

**MINISTRY OF EDUCATION AND RESEARCH  
ECOLOGICAL UNIVERSITY OF BUCHAREST  
FACULTY OF PHYSICAL EDUCATION AND SPORT**



# **Proceedings of the International Scientific Conference**

**“Actualities and Perspectives of Physical  
Education and Sport Sciences”**

**BUCHAREST  
2020**



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ECOLOGICAL UNIVERSITY OF BUCHAREST  
FACULTY OF PHYSICAL EDUCATION AND SPORT  
ASSOCIATION OF PHYSICAL EDUCATION AND SPORT  
UNIVERSITIES  
COUNCIL OF SPORT SCIENCE FROM ROMANIA**



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1<sup>st</sup> edition, May, 13 th, 2020

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**PHYSICAL EDUCATION AND SPORT**



## **GENESIS OF MANAGEMENT STUDYING IN THE FIELD OF PHYSICAL EDUCATION AND SPORT**

**N.T. Sydykov, O.A. Akimov, A.T. Kulbaev**

### **Annotation.**

This article considers the problems of objects and methods of management science, history of development, and scientists' thoughts on the management. The authors note that management methods, functions defined in society as a subjective factor, consider management as an independent type of professional activity aimed at achieving goals in modern market conditions.

At the same time, in the article analyzing the views of several scientists in the development of management in the field of physical education and sport, they draw their conclusions and noted four types of management activities. The important approaches to the development of control theory and practice are provided.

**Key words:** physical education and sport management, forms of management, management methods, management principles.

### **Introduction.**

The dynamics and nature of changes in all spheres of life in modern society are a reflection of the major feature and accelerating trends of the social and economic development of the world community. These changes taking place in Kazakhstan are source of introducing such a management paradigm in the field of physical education and sport to the forefront, which will contribute to the further development of this social system based on approach to the modern needs of society.

The achievements of our athletes, achieved at prestigious world-class competitions, shows that the modern system of training athletes is effective and efficient. The records in sport of the highest achievements, victories in international, national and other official sports competitions contribute to the development of mass sports.

The importance of physical education and sport in modern society is growing steadily. Turning into a mass activity for a part of the population, they become the object of not only sport, but also social sciences. Mass sport as a social phenomenon is a "continuous social experiment."

**The purpose of the research.** To determine the attitude of scientists to the current state of education and science before reviewing the writings on management, to determine the current status of the other processes in the country.

**The research methods.** The analysis of scientific and methodological literature, retrospective analysis, content generalization of official documents.

**The discussion of research results.** As you know, our mass sport is the development of people and types of sport that are systematically involved in sport. Economically developed countries strive to bring this indicator to 30 percent or more. It is important to promote a healthy lifestyle and engage people in sports. This is the only way to awake a person and refresh his spirituality [1].

The solution to the problems of the development of mass sports and sports of the highest achievements largely depends on the effective control (management) of the physical education and sport in the country. The explanatory dictionaries and reference publications give the following definitions of the concepts of "management" and "control". "Management (in English management) - production management". In other words, it is set of principles, methods, tools and forms of production management in the conditions market economy. That is, in particular, the management process carries out four different functions, which are called planning, organization, motivation and control, closely interconnected with each other.

As the history of management has developed, research scientists of management problems have attempted to develop various classifications of management schools. In the formation of management the school of scientific management (Digital School), the school of psychology, the classical (administrative) school, as well as representatives of these schools, F. Taylor, A. Fayol, E. Mayo and others played a major role [2]. At present, four important approaches are known that make it possible to distinguish four management schools, each of which made it possible to distinguish four management schools based on their positions and views.

The modern management appeared in the USA in the early 20<sup>th</sup>. In turn, the term "manager" (english) explains this source as a hired manager in production, a specialist in management or professional sport, organizing training and performance of athletes [2]. Now let's briefly review the definitions given in this concept of control and management.

Meaning of the concept control (in Latin - regere, in English - management, in French - administration, in German - regierung) starts from the moment of formation, purpose and will, energy, action, a person's hobbies in interconnection, relationships, phenomena, processes [3]. Control is a functional organization that ensures the preservation of a certain structure of various systems of nature (biological, social, technical), the maintenance of activity mode, the implementation of their programs and goals. Therefore, control can be recognized as a purposeful (conscious, intentional, thoughtful) phenomenon that organizes and regulates individual, social, collective and group activities of a person, carried out directly (in the form of self-government), and also through specially created structures (public associations, parties, firms, enterprises, associations, unions, states).

### Control in pedagogy

- activities aimed at solution developing, organization, control, regulation of the control object in accordance with the established goal, analysis and synthesis of the results based on reliable information [4]. The writings of many domestic and foreign researchers say that control is necessary not only in the field of technical, production processes, but also in the field of complex social systems, including in the field of pedagogy.

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Control always depends on the consciousness and activity of people. This is a mediator between the consciousness and activity of not only one person, but also several people. Control also arises when the collective efforts of people are necessary in order to conduct any common business or achieve a relevant goal. Therefore, control is a public institution created to ensure the livelihoods of people and satisfy their needs, such as the most important families, production, property, state, law, morality, religion and other institutions necessary for life in accordance with its nature.

Nowadays, in the field of physical education and sport, specialists in the field of physical education and sport V.I. Zholdak, S.G. Seyranov give the definition “control is a systematic, focused activity of a leading entity aimed at improving the effective productivity of a production facility, optimizing and maintaining its functioning, through the control of social changes” [5].

Control in society is the interaction of people within the subjective factor. First of all, through control, people set up the “fabric” of collective and social life, interconnected, through joint efforts. The objects that cause control among people can be material objects, technical means, technological processes, social values, products of spiritual creativity, material or spiritual values of physical education and sport, including prominent sports achievements, scientific news, etc. But parties to control will be only people [6].

From the definition of the concept of “control”, one can determine the influence of someone on someone else, that is, he acts as the subject of control and someone perceives, obeys, and is the object of control. A control subject becomes a power that has privileges and their structures from other, related, material, intellectual, legal, social, informational, etc. Management objects are the activity of persons producing material and spiritual products, their groups, associations and etc., which improve the social conditions of life and create material and spiritual products.

In other words, when the managed objects exit (the objective result of functioning), consumer values are created that satisfy (or are capable of) personal and social needs, as well as support the infrastructure of human life. The subjects and objects of control are interconnected, interdependent. The types of control are classified according to the subjects of management, as they form and implement the managerial effect - purposefully suggest, organize and regulate social processes and relationships, consciousness, behavior and activities of people. Special publications on control problems divide control according to some criteria into groups and types. Six main types of control can be distinguished [7].

Before forming the category of “interaction in control in the field of physical education and sport,” let's analyze the general category of “organizational and pedagogical interaction.” Yu. A. Konarzhevsky argues that among the basic pedagogical principles of control a pedagogical system, the principle of systemic and integrity of control is impossible without interaction and the interaction of all managerial functions in the activities of the leader and the teaching staff [8].

I.I. Pereverzin notes that the principle of systematic control of the development of physical education and sport determines the need to consider the physical education and sport organization as an integrated social system consisting of one row and interacting with the external environment. This principle implies a close relationship with financial and material and technical problems of solving socio-pedagogical problems [9].

Control in the field of physical education and sport, like any control activity, is based on the basic principles of management.

The authors of the management textbook in the field of physical culture and sports M. I. Zolotov, V. V. Kuzin, M. E. Kutepov, S. G. Seyranov [10] emphasized eight main principles that are managed by management bodies and private leaders in the process implementation of managerial impact.

The authors of the management textbook in the field of physical education and sport M. I. Zolotov, V. V. Kuzin, M. E. Kutepov, S. G. Seyranov [10] emphasized eight main principles that are managed by governing bodies and private leaders in the process implementation of managerial impact.

In turn, during carrying out control activities with complex socio-economic complexes, an analysis of what physical-sporting kind, processes of interaction in management systems, principles highlighted by the aforementioned authors are applied in management, but do not cover the entire spectrum of management activities, especially do not reflect a system of interaction between various elements of the system: for example, levels of power in the subjects of the Russian Federation (state power and local self-government), between teachers on physical education and sport and department government, the control system is so multi-faceted phenomenon, which is virtually impossible to include it in the scope of some rules, regulations or code of conduct.

**Conclusion.** In accordance with the changes that have occurred in recent years, not only the political situation has changed in the country, but also the socio-economic conditions that are developing the entire social sphere, including the sphere of physical education and sports. In comparison with the Soviet period, the degree of state intervention in this area has also changed. Accordingly, depending on the degree of responsibility of the state for the development of physical education and sport, at various levels of government, management bodies in the field of physical education and sport, new tasks have appeared and old obligations have been eliminated.

To date, the interaction of physical education and sports organizations and the control process of the levels of state and local authorities for the development of sport and mass physical education in Kazakhstan have taken unprecedented ups and are constantly expanding its structure and content.

Analyzing the foregoing, we can conclude that control in the field of physical education and sport is the ability to achieve the goals for each work performed, this is the work, intelligence and behavior of subordinate people, the reasons for their implementation. The control system is the above control



principles, functions, methods and techniques, information support technologies, technical equipment, as well as legal support.

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## **METHOD OF FORMING FLEXIBILITY IN CHILDREN WITH HEARING LOSS**

**Cherepov Evgeny<sup>1</sup>, Novikov Ivan<sup>1</sup>, Novikov Vladislav<sup>1</sup>, Novikova Mariia<sup>2</sup>**

<sup>1</sup>*South Ural State University, Chelyabinsk, Russia, 454000*

<sup>2</sup>*Czech University of Life Sciences (CULS), Prague, Czech Republic, 10200*

### **Abstract**

There is a growing trend in the number of children with hearing loss worldwide (Reich & Lavay, 2009; Rajendran & Roy, 2011; Botova & Mullahmetova, 2017). One of the socio-pedagogical and biomedical challenges of our time is the task of harmonious development and education of these children (Mlay, 2010; Hartman et al., 2011; Demchenko, 2012; Vernofaderani, 2014; Fiorini & Manzini, 2018). Physical education is an important factor in the learning process (Nikitushkin et al., 2012; Caglar et al., 2013; Vidranski & Brozovic, 2015; Barboza et al., 2019; Majoko, 2019).

Children's auditory sensory system is important for the development of motion coordination. The presence of two ears (binaural hearing) shapes the child's spatial vision (Pajor & Jozefowicz-korczynski, 2008). Children with hearing loss lag behind in the development of motion coordination and spatial orientation (Ellis et al., 2013; Malekabadizadeh, 2016). The method of forming the flexibility in children with hearing loss allows increasing of their level of flexibility. Higher flexibility determines high coordination and orientation in space. Consequently, those two factors help children with hearing loss feel confident in their abilities and facilitate adaptation.

In order to research the effectiveness of the method of forming flexibility in children with hearing loss, we set two groups of children aged 7-9: a control group and an experimental group of 12 children each. The control group trainings were conducted according to the standard program. The experimental group trainings were conducted according to the program of the method of forming flexibility. At the beginning and at the end of the research experiment both groups were tested. After the experiment, the results of the experimental group outperformed the results of the control group.

**Key words:** *Adapted physical education, hearing-impaired children, children with hearing loss, physical activities, method.*

### **1. Introduction**

Flexibility is the ability to make motions with amplitude. The term "maximum flexibility" is used if the motions are performed with maximum amplitude, "high flexibility" - if the motions are performed with a large amplitude, and, finally, "low flexibility" - when the motions are performed with low amplitude. The level of flexibility is determined by the mobility of joints and the elasticity of muscles and ligaments (Barrett & Smerdely, 2002; Nikitushkin et al., 2012).

Flexibility is subdivided into active and passive. In case of active flexibility the motions with amplitude are made at the expense of actions of the person's own muscles. In case of passive flexibility the motions with amplitude are made at the expense of actions of external factors (actions of another person, weights, devices, weight of own body, etc.). Passive flexibility always outperforms active flexibility (Rine, 2009; Stathokostas et al., 2012).

Physical culture uses the following terms: overall flexibility, special flexibility, dynamic flexibility and static flexibility. Overall flexibility is the amplitudes of all possible motions in all joints. Special flexibility is the amplitude of a certain motion or the amplitudes of a few certain motions. Dynamic flexibility is the amplitudes of motions of joints in motion. Static flexibility is the amplitudes of motions of joints in poses.

Active, passive and static exercises are used to form flexibility. Active exercises are performed under the actions of a person's own muscles. Passive exercises are performed under the actions of external factors. Static exercises comprise holding a person's body in a certain position for a certain amount of time due to the action of the person's own muscles or external factors. The following ratio of exercises is recommended to form flexibility: 40% active, 40% passive and 20% static. All exercises are performed in sets, without pain, at a slow speed. The number of times in the set increases gradually and is brought to 20-50 times. The amplitude of the exercises and the degree of action of external factors increase gradually. The trainings are held on a regular basis at least three times a week. Breaks in trainings more than two weeks are not allowed.

The following external factors influence the level of human flexibility:

– time of day (in the morning, the level of flexibility is less than in the afternoon or evening);

– air temperature (the level of flexibility is higher at 25°C than at 10°C);

and the internal human factors:

– positive emotions and motivation increase flexibility;

– tiredness reduces active flexibility, but increases passive flexibility;

– heating the body (warm bath) increases flexibility;

– physical warm-up increases flexibility.

The following tests are used to determine the level of human flexibility:

- forwards tilt from the gymnastics bench;
- knee joints straightening;
- forwards tilt, hands on shin;
- gymnastic stick transfer;
- swinging lying on the back;
- back bending backwards from lying on the stomach;
- bridge;
- cross and straight splits;
- holding the leg forwards, backwards, sideways.

