance degrees in common [$F_{4,2498}$ = 9,804, p> 0,01]. According to these results boys at the age of 7,8,9,10 and 11 obtain considerable high 800 m jog& run degrees in comparison with girls. High degree term is defined as finishing 800 m jog& run test more quickly than others. 12-14 years old students' sex [$F_{1,1494}$ = 188,559, p< 0,001] and age differences affect 1600 meter jog& run degrees [$F_{2,1494}$ = 4,009, p<0,05]. Analysis results have also shown sex and age factors have an effect on students' 1600 meter jog& run degrees in common [$F_{2,1499}$ = 5,109, p< 0,01]. According to these results when boys are 12,13,14 years old, they obtain considerable high 1600 meter jog& run degrees in comparison with female students. High degree term is defined as finishing 800-1600 m jog& run test more quickly than others.

(Table 4. According to Students' Ages Averages of Vertical Jump and Standard Deviation Degrees) Students' sex [$F_{7,3983}$ =329,586, p<0,001] and age differences affect jump degrees [$F_{7,3983}$=394,433, p<0,001]. Analysis results have also shown sex and age factors have an effect on students' jump degrees in common [$F_{7,3999}$ = 10,082, p< 0,001]. According to these results, male students at all age groups except age 11 obtain considerable high jumping rates in comparison with female students.

(Table 5. According to Students' Ages Average Elasticity Degrees and Standard Deviation Degrees) Students' sex [$F_{1,3983}$ =55,977, p<0,001] and age differences affect elasticity degrees[$F_{7,3983}$=6,900, p<0,001]. Analysis results have also shown sex and age factors have an effect on students' elasticity degrees in common [$F_{7,3999}$ = 7,381, p< 0,001]. According to these results, it is understood that considerable differences of elasticity degrees among female and male students are in favour of female students beginning from 12 years old.

(Table 6. According to Students' Age Average 30 sec. Sit-up Degrees and Standard Deviation Degrees) Students' sex [$F_{1,3983}$ =215,284 p<0,001] and age differences affect sit-up degrees[$F_{7,3983}$= 90,850, p<0,001]. Analysis results have also shown sex and age factors have an effect on students' elasticity degrees in common [$F_{7,3999}$ = 10,810, p< 0,001]. According to these results, while there is not any considerable difference at the age of 8 and 11, among 14-13-11-10-9-7 ages, male students obtain higher sit-up degrees in comparison with female students.

Table 1. According to age groups human subjects Height Rates (cm)

Sex	Age	n	Avr.	ss	Min	Max	Percentage										
							Rather Low			Low		Medium		Well		Quite well	
							5	10	20	30	40	50	60	70	80	90	95
Female	7	257	120,3	4,7	108,0	137,0	113,0	114,0	116,0	118,0	119,0	120,0	122,0	123,0	124,0	126,0	127,0
	8	250	123,4	5,2	110,0	140,0	116,0	118,0	119,0	120,0	122,0	123,0	124,0	126,0	127,8	130,0	133,0
	9	249	130,8	5,7	116,0	144,0	122,0	123,0	126,0	128,0	129,0	131,0	132,0	134,0	136,0	138,0	140,0
	10	235	136,1	5,8	120,0	152,0	127,0	129,0	131,0	133,0	135,0	136,0	137,0	139,0	141,0	143,0	146,0
	11	247	143,0	7,2	123,0	162,0	132,0	134,0	136,0	139,0	141,0	143,0	145,0	147,0	150,0	153,0	155,0
	12	252	150,9	7,5	130,0	169,0	140,0	141,0	144,0	146,0	149,0	151,0	153,0	155,0	158,0	160,7	163,0
	13	239	154,2	5,6	135,0	170,0	145,0	147,0	150,0	152,0	153,0	154,0	155,0	157,0	159,0	161,0	163,0
	14	226	157,2	5,7	141,0	173,0	148,0	150,0	153,0	154,8	156,0	157,0	158,0	160,0	162,0	165,0	167,0
Male 7* 8¯ 10¯ 14¯¯	7	243	122,3	5,1	108,0	131,0	114,0	115,0	118,0	119,0	121,0	123,0	124,0	125,0	127,0	129,0	130,0
	8	250	125,9	5,4	115,0	150,0	119,0	120,0	121,0	123,0	124,0	125,0	126,6	128,0	130,0	133,0	135,5
	9	251	131,6	6,1	118,0	155,0	122,0	124,0	126,0	128,0	130,0	131,0	133,0	134,0	136,0	140,0	143,4
	10	265	138,7	6,7	118,0	162,0	129,0	130,0	133,0	135,0	137,0	138,0	140,0	141,0	144,0	148,0	150,7
	11	252	142,8	6,4	128,0	164,0	131,7	135,0	137,0	140,0	141,0	143,0	144,0	146,0	148,0	151,0	154,0
	12	248	149,1	6,4	132,0	165,0	139,0	141,0	144,0	145,0	147,0	149,0	151,0	153,0	155,0	157,0	159,0
	13	261	153,5	8,1	134,0	176,0	140,0	144,0	146,0	149,0	152,0	154,0	156,0	158,0	160,0	164,0	168,9
	14	274	160,3	8,3	135,0	178,0	145,0	149,0	154,0	156,0	158,0	160,0	163,0	165,0	168,0	170,0	173,3

Table 2. According to age groups human subjects Weight Rates (kg)

Sex	Age	n	Avr.	ss	Min	Max	Percentage										
							Rather Low			Low		Medium		Well		Quite well	
							5	10	20	30	40	50	60	70	80	90	95
Female 12**	7	257	23,3	3,6	15,0	35,0	18,0	19,0	20,0	21,0	22,0	23,0	24,0	25,0	26,0	29,0	30,0
	8	250	25,0	4,4	18,0	50,0	20,0	20,0	21,0	22,0	23,0	24,0	25,0	26,0	28,0	30,0	33,4
	9	249	29,2	5,1	19,0	50,0	22,0	23,0	25,0	26,0	28,0	29,0	30,0	31,0	33,0	36,0	38,5
	10	235	33,3	7,2	22,0	68,0	24,0	25,0	27,0	29,0	30,0	32,0	34,0	36,0	39,0	43,0	46,0
	11	247	37,2	7,4	24,0	65,0	28,0	29,0	31,0	33,0	34,0	36,0	38,0	39,6	43,0	48,0	52,0
	12	252	45,6	10,3	26,0	92,0	33,0	34,0	37,0	39,0	42,0	44,0	47,0	50,0	53,0	59,0	63,0
	13	239	48,5	9,5	30,0	88,0	36,0	38,0	42,0	43,0	45,0	46,0	48,0	51,0	56,0	60,0	68,0
	14	226	52,4	9,8	31,0	87,0	38,3	42,0	45,0	46,0	48,0	51,0	53,0	56,2	59,0	65,4	72,0
Male	7	243	24,7	3,8	18,0	39,0	19,0	20,0	21,0	22,0	24,0	25,0	26,0	27,0	28,0	29,0	31,8
	8	250	27,1	5,0	19,0	48,0	21,0	22,0	23,0	25,0	25,0	26,0	27,0	28,0	29,8	33,0	38,0
	9	251	29,5	5,2	20,0	57,0	22,0	24,0	25,0	27,0	28,0	29,0	30,0	31,0	33,0	35,0	38,4
	10	265	34,5	8,6	22,0	77,0	25,0	26,0	29,0	30,0	31,0	33,0	35,0	36,0	38,0	43,4	51,4
	11	252	37,3	7,7	23,0	69,0	28,0	30,0	32,0	33,0	34,2	36,0	38,0	40,0	41,4	46,0	51,7
	12	248	42,8	9,0	29,0	74,0	32,0	33,0	34,0	37,0	39,0	41,0	44,0	46,0	50,0	55,0	62,5
	13	261	46,6	9,8	28,0	85,0	34,0	36,0	39,0	41,0	43,0	45,0	47,0	50,0	53,0	59,8	64,8
	14	274	50,9	9,7	32,0	83,0	36,8	39,0	42,0	45,0	47,0	50,0	53,0	56,0	59,0	63,5	68,0

