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ASCERTAINING STUDY ON THE MANIFESTATION LEVEL OF THE ABILITY TO BALANCE AT CHILDREN OF 4-5 YEARS RURAL AREAS

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Abstract

Purpose: This article is an accessible material, well-structured and easy to use by educators, teachers of physical education and sports, coaches in physical education classes, namely during the performance sport activities. Prepared in accordance with current modern bibliographical needs, this article aims to support the theoretical and practical-methodological knowledge in whose possession to be able to respond to social and motor orders related with the skill development, namely with the balance in children of preschool age.

Methods: Research methods used in this research are part of private methods and of those processed, analysis and interpretation of data collected by the study. Measurements and records method consisted of applying and recording the "Flamingo" and Matorin test results.

Results: Knowledge level of manifestation of the equilibrium capacity (coordination) in pre-school children in independent motor activity, by use of specific means to physical education and sport, is subject to the manifestation of motor skills, functional and psychological characteristics of each individual. Independent physical education activities will ensure the continuity of motor preparation, since at this age, by establishing a proper proportion between the individual physical condition and learning motor skills specific to physical education and sport, but also a gradual scaling of the physical exercise.

Conclusions: Programming the physical education and sports activities shall be in conformity with the geographical environment, the material conditions of the school curriculum and with the analytical curriculum of the field. At the preparation and organization of physical education classes and sports, should be taken into account the number of children, the ratio number of girls and boys, health, level of physical development, psychological differences, the place that the physical education and sport occupies at the group's daily schedule, the conditions in which it is carried on (in room or outdoor), the provision of school material, etc.. The use of the most efficient means and methods specific to physical education and sports can provide an improvement in health, harmonious physical development, an individual optimal physical condition, along with training and development of mental skills necessary to integrate children into society.

Key words: equilibrium capacity, children, rural area.

Introduction and research objectives

Physical exercises contribute to the functional and morphological development of the body, positively influence the development of musculoskeletal system, internal organs and central nervous system. They promote the development and improvement of motor qualities, intellectual skills. Through physical exercise, children get to know motor opportunities, which enrich and make clear their conscious activity. Some children are shy, dreamy, reserved, feel insecure and fearful than others. Fitness routine based on activities as close to their age and capabilities is a remedy at hand to help them gain confidence in themselves (Finichiu, M., 2008).

In young children, an essential role is held by the physical exercises and movement games that, in time, lead to the formation of qualities such as agility, flexibility, speed, spontaneity, skill etc. (Prescorniță, A., 2004). Whereas, game movement contributes to the development of psychic abilities, especially thinking, language, memory, will - and in that is a reflection of reality, its transposition and transformation on an imaginary plan, it has an important role in the formation and development of human personality.

The main objective of the dynamic balance developing (coordination) is to help develop human capacity to carry out the motor acts and actions with a higher degree of coordination in terms of efficiency and with a minimum energy and nervous consumption. The teachable equilibrium capacity within certain limits will act to reduce risks of accidents during executions and a precise role in the development of high performance capacity.

Research objectives aimed at: the provision of the theoretical and practical database to understand the subjects approach during the physical education lesson;

- understanding the application capacity, programming and interpret the aspects of the balance capacity development;
- gathering up to date information with regard to the approach of this psychomotor ability – balance;
- The acquisition of new motor acts and actions to increase the motor baggage and their application in appropriate cases thus improving coordination capacity value.

The ability to balance (coordination) educated within certain limits will act to reduce risks of accidents during executions and a precise role in the

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motor capacity development to achieve high physical performance. Having a particularly rich content of components, it plays a key role in the harmonious physical development and therefore in achieving the training and competition goals. The question is:

The ability to balance (coordination) is more developed in girls than in boys? Or the differences obtained are influenced by the planning and programming made by specialists? To what extent the balance capacity share (coordination) influences the results of the top individual sports? But in the collective ones? Benchmarks from the primary cycle, aim at the acquisition of children of the capacity to carry out motor activities with high index of speed (promptly and adequately responding to visual signals, auditory and tactile) implementing progressive motor tasks with high degrees of complexity; of handling the body segments (running, jumping, creeping, balancing, climbing, carrying loads) by force of their muscles, to submit and support the efforts easily extended uniform and variable of extended duration. These objectives help develop children's motor skills (speed, coordination skills, strength and resilience) that are essential components in daily activities and in the adaptation and environmental mastery. Our theoretical and methodological intervention objectives were:

testing a large number of children in order to accumulate a factual material as rich as possible;

processing data collected depending on the statistical and mathematical methods, which to make the base of an objective interpretation;

develop conclusions drawn from the survey and highlight the relationship between study content and practical activity content.