## **2. Material și metodă**

The research was conducted during the six months on the basis of two special correctional schools of the second type for children with hearing loss in Chelyabinsk. The research involved 24 hearing impaired 7-9 years old children. In the course of the experimental work two groups of 12 children each were established: an experimental and a control group. Prior to the experiment, we set the following tasks:

1. To form the homogeneous groups based on the results of the flexibility level testing.
2. To apply the method of forming flexibility in the adaptive physical culture trainings with children of the experimental group.
3. Re-test the flexibility level of children in the control and experimental groups.

The children of the control and the experimental groups were trained under the state program of adaptive physical culture for correctional schools of the second type. At the experimental group trainings the complex of the exercises of the devised method of forming flexibility was additionally used. The trainings in the experimental and the control groups were held three times a week. Three months

later, both groups had a break for two weeks. After the break, the trainings lasted for three months. The total duration of the trainings was 6 months.

The method of forming flexibility in children with hearing loss includes the following eleven exercises:

1. Starting position: standing with legs at shoulder width, arms with a jump rope down. Turn the arms forwards and backwards with the jump rope held in place. Two sets of ten times each.

2. Starting position: standing with legs at shoulder width, hands behind head. Tilts forwards, with the arms straightened out. Two sets of ten times each.

3. Starting position: standing with legs at shoulder width, hands behind head. Tilts backwards, with the arms straightened out. Two sets of ten times each.

4. Starting position: standing with legs at shoulder width, hands behind head. Tilts backwards, with the arms straightened out. Two sets of ten times each.

5. Starting position: standing with legs at shoulder width, hands behind head. Tilts to the right and left. Two sets of ten times each.

6. Starting position: standing with legs on the first lath of the gymnastic wall, arms on the waist. Stand up on half-toes. Two sets of fifteen times each.

7. Starting position: standing back to the gymnastic wall, hands on the rail above the waist. Squats. Two sets of eight times each.

8. Starting position: standing side by side to the gymnastic wall, left or right hand on the rail at shoulder level. Swings forwards, backwards, sideways. Four sets of eight times each.

9. Starting position: sitting with legs apart on a shoulder and a half width. Lift the legs one by one and at the same time independently and with the help of another person. Two sets of eight times each.

10. Cross and straight splits on both legs. 20 seconds for each split, two sets.

11. Starting position: standing with legs at shoulder width, hands behind head. Slowly stand up on breath with hands up on half-toes. One set of five times.

The last exercise is intended to level all joints in a natural position after deflections and tilts.

### 3. Results and Discussions

The results of testing conducted for the period of formation of the homogeneous groups are presented in Table 1. The average value of the indicator for each group is calculated.

**Table 1** *The test results of children of the control and the experimental groups before the experiment*

<b>Test: indicator, unit of measure</b>	<b>Control group</b>	<b>Experimental group</b>
<b>Forwards tilt from gymnastic bench: the distance from the plane of the bench to the end of the finger; centimeters</b>	17,0	17,5
<b>Stick transfer: the distance between the hands; centimeters</b>	31,0	30,0
<b>Backwards tilt lying on stomach: distance from the head to the floor; centimeters</b>	20,5	20,0
<b>Bridge: distance from the heels to the end of the finger; centimeters</b>	15,5	16,0
<b>Cross split: distance from the floor to the symphysis; centimeters</b>	16,5	16,5

According to the Table 1, the results of testing of children before the start of the pedagogical experiment in groups are almost the same and have no reliable differences.

After the experiment, the children were re-tested. The test results are presented in Table 2.

**Table 2** *The test results of children of the control and the experimental groups after the experiment*

<b>Test: indicator, unit of measure</b>	<b>Control group</b>	<b>Experimental group</b>
<b>Forwards tilt from gymnastic bench: the distance from the plane of the bench to the end of the finger; centimeters</b>	17,0	19,5
<b>Stick transfer: the distance between the hands; centimeters</b>	30,5	26,5
<b>Backwards tilt lying on stomach: distance from the head to the floor; centimeters</b>	21,5	18,0
<b>Bridge: distance from the heels to the end of the finger; centimeters</b>	16,0	13,5
<b>Cross split: distance from the floor to the symphysis; centimeters</b>	16,5	15,0

According to the Table 2, after the pedagogical experiment, the results of the experimental group are better than the results of the control group.

### 4. Conclusions

The carried out pedagogical experiment leads to a conclusion that application of the devised method of forming flexibility allows efficient increase of flexibility level and corrects the physical development of children with the impaired hearing.

We think that the method of forming flexibility is useful for physical education teachers in special correctional schools for children with hearing loss.

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**STUDENTS MOTIVATION FOR PHYSICAL EXERCISES THROUGH  
SPECIFIC ATHLETICS MEANS**

Gâju Anca Florentina<sup>1</sup>, David Daniela<sup>2</sup>, Ionescu Alexandra – Mariana<sup>3</sup>,

<sup>1</sup>*Club Școlar Sportiv nr. 2, București, România*

<sup>2</sup>*Școala Gimnazială nr. 190, București, România*

<sup>3</sup>*Liceul Tehnologic Elie Radu, București, România*

**Abstract:** This paper aims to find motivational strategies to attract as many students as possible in the areas of practice exercises with appropriate professional sport. Athletics is a competitive sport that captivates and moves those enthusiast students, it is a unique combination of three types of elements (running, jumping and throwing). The athletics gives students the opportunity to compete in a setting that involves less risk than any other type of sport.

**Key words:** motivation, training, sport, students, competition

**Introduction**

Physical exercises have appeared “...in close connection with the material life’s conditions in the productive work process.”

Athletics is defined as a system of exercises such as running, jumping and throwing, in a natural and stylized way, with the aim of getting a specific development of the physical qualities and a result by practicing them.

Athletics, as a whole, is a sports branch based on individual competition, essentially characterized by the followings: (Alexandrescu D., 1983):

- in running and march events, the athlete aims to cover a given distance in the shortest possible time and respecting certain specific conditions.
- in jumping events, the athlete must detach from the ground, respecting certain conditions in order to achieve a flight as long as possible (for long jump and triple jump) and as high as possible (for high jump and pole vault).
- in throwing events, the athlete must throw special objects in the air, at long distances, respecting certain specific requirements. (Alexandrescu D., 1983)

As confirmed by Dragnea A. (2000), functional aesthetics, the plastic beauty of the human body and the lived beauty combine themselves harmoniously in athletics. For these reasons, it is assumed that there are certain "motivations" that make this type of sport to be practiced by most students, even for those in the preparatory class.

Motivation is a general term, which describes the process of starting, trending and maintaining physical and psychological activities, being a broad concept consisting of internal mechanisms such as. (Epuran M, 1995, Zlate M., 2000):

- preference for an activity over another,



- the enthusiasm and vigor of a person's reactions,
- perseverance in certain models (patterns) organized by action to achieve relevant objectives.

Motivation has the following characteristics (Cuiu I. A.,2014):

- it is characterized as an individual phenomenon, each person is unique and all important theories of motivation emphasize this uniqueness
- it is described as a phenomenon in the field of intentions, it is supposed to be under the people's control, and their behaviors are seen as choices of actions.

Any behavior is based on a motivation, being directed towards fulfilling goals focused on the need of obtaining satisfaction. (Șchiopu U., 1997, Orberts G. C., 1992)

The structure of motivation consists of all the reasons that stimulate the human behavior based on: needs, attractions, emotions, actions, facts, attitudes. The component factors of motivation are represented by: needs, impulses, intentions, valences and tendencies, they are phenomena that lead to the appearance of reason. The structure of motivation is achieved through the following transfer: "necessities and needs, once being aware of, are leading to desires, desires impulses and tendencies, that once being aware of, become intentions that need intensity and time to become actions."(Cosmonovici A., 1998)

Knowing the motivational factors that lead to the practice of athletics can facilitate the design of strategies to popularize this sport and at the same time increase the number of practitioners among students. They can be persuaded by appropriate motivational factors to practice physical exercises as an organic need to maintain mental comfort and harmonious physical maintenance. This aspect can lead to "movement dependence", implicitly to the athletics performance practicing.

Motivation for sports involves different aspects due to the fact that the sport itself differs in performance levels but also due to the fact that the sport is practiced by people of different ages.

The reasons why young people practice different sports branches are different, but most of them are related to the fact that practicing sports offers strong and diverse satisfaction. (Cuiu I. A.,2014):

1. direct reasons:

- specific feeling experienced by athletes and consisting in the satisfaction produced by the muscular activity during physical exercises that produce dynamogenic effects, increase the excitability of the

cerebral cortex and thereby act on all vital processes, producing positive emotional states,

- aesthetic satisfaction generated by the beauty and the skills in performing various movements,
- the tendency to show courage and determination during the execution of difficult and dangerous exercises,
- competition elements: the competition is an incentive for the activity, sometimes particularly following the participation, no matter the result obtained,
- the tendency to obtain valuable records or performances.

2. mediate reasons:

- the tendency to become stronger, healthier by practicing sports appears to most teenagers who are impressed by the qualities of famous athletes,
- the tendency to prepare for the professional activity through sports, teenagers realize that the good results obtained at work depend on: the level of physical training, health indices, the skills acquired through systematic physical exercises,
- the feeling of debt, the need to respect the norms imposed by participating in the activity,
- the understanding the social importance of sports activity

**Material and method:**

The aim of the paper is to find and highlight the motivational factors, through a research based on a questionnaire, which brings students both in gyms and in specially designed sports facilities, to actively participate in athletics classes, to improve their motor qualities and the technique of execution of the specific elements and procedures as well as for the socialization and the development of some moral and psychological values.

**Results and discussions:**

The research was conducted in the school year 2018 – 2019, based on a survey consisting of a questionnaire (adapted for the students in each category of education - primary, secondary, high school) containing 12 closed and open questions applied on a batch of 85 students aged between 6 and 18 (5% are between 6-9 years old, 27% are between 10-13 years old, 68% are between 14 - 18 years).

The surveyed students are the representatives of three educational institutions: ClubulSportivScolar no. 2 (School Sports Club no 2), ScoalaGimnaziala no. 190 (Secondary School no 190) and LiceulTehnologic Elie Radu (Technological High School Elie Radu).

Analyzing the practice of different sports tests by these students, we found out the following: 18% did not practice any sport (they are students from the Secondary School no. 190), 3% practiced athletics (they are students from

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the Elie Radu Technological High School), 79% are practitioners of other sports (they are sports students from the School Sports Club no. 2).

From those surveyed, 76% of respondents expressed their opinion about the attractiveness of this sport (athletics), which combines several events (running, jumping and throwing), 5% highlighted the benefit of physical and mental health, 15% are not interested in this sport and 4% did not know what to answer.

The students through their behavior and actions highlighted some moments and the motivation in practicing athletics as:

- constant presence,
- special efforts to perform tasks,
- continuous concern for improving performance,
- directing efforts to achieve significant objectives,
- increased enthusiasm,
- active involvement,
- increasing the number of questions related to the history of this sport, the foreign and Romanian athletes, Olympic performances, the regulations according to which the competitions take place,
- game proposals that contribute to the warming of the body or to the development of motor skills.

The teachers essentially must count the presence, efforts, consistency, orientation, persistence towards the fulfillment of tasks by students and intervene if they are not motivated.

A good motivation will help students to eliminate the concentration and self-confidence loss, the anxiety during training or competition, and the pre-competitive stress.

### **Conclusions:**

At the moment, taking into the consideration the conditions of social development, students will be attracted to practice physical exercises if the athletics classes are attractive and interactive.

The current trend of the society's fast development, especially of the technology, has led to a declining interest in instructional and educational activities, especially in physical education and sports. At the moment, the children do not find anything attractive at school, especially at the physical education and sports classes.

Participation in the athletics class allows students to have the opportunity to develop their knowledge and practices necessary to obtain personal physical values and health.

They also acquire adequate physical skills to participate in a wide range of physical activities and specialized sports skills.

Interaction and social inclusion take place at the physical education classes, and the participation should encourage personal values. School-age children should have many chances to do a variety of sports activities and games that suit their personality, ability, age and interests.

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**THE CONTENT OF THE MARTIAL ART ELEMENTS (WUSHU)  
ACCESSIBLE FOR THE PRACTICE BY THE SECONDARY STUDENTS**

Ionescu Mihail-Leonard<sup>1</sup>, Popescu Darius-Liviu<sup>2</sup>

<sup>1</sup> *PhD in physical education and sport sciences, Bucuresti, Romania*

<sup>2</sup> *PhD student, State University of Physical Education and Sport, Chisinau,  
Republic of Moldova*

**Abstract**

Today more and more educational institutions in the European Union but also in Romania, successfully use as a new medium the martial arts, by promoting the concept of struggle and self-defense, but also of political and even religious conceptions and institutions. According to the social command, the martial arts - Wushu, aim first and foremost an educational-cultural purpose that aims to develop a harmonious personality by acquiring the specific moral and philosophical values, then we can also have a purpose that seeks the qualification of the labor force in order to a social of the individual integration.

**Key words:** *martial arts (wushu), development, students, instructional-educational process, physical condition.*

**Introduction.** Martial arts have become an important component in the lives of many adults and children alike. Usually, parents take their children on such an activity to improve their mental qualities such as attention, or to become more disciplined, but especially to have the ability to defend themselves in the event of an aggression. Many adults have made martial arts a real way of life, thus becoming role models for the young generation.

**Research methods.** In the scientific approach we have made in this paper we have used several methods in order to know the current state of the proposed theme, but also to highlight the effects of a new methodological approach by introducing the means of martial arts (Wushu) in the instructional-educational process in extracurricular sports activities. These methods are: theoretical analysis and data generalization from the literature; studying the working documentation; comparative method.