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Table 3. According to students' age groups Long Distance Degrees (min/sec)

Sex	Age	Distance	n	Avr.	ss	Percentage										
						Rather Low			Low		Medium		Well		Quite Well	
						5	10	20	30	40	50	60	70	80	90	95
Female	7	800 m.	257	5,36	,18	6,12	6,06	6,0	5,36	5,30	5,30	5,24	5,24	5,18	5,12	5,06
	8	800 m.	250	5,30	,18	6,12	6,06	6,0	5,30	5,30	5,30	5,24	5,18	5,18	5,12	5,06
	9	800 m.	249	5,30	,36	6,18	6,12	6,0	5,36	5,30	5,30	5,24	5,18	5,12	4,36	4,24
	10	800 m.	235	5,36	,30	6,18	6,06	6,0	5,36	5,30	5,24	5,24	5,18	5,18	5,06	5,0
	11	800 m.	247	5,18	,30	6,12	6,0	5,36	5,30	5,24	5,18	5,12	5,06	5,06	4,30	4,24
	12	1600 m.	252	11,18	1,18	14,12	13,54	12,18	11,30	11,18	11,06	10,36	10,24	10,18	10,06	9,30
	13	1600 m.	239	11,48	2,0	15,24	14,36	13,12	12,18	11,30	11,18	11,12	10,36	10,12	9,36	9,24
	14	1600 m.	226	11,18	1,54	15,54	14,30	13,12	11,18	10,30	10,24	10,18	10,12	10,06	9,36	9,24
Male	7	800 m.	243	5,18	,24	6,06	6,0	5,30	5,30	5,18	5,18	5,12	5,06	5,06	4,36	4,30
	8	800 m.	250	5,18	,24	6,06	5,36	5,30	5,24	5,18	5,12	5,12	5,06	5,06	4,36	4,30
	9	800 m.	251	5,24	,30	6,12	6,06	5,48	5,30	5,24	5,24	5,18	5,12	5,12	5,06	4,30
	10	800 m.	265	5,12	,36	6,18	6,0	5,30	5,24	5,18	5,12	5,06	5,06	5,0	4,24	4,12
7***,8*** 9**,10**	11	800 m.	252	4,54	,36	6,0	5,24	5,18	5,12	5,06	5,06	5,0	4,24	4,12	4,06	4,06
	12	1600 m.	248	10,30	1,12	13,18	11,30	11,06	10,36	10,30	10,24	10,18	10,12	10,0	9,12	8,30
11***,12*** 13***,14***	13	1600 m.	261	10,24	1,12	12,24	11,36	11,12	11,0	10,24	10,18	10,06	9,48	9,24	9,12	8,24
	14	1600 m.	274	10,18	1,24	12,36	12,06	11,12	10,30	10,18	10,06	10,06	9,36	9,30	8,48	8,24

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Table 4. According to Students' Ages Averages of Vertical Jump and Standard Deviation Degrees (cm)

Sex	Age	n	Avr.	ss	Percentage										
					Rather Low			Low		Medium		Well		Quite Well	
					5	10	20	30	40	50	60	70	80	90	95
Female	7	257	21,2	5,5	12,0	14,0	16,0	18,0	20,0	21,0	22,0	24,0	26,0	29,0	30,0
	8	250	22,2	5,5	13,0	15,0	18,0	19,0	21,0	22,0	23,6	25,0	27,0	29,0	31,0
	9	249	24,4	4,4	18,0	19,0	20,0	21,0	24,0	24,0	25,0	27,0	28,0	30,0	32,0
	10	235	28,2	6,7	17,8	20,0	22,0	25,0	26,4	28,0	30,0	32,0	34,0	37,0	39,0
	11	247	31,5	6,3	22,0	25,0	26,0	27,0	29,0	30,0	33,0	34,0	36,4	39,2	43,6
	12	252	31,3	6,1	21,0	23,0	26,0	28,0	30,0	31,0	33,0	34,0	37,0	39,0	42,0
	13	239	35,1	6,7	24,0	26,0	29,0	31,0	33,0	35,0	37,0	39,0	40,0	43,0	46,0
	14	226	33,8	7,0	22,0	24,0	27,2	30,8	32,0	34,0	36,0	38,0	39,0	42,0	46,0
Male ^{7***,8***,9***,10***,12***,13***,14***}	7	243	24,1	6,3	13,0	15,0	18,0	21,0	23,0	25,0	26,0	27,0	29,0	32,0	34,0
	8	250	25,2	5,9	14,6	17,0	20,2	22,0	24,0	25,0	27,0	28,7	30,0	32,9	35,0
	9	251	27,9	4,7	20,0	22,0	24,0	25,0	27,0	28,0	29,0	30,4	32,0	34,0	36,0
	10	265	31,1	7,6	19,0	21,0	25,2	27,0	29,0	31,0	34,0	35,0	38,0	40,4	43,0
	11	252	33,1	6,3	23,0	25,0	27,0	29,0	31,0	33,0	34,0	37,0	39,0	41,0	45,0
	12	248	35,6	5,9	25,0	28,0	30,0	33,0	34,0	36,0	37,0	39,0	41,0	43,0	44,0
	13	261	38,5	7,4	25,0	29,0	32,0	35,0	37,0	39,0	40,0	42,0	44,0	48,0	50,9
	14	274	41,7	9,3	25,8	30,0	34,0	38,0	39,0	41,0	44,0	47,0	50,0	54,0	57,0

Table 5. According to Students' Ages Average Elasticity Degrees and Standard Deviation Degrees (cm)

Sex	Age	n	Avr.	ss	Percentage										
					Rather Low			Low		Medium		Well		Quite Well	
					5	10	20	30	40	50	60	70	80	90	95
Female ^{12***,13**,14***}	7	257	19,2	5,4	10,0	12,8	15,0	17,0	18,0	19,0	20,0	22,0	24,0	26,2	28,1
	8	250	19,5	5,4	10,0	13,0	16,0	17,0	18,0	19,5	21,0	22,0	24,0	27,0	28,0
	9	249	17,7	4,8	10,0	11,0	14,0	16,0	16,0	18,0	20,0	21,0	22,0	24,0	24,5
	10	235	19,1	5,5	9,0	12,0	15,0	16,0	18,0	20,0	20,0	22,0	23,0	26,0	28,0
	11	247	19,0	5,5	10,0	12,0	15,0	16,0	17,0	18,0	20,0	21,0	23,4	27,0	29,6
	12	252	20,9	6,1	10,7	13,0	16,0	18,0	20,0	20,5	22,0	24,0	26,0	29,0	32,0
	13	239	19,1	6,3	10,0	10,0	14,0	16,0	17,0	18,0	21,0	23,0	25,0	28,0	30,0
	14	226	20,7	6,6	10,0	13,0	14,2	16,8	18,0	20,0	22,0	24,0	27,0	30,0	33,0
Male	7	243	19,4	4,8	11,0	13,0	16,0	18,0	18,0	20,0	21,0	22,0	23,0	25,0	26,8
	8	250	19,2	4,6	11,0	13,1	15,0	17,0	18,0	20,0	20,0	22,0	23,0	25,0	26,4
	9	251	18,1	4,9	10,0	12,0	14,0	16,0	17,0	18,0	19,0	20,0	22,0	24,0	26,0
	10	265	18,0	5,5	9,0	10,6	13,0	15,0	17,0	18,0	20,0	21,0	23,0	25,0	26,7
	11	252	17,4	5,4	10,0	10,0	13,0	15,0	16,0	17,0	18,0	20,0	22,0	24,0	26,3
	12	248	17,7	6,7	8,0	10,0	13,0	14,0	15,0	16,5	19,0	20,0	22,2	25,0	30,5
	13	261	16,9	5,3	8,0	10,0	13,0	14,0	15,0	17,0	18,0	20,0	21,6	24,0	26,0
	14	274	18,1	5,9	9,0	10,0	13,0	15,0	17,0	18,0	20,0	21,0	23,0	25,0	28,3

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Table 6. According to Students' Age Average 30 sec. Sit-up Degrees and Standard Deviation Degrees.

