Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XV, ISSUE 2 Supplement, 2015, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Science, Movement and Health, Vol. XV, ISSUE 2 Supplement, 2015
September 2015, 15 (2, Supplement): 267-272
Original article

STUDY ON THE DEVELOPMENT OF MOBILITY TO GYMNAST 10-12 YEARS

BUȚU IOANA MARIA[1], TEODORESCU SIMONA ANEMARI[1], CĂTUNĂ CRISTIAN[1], ALUPOAIE MIHAELA[1]

Abstract

Aim. We are researching disposition and qualities conducive to high performance sport, especially mobility elements necessary to achieve high amplitude of rhythmic gymnastics.

Methods: Testing of specific motor skills rhythmic gymnastics (scapular-humeral joint mobility, mobility in the hip joint, spinal mobility) on a group of 11 sports (experimental group) practicing rhythmic gymnastics and another group of 29 students (control group) who do not practice sports.

Results: The tests performed in the two groups is observed that athletes have achieved superior results compared to female students in the control group.

Conclusions: It is found that the mobility in joints is better to athletes tested in the experimental group compared to female students who do not practice this sport, that due to the large number of hours allocated for the development of this specific motor skills.

Keywords: mobilities, sports, joints.

Introduction

Mobility is the ability to use the maximum potential human anatomy locomotion in a particular joint or joints throughout the body, reflected in the performance of large amplitude motions (Gheorghe**,** 2008**)**. In the literature, meet two notions that are synonymous: mobility (involving joint source amplitude movements) and flexibility (refer to the elasticity of ligaments, tendons and muscles).

This quality driving influence optimum performance of an exercise, the elements and technical processes, influencing the magnitude of the force, speed, expressiveness and efficiency.

Factors determining mobility:

- flexibility of the spine;
- existence of mobility in the joints, which allows various movements (flexion, extension, the anteducție and retroducție, abduction and adduction in the internal and external rotation);
- form articular surfaces;
- muscle tone and ability to stretch the ligaments, tendons and muscle fibers;
- ambient temperature;
- genetic predisposition, age and sex (positive children and girls);
- fatigue (tiredness when mobility is reduced);
- preliminary preparation (heating) of the musculoskeletal system.

In connection with the conditioning factors, with manifestations of the driving qualities in literature are known:

- general mobility, registered in all joints that allow the execution of various movements with large amplitude;
- special mobility, which provides a high amplitude and maximum joints practicing technical skills required by their branches or sports events.

Another classification of mobility is as follows:

- passive mobility that characterizes the maximum aid made with a contractor, assisted by a support or a partner, using their body weight or segment concerned;
- active characterizing maximum mobility of joints, the contractor realizes that without help, without outside support, exclusively by its own muscle activity;
- mixed accomplished through the integration of the two types in various forms.

Another classification takes into account the mobility criteria aimed more parameters of structure, direction, plans and schemes effort (Dragnea, Bota, 2000). Such are the nominees:

- mobility of the joints of the body (scapulohumeral, hip, spine, knee, elbow);
- different mobility plans (sagittal, frontal and

[1] Faculty of Physical Education and Sport, Spiru Haret University, Soseaua Berceni, nr. 24, București, ROMANIA
E-mail address: mi2oana@yahoo.com
Received 21.02.2015/ Accepted 16.03.2015

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XV, ISSUE 2 Supplement, 2015, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

transverse);

- mobilities of different types of movements allowed joint (flexion, in extension, the anteducţie and retroducţie in abduction and adduction, internal and external rotating, Macovei, Buţu, 2007).

Methods

Bibliographic documentation consisted of gathering material for a theoretical understanding of the issue as profound work. To substantiate the scientific work we considered necessary to study literature.

Pedagogical observation we applied a careful and systematic tracking feedback from athletes in terms of motor and mental. Physical education teacher and coach default, must itself be a good observer of subjects with which they work.

Experimental method

The comparative method: the data obtained was used in the two groups (experimental and mers). Comparing the results obtained from the evaluation may be used to progress due correction activity directed the training process.

The comparative method has several stages, the latter interpretation and evaluation of data obtained. This method can be used to compare the statistical index.