In Europe, martial arts is not normally part of the core curriculum, but especially some private schools offer classes with this specific feature. Some researchers [Chiriță G., 1994; Guoli Liang, Richard T. Walls, Chunlei Lu, 2015; Taketo S., 2006; Vertonghen J., Theebom M., 2010; Wojciech J. Cynarski, 2006] in our field, have found that such classes that have a more attractive character also have the role to combat the dependence on modern technology, but also on sedentarism and the phenomenon of bullying. Apart from these aspects, the more

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varied the offer, the more opportunities children have for being involved in physical activities and growing healthier.

However, some school officials are concerned about the danger of such classes, both in terms of possible accidents and increasing aggression.

However, these false concerns are eliminated through the correct instructional-educational process addressed, making the martial arts very safe, but also very educational.

In the school environment, which is well controlled, they become an educational medium and are no more risky than football, basketball, etc. Or any other discipline with direct contact. There are also cases where parents' fears arise, many seeing these classes only as a way of teaching children to hit other children. And in this case it is a false fear, because the first lesson in martial arts is that of self-respect and self-control.

On the other hand, in today's technological society, the attraction to movement in general and to exercise in particular has become inversely proportional. The orientation of children towards an organized form of exercise that is not financially expensive, is more than ever an important wish. Thus, from this perspective, the martial arts classes do not necessarily turn to their training for competition, but offer an excellent alternative for those who do not find themselves in the classical curriculum leading to say, to a middle area out of the stereotype of classical education, but which has the role of strengthening the student at this age, both physically and mentally.

Thus, the physical aspects of the martial techniques improve the overall health, and through their psychological component, they improve the emotional health, increasing the confidence in their own forces, fighting stress, anxiety or even depression.

Here are some of the basic objectives of martial arts:

- self-defense, the martial arts have a maximum degree of applicability in real life, especially in the situations of youth aggression that is expanding lately known under the modern term of "bullying";

- through the specificity of the wushu lesson, children learn to focus better on the tasks they receive, improving even their ability to listen besides the reaction, excelling in physical activity, improving their ability to concentrate, becoming more obedient not only in the training room, but also at school or at home;

- teamwork and social interaction. Teamwork is important in developing character traits at this age because you begin to understand and gain confidence in working with others, teaching them that by working as a team, in the training room, you can continue at school as well or at home performing tasks faster and even more complex;

- correct self-control and decisions. Self-control in children of this age segment practicing martial arts refers to that type of training that will lead to the fulfillment of the task or objective proposed, adopting a tenacious behavior;

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- body balance and pattern. Training in the basic techniques has this role because it corrects the body's attitude, thus improving the respiratory capacity and the proper functioning of the internal organs, while some technical processes that involve movement make the students more aware of their own body and of the different segments involved in motion;

- physical condition and a healthy lifestyle. By practicing martial arts at this age, students begin to understand and value their health. A good physical condition is a necessity for anyone doing martial arts. But even more important is that the sooner the child realizes this, the healthier he will be in the future, away from harmful habits;

- respect. It is one of the pillars supporting martial arts. Children are taught to respect the place where they train, to keep them clean and to greet them on and off, to respect nature, training colleagues and teachers;

- combating bullying - which is a type of aggressive, unwanted behavior that manifests itself as an imbalance of power. Children who behave in this way use their strength by threatening, verbally or even physically attacking, excluding a child from the group. Through martial arts students learn how to redirect such behavior, without using violence, learning to observe threats of this kind early.

The extraordinary complexity of combat sports (wrestling, Greco-Roman wrestling, ju-jitsu, wushu, judo, sambo, etc.) are, without exception, the expression of a long tradition. This tradition includes a very old process of knowledge that probably dates back to the origins of humanity, when people were preparing for the great struggle of life.

Fighting is one of the oldest sports activities known in history and no matter what name it bears, they have points of tangency both in terms of effort specificity and of the principles, methods and procedures used [Manolachi V., 2003, p. 6] .

WUSHU - is a word of Chinese origin, which denotes the multitude of fighting styles that have developed in different areas and social media of China bearing the marks of philosophy, culture and religion (Shaolin and Wudang temples), Chinese [Negoescu MC, Ionescu ML., 2016; Guoli Liang, Richard T. Walls, Chunlei Lu, 2015; Muzrukov G., 2004; Taketo S., 2006; Wojciech J. Cynarski, 2006].

Wushu translated from Chinese as "martial arts". The first term "ART" refers to a form of social consciousness and just like science, art as a cultural phenomenon reflects reality through concrete sensory images or gestures. Art reflects reality artistically, thus fulfilling an aesthetic and a social-educational function. The works of art in general have an ideal content, which is also their determining element. Addressing equally the intellect, the psychic also having the role of creating emotional states, possessing a form that organizes, expresses and consumes the respective content.

The meaning of the second term "MARTIAL" originates from the fact that MARTE was the god of war to Romans. Today, this term implies a solemn and

serious state, a warrior attitude, or a legal order from which the notion of "martial law", which designates the imposition of the order by means of force [196].

On the other hand, the ideograms representing the name of "MARTIAL ARTS" can be decrypted as follows:

- The particle "WU" (the first ideogram) is composed of two parts; the first symbolizes the stop, stop (ZHI - stop, stop) action, the second symbolizes the halberd (GE - halbard). Full character leading to a double interpretation, the first one referring to the use of combat or military force (the halberd being in ancient times a military weapon) to defeat disorder and violence, restoring peace with weapons, but in the spirit of justice, as well as martial law, the second meaning referring to stopping the fight or force gestured by the Chinese greeting in which the left palm, which comes from the heart, symbolizes love and / or peace, and the right fist highlights the strength, the war. So the peace that covers the war, in fact a metaphor that teaches us that intelligence must prevail in the face of force.

- The particle "SHU" (second ideogram) refers to the method, the path, the technique or the ability to perform a certain type of activity.

The two terms taken together can be translated as "the art of stopping the fight by fighting", that is, martial arts.

Thus, Wushu originates in China, having a multi-millennial history with rich content and a wide variety of manifestation forms.

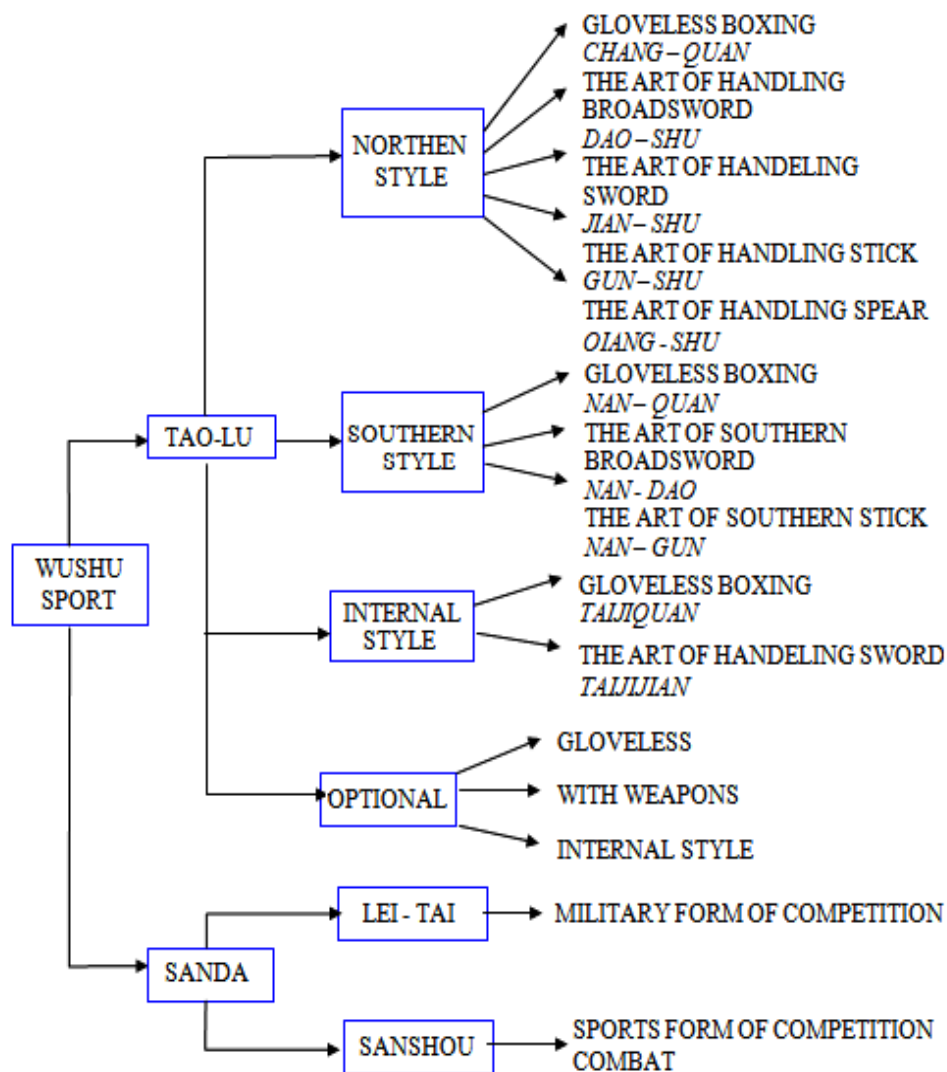
It can be said that over time Wushu has been perfected by the human being in its struggle both with the vicissitudes of nature and in human conflicts throughout history.

Today the martial arts - Wushu, contain an extremely important sporting value, contributing par excellence to the formation of a strong mind, a fair character and a developed harmonious body. Wushu martial arts is based on China's multilateral cultural values, but at the same time it has the characteristic of uniting people from different cultures, thus improving the general education as well as the character of young people (I.W.U.F., 2003).

As a sports discipline, the Wushu contains two major branches named in the specific terminology TAOLU (forms) and SANSHOU (fighting): Scheme 1.

The TAOLU samples have a varied and complex content, which can be divided according to several criteria such as bare hands and weapons, or shapes from the north or south of China, or external shapes and shapes with internal character.





**Scheme 1.** Systematization of sports wushu

Thus, on October 4, 1990, the International Federation of Wushu (I.W.U.F.) is established in Beijing, where Romania is a founding member along with dozens of other countries on the European continent and beyond. Throughout the two decades of existence there have been numerous world and continental competitions for both junior and senior athletes.

In 1994, I.W.U.F. receives the General Association of International Sports Federations (AGFIS) recognition, and in February 2002, on the occasion of the 113th Session of the International Olympic Committee, Wushu receives the Olympic recognition, having at that time 107 member countries from the five continents.

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However, we consider that it cannot be mentioned that in 1936 China sent a team of Wushu to the Berlin Olympics, the evolution being appreciated at a high level by the officials but also by the public.

Also, it should be noted that in 1970 the President of the United States, Richard Nixon, complimented the Chinese delegation that visited the White House, following the excellent demonstration of martial arts held in front of him (from that delegation was also part of Li Liang Jie, the most popular movie actor known today as Jet Li)

The president of the International Olympic Committee, Mr. Juan Antonio Samaranch, in a congratulatory letter to the IWUF, said: "Wushu has far exceeded the borders of a national sport, since lovers of this beautiful sport from all over the world, meet at these competitions where they explore sporting values and moral concepts whose role is to educate young generations around the world".

The Vice President of the International Olympic Committee, Mr. Gospan had the opportunity to follow and appreciate the sporting and moral values of Wushu during his participation in the National Games in November 2001, where he was invited, as finally President Rogge to hand over to the IWUF President, Mr. Li Zhi Jian, the letter granting Olympic recognition through the words: "Welcome to the Chinese Wushu in the Olympic family."

The recognition by the International Olympic Committee of the IWUF, led to the proposal only of certain TAOLU samples as being of an Olympic character, namely in boys - CHANG QUAN (Long Box), NAN QUAN (South Box), DAO SHU (Paloşului Art) and GUN SHU (The Art of the Stick), while for the girls, CHANG QUAN (Long Box), TAI JI QUAN (The Internal Box), JIAN SHU (The Art of the Sword) and QIANG SHU (The Silk Art) were chosen as Olympic samples. At that time, SANSHOU (the wrestling event) was not included in the Olympic trials program.

On the occasion of the 9th edition of the Wushu World Championships held in Beijing (2007) the first qualifications take place in the Olympic trials at TAOLU, being included in this program and the two-weight women's wrestling competition. and four weight categories for boys, following as the next year, when hosting the Beijing Summer Olympics, the Wushu enter the Olympic arena as a demonstration sport.

I, (Ionescu Mihail-Leonard) personally led Romania's Wushu team to O.G. Beijing Summer (2008), but Wushu did not enter as a demonstration sport anymore, but held a competition in parallel with the J.O. what was called the 2008 Wushu-Beijing Tournament.

IWUF is currently looking forward to the invitation to O.G. Tokyo summer 2020, where he was included on the shortlist for the Olympic program, alongside baseball / softball, bowling, karate, roller skating, rock climbing, squash and surfing.

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The Wushu contains a very solid educational aspect regarding the development of positive character traits as well as a correct formation of the preteen's psychological profile.

From a somatic and functional point of view, taking into account the specific characteristics of this age, the specific elements of Wushu, optimally dosed, can have a positive influence on the harmonious physical development of the student included in the high school education.

With the evolution of Wushu worldwide and its increase in the diversity and variety of the content of sports events, but already knowing the problems encountered in the instructional-educational process with the students from the secondary education, we developed in 2004 the National Assessment System in Wushu.