Sex	Age	n	Avr.	ss	Rather Low			Low		Medium		Well		Quite Well	
					5	10	20	30	40	50	60	70	80	90	95
Female	7	257	14,2	3,6	8,0	10,0	11,0	12,0	13,0	14,0	15,0	16,0	17,0	19,0	20,0
	8	250	15,2	3,4	9,0	11,0	12,0	14,0	14,0	15,0	16,0	17,0	18,0	19,9	20,4
	9	249	16,2	3,6	11,0	12,0	13,0	14,0	15,0	16,0	17,0	18,0	19,0	21,0	23,0
	10	235	16,0	4,6	8,0	10,0	12,0	14,0	15,0	16,0	17,0	18,0	19,0	21,4	24,2
	11	247	17,3	4,0	10,4	12,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	22,0	25,0
	12	252	18,8	4,5	11,0	13,0	16,0	17,0	18,0	18,0	19,8	21,0	22,0	25,0	26,0
	13	239	17,2	4,5	10,0	11,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	23,0	25,0
	14	226	17,1	4,4	10,0	12,0	14,0	15,0	16,0	17,0	18,0	19,0	21,0	22,4	24,0
Male 7** 9* 10** 11*** 13*** 14***	7	243	15,7	3,5	10,0	11,0	13,0	14,0	15,0	15,0	17,0	18,0	19,0	20,0	21,0
	8	250	15,4	3,4	10,0	11,0	13,0	14,0	15,0	15,0	16,0	17,0	18,0	19,0	21,0
	9	251	17,5	3,8	12,0	13,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	22,0	24,4
	10	265	17,6	4,9	10,0	11,0	14,0	15,0	16,0	17,0	18,6	20,0	21,0	24,0	26,0
	11	252	19,5	4,1	14,0	14,0	16,0	17,0	18,0	19,0	20,0	21,1	23,0	24,0	27,0
	12	248	20,0	4,4	13,5	14,0	16,0	18,0	19,0	20,0	21,0	22,0	23,0	25,0	27,0
	13	261	20,2	4,0	14,0	15,0	17,0	18,0	19,0	20,0	21,0	22,0	23,0	25,0	26,9
	14	274	21,2	3,8	14,0	16,0	18,0	19,5	20,0	21,5	22,0	23,0	24,0	26,0	27,0

The level of significance in all tables ; *** P<0.001 **p<0.01 *p<0.05.

Discussion

In the research undertaken by Carling and his colleagues in France on 160 male children under 14 years old, they determined males' average height as 162.02 ± 8.99 cm (Carling, Le Gall,Reilly,Williams,2009).. Research results parallel with literature. In the study carried out by Turgut and Cetinkaya, on 776 female students attending different primary schools in Antalya, they identified average height as 123,75± 5,36 cm at the age 7, as 131,12 ±5,91 cm at the age 8, as 136,19 ± 6,29 cm at the age 9, as 141,63± 6,86 cm at the age 10, 145,03± 7,17 cm at the age 11(Turgut, Çetinkaya,2006). In the study carried by McMillan and Erdmann in Illinois , average height of girls was determined as 124 ± 6 cm (n=387) at the age 7, as 130± 7 cm (n=381) at the age 8, as 135±7 cm (n=379) at the age 9, as 141±7 cm (n=383) at the age 10, as 149±8 cm (n=409) at the age 11 and average height of boys was determined as 125±8 cm (n=373) at the age 7, as 131±7 cm (n=370) at the age 8, as 136±7 cm (n=369) at the age 9, as 141±7 cm (n=380) at the age 10, as 148±8 cm (n=409) at the age 11 (Cathy, McMillian, Loran, Erdmann,2010). In the study undertaken by Vandendriessche and his colleagues in Belgium, the average height of 181 male human subjects at the age 7 was noticed as 127,4 ±5,1 cm, of 245 male human subjects at the age 9 was noticed as 137,3 ± 6,0 cm and of 187 male human subjects at the age 11 was noticed as 148,5 ± 7,1 cm (Vandendriessche et al., 2011). For all age groups except 11, research results include lower degrees than literature. In some literatures it is indicated that between the age 7 and 10 the height and body weight increase both in male and in female children are at the same rate (Muratlı,1997). Life standard and cultural situation of the society hereby may be influenced the physical improvement.

In the study carried out by Pienaar and Viljoen in South Africa on male children between the age 10 and 15 (n=604), the average of body weight at the age of 11,12,13,14 were respectively determined as 29,3 ±7,2 kg-31,2±6,2 kg-35,0 ± 9,2 kg- 39,1±9,3 kg and 44,5±10,9 kg (Pienaar et al.,2010). In the study carried out by Vandendriessche and his colleagues in Belgium on male children at the age of 7 and 11, the average body weight of seven years old boys was determined as 26,7 ± 4,9 kg, of 9 years old boys was determined as 31,9±5,6 kg and of 11 years old boys was determined 40,1 ± 8,4 kg (Vandendriessche et al., 2011). In the study carried out by Tuncer in Konya on primary