Research hypotheses

The conducted research was based on the following assumptions:

1. Choosing the methods and means used in the physical education and sport activities can be determined by the level of manifestation of the equilibrium capacity (coordination) of children.

2. The methods and means contained in the physical education curriculum can be continuously improved and adjusted to the new demands of current reality.

3. Carrying out the objectives and strategy content and the assessment of motor parameters, functional and somatic contributes to the quality and efficiency of the training process.

Research procedures and methods

The research was conducted according to the teaching process of physical education and sports classes for children from middle group (4-5 years) of kindergarten in the village Drajna, village Ogretin, Prahova County, from September to November, the school year 2011 to 2012. In the collection of significant data, we found it necessary to establish a representative sample consisting of 20 subjects (11 girls and 9 boys), the selection of these subjects was random and sought to include an equal number of boys and girls.

Measurements and records method consisted of the application and reporting of results to the following tests:

- *The Bass Test* (Epuran, M., 2005) consists of performing 10 jumps performed on marked spaces (11 spaces marked, size 2.54 cm x 2 cm) with chalk or tape on the ground or floor ; starting position: from sitting to his right foot on the shaded area, goes by jumping and lands on the left foot in the other marked area, in which he maintains the equilibrium position for 5", followed by a series of lift offs and landings when on a leg and the other and maintaining the balance for 5" until the end of the track. The sole of the foot must cover completely the mark so that this is no visible. A good score consists in covering each marker with the sole without touching the ground/floor with the heel or other part of the body and maintain static position for 5 seconds. 5 points are given for each correct landing and coverage of the mark and one point for every second is added while maintaining the static equilibrium. The subject can get a maximum of 10 points for each marker or a total of 100 points for the entire track. Each of the 5 seconds of trying to keep the equilibrium will be counted aloud, with one point given for each second or with the registration of the points for each marker. The subject is allowed to re-balance, trying to maintain the equilibrium for 5 seconds, after he landed properly.
- *The„Flamingo" Test*

(http://www.topendsports.com) consists of maintaining a steady position for 1 minute in a position of standing on one leg, barefoot or with socks, on a strip (5 cm high and 3 cm wide), with the other leg bent knee and grasping the ankle; arm is raised ahead, bent from the elbow, leaning upon the examiner's arm and has the role maintain balance; the test begins when the arm has broken the contact with the examiner; time is measured as the balance is kept, that is the time in which he does not drop the bent leg and no part of the body does not come into contact with the ground; if the hand escapes the ankle it supports or if one side of the body contacts the soil, the test is repeated. The effective time of maintaining the equilibrium is recorded.

- *The Matorin Test* (Epuran, M., 2005) consists of making a return jump around the longitudinal axis of the body, towards left or right. The values of each type and the amount of the two rotations are recorded. The measurement is performed using a compass in sexagesimal degrees. Matorin equaled performance over 360° with the mark "very good".

Research results and their interpretation

By processing the collected data (Table 1) and calculating the statistical indicators we have the possibility to accurate assess the central tendency, the knowledge of the maximum (Max) and minimum (Min) values and the highest frequency, but also the distribution level of the collected data by the objective

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assessment of the degree of data scattering and the arithmetic average recovery (X). We have calculated the most commonly used indicators of dispersion: the amplitude (W), standard deviation (S) and coefficient of variation (Cv%).

1. Based on the collected data by applying the ***Matorin Test***, which tested the equilibrium capacity, of coordination of each individual by performing a jump with rotation around the longitudinal axis, we noticed

The value of the calculated arithmetic mean (figure 1) for the girls sample ($75,45^0$, figure 2) is lower than the one calculated at the boys sample ($112,22^0$, figure 3), with $36,77^0$; taking into account the level of physical and mental development, this difference between the arithmetic means of the two sample that were tested for the equilibrium capacity, the coordination one based on a jump rotation around the longitudinal axis, is much too high.