In 2005, I, (Ionescu Mihail-Leonard) presented this material at the European Wushu Conference held in Sicily (Catania), Italy. Thus, the system I proposed for the European Wushu Federation (EWUF), aimed first and foremost at optimizing the transmission of technical information to young and middle-aged practitioners, but also at increasing the quality of the instructional-educational process, raising the technical and theoretical training level of trainers on the one hand, but also of the practitioners on the other, whether they are at the level of performance or not. It also contributed in this way to the development and growth of Wushu practitioners.

The main objective being the establishment of a standardized technical framework as well as clear rules for evaluating and verifying the degree of correctness and thoroughness of the learning of the specific techniques for the different sports events in Wushu, resulting directly in increasing the level of technical training, especially at the level performance scale for both TAOLU and SANSHOU tests.

Thus, at the suggestion of President E.W.U.F., Mr. Raymond Smith, in 2006, Romania organizes at the Izvorani Olympic Complex, the European Seminar to introduce this system at the level of European federations under the name of European Grading System (E.G.S.).

Following this seminar E.W.U.F. an intense activity to promote the E.G.S. among Wushu practitioners at all levels.

Thus, for this experiment, we chose as standard content the technical elements found in the National Evaluation System in Wushu (S.N.E.W.), specific to the first level - beginner.

We have selected these means, which are part of S.N.E.W., but some of them have been simplified so that they become much more accessible to subjects who do not perform sports. We did, this new approach, not only based on our own teaching experience, but also through some small experiments and surveys that we carried out in the practice of extracurricular teaching of wushu, precisely considering that the experiment groups are formed. from girls, who at this age show greater ease in approaching exercises of an artistic character, as opposed to the boys who would

find it easier to approach physical exercises in working with a partner (in pairs), requiring more strength and Physical resistance.

In **conclusion**, we can mention that the Wushu contains a very solid educational aspect regarding the development of positive character traits as well as a correct formation of the psychological profile of the preteen. From a somatic and functional point of view, taking into account the specific characteristics of this age, the specific elements of Wushu, optimally dosed, can have a positive influence on the harmonious physical development of the student included in the secondary education.

Thus, it was practically found necessary to divide into smaller, more accessible information quantities of the basic technical elements of Wushu, so that they would be easier to understand, especially at the level of the 5th and 6th classes, that is to say exactly in the phase in which the foundations of the practice are laid and when the elementary dynamic stereotypes specific to Wushu are formed, on the basis of which future technical progress is made. In this sense, for this experiment, the technical elements that are found in the National Assessment System in Wushu, specific to the first level - beginner, were chosen as standard content.

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## **THE IMPORTANCE OF GAMES IN THE PHYSICAL EDUCATION SCHOOL ACTIVITY**

**Pană Gabriela**  
**Gymnasium School No.30 Braşov – Romania**  
Corresponding author: gabitza\_p@yahoo.com

### **Abstract**

Emerging from the objective social requirements, the games contribute to the stimulation and cultivation of the relationships of friendship and collaboration, of the initiative and the creative imagination, to the formation of a complex background of motor skills, skills and qualities.

Sports play is an excellent form of activity, able to promote the strengthening of the body, but also the pleasant, recreational and useful organization of leisure time. In the activity of physical education, the games have different contents and orientations, as well as different forms of organization and development.

Games, in general, are total activities, attractive, spontaneous, free, natural and disinterested, having recreational and compensatory valences.

**Keywords:** *games, activity, physical education, competition.*

### **Introduction**

The game, as a form of human activity, beautifies and completes life, being indispensable both to the individual as a biological function and to society, because of its value as a means of expression, as a cultural function.

The game represents a typical form of activity created by man, being a social phenomenon, formed and sustained within the human society.

As a social phenomenon, sports play has a special significance that far exceeds the sphere of physical education and even education as a whole, as the game has served and serves to meet different needs including spiritual and physical development, rest and fun. Emerging from the objective social requirements, the games contribute to the stimulation and cultivation of the relationships of friendship and collaboration, of the initiative and the creative imagination, to the formation of a complex background of skills, skills and motor qualities.

Sports play is an excellent form of activity, able to promote the strengthening of the body, but also the pleasant, recreational and useful organization of leisure time. In the activity of physical education, the games have different contents and orientations, as well as different forms of organization and development.

The games, in general, says Gh. Cârstea (2000), are playful activities, with special implications on the development of the personality of the performers from several points of view, including that of the contribution to the social integration level. They are total activities, attractive, spontaneous, free, natural and disinterested, having recreational and compensatory valences.

According to the aims pursued, as well as the particularities of their organization, the games are divided into three groups

– Motion games (dynamic), based on simpler motor actions whose execution is partially governed by rules. Through these games, walking, running, throwing, balancing, jumping, climbing, etc. are strengthened. The game also develops coordination, the ability to perceive rhythm and orientation in space, under the conditions of a positive emotional state, in a mood of joy and optimism. Games educate self-confidence, the feeling of friendship; stimulate the pleasure of acting in and for the collective. They can be accompanied by songs, lyrics or texts.

– Preparatory and helpful games for learning and perfecting certain movement skills, specific to certain branches of sport. They are created either to initiate the acquisition of skills and movement skills similar to the content of some sports branches, or to perfect, in a complex form, technical, tactical or motor skills to increase the performance of athletes.

– Sports Games. They are different from the others, first of all, by their rigorously organized character. The presence of rules established by unique regulations, approved by the governing bodies of the sporting activity, specifying the dimensions of the lands practiced, the duration of the game, the system of appreciation of the winning teams, the number of players, the conditions of arbitration, etc., give them a form and content of superior unfolding and, at the same time, unitary. Sports games have their origin in (dynamic) movement games, which, with the development of the sport, have been given a sporting character, namely that of racing in compliance with certain regulations.

In "Terminology physical education and sport" (1974), playing sports is defined as *a complex of exercises practiced as playing with an object (ball, puck, etc.)* *Ava when size specific, in which two teams or two opponents they compete according to some rules of organization and unfolding .....*

Sports games are therefore a very important part of the activity of physical education in school, perhaps even one of the most important, as they represent a form of playful character of the physical exercise, of special educational value.

The games with competition character are found in all the activities of physical school education, starting from those applied in the form of sports games with simplified content in the lower classes, until the bilateral game applied to the secondary or high school cycle.

The appearance in these activities with a competitive character, of a play object, respectively of the ball, makes it the main object in the play activity and entails the attraction and participation of children in sports games.

The main feature of sports games being competitiveness, in the first part of puberty is noisy, but as the pre-adolescence progresses, competitiveness with more balanced behavior appears, so games with a "leisure" character, games with a sports character and with stricter rules.

Sports games as effective means of competition, aim in school education in a pleasant and accessible way to perfect motor skills, develop motor qualities; contribute to psycho-motor education by training motor sensibility, sense of rhythm and balance, spatial orientation and some personality traits.

The use of knowledge, skills, motor skills does not consist in their spontaneous, mechanical use, but in the creative application of motor luggage, and children are required to use in new conditions what they have learned, to choose, to combine, to restructure what is learned. best matches the time and task. The practice of sports games corresponds to the development of the desire to assert one's personality, by comparing with others, by displaying qualities, by imposing the will in front of others.

Therefore, in the game, agonism appears - the active manifestation of the positive tendencies of affirming the human personality by competing with oneself, with others, with nature, which correctly manifested represents combativity and fair-play, incorrectly becomes aggression, tendency to destruction.

### Conclusions

1. Competition in the physical activity of school education increases the students' interest in the physical education activity, mobilizes their strengths, stimulates them; sports games through the specific activity in the collective, involves cooperation, collaboration with the game partners, harmonization of individual actions with collective ones, acceptance of rules, critical and self-critical attitude .

2. Sports games are excellent, emulative activities, deeply marked by the desire to do better, more and with competitive results. Promoting in all the activities of physical school education the competition through games, and especially through sports games is an essential requirement since competition is, therefore, the strongest link in the game and at the same time it is the most powerful element of progress.

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## **PROFESSIONAL COMPETENCE EVALUATION OF THE SPECIALISTS IN THE FIELD OF PHYSICAL EDUCATION AND SPORT**

Carp Ion, PhD, university professor  
Gheorghiu Ivan, PhD student

### **Abstract:**

In the given research is tackled the problem of professional competence evaluation of the specialists from the physical education and sport field within the process for confirming and giving the teaching degree at the discipline “Physical education and Sport”, according to the requirements of the active regulation. After analyzing the reports of self-evolution and methodical papers by more than 600 candidates in order to achieve the teacher certification<sup>1<sup>st</sup> degree</sup> and higher teaching degree we found out that the current system of professional competences of physical education teachers and coaches is not perfect but raises some question marks, that we will discuss later.

**Keywords:** evaluation, pedagogic mastership, general/special professional competences, physical education teachers, coaches.

### **Introduction.**

Currently, the specialist in the field of physical education and sports is considered a practitioner who has acquired through continuous studies the status and ability to perform autonomously and responsibly non-routine intellectual activities in order to achieve objectives in various situations, demonstrating necessary skills for teaching and developing professional standards [1,2,3,4].

In this context, we consider that the issue of the training process is extremely vast and complex, but the formation and manifestation of professional pedagogical skills, as well as their evaluation is the essential feature of the current instructional-educational process, a feature imposed by changing the center of gravity from the aspect that presupposed the assimilation of knowledge and information on the applicative one.

For this, the qualification of the physical education teacher and coaches from different sports must be enriched and revised by continuous improvement, which determines the development of the field skills: teaching, practical experience, scientific and educational policy - in order to apply the results of their activity in multilateral training of subjects.

At present, initial and in-service training programs of teachers focus on identifying professional competencies in certain seasons, special courses, evaluation tests for in-function broadcasting, conferring and confirming didactic teaching degree in accordance with the Regulation in force, a phenomenon which oriented us towards the realization of this study.

### **Organization of the study.**

In accordance with the *REGULATION of attestation of teachers in general education, technical vocational education and in psycho-pedagogical assistance services* during 2012-2019, in front of the Republican Commission for the evaluation of teachers in the field of physical education and sports, 602 candidates were present to conferring and confirming didactic teaching degree:



77 - for conferring the higher degree;

148 - for the confirmation of the higher degree;

190 - for conferring the teaching degree “one” based on the self-evaluation reports and the performance interview;

187– for the confirmation of the teaching degree “one” based on the self-evaluation reports and the performance interview.

**The results obtained.** In order to highlight the level of manifestation of professional skills of physical education teachers and coaches who claimed to obtain and confirm teaching degree during 2012-2019, we studied the documents presented by the respective group of candidates Tab.1.

**Table 1. Dynamics number of candidates for obtaining teaching degree during 2012-2019**

<b>Year</b>	<b>Conferring 1</b>	<b>Confirmation 1</b>	<b>Conferring higher degree</b>	<b>Confirmation higher degree</b>	<b>All candidates</b>
2012	34	18	4	6	62
2013	43	82	24	72	221
2014	15	20	9	17	61
2015	24	3	6	1	34
2016	32	5	6	4	47
2017	10	22	4	-	36
2018	14	24	16	31	85
2019	18	23	8	17	56
<b>2012-2019</b>	<b>190</b>	<b>187</b>	<b>77</b>	<b>148</b>	<b>602</b>
Teachers/	79/	83/	29/	51/	242/
Coach	111	105	48	97	360

The analysis and examination of the methodical works presented for obtaining teacher certification 1<sup>st</sup> degree and higher degree, self-evaluation reports as well, allows us to find that all 242 candidates show professional skills in the field of physical education and fully deserve what they claim. The topic of the presented works is current, because it addresses the problem of optimizing the educational process in the discipline of "Physical Education" and sports training. Table 2.

The 360 coaches/teachers who opted for conferring and confirmation of teacher certification 1<sup>st</sup> degree and higher teaching degree, most showed high professional skills specific to theory and sports training methodology, presenting exceptional experimental results locally and nationally, a diverse topic of research as a basic component of self-evaluation reports and methodical papers as well, are presented in Table 3.

**Table 2. Research topics preferred by candidates to teaching degree in the field of Physical Education**

<b>No.</b>	<b>Priority research directions</b>	<b>No. topics</b>
<b>1</b>	Current issues of physical education in schools at the level of implementation of the new curricula 2010/2018	8
<b>2</b>	Forms of organizing physical education in pre-university institutions	36
<b>3</b>	Cognitive skills formation for students in PE lessons	18
<b>4</b>	Psychomotor skills formation of various categories of students	14
<b>5</b>	Motor skills development/ Dosage of physical effort in PE lessons	65
<b>6</b>	Physical education for health / PE in special medical groups	27
<b>7</b>	Strategies for streamlining the PE process in pre-university institutions	31
<b>8</b>	Assessment of school results/skills of PE Criteria evaluation by performance descriptors	17
<b>9</b>	Didactic design of the PE process	9
<b>10</b>	Professional guidance and applicative feature of PE at the level of final results	7
<b>11</b>	School Olympiad in physical education	10
	<b>Total</b>	242

In order to obtain the first teaching degree, 190 candidates opted and approached the problem of streamlining the physical education lesson by using dynamic games in order to develop and evaluate the qualities and motor skills of primary school pupils; the problem of using traditional methods of rehabilitation of pupils with orthopedic disabilities in physical education classes. The content of the reports presented by the teachers constitutes a methodical-applicative material and can serve as a methodical support for teachers without work experience in the field of physical education and sports.

It should be mentioned the performance interviews presented by the 187 teachers and coaches with experience in the field of physical education and sports,

candidates for teaching degree confirmation, who addressed the issue of training psychomotor skills of high school pupils, focusing on coordination skills, whose efficiency was demonstrated by the factual presented results.