school age nine years old male (n=90) and female (n=73) students, he noticed average body weight of female students as 26,8 ± 6,66 kg and of male students as 28,10 ± 6,00 kg (Tuncer,2004). In the study carried out by Karatas and his colleagues in Malatya on 7-11 years old female (n=432) and male (n= 468) primary school students, the average body weight of female students at the age of 7,8,9,10,11 were respectively determined as 21,6±3,4 kg, 23,7±4,2 kg, 25,9±5,4 kg, 29,0±5,0 kg, 34,5±7,1 kg ; the average body weight of male students at the age of 7,8,9,10,11 were respectively determined as 22,7±3,5 kg, 24,9±4,4 kg, 27,7±4,9 kg, 31,4±5,6 kg ve 33,4±5,7 kg (Karakaş et al., 2002). According to literature, research results are higher. It can be said that for girls the increase in the body weight is higher than boys on account of the puberty differences between girls and boys. Pinero and his colleagues' 1 mile jog& run average values between the 8 and 17 age groups were determined as 8,1 ± 1,4 min,sec among the boys who have 12,1 ±3 age average, as 9,3 ±1,5 min,sec among the girls who have 11,8 ± 3 age average (Pinero et al.,2009). According to The National Physical Fitness Award's ½ mile jog& run standards, whereas 8 years old girls have 4,56 min,sec degree and nine years old girls have 4,50 min,sec degree, 8 years old boys have 4,22 min,sec degree and 9 years old boys have 4,14 min,sec degree (GET FİT,2001). Research results have lower performance periods in comparison with literature. In the literature it is stated that until 12 years old, aerobic durability increases almost at the same level among both girls and boys but after puberty period it become slower among the girls in comparison with the boys (Gökmen, Karagül, Aşcı,1995, Tekelioğlu,1999).In the study undertaken by Pıenaar and Viljoen on 10-15 years old males (n=604) living in South Africa, the average degrees of vertical jumping tests was determined as 23,3±5,8 cm for ten years old, as 23,2±7,7 cm for 11 years old, 23,8±5,2 cm for 12 years old, as 26,1±5,5 for 13 years old and as 29,4±8,5 cm for 14 years old (Pienaar, Viljoen,2010) . In the study carried out by Ayan and Mulazımoglu in Ankara on 8-10 years old female (n=1995) having 9±1 average ages, the average of vertical jumping degrees were found as 18, 03 ± 5, 28 cm (Ayan,Mülazımoğlu,2009). Research results among male children have higher average degrees in comparison with literature. In the study undertaken by Nalcakan and colleagues in Izmir on 12-14 years old female (n=21) volleyball players , the average of vertical jumping degrees of 12,3±0,6 age group girls were found as 44,7±5,0 cm and of 14,6 ±1,1 age group girls were found as 41,7±5,3 cm (Nalçakan et al.,2004). Research results include lower vertical jumping degrees than literature. In the study carried out by Nevil and his colleagues in Greece on 12 years old school age girls (n=324) and boys (n=348) , while the average degrees of sit& reach test of 12,2±0,5 female students were found as 18,0±6,8 cm, the average degrees of sit& reach test of 12,2±0,7 male students were found as 13,8±6,2 cm (Nevil et al.,2009). According to literature, research results have higher degrees. In the study undertaken by Vandendriessche and his colleagues in Belgium on 7-11 years old male children, the average of sit& reach tests were obtained as 19,7±5,4 cm for seven years group (n=181), as 17,6±5,9 cm for 9 years group (n=245) and as 16,8±6,7 cm for 11 years groups (n=187). Research results are parallel with literature. In the study undertaken by Tinazci and his colleagues in N.C.T.R on 7-11 years old girls (n=104) and boys (n=129) , the average degrees of body sit-up tests for 7,8,9,10,11 years girls were respectively determined as 11,81 ± 4,69 times, 16,52±3,87 times, 18,89±3,57 times, 18,05±3,87 times, 17,67± 6,95 times. The average degrees of body sit-up tests for 7,8,9,10,11 years old boys were respectively determined as 14,48 ±2,74 times, 16,32 ±4,01 times, 19,04±3,26 times , 18,50 ±2,78 times, 20,95 ±5,00 times (Tınazcı, Emiroğlu, Burgul,2004). Research results show that according to literature, while both boys and girls have higher degrees at the age of 7, have lower sit-up degrees among the other age groups. In the study carried out by Volbekiene and Griciltte in Lithuania on 12-16 years old girls and boys, the average degrees of 30 seconds sit-up test were found as 23,8 ± 4,2 times for 12 years old girls (n=226), as 25,1±4,1 times for 14 years old girls (n=229), as 26,3±4,0 times for 12 years old (n=215), as 28,4±3,5 times for 14 years old (n=187)) (Volbekıene , Griciltte,2007). Research results include lower average degrees according to literature. In the study undertaken by Vandendriessche and his colleagues in Belgium on 7-11 years old boys, the average degrees of 30 seconds sit-up were determined as 15,6±7,7 times for 7 age group (n=181), as 20,6±6,2 times for 9 age group, as 25,7±6,5 times for 11 age group (n=187) (Vandendriessche et al., 2011). While research results are parallel with literature for 7 age group, have higher degrees for 9-11 age groups. As a result of studies in reference with muscular durability, it is stated that sex differences especially occur after 8 years old.

Conclusions. All the research results are considered, there is rapid increase in girls' performances than boys' performances. On the other hand it is understood that the durability, vertical jumping and sit-up degrees of boys are higher than girls. Depending upon physical development, it is observed that there is an increase in jumping both for girls and for boys; moreover there is also increase in muscular durability for boys.

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PHYSICAL EDUCATION PROGRAM AND CHILDRENE OBESITY: NOW AND FUTURE

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Abstract

*Purpose***.** Children are prominent in obesity discussions, which are particularly fraught in light. There are many factors that may cause children to become obese. Most important factors are introduced in this commentary, also have suggests on how to limit and control them.

*Conclusio***n,** Creating new environments and social norms and physical education programs for children can support more healthful and active living and reduce obesity problem.

*Key words***:** obesity, children, physical education.

Introduction

Childhood obesity is one of the most important public health challenges of the 21st century. The problem is general and is steadily affecting many low and middle income countries, particularly in urban settings. The prevalence has increased at an alarming rate. Globally, in 2010 the number of overweight children under the age of five is estimated to be over 42 million. Close to 35 million of these are living in developing countries (De Onis 2010, Aryana 2012).

Childhood and adolescents obesity, having both critical and long term negative outcomes, has been identified as a major health concern by the Centers for Disease Control and Prevention (Nowicka, 2007).

Some of the physical consequences include hyperinsulinemia, dyslipidemia, abnormal glucose tolerance, increased asthma symptoms, sleep apnea, fatty liver, and the development of Type 2 diabetes (Datar, 2004; Nowicka, 2007; Eime, 2013). There are also serious psychosocial burdens associated with childhood and adolescent obesity.

Low self-esteem, greater risk of depression, and continual feelings of shame have been consistently reported in overweight and obese children and adolescents. Many adolescents experience discrimination in the forms of teasing and social rejection. They are often perceived as being lazy, having no self-control, and ugly (Datar, 2004; Eime, 2013).

Many of these physical and psychosocial consequences continue on into adulthood. Overweight and obese adolescents are more acceptable to be overweight as an adult and at increased risk loss of life from all causes (Datar, 2004; Eime, 2013).

However, overweight children are at high risk of becoming overweight adolescents and adults. This commentary aimed to introduces factors that play important roles on childhood obesity and also have suggests on how to limit these factors.

Who is obese?

The words "overweight" and "obesity" are ways to describe having too much body fat. The most commonly used measure of weight status is the body mass index (BMI). BMI uses a calculation based on the ratio of someone's height and weight (BMI = Kg/m2). Children above the 85th percentile are classified overweight and those above the 95th percentile, obese (Datar, 2004).

The causes of the general increase in overweight and obesity are multifactorial, with changes in energy intake and expenditure related to both exact and obvious movements in societal behaviors. According literatures technology has contributed to obesity by making food more abundant, attractive, promoted and simply obtained. Energy expenditure has been reduced by an increase in sedentary activities (such as watching television and playing computer games) and an increase in the use of cars and other forms of transport. Exercise has now become a formal activity for many children (Datar, 2004, De Onis 2010).

Many scientists around the word try to find the solution to solve the children obesity problem because obese children are more likely to become obese adults. There are many physical and psychosocial outcomes of childhood obesity. Physical outcomes include many risk factors such as cardiovascular and heart diseases (Datar, 2004).

One of the important aspects of obesity is that obese people have very low activity they prefer to do sedentary activities rather than active works and especially sports. Low levels of physical activity are more effective for developing chronic health diseases (Datar, 2004).

There are many factors that may cause children to become overweight and obese. Following are the most important factors:

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1. Environmental Factors
2. Sedentary pursuits
3. Physical activities
4. Teachers and parent's responsibility
5. Public education
6. Combination of physical education and proper diet

Therefore, in the following describe about the factors that mentioned above:

1- Environmental factors

Many environment factors can effective on obesity and performance, such as Education, economic development, culture and parent's motivation (Dunn, 2012). Research on the mediators of familial patterns of overweight and obese children suggests that overweight parents tend to create environments that promote overweight among their children (Siwik, 2013).

In the Malaysia research results that shown the higher obesity rates in Malayan people that education could improve the obesity level but economic development and education will likely not eliminate obesity inequality in the Malaysia (Dunn, 2012).