Results

1. Scapulohumeral articulation mobility: initial standing position, arms down, gymnast (the experimental group) or student (the control group) keeps the rope folded in 4 or 8 and makes raising and lowering their arms up back, with the object fixed in both hands. I appreciated the correct execution (upper limbs remain fully extended), measured in **cm**.

Table 1. Scapulohumeral joint mobility

Scapulohumeral joint mobility				
Qualifying	**F.B**	**B**	**S**	**I**
G.E	5	3	2	1
G.M	1	3	13	12

G.E, experiment group; G.M, control group; F.B, very good; B, ok; S, enough; I, not enough

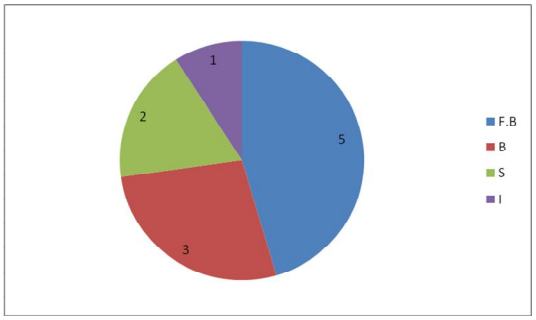


Figure 1. The marks obtained in the test for determining the scapulohumeral joint mobility (G.E)

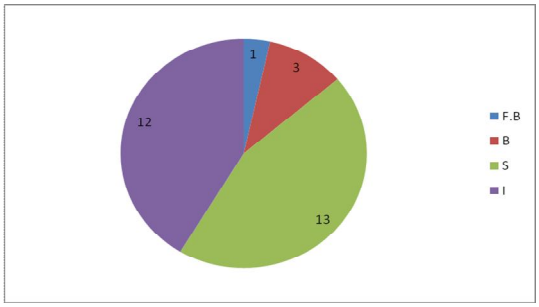


Figure 2. The marks obtained in the test for determining the scapulohumeral joint mobility (G.M)

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XV, ISSUE 2 Supplement, 2015, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

The smaller the distance between the hands, the best result obtained in testing the scapulohumeral joint mobility.

2. Mobility in the hip joint (on the right foot string): string accomplished gymnast or student with the right foot forward, progress much appreciated by measuring the distance in **cm** from ground pool.

Table 2. Mobility in the hip joint - rope on the right foot

Mobility in the hip joint - rope on the right foot				
Qualifying	**F.B**	**B**	**S**	**I**
G.E	10	1	0	0
G.M	0	10	13	6

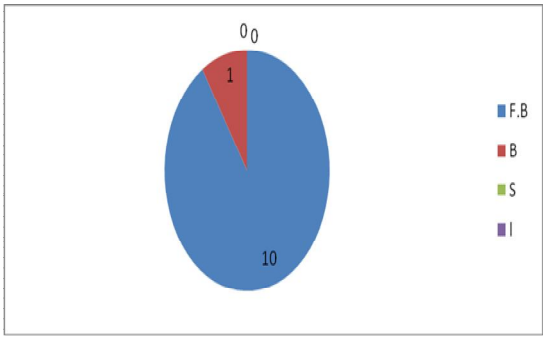


Figure 3. The marks obtained in the test for determining mobility in the hip joint on the right foot (G.E)

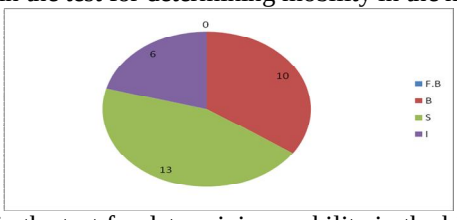


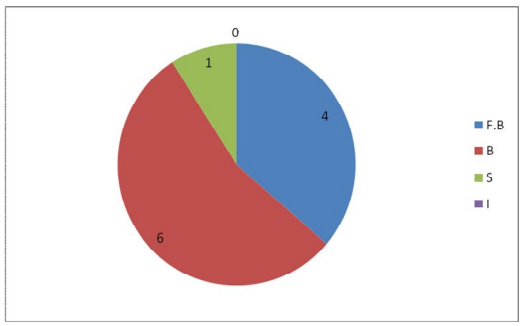
Figure 4. The marks obtained in the test for determining mobility in the hip joint on the right foot (G.M)

The smaller the distance from ground pool, the best result obtained in testing mobility in the hip joint on the right foot.