**Table 3. Research topics preferred by candidates to teaching degree in the field of Sport**

<b>No.</b>	<b>Priority research directions</b>	<b>No. Topics</b>
<b>1</b>	Sport and contemporary society	17
<b>2</b>	Sports competitions - the core of sports	28
<b>3</b>	Current issues of the athlete training system	37
<b>4</b>	Selection and orientation in sports	76
<b>5</b>	Athletes' preparation in the training process	59
<b>6</b>	The structure of sports training	43
<b>7</b>	Periodization of sports training	31
<b>8</b>	Planning, control and evidence in sports training	25
<b>9</b>	Recovery and rehabilitation in sport	15
<b>10</b>	Aria	29
	<b>TOTAL TOPICS</b>	<b>360</b>

The analysis of the methodical works, of the self-evaluation reports presented and of the results demonstrated by the candidates to conferring and confirmation of the teaching degree in the field of physical education and sports, together with the mentioned advantages, also highlighted some gaps such as:

\* some of the candidates do not comply with the requirements of the current Regulation for conferring and confirming teaching degrees ...;

\* in most cases, the authors elaborating and presenting the works for conferring the higher teaching degree reproduce the information without having their own opinions and contribution in carrying out some experimental studies;

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\* analyzes and references are made to the literary sources that address the researched problem at an insufficient level;

\* at a low level, one's own contribution in solving the approached problem is described (presentation of complex exercises, didactic contents, teaching-learning-evaluation methods, etc.);

\* the approached topic does not comprehensively include the issue and objectives of physical education at curriculum level (by fields of activity: cognitive, psychomotor, affective and social);

\* the reports presented by some candidates (teacher coaches) do not fully reflect the specific problems of the methodology of athlete's preparation in the sports practiced tests;

\* the conclusions in the approached research topics do not reflect the hypothesis and the objectives proposed for solving etc.

Considering the mentioned problems allows us to find that, in order to successfully achieve at a high level, the objectives of physical education and sports, as well as the manifestation of professional-pedagogical mastery, teachers and coaches must possess the following *skills*:

\* *general* - refers to the ability to assimilate and use theoretical knowledge in practice, to find and analyze information from different sources, to generate new ideas and to adapt them quickly to training situations, to conceive and ensure the management of a project, to make decisions and to lead, to relate and work in a multidisciplinary team, to analyze and evaluate human behavior, to research various problems of physical education and sports (by formulating relevant hypotheses, demonstrating independent research skills and teamwork, critical examination and integration of information from the scientific literature, research results, etc.);;

\* *specific* – refers to the actual activity of teachers, being focused on:

- use and interpretation of information from the theory and methodology of the field, terminology and concepts specific to physical education, sports, physical therapy and recreation;
- understanding and respecting the specific principles of physical education and sports training;
- the formation of some fundamental concepts and values regarding the motor activity and its anatomo-physiological influence on the human body;
- development of basic, functional, applicative, volitional and aesthetic motor qualities through the systematic practice of physical exercises;
- building interactive teaching approaches by adapting strategies to content;
- adapting the competent application of regulatory documents, which ensures the organization of different forms of physical exercise in curricular and extracurricular activities;
- designing the training content, the proper organization of the didactic activities and carrying out the evaluation of the competences acquired by the students;;

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- the adequacy of the didactic approaches to the age and gender particularities and level of training of different types of subjects to the material conditions;
- building an educational climate which is interactive, cooperative and stimulating, in order to increase the efficiency of teaching results;
- understanding the legislative aspects of its activity, the legal rights of students and parents, its appropriate rights and responsibilities;
- knowledge of the evaluation criteria of its activity and their integration in the conception and realization of the didactic activity;
- formation of personality qualities, civilized behavior, communication and social interaction skills.

Thus, the general and specific skills demonstrated by the candidates must correspond to the current conceptions regarding the training process, they will follow on the one hand the development and continuous training of the specialists and on the other hand the field of physical culture and sports. As a result, the initial and continuous training programs for teachers, at national and international level, enjoy a new acmeological approach, being subordinated to the requirements of the social and cultural-sports system, focused on achieving objectives that can ensure the formation of skills and capacities of teaching-learning, evaluation and behavior, an important role falling to the professional and psycho-pedagogical competence of the specialist in the field of physical education and sports.

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## **THE IMPACT OF SHOCKWAVE EXERCISES ON ADOLESCENTS**

Chustrak Anatoliy<sup>1</sup>, Kizirian Artemiy<sup>2</sup>, Kizirian Edvard<sup>3</sup>

<sup>1</sup>PhD (Candidate of pedagogical Sciences), Associate Professor, Private-Professor, Department of gymnastics and sports martial arts, South Ukrainian National Pedagogical University named after K. D. Ushynsky, Zabolotnogo street, 28, apt.188, Odessa, 65025, Ukraine

<sup>2</sup>Excellence in public education of Ukraine, Dovzhenko street,9, apt.45, Odessa, 65058, Ukraine

<sup>3</sup>1st year student of the medical department, South Ukrainian National Pedagogical University named after K. D. Ushynsky, Dovzhenko street,9, apt.45, Odessa, 65058, Ukraine

### **Abstract**

In order to increase the interest of adolescents in physical culture and increase their physical activity, empirical studies of the impact of shock wave exercises were conducted with the help of self-made simulators from plastic bottles filled with two thirds of water, pebbles and metal rods, in comparison with other physical exercises. Studies were conducted in teenagers 14 years old of two classes (n=77) in physical education lessons. One class was control, in the other, general developmental exercises with bottle simulators were carried out in the preparatory part of the lesson for 15 minutes, three times a week, for six months. At the beginning and end of the experiment, the physical development (Height, Mass, Vital capacity of the lungs, Blood pressure, Heart rate, Saturation of blood with oxygen -SpO<sup>2</sup>) and physical fitness (Flexibility, Speed, Agility, Strength, Strength endurance, High-speed strength) of all adolescents were determined. Although, almost all the physical qualities of adolescents were low before the pedagogical experiment, they had improved significantly after the six-month experiment. Almost all students in the experimental class showed good and satisfactory results, both physical development and basic physical qualities, according to state standards. Use in physical education lessons of the bottle simulators increase the interest of adolescents in physical education. Shock-wave exercises with the use of bottle simulators reduce body weight, increase the functional adaptive capacity of the cardiovascular system, developed well the flexibility, speed, endurance, speed-power and power qualities of schoolchildren. The results of the study can be useful for coaches and physical education teachers in general schools.

Keywords: teenagers, shockwave simulators, physical qualities.

### **1.Introduction**

Positive effect of various exercises with the use of shaking and muscular vibration has been known for a long time. Muscular shaking is present in many exercises: varieties of walking, jogging, various jumps, vaulting and unsupported jumping, and skipping rope, dancing exercises. In 1927, the Katzudzo Nishi Recovery System was established. Katzudzo Nishi himself acknowledged that this system was not his invention. He has studied and tested many methods and systems for healing people, including ancient Greek, Ancient Egyptian practices, Tibetan, Chinese, Philippine medicine, yoga, including exercises to expand the human

capillary through shaking. Today it is known "Agashin's simulator", with which you can perform shockwave exercises. In addition to F.K. Agashin, vibration methods and biomechanical training tools, is developed by a large group of specialists of Samara Aerospace University (Samara National Research University named after S.P. Korolev) under the guidance of professor V.S. Saveliev. According to the conclusion of the Moscow Medical Academy by name I.M. Sechenov: "training with "dynamic dumbbell" normalizes of blood pressure and heart rate, increases oxygen consumption and improves hemodynamic", (Frolov et al., 1989, p. 36). But these simulators are quite expensive and it is impossible to make them yourself. There is so-called «vibro-gymnastics», by M. Gogulan, (2002), by which, she herself cured by the Katzudzo Nishi system. In 1994, a new direction in medicine appeared - treatment using dosed microvibrational effects. Based on the effect of improving blood circulation and lymph circulation in the area of vibro-acoustic exposure, was also recommended for the recovery of people (Vasiliev et al., 2004, p. 11).

### **2. Material and Methods**

We used exercises with shock-wave effects using simulators made from plastic bottles filled two-thirds full with water, gravel and metal rods. For the 500ml bottles, two metal rods, 15mm in diameter and 11 and 15cm in length, were used. For bottles 580ml - rods 15 and 17cm. When performing shaking exercises, rods of different lengths hit the bottle lid one by one: 1) longer, 2) shorter, 3) balls or pebbles, creating a fine vibration with noise effects that students liked. The noise effects were similar to the drum accompaniment. This raised the mood of the students and promoted the effectiveness of the classes. Filatov A.T. (1979) recommended such "exercises with smiling face" for "the formation of an optimal psychological climate in sports teams". We have developed a system of exercises with bottle simulators and tested their effect on physical education lessons for six months. The study involved 8th grade students aged 13,5 to 14,5 years, girls (n - 45) and boys (n - 32). We determined physical development by indicators: Height, Body weight, Vital Capacity of lungs (VCL), Blood Pressure (BP), Heart Rate (HR), Saturation of hemoglobin with blood oxygen (SpO<sup>2</sup>), and physical fitness: Flexibility, Speed: running 60 m; Strength of hand and back extensors; Agility: shuttle running (4x9 m); the Speed-power qualities: skipping rope in 1 minute and long jump from place; Strength endurance: pull up and lifting from a supine position to sitting for 1 min. schoolchildren. The studies were conducted in two classes, which did not differ significantly in terms of physical development and fitness. One class was a control, where regular lessons were taught under the State Program. The second class was experimental, where the shockwave exercises were performed in the preparatory part of the lesson for 15 minutes, three times a week for six months.

### 3. Results and Discussions

Before the experiment, the average body length of 8-th grade boys was lower than the average of the rating tables - (from  $M-1\sigma$  to  $M-2\sigma$ ) – 163,5 cm, and the girl’s body lengths were average - (from  $M + 1\sigma$  to  $M-1\sigma$ ) – 162,9 cm, although no significant statistical difference between body and length indicators of boys and girls was found (Table 1). Body weight, both for boys – 59,8 kg, and for girls – 51,8 kg, according to the rating tables was higher than average (from  $M + 1\sigma$  to  $M + 2\sigma$ ). The boy’s body weight was significantly greater than the girl's weight by an average of 8 kg ( $P<0.01$ ). The vital capacity of the lungs, reflecting the ability of the body's regulatory ability to control external respiration, met the age standards, both in boys – 2,5 liters and in girls – 2,55 liters. It is generally accepted that a deviation of 10-15% corresponds to the norm (Herbut, 2015, p. 69). The mean VCL of boys was 0,8l greater than that of girls ( $P<0.05$ ). According to the opinion of doctors, in 14-20 years of blood pressure: 100/70 - 120/80 mm Hg. -are considered normal. In experimental studies (M.V. Yoltukhivsky et al., 2017, p. 31), «it has been found that, due to hyperkinesias, which is very common in schoolchildren recently, among teenagers 14-15 years, 50% of boys and 78% of girls have low and below average levels of functional the status of the cardiovascular system». The mean heart rate in girls was slightly higher (81,1) than in boys (80,3), but this difference was not significant ( $P>0,05$ ). Average figures girls and boys of  $SpO_2$  were normal and with no significant difference. ( $P>0,05$ ).

**Table 1** *Average indicators of physical development of teenagers of 8th grades before the experiment*

Sex	n	Body length (sm)	Mass (kg)	VCL (l)	BP (mmHg)	HR (number times: 1min)	$SpO_2$ (%)
M	32	163,5±0,67	59,8±0,58	2,5±0,45	117/74±3,2/4,3	80,3±5,1	96,1±0,34
F	45	162,9±0,73	51,85±0,49	2,55±0,38	112/73±4,7/3,5	81,1±4,6	96,3±0,27

The physical preparedness of adolescents before the experiment was quite low (Table 2). Average indicators of flexibility (bend sitting) of boys - 1 point, girls - 2,5 points according to the five-point system of State standards. Speed (60 m run) of boys - 2 points, of girls - 2.5 points. Dexterity of teenagers boys and girls (shuttle running 4x9m) - 0 points. Hand strength and back extensors boys and girls have 3 points. Power endurance: (pull-up) in boys - 0 points; in girls (from hang lying) - 3 points; (lifting from a supine position to sitting) - boys and girls - 3 points. Speed-power qualities: (skipping rope jumps for 1 min) in boys and girls - 3 points; (long jump from place) the boys - 2 points, girls - 3 points according to the State standards.