A variety of risk factors are associated with children and adolescent obesity. Some factors, like race, gender, and age, simply cannot be modified (Ogden, 2008; Shields, 2006; Singh, 2008). Other social and environmental factors, like parental education, socio-economic status (SES), neighborhood safety, and racial/ethnic inequalities are very difficult to modify (Singh, 2008).

Behavioral factors that influence children and adolescent obesity, such as dietary, sedentary, and physical activity behaviors, have been studied extensively (Singh, 2008). Lifestyle interventions can effective on children and adolescent obesity that focuses on modifying these behaviors (Nowicka, 2007).

2- Sedentary pursuits

Many studies have reported an association between sedentary behaviors and overweight and obesity (Wake, 2012). However, there have been different findings when reporting the associations between times spent in various sedentary behaviors and weight status. Time spent watching television and time on the computer or playing video games are two sedentary behaviors that have been studied frequently (Wake, 2012).

When compared to television watching, time spent on the computer and playing video games is many times reported as a less risky behavior for most children and adolescents (Koezuka, 2006). High levels of sedentary activity (TV and computer use) were seen in many children and caused greater incidence of overweight, obesity and morbid obesity (Wake, 2012).

In addition, although it is generally agreed that television may be related to the onset of obesity and reduced physical activity in students (Goran, 1999). Tremblay and their collages suggested that daily TV viewing in excess of 2 hours is associated with reduced physical and psychosocial health, and that lowering sedentary time leads to reductions in BMI (Tremblay, 2011).

It was determined that increased sedentary time was associated with negative health outcomes in both boys and girls. Furthermore, children and youth should try to minimize the time they spend engaging in other sedentary pursuits throughout the day (for example: playing video games, using the computer for non-school work or prolonged sitting) (Tremblay, 2011).

Also, many studies have reported an association between sedentary behaviors and overweight and obesity (Shields, 2006; Koezuka, 2004; Tremblay, 2011). Especially time spent watching television and time on the computer or playing video games are two sedentary behaviors that have been studied frequently (Koezuka. 2004).

Many studies report that there is a positive relationship between times that spent for playing computer games and watching television using the computer (screen time) and BMI (Koezuka, 2004; Tremblay, 2011).

A 2004 study by Shields and his colleagues found that students aged 6-11 who spent 2 or more hours of "screen time" were twice as likely to be overweight or obese compared to children that spent a combined hour or less involved in these activities.

The same study reported that 35% of adolescents, ages 12-17, who watch 30 or more hours of television per week were overweight or obese compared to only 23% of adolescents watching less than 10 hours of television per week. They suggest that some adolescents need great amounts of encouragement and motivation to be physically active at all (Shields, 2006).

3- Physical activities

The second factor that may cause children to become overweight is lack of physical activities. Most of the scientists are agree about the critical role of fitness activities and physical education program on children obesity and motivation. There are many researches about the intensity levels of fitness program.

As an example, Steele and Sharp (2010) confirmed the patterns of vigorous and sedentary activities during different parts of the week (weekend, school-based and out-of-school) they also investigated differences in activity behavior by sex and weight status (Steele, 2010).

Their findings showed the promotion of vigorous physical activity during the weekend may hold the greatest promise for increasing vigorous fitness activities. Therefore, they suggested that increasing physical activity in children should aim to target all children independent of sex or weight status (Steele, 2010).

Furthermore, Eime and their colleges reported that participation in sport for children and adolescence is associated with improved psychological and social health. More specifically, there are reports that participation in team sports rather than individual activities is associated with better health. It is conjectured that this is due to the social nature of team sport, and that the health benefits are enhanced through positive involvement of peers and adults (Eime, 2013).

Physical activity also puts children and adolescents at decreased risk of cardiovascular disease risk factors and metabolic syndrome development by helping to maintain normal blood pressure, blood lipid level, and insulin responsibility (Eime, 2013).

Participant in regular physical activity also seem to gain other psychosocial benefits in addition to the physical benefits mentioned previously. Physically active adolescents are less likely to experience symptoms of depression, experience higher life satisfaction, increased self-esteem, and decreased stress (Eime, 2013).

Several studies concluded that although a multi-pronged approach is needed to combat obesity, schools are in a "unique position to play a pivotal role in promoting healthy lifestyles and helping to prevent obesity" in children (Story, 1999). But, unfortunately, the role of physical activity in the development of obesity and body weight regulation remains controversial (Goran, 1999).

One study suggested that daily physical activity and participation in sport were not significantly correlated with body weight and body mass index (BMI), but were positively associated with children's motor performance (Sacchetti, 2012).

The other study showed preventive intervention in primary school offers the possibility to improve physical performance in children, but the prevalence and incidence of obesity was not affected (Graf, 2008). Students spend many hours in school, making physical education (PE) programs in schools a potentially important way through which physical activity and fitness may be promoted young children (Datar, 2004).

About the role of schools and PE programs many teachers did not believe schools were doing enough to alleviate childhood obesity, and they need to support by the number of school-based weight reduction techniques (Price, 1990). They suggested that three leading sources of information on weight control were physical education journals (73 percent), the mass media (59 percent), and past experience (49 percent) (Price, 1990).

Physical activity is hypothesized to protect from the development of obesity through several channels. First, physical activity, by definition, results in an increase in energy expenditure due to the cost of the activity itself and is also hypothesized to increase resting metabolic rate (RMR). Second, physical activity has beneficial effects on substrate metabolism, with an increased reliance on fat, relative to carbohydrate, for fuel utilization (Goran, 1999).

For solving obesity problem many committees in United States design physical education (PE) program and urges all school systems to do daily PE that totals at least 150 minutes per week for elementary school students. However, as of 2006, only 3.8% of elementary schools were have 150 minutes of PE per week (Cawley, 2012).

Also, there is little evidence of a critical role of physical education (PE) on youth obesity. There are several reasons that extra physical education (PE) program may not lower weight or the risk of obesity. First, teachers in physical education (PE) classes may not implicate much physical activity and don't doing action and playing during the class (Cawley, 2012).

Several studies have used direct observation or accelerometers to measure the amount of time that students spend physically active during physical education (PE); they conclude that students spend only 9-42% of physical education (PE) time engaged in moderate to vigorous physical activity. A second proceed is that students may equalize any additional physical activity during physical education (PE) by decreasing physical activity outside of school, with little net impact on physical activity or weight (Cawley, 2012).

4- Teachers and parent's responsibility

The third factor that may cause children to become overweight and obese is lack of school responsibility. Until today all of the scientists are agree that regular physical activities can be effective on obesity especially in children if they motivated them for doing activity. Also, schools have very critical role for solving obesity problem.

The several reports also address parental support for increased physical education and make two national recommendations for physical education in schools. In terms of public support, the report presents statistics showing that ninety five percent of parents believe physical education should be part of the school curriculum at all levels, eighty-five percent of parents believe that education should take place daily and three quarters of parents and teachers think physical education should be maintained in the face of standards based reform or other inexpensive concerns (Parsad, 2006).

The authors recommend that children should have sixty minutes of physical activity daily and that elementary school children should be engaged in at least 150 minutes of physical education classes each week (Parsad, 2006).

Another factor that may cause children and adolescents to become overweight and obese is lack of school responsibility. Until today all of the scientists are agree that regular physical activities can be effective on obesity if they motivated them for doing activity. Also, schools have very critical role for solving obesity problem.

In this regard Datar and Strum (2004) examined the effect of physical education programs on body mass index (BMI) change in students (Datar, 2004). They suggested that school plays an important role in keeping obesity among girls in check and that expanding existing physical education in US elementary schools could reduce obesity rates among girls. Also, expanding physical education programs in schools may be an effective for combating obesity in the early years, especially among girls (Datar, 2004).