3. Mobility in the hip joint - string side: student or gymnast performs string side development much appreciated by measuring the distance in **cm** from ground pool.

Table 3. Mobility in the hip joint - string side

Mobility in the hip joint - string side				
Qualifying	**F.B**	**B**	**S**	**I**
G.E	4	6	1	0
G.M	0	6	15	8



Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XV, ISSUE 2 Supplement, 2015, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Figure 5. Marks when tested for determining the hip joint mobility - string side (G.E)

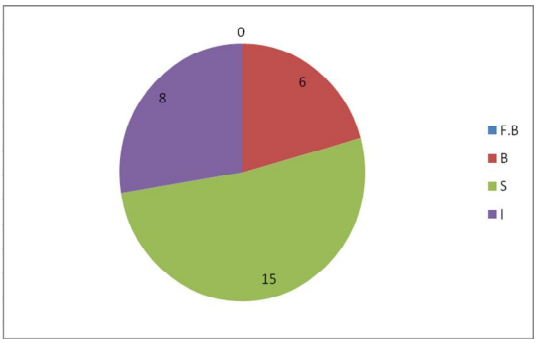


Figure 6. Marks when tested for determining the hip joint mobility - string side (G.M)

The smaller the distance from ground pool, the best result obtained in testing the hip joint mobility - string side.

4. Spine mobility: standing position, the gymnast or student performed above the bridge and measure the distance from the heel to the toes hand, and appreciated developments in cm.

Table 4. Spine mobility

Spine mobility				
Qualifying	**F.B**	**B**	**S**	**I**
G.E	1	5	5	0
G.M	0	2	11	16

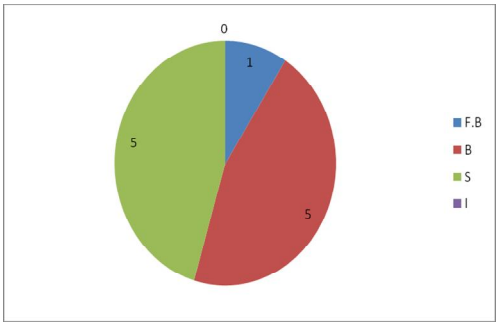


Figure 7. Marks when tested to determine the mobility of the spine (G.E)

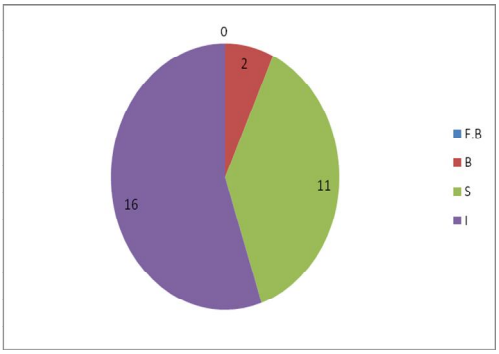


Figure 8. Marks when tested to determine the mobility of the spine (G.M)

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XV, ISSUE 2 Supplement, 2015, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

The smaller the distance from the heel to the toes hand, the best result obtained in testing the mobility back.

5. Body in trunk flexion mobility: the initial position is sitting on the bank of gymnastics, the gymnast or student performs before watching the trunk bending fingers exceed tiptoe. The measurements we performed, recorded in cm distance from the edge of the bank to hand fingers.

Table 5. Body in trunk flexion mobility

Body in trunk flexion mobility				
Qualifying	**F.B**	**B**	**S**	**I**
G.E	8	3	0	0
G.M	0	2	16	11

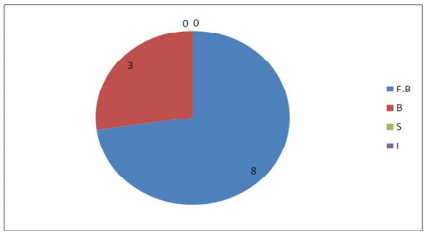


Figure 9. Marks obtained in the test for determinin body in trunk flexion mobility (G.E)

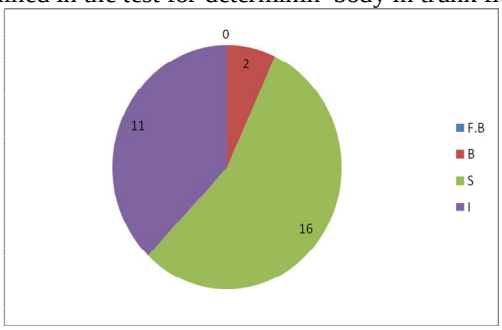


Figure 10. Marks obtained in the test for determining body in trunk flexion mobility (G.M)

The greater the distance from the edge of the bank to hand fingers, the best result obtained by testing body trunk flexion mobility.