❖ The amplitude and standard deviation presents us a normal distribution of the results from the data range.

❖ The coefficient of variability shows us that the recorded results from the girls sample present a low homogeneity (25,39%), the boys sample recording a medium homogeneity (10,70%) for this task.

Table 1. *Calculated statistical indicators*

	Statistical indicators	Matorin Test (degrees)	Flamingo Test (seconds)	Bass Test (points)
Girls	**X**	**75,45**	**24,09**	**20**
	Median	70	25	20
	Maximum	100	35	50
	Minimum	50	15	0
	W	50	20	50
	S	19,16	6,25	15,49
	Cv%	25,39	25,95	77,45
Boys	**X**	**112,22**	**42,22**	**52,22**
	Median	110	45	50
	Maximum	130	50	70
	Minimum	90	30	20
	W	40	20	50
	S	12,01	5,65	17,87
	Cv%	10,70	13,38	34,22

2. By applying the ***Flamingo Test*** we determined the manifestation level of the equilibrium capacity, of coordination of subjects by maintaining a balance position for 1 minute, in a position of standing on one foot, barefoot or with socks on a strip (5 cm high and 3 cm wide), with the other leg bent knee and grasping the ankle; arm is raised ahead, bent from the elbow, we noticed:

❖ The value calculated for the arithmetic mean (figure 1) at the girls sample (24,09 seconds, figure 2) is lower than the one calculated at the boys sample (42,22 seconds, figure 3), with 18,13 seconds.

❖ The amplitude and standard deviation presents us a normal distribution of the results.

❖ The coefficient of variability shows us that the recorded results from the girls sample present a low homogeneity (25,95%) and the boys sample recording a medium homogeneity (13,38%) for this task.

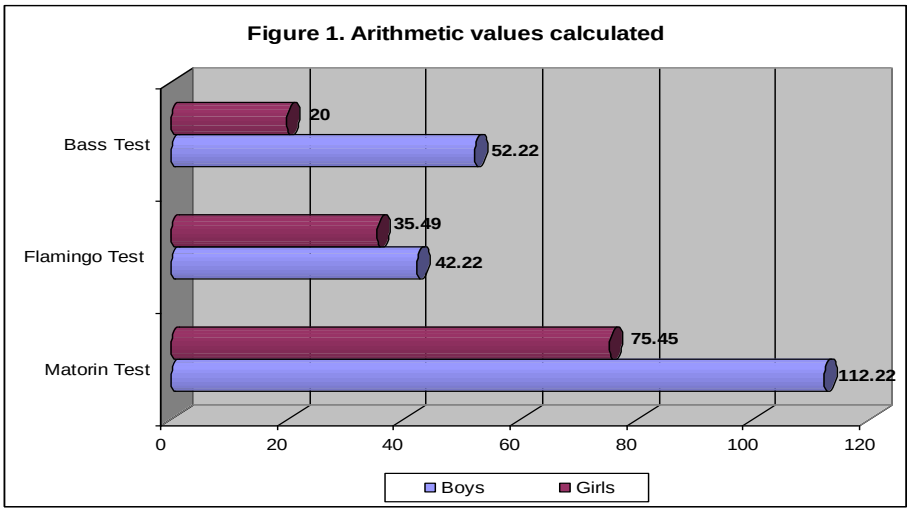

Figure 1. Arithmetic values calculated

3. By applying the ***Bass Test*** we determined the manifestation level of the equilibrium capacity, of coordination by making certain jumps from one foot to another on distinctive marks on the ground and maintaining the equilibrium for 5 seconds, we noticed:

❖ The calculated value for the arithmetic mean (figure 1) at the girls sample (20 points, figure 2) is lower than the one calculated for the boys sample (52,22 points, figure 3) with 32,22 points.