5- Public education

The forth factor that may cause children to become overweight is lack of public education. The overall education is very important. Government should be making a situation for educating doing physical activity as a culture to all of the people. Public education through the mass media and arouse the minds of families can be very effective for them to be emphasize the problem of obesity in children. Wake and Reeves (2012) in their research compared the school-aged children in France and England because there are differences in obesity rates between the two countries (Wake, 2012). Their reported that energy balance (balance between energy production and consumption), in terms of both physical activity and food intake, is a key factor in the differences in the incidence of obesity between the French and English children in this study. Also, the most children spend up to 8 hours a day at school, this is the suitable environment for an obesity prevention programs (Wake, 2012).

Knowledge of nutrition, distance walked to school and participation in physical activities has all been shown to have positive effects on obesity prevention in their research. Furthermore, Wake and his colleges suggested that these factors can be easily facilitated and incorporated into the daily school routine to help prevent and reduce the incidence of obesity amongst school-aged children (Wake, 2012).

6- Combination of physical education and proper diet

The fifth factor that may cause children to become overweight is lack of combination of physical education and proper diet. Recent study in the United States by Aryana (2012) confirmed that obesity rates have reached epidemic proportions (Aryana, 2012). Thus, the California Department of Education began a series of steps to address the increase in obesity and decline in fitness in the population of public school children in California (Aryana et al., 2012).

They evaluated serial changes in obesity and fitness in California school children. Overall fitness improved from 2003 to 2008. They showed that serial changes in body composition, flexibility, aerobic capacity, and strength improved or remained stable within school. However, Aryana (2012) confirmed that students were more obese every year, and this obesity was not reversible within the school programs. Also, continued increases in obesity will require additional efforts directed at preschool and elementary students to completely stop and reverse this obesity epidemic. Their results showed that school fitness activity program alone was not efficient for reduce children obesity (Aryana, 2012).

Conclusion

Future researches should be down focused on finding suitable protocols for education to children and their parents, healthy eating habits in children, involve parents in weight management, increased physical activity, decreased sedentary activity and behavior modification is recommended for treatment of overweight and obese children.

Eventually, people all of the world specially parents, caregivers, teachers, coaches, mentors and public health leaders it is their responsibility to take immediate action for solving this serious and growing public health epidemic problem. We should work collaboratively, using public education, available science and evidence of effective programs to ensure that our children receive encouragement and guidance to make healthful choices for physical activity and good nutrition. Our children are our future; help them to make their future healthy through efforts to prevent overweight and obesity.

Comment

As a community, we must create new environments and social norms for children and ourselves that support more healthful and active living. Finally, sport is an appropriate strategy to achieve this goal.

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Methods. We used Romanian university students (27 males and 97 females). The body fat percentage was measured by two methods: the skinfolds measurements...

Results. Body fat estimated with accu-measure caliper was moderate correlated with body fat estimated with FUTREX for women (r = 0.41)…

Conclusions. We cannot consider that one method of body composition analysis (skinfolds method or near-infrared method) is more accurate than…

*Key Words:*skinfolds method, near-infrared method, percentage of body fat, fat mass, free fat mass, Romanian students.

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The aim of this study was to examine the relationship between skinfolds method (accu-measure caliper) and near-infrared method (FUTREX 1000 Personal Body Fat Tester) for body fat percent, fat mass and free fat mass estimations, in Romanian university students. We used Romanian university students (27 males...

Key Words: skinfolds method, near-infrared method, percentage of body fat, fat mass, free fat mass, Romanian students.

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Abstract

Objective. The aim of this study was to examine the relationship between skinfolds method (accu-measure caliper) and near-infrared method (FUTREX 1000 Personal Body Fat Tester) for body fat percent, fat mass and free fat mass estimations, in Romanian university students.

Methods. We used Romanian university students (27 males and 97 females). The body fat percentage was measured by two methods: the skinfolds measurements (accu-measure caliper) and near-infrared measurement (Futrex 1000).

Results. Body fat estimated with accu-measure caliper was moderate correlated with body fat estimated with FUTREX for women (r = 0.41) and for men (r = 0.55). Fat mass (skinfolds method) skinfolds method and free fat mass (skinfolds method) were moderate correlated with fat mass (near-infrared method), respectively free fat mass (near-infrared method) for women (r = 0.41, respectively r= 0.41) and correlated for men (r = 0.60, respectively r = 0.60).

Conclusions. We cannot consider that one method of body composition analysis (skinfolds method or near-infrared method) is more accurate than the other because we don't apply a gold standard method of measurement, for subjects. However, near-infrared method trends to have higher estimations of body fat, then skinfolds method on Romanian students.

Key Words: skinfolds method, near-infrared method, percentage of body fat, fat mass, free fat mass, Romanian students.

Introduction

The increase in obesity is a global phenomenon that is even being addressed by the World Health Organization (World Health Organization, 2003), as well as by medical and government organizations in the world.

One of factors that contribute to body composition changes, respectively to body fat percent grow up is physical inactivity or sedentary lives (National Institutes Of Health, 1998).

Factors, such as age, gender, level of adiposity, physical activity and ethnicity influence the choice of method and equation. To date, race-specific SKF (American Indian women, Black men, and Asian adults), BIA (American Indian women and Asian adults), and NIR (American Indian women and White women) equations have been developed (Heyward, 1996).

Infrared is not an indicator of body composition in the pre-adolescent population on an individual basis. This method continues to be no accurate, cost-effective means to assess individual body composition by a rapid, noninvasive methodology (Michael, Jan, Wendy, 2003).

Larger prediction errors have been reported with the lower cost, hand-held Futrex 1000 model. Because of these errors, the manufacturer's equations for the Futrex 1000 are not recommended to assess body composition (Wagner and Heyward, 1999).

Kamimura et al. cannot consider that one method of body composition analysis (SKF method, bioelectrical impedance analysis, or NIR method) is more accurate than the other because they didn't apply a gold standard method, for patients on long-term hemodialysis therapy. However, the most simple, long-established, and inexpensive method of SKF thickness seems to be still very useful for assessing body fat (Kamimura, Jose Dos Santos, Avesani, Fernandes Canziani, Draibe, Cuppari, 2003).

In a healthy group of 29 subjects examined by Elia et al., NIR method had little or no advantage over other simple methods in predicting body composition measured by classical whole-body densitometry. NIR method was also found to underestimate body fat increasingly as the degree of adiposity increased. This under-estimation was found to be particularly marked in a small and separate group of grossly obese women, BMI greater than 50 kg/m^2, whose body composition was assessed by total body potassium as well as by densitometry (Dumitru, 1997).

Heyward et al. concluded that all three field methods, respectively SKF, bioelectric impendance and NIR compared with hydrostatic weighting, accurately estimate the percent of body fat for nonobese women; however, none of these three methods is suitable for estimating the percent of body fat for obese women (Heyward, Cook, Hicks, Jenkins, Quatrochi, Wilson, 1992).

One study concluded that, SKF is higher correlated with under water weighting than did FUTREX 5000 with under water weighting for males (0.95 versus 0.80), females (0.88 versus 0.63), and the whole group (0.94 versus 0.81) and FUTREX 5000 overestimated body fat in lean subjects with less than 8% fat and underestimated it in subjects with greater than 30% fat. Analyzing this, the authors concluded that, SKF give more information and more accurately predict body fat, especially at the extremes of the body fat continuum (McLean and Skinner, 1992).