**Table 2** Average indicators of physical fitness of teenagers of 8th grades before the experiment

Sex	Flexibility (sm)	Speed (s)	Agility (s)	Strength (kg)		Strength endurance (number of times)		Speed & strength Jumps	
	Bend sitting	60 m run	shuttle running (4x9m)	hand	back extensors	pull up	lifting from lying to sitting (in 1 min)	skipping rope (n. of times 1 min)	long jump from place (sm)
M	5,2±3,2	10,3±0,3	12,4±0,6	20,5±4,3	75,6±5,3	5,2±3,4	35,8±5,3	82,5±6,4	163,8±5,4
F	7,8±4,1	10,7±0,4	13,5±0,5	13,3±6,2	64,5±6,3	12,6±3,3	32,3±4,7	88,5±7,2	162,3±4,6

After the experiment the body length of schoolchildren from the experimental class increased: boys – 4sm (2,4%,  $P<0,05$ ), girls – 1.6% ( $P<0,05$ ) in the control class growth significantly increased only in boys – 2.6 cm, (1,9%,  $P<0,05$ ). The average growth of girls of the control class rate was not significantly changed ( $P>0,05$ ). The body weight of the boys of the experimental class decreased by 2.2 kg (3,7%,  $P<0,05$ ), girls - 3.6 kg (7%,  $P<0,05$ ). In the control class, body weight boys and girls was not significantly changed, although girls have a tendency to the body weight increase ( $P>0,05$ ), (Table 3). The average VCL was not significantly changed, although there is a trend towards improvement in the experimental class; the guys 0.35 l, the girls of 0.2 l ( $P>0,05$ ) in the control class, boys average has not changed, and girls have a tendency to decrease by 0.25 l ( $P>0,05$ ). The average arterial blood pressure in adolescents of the experimental class was slightly higher: 115/85 in boys and in girls -111/78 than those of the control class, respectively: 112/63 and 108/71,7. This may be due to a few large growths of pupils of experimental class after the experiment, and the best functional adaptive processes of the cardiovascular system, as a result of the training process. But the blood pressure parameters, both experimental and control classes were considered to be normal (Marushko Yu. V. &Himac T. V., 2018, p. 5). When adults and children from 13 years, the prevalence of pressure above 120/80 mm Hg., it should alert clinicians as possible hypertension. Recommendations (American Heart Association) and (American College of Cardiology) suggest new criteria for determining categories of BP in children. The term «hypertension» today, in both adults and children replaced with «high blood pressure» (P. K. Whelton, R. M. Carey, W. S. Aronow et al., 2017, p. 11; J.T. Flynn, D.C. Kaelber, C.M. Baker-Smith et al,2017, p. 19-24). The average HR adolescents of the experimental class reduced:boys – 8%, girls – 4.4% ( $P<0,05$ ), that indicates improving the efficiency of the heart muscle. In the control class change HR metrics can only be viewed as a trend toward improvement, because they were unreliable ( $P>0,05$ ). The average SpO2 significantly improved only in adolescents of the experimental class: boys – 2.4% and girls by 2% ( $P<0,05$ ).

**Table 3** Average indicators of physical development of teenagers of 8th grades after the experiment

Class	Sex	Height (cm)	Mass (kg)	VCL (l)	BP (mmHg)	HR (number times: 1min)	SpO <sup>2</sup> (%)
E	M	167,7±0,63	57,6±0,72	2,85±0,62	115/85±2,3/1,2	74±3,1	98,5±0,3
E	F	164,5±0,52	48,2±0,63	2,7±0,43	111/78±3,3/2,2	77,5±2,3	98,3±0,5
K	M	166/1±0,56	59,7±0,81	2,5±0,34	112/63±2,3/5,1	79,6±4,2	96,7±0,4
K	F	163±0,49	52,4±0,56	2,3±0,51	108,9/71,7±3,4/3,1	80,2±3,7	96,7±0,32

All tested physical qualities of the experimental class were better at the end of the experiment, compared to those of the control class. The biggest difference in the average indicators of the classes was between strength and flexibility (Table 4). For example, strength endurance (pull-ups) in boys in the experimental class was better than in the control class by 52,3%, and in girls - by 29,7%. Flexibility was better for boys – 32,2% and girls – 44,6%. The strength of the hand in boys of the experimental class was better by 42,4%, and in girls - by 34,5%, ( $P < 0,05$ ). Indicators of lifting from a supine position were 23% better for boys and 16,2% for girls. Agility (shuttle running 4x9m) was better for boys - by 26,2%, for girls - by 27,8%. The power of extensors teenagers back: of boys' was better by 11,5% and girls by 8,3%, ( $P < 0,05$ ),

**Table 4** Average indicators of physical preparedness of teenagers of 8th grades after the experiment

Class / Sex*	Flexibility (sm)	Speed (s)	Agility (s)	Strength (kg)		Strength endurance (number of times)		Speed-power qualities Jumps	
	Bend sitting	60 m run	shuttle running (4x9m)	hand	back extensors	pull up	from lying to sitting (in 1 min)	skipping rope (n. of times in 1 min)	long jump from place (sm)
E/M	10,5±4,2	9,7±0,2	10,3±0,4	37,5±3,4	87,3±3,5	17,4±3,7	54,2±3,5	110,9±5,6	208,5±6,4
E/F	14,8±3,1	10,3±0,5	10,4±0,35	25,2,3±5,2	70,1±4,2	20,5±2,3	49,3±2,7	120,1±4,3	195,7±4,2
K/M	6,8±2,3	10,1±0,2	13,0±0,33	21,6±2,2	77,2±2,4	8,3±2,5	41,6±3,7	99,5±5,3	192,7±4,7
K/F	8,2±3,4	10,7±0,4	13,3±0,45	16,5±3,1	64,3±3,1	14,5±4,6	41,3±2,8	112,5±4,4	187,5±3,5

\* E/M – experimental class, male; E/F - experimental class, female; K/M – control class, male; K/F – control class, female;

Speed-power qualities (jumping rope in 1 min) were better for boys - by 10.3%, girls - by 6.3%; Long jump jumps were better for boys by 7.6% and girls by 4.2%. Average speeds (running 60m) were better for boys - 4.12%, girls - 3.9% than those of the control class.

### Conclusions

1. The use of shock wave simulators in physical education lessons increases the interest of adolescents in physical education.
2. Exercise shock wave action using bottle simulators stimulate weight loss, increase the functional adaptive capacity of the cardiovascular system, and normalize the saturation of arterial blood with oxygen.
3. After the experiment, the greatest difference in improvement in the fitness indicators of the adolescents of the experimental classes compared to the control was in boys: strength endurance (pulling) - by 52,3%, strength of the hand - by 42,4%, flexibility - by 32,2%, agility by 26,2%, from lying to sitting by 23%. A smaller but also significant improvements were in the figures: back muscle extensors - by 11,6%, speed-power qualities (jumping rope) - by 10,3%, long jump from place - by 7.6% and speed - by 4,12% more than in the control guys. In the girls from the largest to the smallest difference the improvements were in the indicators: flexibility - by 44,6%, strength of the hand - by 34,5%, strength endurance (pulling) - by 29,7%, agility - by 27,8%, strength endurance (from lying to sitting) - 16,2%, skipping rope - 6,3%, long jump - 4,2% and speed - 3,9% more than in the control girls.

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## **CHARACTERISTICS OF THE BEHAVIORAL DEVELOPMENT OF PRESCHOOL CHILDREN**

Potop Larisa<sup>1</sup>, Onaca Diana<sup>2</sup>, Ciobanu Maria Luiza<sup>2</sup>, Şulea Roxana<sup>3</sup>, Potop Vladimir<sup>4</sup>

<sup>1</sup> *PhD., State University of Physical Education and Sport, Chisinau, Moldova*

<sup>2</sup> *„Maica Domnului” Middle School, Bucharest, Romania*

<sup>3</sup> *„Viilor” Economic College, Bucharest, Romania*

<sup>4</sup> *Ecological University of Bucharest, Romania*

### **Abstract**

This paper aims to evaluate the characteristics of the behavioral development of preschool children. The study involved the participation of 23 children aged 3 to 4 years, corresponding to the small group of the half-day kindergarten belonging to the “Maica Domnului” Middle School of Bucharest. The study was conducted along the school year 2018-2019, monitoring the initial and final level of children’s behavioral development. The essential pedagogical tools to achieve the individualization of education and learning offered the possibility to identify both aptitudes and difficulties of each child separately. In this regard, it was used the assessment sheet for the individual progress of the child before entering the preschool education. The assessment focused on 5 areas: physical development, personal hygiene and health; socio-emotional development; language, communication and reading-writing premises development; cognitive development, knowledge of the world; learning abilities and attitudes. Depending on the results obtained for each development area, a plan with improvement measures was proposed. The results of the study highlight the level of the behavioral development indicators in preschool children. The analysis of the indicators listed in the individual progress report – final testing - highlights a progress of 11.06% in the children who have a behavior already reached; 15.0% in the children who have a developing behavior and 25.9% in the children who have a behavior that needs support. Therefore, in this study, each assessed indicator does not represent a hierarchy or an individual diagnosis but valuable information regarding the orientation of the practices of educators/parents related to the optimal development of children during this period.

**Keywords:** *physical development and health, socio-emotional development, personal hygiene, development of language and communication, cognitive development, learning, preschooler*

### **1. Introduction**

Early education was considered a systematic activity, carried out in specialized institutions such as the kindergartens and it was known as preschool education / teaching (Dascal, 2018).

An absolutely necessary condition required by the good development of the activities of physical education and education for health in the preschool institutions is the knowledge of the anatomophysiological particularities of the preschool children (Dascal, 2018). Preschool age is a fairly long period in which there are important modifications in the emotional life of the child. The emotions and feelings of the preschooler accompany all the manifestations of this one, whether it is games, songs, educational activities or the fulfillment of tasks

received from adults (Istrate & Andrei, 2018).

The national Curriculum for Early Education aims to the restructure and update required by the necessity to correlate with the provisions and recommendations in the documents promoted at European level (CPET, 2019).

The landmarks for the creation and updating of the national Curriculum (ISE, 2016), the aims of the early education have a holistic approach. They focus on the five areas of child's development: physical development, health and personal hygiene (Dascal, 2018); socio-emotional development (Boncu, Dafinoiu, 2014, p.14); cognitive development and knowledge of the world (Clichici, 2017); development of language, communication and premises of reading and writing (Cemortan, 2012); abilities and attitudes in learning (Cemortan, 2009).

The purpose of the paper is to highlight the progress of the early education by assessing the characteristics of the behavioral development of preschoolers.

## **2. Material and methods**

A number of 23 children aged 3 to 4 years from the small group of the half-day kindergarten within the "Maica Domnului" Middle School of Bucharest participated in this study. The study was carried out in the school year 2018-2019. The basic pedagogical tools for achieving the individualization of education and learning offered the possibility to identify both aptitudes and difficulties of each child. In this sense, it was used the report for assessment of child's individual progress before attending preschool education and at the end of the school year. The assessment took into consideration 5 fields, namely the physical development, health and personal hygiene; socio-emotional development; language, communication and reading-writing premises development; cognitive development and knowledge of world; learning abilities and attitudes. Depending on the results achieved in each development area, a plan with improvement measures was proposed.

## **3. Results and Discussions**

The results of the study show the level of the behavioral development indicators in preschoolers of 3-4 years old in terms of physical development, personal hygiene and health (table no. 1); socio-emotional development (table no. 2); development of language, communication and premises of reading and writing (table no. 3); cognitive development and knowledge of world (table no. 4); abilities and attitudes in learning (table no. 5).

The results of the evaluation of the area of personal hygiene, health and physical development in the preschoolers aged 3 to 4 years highlight the following matters as for the behavioral indicators: IC1- go up and down the stairs, without alternating legs and without support; IC2- makes puzzles of 3, 4, 6 pieces, highlights; IC3 – Demonstrates ocular motor coordination in construction games, in making puzzles, in stringing objects etc.; IC4- Distinguishes between eatable things and non-eatable

ones, with an increase by 4.3% - reached behavior (A), by 17.4% - developing behavior (D) and a decrease by 21.7% - behavior that needs support) (Ns); IC5 - Demonstrates interest in going to the toilet and can use it regularly, without changes of 17.4% (A), increase by 21.7% (D) and decrease by 21.7% (Ns); IC6 – Tells the adult when someone hits him or does something bad to him; increase by 4.3% (A), by 13.1% (D) and decrease by 17.4% (Ns); as for IC7 – Other particular behavior of the child, increase by 17.4% (A), without changes by 39.1% (D) and decrease by 21.7% (Ns).

**Table 1** *Personal hygiene, health and physical development (n = 23)*

NĪ	Test	Behavior Indic. 1		Behavior Indic. 2		Behavior Indic. 3		Behavior Indic. 4		Behavior Indic. 5		Behavior Indic. 6		Behavior Indic. 7	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
		Ns	I	11	47.8	11	47.8	11	47.8	11	47.8	11	47.8	10	43.5
F	6		26.1	6	26.1	6	26.1	6	26.1	6	26.1	6	26.1	6	26.1
D	I	8	34.8	8	34.8	8	34.8	8	34.8	8	34.8	9	39.1	9	39.1
	F	12	52.2	12	52.2	12	52.2	12	52.2	13	56.5	12	52.2	9	39.1
A	I	4	17.4	4	17.4	4	17.4	4	17.4	4	17.4	4	17.4	4	17.4
	F	5	21.7	5	21.7	5	21.7	5	21.7	4	17.4	5	21.7	8	34.8

Note: NĪ – level of indicator achievement; n – number of children; I – initial; F – final; Behavior Indic. – behavioral indicators; A (reached behavior), D (developing behavior), Ns (behavior that needs support)

*Implemented improvement plan:*

- psychomotor stimulation, actions and activities with practical values;
- education of behavioral traits: will, perseverance, rigor, discipline;
- assessment of some positive behaviors: completion of tasks, sports and movement team games with rewards, assessment of the results by other children and self-correction.

**Table 2** *Socio-emotional development (n = 23)*

NĪ	Test	Behavior Indic. 1		Behavior Indic. 2		Behavior Indic. 3		Behavior Indic. 4		Behavior Indic. 5		Behavior Indic. 6	
		n	%	n	%	n	%	n	%	n	%	n	%
		Ns	I	15	65.2	15	65.2	15	65.2	15	65.2	15	65.2
F	7		30.4	7	30.4	7	30.4	8	34.8	7	30.4	6	26.1
D	I	5	21.7	5	21.7	5	21.7	5	21.7	5	21.7	6	26.1
	F	13	56.5	12	52.2	13	56.5	11	47.8	13	56.5	9	39.1
A	I	3	13.1	3	13.1	3	13.1	3	13.1	3	13.1	3	13.1
	F	3	13.1	4	17.4	3	13.1	4	17.4	3	13.1	8	34.8

Note: NĪ – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Indic. – behavioral indicators; A (reached behavior), D (developing behavior), Ns (behavior that needs support)

The evaluation of the „Socio-emotional development” area in the pre-school children aged 3-4 years reveals the following elements regarding the behavioral indicators: IC1 - Interacts positively and plays with the grown-ups; IC3 – Follows

the group routines (for example, behavior at the table); IC5 – Recognizes simple emotions (fear, joy, sadness), without changes of 13.1% in reached behavior (A), increase by 34.8% developing behavior (D) and a decrease by 34.8% in behavior that needs support (Ns); IC2 – Plays next to another child: an increase by 4.3% (A), by 30.5% (D) and a decrease by 34.8% (Ns); IC4 – The child says his/her name and age if asked; an increase by 4.3% (A), by 26.1% (D) and a decrease by 30.4% (Ns); IC6 – Another particular behavior of the child, an increase by 21.7% (A), by 13.0% (D) and a decrease by 34.7% (Ns).