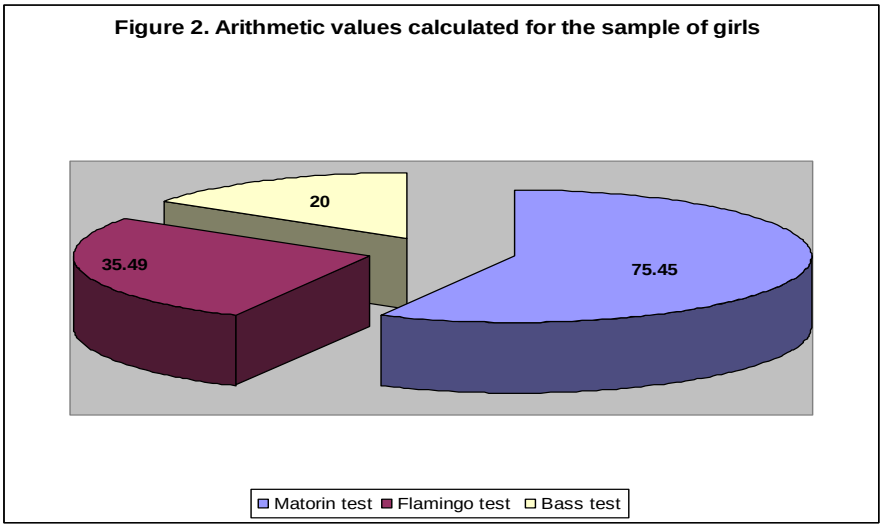

Figure 2. Arithmetic values calculated for the sample of girls

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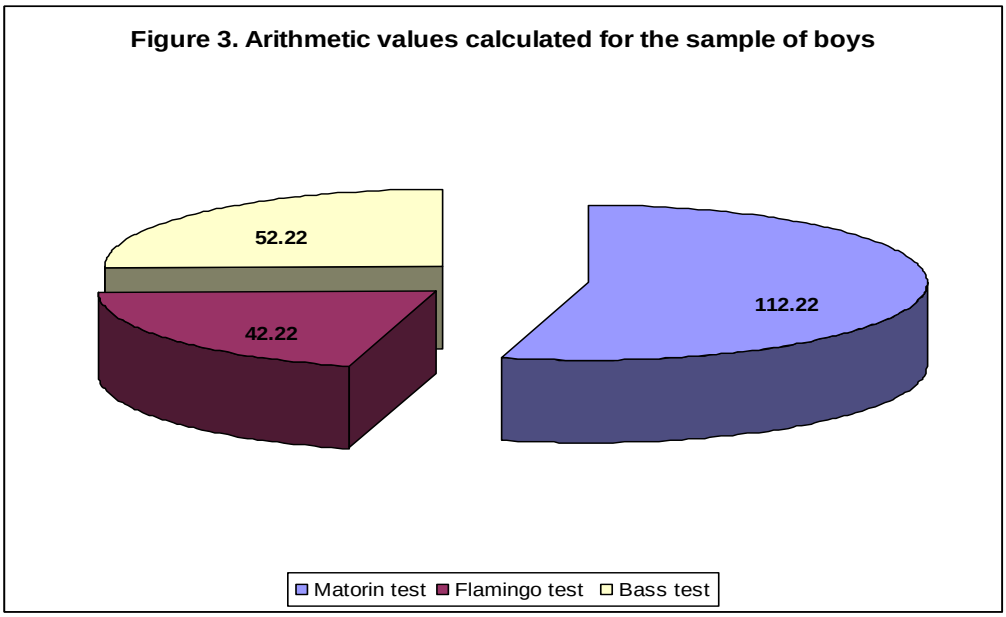
Figure 3. Arithmetic values calculated for the sample of boys