The present findings indicate that, the FUTREX 5000 provide more accurate estimates of body fat percent than the FUTREX 5000A or FUTREX 1000 instruments (Smith, Johnson, Stout, Housh, Housh, Evetovich, 1997). Continued research with expanded populations is needed to further demonstrate and evaluate the utility of FUTREX 5000A device (Cassady, Nielsen, Janz, Wu, Cook, Hansen, 1993).

Conway et al. concluded that, body composition (percentage fat) estimated in 53 adults (23 to 65 years of age) by infrared interactance, is correlated with SKF (r = 0.90) measurements. They conclusioned that, the method is safe, noninvasive, rapid, easy to use, and may prove useful to predict percentage body fat, especially in the obese (Conway, Norris, Bodwell, 1984).

SKF method is still a reliable technique of BF estimation, but if it's not realized with the most accurately instruments the results trends to have errors in BF estimation and FM, respectively FFM (Cyrino, Okano, Glaner et al., 2003). The NIR method is still a questionable technique for BF estimation (McLean and Skinner, 1992; Michael, Jan, Wendy, 2003; Wagner and Heyward, 1999).

The objective of this study is to examine the relationship between skinfolds (SKF) method (accu-measure caliper) and near-infrared (NIR) method (FUTREX 1000 Personal Body Fat Tester) for body fat percent (BF), fat mass (FM) and free fat mass (FFM) estimation, in Romanian university students.

Methods

The subjects were white Caucasian and students at faculties of Ovidius University in Constanta. The aims and methods of the study were explained to the participants, who chose freely to participate in this study. As a result, the sample included 127 students (97 females and 27 males), with age between 18 and 23 years old.

Body height was evaluated with an error of 0.1 centimeters and body weight was evaluated with a calibrated digital scale, with an error of 0.25 kilograms. For this measurement the subjects were dressed summarily. BMI was calculated to estimate the category of weight for each subject by using the Quetelet formula (Dimitre, 1997).

Percent of body fat was estimated with two methods. The first method consisted in calculation of body fat percent with Jackson and Pollock, (1978), equation, for male subjects and Jackson, Pollock and Ward, (1980), equation, for female subjects. The abdominal (taken vertically with a broad grip, 5cm. lateral to the omphalion (centre of the umbilicus)), chest (taken obliquely along the natural cleavage line of the pectoral between the axilla and nipple) and thigh (vertical fold taken midway between the inguinal crease and proximal border of the patella) skinfolds were measured for …

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Results

In table 1 the differences between sexes were significant only for body height (t = 9.838) and body weight (t = 5.841).

Table 1. Physical characteristics of the subjects

	M ± SD	
Variables	**Males (n = 27)**	**Females (n = 97)**
Age (years ^{months})	$19^{7} \pm 0^{11}$	$20^{1} \pm 2^{8}$
Body height (cm)	1.789 ± 0.078 *	1.63 ± 0.059
Body weight (kg)	66.074 ± 11.135 *	52.722 ± 7.842
BMI (kg/m^2)	20.598 ± 2.929	19.811 ± 2.485

* differences between sexes, $p<0.05$.

BMI, body mass index; M, mean; SD, standard deviation; n, number of subjects.

In table 2 the differences between sexes were significant for all variables (BFskf, t = 13.278; FMskf, t = 6.346; FFMskf, t = 11.498; BFnir, t = 7.856; FMnir, t = 2.883; FFMnir, t = 9.861). All variables from SKF method had significant correlations with their correspondent variable from NIR method, when body height, body weight and age were controlled. BFskf was moderate correlated with BFnir for women (r = 0.41) and for men (r = 0.55). FMskf and FFMskf were moderate correlated with FMnir, respectively FFMnir for women (r = 0.41, respectively r = 0.41) and correlated for men (r = 0.60, respectively r = 0.60).

Table 2. Differences between SKF method and NIR method

	Skinfold method (Accu-measure caliper) M ± SD	
Variables	**Males (n = 27)**	**Females (n = 97)**
BFskf (%)	8.962 ± 4.407 * †	21.886 ± 4.704 *
FMskf (kg)	6.25 ± 4.006 * †	11.806 ± 4.085 *
FFMskf (kg)	59.824 ± 8.207 * †	40.915 ± 4.512 *
	Infrared method (Futrex 1000) M ± SD	
Variables	**Males (n = 27)**	**Females (n = 97)**
BFnir (%)	13.074 ± 5.988 †	22.805 ± 4.475
FMnir (kg)	8.97 ± 5.431 †	12.164 ± 3.615
FFMnir (kg)	57.104 ± 8.225 †	40.557 ± 5.486

* correlated with BFnir, FMnir and FFMnir for males, respectively for women, when height, weight and age are controlled, $p<0.05$;
† differences between sexes, $p<0.05$.

BFskf, body fat - skinfolds method; FMskf, fat mass - skinfolds method; FFMskf, free fat mass - skinfolds method; BFnir, body fat - infrared method; FMnir, fat mass - infrared method; FFMnir, free fat mass - infrared method; M, mean; SD, standard deviation; n, number of subjects.

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Discussion

Compared with the anthropometric reference data 1988 – 1994 from United States (National Health and Nutrition Examination Survey, 2005), body height for our subjects was slightly higher for men and slightly lower for women, compared with the corresponding values for Americans. The body weight was lower, for both men and women, compared with the corresponding values for Americans.

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Acknowledgments

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National Institutes of Health (NIH). Clinical Guidelines On The Identification, Evaluation, And Treatment Of Overweight And Obesity In Adults. The Evidence Report. Publication No. 98-4083, 1998 Sep: XI-XXX.

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Attention!!! First of all, the article is written on a single column until it is finalized. After finalizing it, you select the whole text after the abstract until the first table or chart and you turn it into two columns. The same operation is done, in order, for (the whole) texts between charts and/or tables; also, the (whole) text, from the last table or chart until the bibliography inclusive, will be turn into two columns. **The paper must be 5-10 pages.**

Tables

The tables including data will be done on a single column and they cannot be introduced into the text as photographs. The counting (consecutive) and the title of the table (conclusive and concise) will be written on the top right hand. The reference to the table (the quotation in the text) will be found in the text that precedes the table. The number of the table, the title of the table, the results, the statistical section and the abbreviation section will be a constitutive part of the table. It is recommended that you merge the data in as few tables as possible. The additional black lines in the tables including data will be colored in white (Table Tools, Design, Pen Color, White, urmat de Draw Table prin care se trasează peste liniile negre suplimentare culoarea albă).

Table 1. Physical characteristics of feminine subjects

- Number and title of the table (Home, Times New Roman, Size 10, Justify).

Variables	Subjects with dominant upper and lower right limb(n = 8)		Subjects with dominant upper and lower left limb (n = 8)	
Height (cm.)	163,25 ± 4,95	3,032%	162,5 ± 4,309	2,652%
Weight (kg.)	66,088 ± 7,343	11,111%	67,038 ± 5,352	7,984%
IMC (kg/m^2)	24,745 ± 1,827	7,383%	25,368 ± 1,439	5,673%
Percentage of body fat(%)	26,625 ± 2,873	10,791%	26,55 ± 2,964	11,164%
Fat mass (kg.)	17,739 ± 3,56	20,069%	17,91 ± 3,235	18,063%
The values are presented as M ± DS şi CV%.				
IMC, index of body mass; M, mean; DS, standard deviation; CV, variability coefficient; n, number of subjects.				

- Statistic section (Home, Times New Roman, Size 10, Justify).