*Implemented improvement plan:*

- listening and presenting, in front of others, some ideas, lived or imagined events, especially in the ADP stage (morning meeting);
- assessment of some positive behaviors: completion of tasks (applauses, display of correct works), assessment of works by other children and self-correction;
- determining, through activities and games, some rules of civilized behavior: group communication and listening to other child (children do not have the patience to listen to each other).

**Table 3** *Development of language, communication and reading-writing premises (n = 23)*

NÎ	Test	Behavior Indic. 1		Behavior Indic. 2		Behavior Indic. 3		Behavior Indic. 4		Behavior Indic. 5	
		n	%	n	%	n	%	n	%	n	%
Ns	I	16	69.6	16	69.6	17	73.9	16	69.6	20	86.9
	F	11	47.8	11	47.8	12	52.2	11	47.8	12	52.2
D	I	5	21.7	5	21.7	4	17.4	4	17.4	3	13.1
	F	7	30.4	7	30.4	6	26.1	7	30.4	5	21.7
A	I	2	8.7	2	8.7	2	8.7	2	8.7	-	-
	F	5	21.7	5	21.7	5	21.7	5	21.7	6	26.1

Note: NÎ –level of indicator achievement; I – initial; F – final; n- number of children; Behavior Indic.– behavioral indicators; A (reached behavior), D (developing behavior), Ns (behavior that needs support)

IC1 – Acts appropriately on commands that include verbs (come, open/close etc.) and IC2 – Formulates simple or developed clauses with 3 or 4 words; an increase by 13.0% of reached behavior (A), by 8.7% - developing behavior (D) and a decrease by 21.8% of the behavior that needs support (Ns); IC3 - „Reads” the favorite book to an adult or to himself; an increase by 13.0% (A) and by 17.4% (D) and a decrease by 21.7% (Ns); IC4 – Describes what he draw/wrote or what he represented; there is an increase by 13.0% (A) and by 13.0% (D) and a decrease by 13.0% (Ns); IC5 - Other particular behavior of the child – an increase by 26.1% (A) and by 8.6% (D) and a decrease by 34.7% (Ns).

*Implemented improvement plan:*



- Stimulation of verbal communication by widening the sphere of representations in specific literary plane: fairy tales, stories, fables, riddles, poems;
- Correction of verbal expressiveness and expression through specific activities;
- Stimulation of the phonemic hearing, the correct articulation of sounds and groups of sounds (vowels, consonants): t-d, r-l, v-f, p-b, c-r, ț-ce, through specific “stimulation game-exercises”.

**Table 4** *Cognitive development and world knowledge (n=23)*

NÎ	Test	Behavior Indic. 1		Behavior Indic. 2		Behavior Indic. 3		Behavior Indic. 4		Behavior Indic. 5		Behavior Indic. 6	
		n	%	n	%	n	%	n	%	n	%	n	%
Ns	I	15	65.2	15	65.2	15	65.2	15	65.2	15	65.2	14	60.8
	F	10	43.5	10	43.5	10	43.5	10	43.5	10	43.5	9	39.1
D	I	5	21.7	5	21.7	5	21.7	5	21.7	5	21.7	6	26.1
	F	8	34.8	7	30.4	8	34.8	6	26.1	7	30.4	6	26.1
A	I	3	13.1	3	13.1	3	13.1	3	13.1	3	13.1	3	13.1
	F	5	21.7	6	26.1	5	21.7	7	30.4	6	26.1	8	34.8

Note: NÎ – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Indic. – behavioral indicators; A (reached behavior), D (developing behavior), Ns (behavior that needs support)

The results of the evaluation of the “Cognitive development and world knowledge” area in the preschoolers aged 3-4 years highlight, in terms of behavioral indicators, the following matters: IC1- Finds out and describes the similarity or difference between two objects of the same type (a ball is bigger than another, my skirt is the same as Maria’s etc.); there is an increase by 8.6% in reached behavior (A) and by 13.1% developing behavior (D) and a decrease by 21.7% behavior that needs support (Ns); IC2 – Uses trial and error method to solve problems; has an increase by 13.0% (A) and by 8.7% (D) and a decrease by 21.7% (Ns); IC3 – Counts 1-3/5 objects; there is an increase by 8.6% (A) and by 13.1% (D) and a decrease by 21.7% (Ns); IC4 - Identifies a round shape/circle; increase by 17.3% (A) and by 4.4% (D) and a decrease by 21.7%; IC5 – Expresses the weather conditions by relation to the known phenomena (“Sun”, “It snows”, “It rains” etc.); has an increase by 13.0% (A) and by 8.7% (D) and a decrease by 21.7% ; as for IC6 - Other particular behavior of the child, there is an increase by 21.7% (A) and without changes of 26.1%(D) and a decrease by 21.7% (Ns).

*Implemented improvement plan:*

- various games with mathematics content;
- activities and games for recognizing the numbers 1 to 3 (graphic symbol);
- spontaneous observations in order to train all analyzers and to perceive complex notions of time, cause, space (constants in time);

- spontaneous observations for training all analyzers and to perceive lines, shapes, nuances, plastic complex notions (plastic symbol).

**Table 5** *Abilities and attitudes in learning (n = 23)*

NII	Test	Behavior Indic. 1		Behavior Indic.2		Behavior Indic.3		Behavior Indic.4		Behavior Indic. 5	
		n	%	n	%	n	%	n	%	n	%
Ns	I	16	69.6	16	69.6	17	73.9	16	69.6	20	86.9
	F	10	43.5	10	43.5	10	43.5	10	43.5	10	43.5
D	I	5	21.7	5	21.7	4	17.4	4	17.4	3	13.1
	F	7	30.4	7	30.4	7	30.4	7	30.4	7	30.4
A	I	2	8.7	2	8.7	2	8.7	3	13.1	-	-
	F	6	26.1	6	26.1	6	26.1	6	26.1	6	26.1

Note: NII – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Indic. – behavioral indicators; A (reached behavior), D (developing behavior), Ns (behavior that needs support)

The evaluation of the „Abilities and attitudes in learning of the 3-4 year old pre-school children” area highlights the following elements in terms of behavioral indicators: IC1 – Asks questions about new people and unknown objects; there is an increase by 17.4% in reached behavior (A) and by 8.7% in developing behavior (D) and a decrease by 26.1% in the behavior that needs support (Ns); IC2 – Chooses an activity from several ones and carries out it for a short period (at least 5 minutes); has an increase by 17.4% (A) and by 8.7% (D) and a decrease by 26.1% (Ns); IC3 – Tries, several times, a difficult task, for a short period (to build a tower in 3-5 minutes); there is an increase by 17.4% (A) and by 13.0% (D) and a decrease by 30.4% (Ns); IC4 – Pretends to be something or someone; uses his/her imagination while playing; has an increase by 13.0% (A) and (D) and a decrease by 26.1% (Ns); IC5 - Other particular behavior of the child; there is an increase by 26.1% (A) and by 17.3% (D) and a decrease by 43.4% (Ns).

*Implemented improvement plan:*

- creation of individual work skills;
- specialized improvement measures (speech therapist);
- widening the scope of representations about the environment, actions and activities with practical values, sensory stimulation;
- spontaneous observations, in order to train all analyzers and to perceive complex notions of quantity and properties of the objects;
- assessment of the positive behaviors: completion of the tasks listed in the report (display of the correct works, applauses), didactic team games with rewards, assessment of the works by other children and self-correction.

Concerning the *personal hygiene, health and physical development* it was found out that almost all preschoolers perform correctly the motor skills learned: walking, running and jumping; they make movements that require spatial and temporal orientation and manage to use them properly in different contexts; some children

have difficulties in their motor response to a given command and in using the learned skills in various situations.

Within the *socio-emotional development*, most children accept and respect the rules of group living, but there are also some children who show uncivilized behavior in their relationships with the others. Some children work in group to complete a task, while others prefer to play. Most children are involved in taking action in certain problematic situations. They are aware of the positive and negative consequences of the behavioral actions on the others, they adapt their behavior to different situations. The understanding of concepts such as: justice, honesty, kindness, truth etc. was achieved throughout the entire educational approach. The majority of children know the rules and apply them, but there are some children more reserved, they do not take the initiative.

Regarding the *development of language, communication and premises of reading and writing*: in terms of language education, the children have made progress related to both vocabulary volume and expression; there are also some children who have a faulty expression from a phonetic and grammatical point of view; they have deficiencies in pronunciation and expression; their attention and voluntary memory are poorly developed in the short term, leading to faulty reproduction of fragments of poetry or story.

*Cognitive development and knowledge of the world*: most children have acquired knowledge about the environment. They describe, list, classify the components of the environment (plants, animals, objects), but not all ask questions about what they observed. Not all children name seasons correctly, or properly associate the image with the season or respect the sequence of performing the operations from the didactic task. Children correctly create and name crowds according to different criteria; they count correctly within the range 1 to 3, they know and name the geometric figures „circle” and „square”.

As for the *abilities and attitudes in learning*, it is obvious the progress made by the children concerning the level of knowledge, skills and abilities acquired during the school year. Therefore, there is an evolution in terms of intellectual, psycho-physical and socio-affective development of children, so that all preschoolers in the group can successfully attend the middle group.

#### **4. Conclusions**

The results of the study highlight the level of the behavioral development indicators in the preschoolers. The analysis of the indicators in the individual progress report shows, at the final test, a progress of 11.06% in the children with a behavior already reached, of 15.0% in the children with developing behavior and 25.9% in those with a behavior that needs support. Thus, each indicator assessed in this study does not represent a hierarchy and/or an individual diagnosis but valuable information on the orientation of the practices of educators/parents related to the optimal development of children throughout this period.

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## **RELATIONSHIP OF THE SOMATIC PARAMETERS BETWEEN BODYWEIGHT AND HEIGHT IN THE PRIMARY CYCLE STUDENTS**

Potop Larisa<sup>1</sup>, Marinescu Oana Suzana<sup>2</sup>, Grigore Maria Florica<sup>3</sup>

<sup>1</sup>*Ph D. student, State University of Physical Education and Sport, Chisinau, Moldova*

<sup>3</sup>*„Grigore Moisil”Theoretical High School of Timisoara, Romania*

<sup>3</sup>*Ecological University of Bucharest, Romania*

### **Abstract**

This paper shows the relationship of the somatic parameters between the bodyweight and the height of the primary cycle students. For this purpose, an ascertaining study was conducted within 4 school institutions in Bucharest, Târgoviște and Timișoara. The research involved the primary cycle students: a number of 346 subjects aged from 6 to 10 years (177 girls and 169 boys) were measured. The anthropometry was used as a working method and the data obtained were statistically processed and represented graphically. The results of the study highlighted a continuous increase in height and weight in both sexes within the researched age range. The proportionality of the somatic indicators (especially between the body weight indicators and the body height ones) was analyzed. Thus the harmony of the somatic indicators represents the main objective in the correct and harmonious physical development at the level of primary education. The use of the anthropometric method helps in defining the normal and abnormal forms, determining the constitutional types and specifying the changes obtained through sport. In this sense, the level of physical development was established in relation to age and sex, compared to the provisions of the National School System of Evaluation. The study focused on the monitoring of the development under the influence of the systematic practice of physical exercises, orientation of the students with good physical development towards the most appropriate sports branch (criterion of selection) and assessment of the physiological age related to the physical development level.

**Keywords:** *physical education, evaluation, anthropometry, somatic development*

### **1. Introduction**

Throughout their existence, the human beings have faced problems in quantifying the parameters of the activities they carried out, so each field has developed a process of scientific or empirical evaluation, in education inclusively and, implicitly, in the field of Physical Education and Sports, an important component of the general education (Acsinte, M. (2018; Badiu, T., et al. 1999; Carp, I. 2000; Kuznecov V.S., Kolodnickij G.A. 2003).

This paper presents the methods of somatic evaluation in primary education and not only. The anthropometric examination regarding the growth and harmonious development of the young schoolchildren is a fundamental action in Physical Education and Sports because these measurements help to analyze whether the subject falls within normal limits, exceeds or is below the level of development specific to gender and age (Carp, I., Cozmei, G., 2013; Guțul, A., 2001).

Knowing the somatic and morpho-functional parameters allows to quantification of the work efficiency of both the teacher and the subject. The

measurements performed periodically, by stages of at the beginning and the end of some activities, show the variations in the evolution of each subject, highlighting the dynamics of the processes of growth and physical development (Urichianu, B., 2016, 2020; Piskunova, E.V., 2003; Meijer, A. et al., 2020).

## 2. Material and method

This paper is meant to highlight the relationship of the somatic parameters between body weight, height and body mass index in the primary school students.

In this sense, an ascertaining study was organized in 4 school institutions of Bucharest, Târgoviște and Timișoara. The research focused on the primary school students; a number of 346 subjects with ages ranging from 6 to 10 years (177 girls and 169 boys). Anthropometry was used as working method and the data obtained were statistically processed and represented graphically.