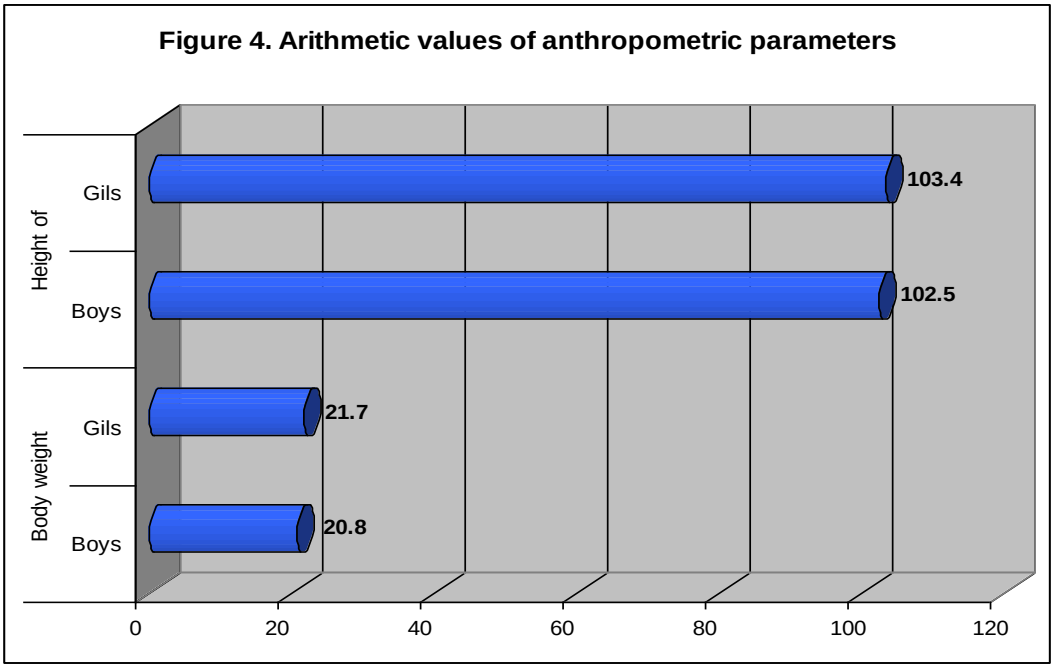


- The amplitude and standard deviation presents us a normal distribution of the results.
- The coefficient of variability presents us a girl sample with a homogeneity that indicates not to trust the average (77,45%) and a boys sample with the weak homogeneity, of the recorded results, (34,22%), for this task.

Assessing the level of growth and physical development is based on anthropometric measurements (Figure 4) made on the members of the experiment sample by introducing the values of the arithmetic means obtained in different formulas that aim at the growth and development phenomena [Dragnea, A., 1984], as follows:

❖ From a somatic development point of view, after making anthropometric measurements, the girls present arithmetic means of the two anthropometric parameters superior to the boys sample, thus fitting in the general evolution of the two sexes, for this age.

Figure 4. Arithmetic values of anthropometric parameters



Conclusions

- Respecting the age and sex characteristics during the instructive – educational process, also the specific of the geographical environment, allows the achieving the educational objectives by completing and modifying the analytical curriculum specific to the physical education and sport field.
- The contribution of physical activity is to improve health, recreation, obtaining a well-being state with the purpose to increase the school performance for a long period of time.
- The multitude of means used by the practical activity of the physical education and sport field, the large number of relationships with other related fields, require the selection and use of methods and means with the highest efficiency in the educational activity, with the purpose to achieve a physical condition optimal for that age.
- Programming the physical education and sport activity must be realized in accordance with the specific of the geographical environment, with the material conditions of the educational unit and with the analytical curriculum of the field.
- The use of the most efficient means and methods specific to physical education and sports can provide an improvement of health, a harmonious physical development, an individual optimal physical condition, along with training and development of mental skills necessary to integrate children into society.
- Getting used to practicing physical exercise can represent the first step in developing an individual motor capacity necessary to the achievement of the motor skills specific to the different sport fields, a gradual scaling if the physical effort by respecting the age and sex particularities.
- In the preparation and organization of physical education classes and sports, we should take into account the number of children, the ratio number of girls and boys, health state, the level of physical development, psychological differences, the place that physical education and sports occupies in the group's daily schedule, the conditions in which the activity is carried out (indoor or outdoor), the provision of school material, etc.
- Ascertaining the study confirms the research hypothesis and the need to educate the equilibrium capacity, of coordination in comparison with the level of manifestation of the individual motor qualities.
- Using a relatively small number of domain-specific means, but simple and long practiced, contributes to the increase of the individual physical condition manifestation level, confirming the research hypothesis.
- Educating the children to practice continuous and systematic physical exercises and to participate in various sport activities depending on everyone's skills.
- The difference between the arithmetic means calculated for both samples, girls and boys, which has tested the ability of balance, coordination based on the three tests is high.
- After the anthropometric measurements, the arithmetic means calculated for the sample of girls are superior to the sample of boys, being thus in the national development of both sexes for this age.

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