The connection between the data in the table and the statistical section will be done through identification letters counted in alphabetical order or identification symbols used in the order *, †, ‡, §, ‖, ¶, **, ††, ‡‡, etc.; inside the table, the letters or the identification symbols will be written in the superscript(Home, Superscript) immediately after the data, and inside the statistical section, the identification letters will be written before the hyphen and the statistical comments and the identification symbols immediately before the statistical comments (without a hyphen).
The tables from other publications should be used with the author's (authors') permission, indicating the bibliographic source where it was taken from.

Example: 0,851 ± 0,044 [a]

- Statistic data.
- The identification letter written in superscript (Home, Superscript).

Example: a – significantly different compared to the force ratio F150 Right side flexion/ F150 Left side flexion, 0º, for the subjects who practise football, respectively athletics (triple jump), F(2, 12) = 5,5;

- Identification letter.
- Hyphen.
- Statistic comment.

Table 2. Means of results of maximum isometric force ratios for feminine subjects who practise different sports

Force ratio	Handball (n = 5)	Football (n = 5)	Athletics (triple jump) (n = 5)
F130 Flexion/ F110 Extension (30º)	0,589 ± 0,109 18,506%	0,556 ± 0,075 13,489%	0,565 ± 0,05 8,85%
F150 Right side flexion/ F150 Left side flexion (0º)	0,851 ± 0,044 [a b] 5,17%	0,942 ± 0,056 [c] 5,945%	0,919 ± 0,03 [d] 3,264%
F120 Right side rotation/ F120 Left side	0,972 ± 0,07	0,825 ± 0,227	1,052 ± 0,019 [e]

rotation (-30º)	7,202%	27,515%	1,806%

a – significantly different compared to the mean of the force ratio F150 Right side flexion/ F150 Left side flexion, 0º, for subjects who practise football, respectively, athletics (triple jump), F(2, 12) = 5,5;
b – significantly different compared to the mean of the force ratioF150 Right side flexion/ F150 Perfectly ballanced left side flexion (when all the force ratios are equal to 1), 0º, t=7,572;
c – significantly different compared to the mean of the force ratio F150 Right side flexion/ F150 Perfectly ballanced left side flexion (when all the force ratios are equal to 1), 0º, t=2,316;
d – significantly different compared to the mean of the force ratio F150 Right side flexion/ F150 Perfectly ballanced left side flexion (when all the force ratios are equal to 1), 0º, t=6,037;
e – significantly different compared to the mean of the force ratio F120 Right side rotation/ F120 Perfectly ballanced lesft side rotation (when all the force ratios are equal to 1), -30º, t=6,12;
The values are presented as M ± DS and CV%; Significance limit established at p<0,05.

M, mean; DS, standard deviation; CV, variability coefficient; n, number of subjects; t, test t student ; F, test ANOVA.

- Statistic section (Home, Times New Roman, Size 10, Justify).

Figures

The tables which contain figures will be done on a single column. The counting (consecutive) and the title of the figure (conclusive and concise) will be written on the bottom left side immediately after the figure. The reference to the figure (the quotation in the text) will be found in the text that precedes the table which contains the figure. The figure, the number of the figure, the title of the figure, the statistical section (if necessary) and the abbreviation section will be a constitutive part of the table that contains the figure. When symbols, numbers or letters are used to identify the parts of the figure, each of them should be explained clearly in the statistical section.It is recommended that you merge the data in as few figures as possible. The lines of the table that contains the figure will be transparent. (Table Tools, Design, Borders, No Borders).

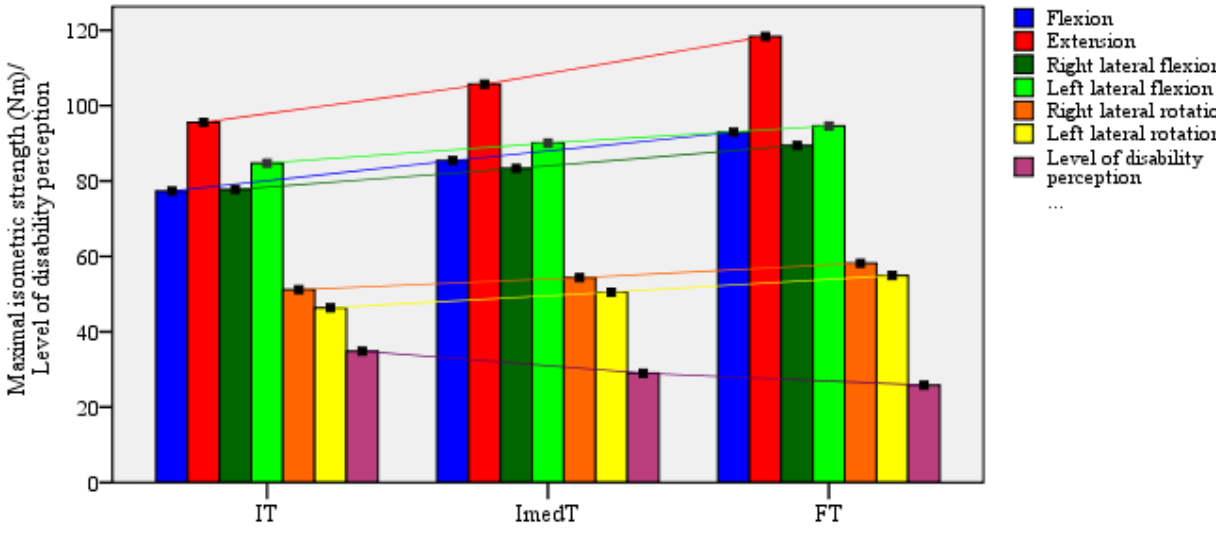

Figure 27. The evolution of means of maximum isometric force and the degree of perception at different tests.
Nm, Newton*meter; IT, initial testing; ImedT, intermediary testing; FT, final testing.

- Number and title of figure (Home, Times New Roman, Size 10, Justify).
- Abbreviations used in the figurewill be mandatory explained after the number and the title of the figure and/or the statistic section (Home, Times New Roman, Size 10, Justify).

The figures will have a resolution of minimum 250 dpi for a better understanding after the print The figures will be presented in original sizes in the text (sizes chosen by the author(s) of the paper), not to be subsequently modified. The electronic formats accepted are: Bitmap (.bmp), JPEG (.jpg, .jpeg) or GIF (.gif).
The results and the statistical explanations will be presented in one way – data in the table, figure in the table or text; these ways of presenting can be combined but they do not have to repeat themselves.

Measures

Length, height, weight and volume will be specified in metrical units (meter, kilogram or litre or their decimal multiples). Temperature will be specified in degrees Celsius (°C). Blood presure will be specified in mm column of

mercury (mmHg). Other clinical measurements will be specified in the International System of Units (International System of Units (SI)).

Abbreviations and symbols

The standard abbreviations must be used. You should avoid introducing abbreviations into the title or in the abstract.An abbreviation in parantheses will be preceded by the full description, only the first time the abbreviation is used in the text and only if the abbreviation is not a standard measure unit .

Example: Body weight, body composition, resting metabolic rate (RMR), respiratory quotient (RQ), temperature, fasting serum glucose, insulin, free fatty acids, and ghrelin were assessed at baseline and after 21 d (12-h fast) and 22 d (36-h fast) of alternate-day fasting.

- Full description of the abbreviation the first time it appears in the text.
- Abbreviation written in parentheses the first time it appears in the text.

RMR and RQ did not change significantly from baseline to day 21, but RQ decreased on day 22 ($P < 0.001$), which resulted in an average daily increase in fat oxidation of ≥15 g.

- Abbreviations when appears for the second time in the text.

Bibliography

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- Home, Times New Roman, Size 10, Bold, Justify, First Line Indent 0,5cm, Two Columns.
- Home, Times New Roman, Size 10, Justify, First Line Indent 0cm., Hanging Indent 0,5cm, Two Columns.