Discussion

With regard to the means that will be used to develop this specific motor skills, it is important to be known: the objective, ie the form of mobility to be developed, general physical preparedness and availability subject they anatomic and physiological native that the performer possesses.

There are studies on the mobility of untrained person (spinal sagittal configuration and mobility related to low - back pain in the female gymnast, Öhlén, Wredmark, Spangfort, 1989), as in this study, we performed experiments in which the control group consists of children 10 - 12 years who do not practice sports. Other studies are made on sport (experimental group) who practice sport performance, in Studies and research on the influence of environmental factors on exercise capacity in professional sports, Buțu, 2009.

Scapular-humeral joint mobility obtained the rating F.B 45.45% in the experimental group compared to only 3.44% in the control group. Rating B obtained 27.27% of G.E and G.M 10.34%. Qualification S obtained 18.18% G.E and G.M 44.82%. Rating I have obtained from G.E 9.09% and 41.37% at G.M. In terms of mobility in the hip joint (on the right foot string) obtained 90.90% F.B grade in the experimental group and the control group no student failed to obtain this qualification. Rating B were obtained from G.E 9.09% and 34.48% at G.M. Qualification S obtained 44.82% at G.M and I have obtained 20.68% rating on G.M. For the last two qualifiers gymnasts from G.E results were not

because they have good mobility in the joint.The hip joint mobility (string on the left leg) obtained 36.36% F.B grade in the experimental group and the control group no student failed to obtain this qualification. Rating B obtained 54.54% of G.E and G.M 20.68%. Rating 9.09% S were obtained from G.E and G.M 51.72%. Rating I were obtained from G.M 27.58%, and that of the G.E gymnasts have not been assigned to the qualifier demonstrate that they have good mobility in the joint. Regarding spinal mobility F.B 9.09% grade obtained in the experimental group. Rating B obtained 45.45% of G.E and G.M 6.89%. Qualification S obtained 45.45% G.E and G.M 37.93%. Rating I have obtained 55.17% G.M.

To test the mobility of the body flexion obtained 72.72% F.B grade in the experimental group and the control group no student failed to obtain this qualification. Rating B obtained 27.27% of G.E and G.M 6.89%. Qualification S obtained 55.17% at G.M and I have obtained 37.93% rating on G.M.

Conclusions

It is found that the mobility in joints is better to athletes tested in the experimental group compared to female students who do not practice this sport, that due to the large number of hours allocated for the development of this specific motor skills.

Aknowledgements

For all of our participants from my study I want to say thank you.

References

Buţu IM, 2011, Rhythmic Gymnastics, IFR course format. Publishing House of Tomorrow Foundation Romania, Bucharest, 2011.

Dragnea A, Bota A, 2000, Theory of motor activities. Didactic and Pedagogic, Bucharest, 2000.

Jeleascov C, Buţu IM, 2008, Basic rhythmic gymnastics. Publishing House of Tomorrow Foundation Romania, 2008.

Gheorghe I**,** 2008**,** Theory of motor activities. Publishing House of Tomorrow Foundation Romania, Bucharest, 2008.

Macovei S, Buţu IM, 2007, Teaching rhythmic gymnastics in school. Bren Publishing House, Bucharest, 2007.

Macovei S, 1999, Rhythmic gymnastics and suppleness. A.N.E.F.S Publishing, Bucharest, 1999.

Teodoresc S, 2012**,** Theory of physical education and sport, IFR course format. Publishing House of Tomorrow Foundation Romania, Bucharest, 2012.

Todea SF, 2001, Methodology of physical education and sports. Publishing House of Tomorrow Foundation Romania, Bucharest, 2001.

Tudor V, 1999, Coordinative abilities and intermediate - components of driving ability. Coresi Publishing, Bucharest, 1999.