## 3. Results and Discussions

Based on the anthropometric measurements regarding the values of height, body weight and body mass index, the level of physical development, especially the somatic one, was identified in the ascertaining research. The data of the anthropometric ascertaining test are presented in table 1 and figures 1, 2 and 3.

**Table 1** *Data of somatic development in the primary school students(n = 346)*

Grades	Gender	N	Parameters	X	+ m	S	Cv (%)
Preparatory grade	Girls	37	Height (cm)	125.29	1.15	7.01	5.59
			Weight (kg)	21.74	0.83	5.04	23.20
			BMI (units)	13.71	0.35	2.11	15.36
	Boys	30	Height (cm)	127.53	1.54	8.45	6.63
			Weight (kg)	23.53	0.94	5.12	21.77
			BMI (units)	14.33	0.36	1.95	13.61
The 1 <sup>st</sup> grade	Girls	30	Height (cm)	128.17	1.40	7.67	5.98
			Weight (kg)	26.32	1.12	6.14	23.32
			BMI (units)	15.88	0.47	2.57	16.18
	Boys	25	Height (cm)	133.6	1.39	6.99	5.23
			Weight (kg)	30.28	1.29	6.49	21.43
			BMI (units)	16.89	0.57	2.84	16.82
The 2 <sup>nd</sup> grade	Girls	31	Height (cm)	128.90	1.40	7.79	6.05
			Weight (kg)	28.74	1.19	6.67	23.20
			BMI (units)	17.14	0.52	2.89	16.90
	Boys	34	Height (cm)	130.00	1.48	8.60	6.62
			Weight (kg)	29.32	0.97	5.63	19.21
			BMI (units)	17.32	0.47	2.72	15.73
The 3 <sup>rd</sup> grade	Girls	36	Height (cm)	128.28	1.16	6.95	5.42
			Weight (kg)	29.47	0.91	5.44	18.45
			BMI (units)	17.83	0.37	2.19	12.30
	Boys	34	Height (cm)	131.62	1.15	6.72	5.11
			Weight (kg)	32.21	1.23	7.19	22.35
			BMI (units)	18.42	0.48	2.81	15.26

The 4 <sup>th</sup> grade	Girls	43	Height (cm)	139.49	0.94	6.15	4.41
			Weight (kg)	33.49	0.97	6.34	18.94
			BMI (units)	17.12	0.39	2.57	15.03
	Boys	46	Height (cm)	140.52	0.81	5.46	3.89
			Weight (kg)	36.17	0.89	6.09	16.86
			BMI (units)	18.20	0.29	2.01	11.04

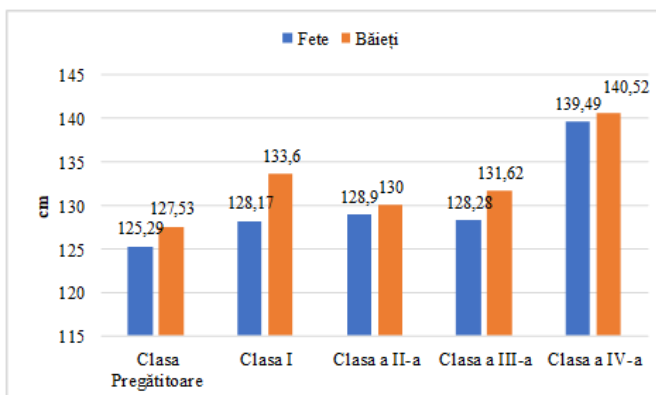


Fig.1. Height of primary school students

In terms of differences in the averages between grades for girls and boys, it is observed that: between the preparatory grades and the 1<sup>st</sup> grade there are increases in girls by 2.88 cm and in boys by 6.07 cm; between the 1<sup>st</sup> and the 2<sup>nd</sup> grade, there is an increase by 0.73 cm in girls, while the boys have a decrease by 3.6 cm; between the 2<sup>nd</sup> and the 3<sup>rd</sup> grade, the girls have a decrease by 0.62 cm and the boys an increase by 1.62 cm; between the 3<sup>rd</sup> and the 4<sup>th</sup> grade there are increases in girls by 11.21 cm and in boys by 8.9 cm.

These differences highlight the individual particularities of students' age between girls and boys and between grades.

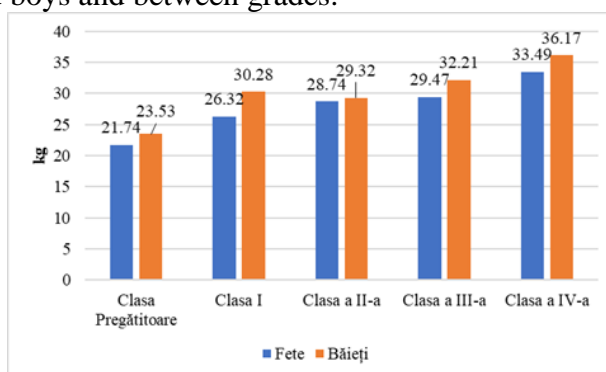


Fig. 2. Weight of the primary school students

Figure 2 shows the weight of the students in the preparatory grades and the primary cycle, comparing the girls' weight with the boys' weight. It is also shown the evolution between grades, in both girls and boys. The differences between averages in girls and boys are larger in the boys of all grades, namely: in the

preparatory grade there is a difference of 1.79 kg, in the 1<sup>st</sup> grade of 3.96 kg, in the 2<sup>nd</sup> grade of 0.58 kg, in the 3<sup>rd</sup> grade of 2.74 kg and in the 4<sup>th</sup> grade of 2.68 kg.

Regarding the differences of the averages of students’ body weight between grades, in girls and in boys, one can notice: between the preparatory grades and the 1<sup>st</sup> grade, there are increases in girls by 4.58 kg and in boys by 6.75 kg; between the 1<sup>st</sup> and 2<sup>nd</sup> grade there is an increase by 2.42 kg in girls and a decrease by 0.96 kg in boys; between the 2<sup>nd</sup> and the 3<sup>rd</sup> grade, there are increases by 0.73 kg in girls and by 2.89 kg in boys; between the 3<sup>rd</sup> and the 4<sup>th</sup> grade, there are increases by 4.02 kg on girls and by 8.9 cm in boys.

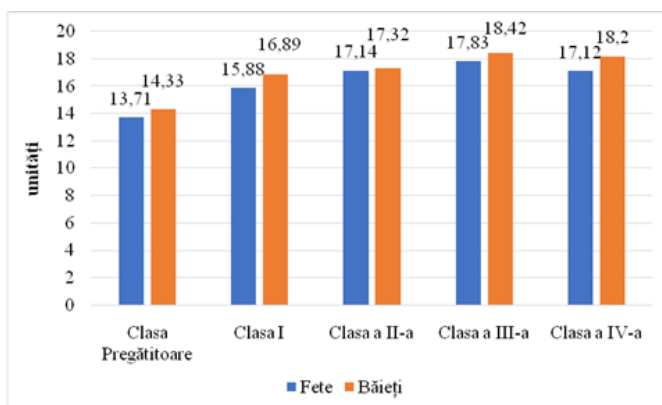


Fig. 3. *Body mass index in the students of primary school*

Figure 3 presents the body mass index of the students in preparatory grades and the primary cycle, where this index is observed comparatively between girls and boys and, respectively, the evolution between grades, in girls and boys as well. The differences between averages in girls and boys are larger in the boys of all grades, namely: in the preparatory grade, the difference is 0.62 kg/m<sup>2</sup>, in the 1<sup>st</sup> grade there is a difference of 1.01 kg/m<sup>2</sup>, in the 2<sup>nd</sup> grade of 0.18 kg/m<sup>2</sup>, in the 3<sup>rd</sup> grade of 0.59 kg/m<sup>2</sup> and in 4<sup>th</sup> grade of 1.08 kg/m<sup>2</sup>.

In the opinion of the authors (Acsinte, M., 2018; Badiu, T., Ciorba, C., Badiu, G., 1999; Carp, I., 2000; Lupu, E., 2012; Mereuță, C., 2008; Rață, G., Rață, G., 2008; Bal'sevich, V., 2004; Krucevich T., 2003; Kuznecov V.S., Kolodnickij G.A., 2003; Matveev, L., 2005, 2008; Holodov, Zh., Kuznecov, V., 2011), physical education is considered an absolutely necessary component of education, which facilitates the growth and harmonious physical development, the strengthening of health, the acquisition of basic motor skills and physical qualities (strength, speed, coordination, endurance, suppleness, mobility, flexibility etc.), qualities needed to carry out the daily activities.

It should be noted that, in addition to these aspects, a number of authors (Antonie, I., 2015; Urichianu, B., 2016, 2020; Piskunova, E.V., 2003) mention the contribution of physical education to the optimal education of the intellectual functions of children’s personality. The normal growth and development of the children are determined by the favorable social and environmental conditions,



which ensure an optimal physical and mental status and an ability to adapt to the conditions of their environment (Albu, E., 2007; Allport, G., 1991; Guțul, A., 2001; Vilenskaija, 2006). There are also approached subjects like the motricity in small school age (Acsinte, A., Miron, A. 2008; Badiu, T., 2008; ); motor training of the primary school students (Ciorbă, C., 2015; Ghețiu, A., Demcenco, P., 2018); *physical fitness and health status in primary school students* - Ghețiu, A. 2017; Kashuba, V. et al. 2018; Kolimechkov, S. et al. 2013; Kriemler, S. et al. 2010; Meijer, A. et al. 2020.

#### 4. Conclusions

The evaluation of the level of physical development in the students of the preparatory and primary grades highlights that the growth and development of children is one of the important problems with a special theoretical and practical significance.

The results of the anthropometric studies give an idea not only about the rate of development of body parameters. However, it should be noted that, at the current stage, there is a greater tendency for children to gain weight.

On the basis of the anthropometric measurements concerning the values of height, body weight and body mass index, the level of physical development, especially the somatic one, was identified in the ascertaining study. These differences show the individual particularities of students' age both between girls and boys and between grades.

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## **SPORT PERFORMANCE**



## **METHODICAL ASPECTS OF TRAINING FOR RUNNING SPEED OF DISPLACEMENT DEVELOPMENT**

Florina– Liliana Neder

*Ecological University of Bucharest, 1G Vasile Milea Street, Bucharest, Romania*

### **Abstract**

Short-distance running (60, 100, 200 and 400 m) is one of the high-intensity cyclic exercises (9–12m/s) characterized by a relatively short working time (6.5 –50 s). Physical training is the component with a particularly important role in the sports training process, being the basic element for the other factors of training. Recommendations for building the best program for the sport you practice: sprinting (up to 200 meters) is 90% - 95% anaerobic and training should reflect this percentage. Aerobic training (light or longer runs) should occupy only a small portion of the training plan. Improving aerobic physical condition has little or no effect on short-range speed; It is recommended to use sprints at maximum speed over short durations (10 to 60 seconds); Rest periods should be a few minutes after each maximum effort; Maximum sprints should be used over approximately used distances or even longer than in the sport you practice; To improve speed resistance, use a series of 1minute maximum effort runs, followed by 4 to 5 minute rest periods before repeating the run.

**Key words:***run, speed, training, effort*

### **1. Introduction**

The athlete's activity is carried out in training lessons (training itself), constituting the main form of preparation in the form of sessions to restore the capacity of effort (sometimes also present in the lesson) and in the form of competitions (Muraru A., 2008). Depending on the training and performance objectives, means corresponding to each form are used.

Physical training has in its content exercises, methods and procedures of preparation specific to it and aims: the development especially of morphological and functional indices, as well as the training and improvement of motor skills and abilities(Encuțescu A., Muraru A., 2005).

Short-distance running (60, 100, 200 and 400 m) is one of the cyclic exercises of maximum intensity (9 – 12m/s) characterized by a relatively short working time (6.5 –50 s) (Sabău I., Sabău E., Pehoiu C., 2001).

The purpose of this paper is to find the best means of training for the development of running speed.

### **2. Results and Discussions**

Training to develop running speed does not seem so simple, so we present a program that respects all the basic principles of training. For a better understanding, we will continue to present the principles pursued as well as the methods and means for achieving each proposed objective.

#### *1. Physical training*

Physical training underpins all the body's systems. It includes marching, running, jumping, dancing, martial arts of various types, games and complementary sports. This period is also called the general training period.

Physical training is the component with a particularly important role in the sports training process, being the basic element for the other factors of training (NederParaschița F., 2010).

a) General physical training

Objectives:

- development of basic motor qualities (speed, strength, stamina, skill, mobility and suppleness);
- increasing the general functional capacity of the body;
- ensuring harmonious physical development;
- the development of morphofunctional indices that condition the practice of a sports branch.

The place of general physical training is always at the beginning of the preparatory period, usually in a mountain area, in order to provide a solid basis for the further training of athletes (SimionGh., 2011). This does not mean that in other periods is missing, it is present in different percentages depending on the sports calendar.

b) Multilateral physical training is challenged by some specialists, but considered by others to be one that ensures selective physical capacity. It is a general physical training selectively oriented according to the specifics of the sports branch and the individual training deficiencies of the athletes.

Objectives:

- development of motor qualities specific to the respective sports industry;
- development of specific deficient motor qualities of athletes.

c) Specific physical training (Muraru A., 2008)

Objectives:

- development of motor qualities specific to the respective sports industry or event, in complex form (explosive force - speed force - strength in resistance mode, etc.), or combined (explosive force in skill mode - in throwing, jumping, or force - resistance in coordination mode).
- increase in specific energy efficiency (predominantly anaerobic in sprint event, predominantly aerobic in background event, etc.).

### 2. *Improving strength by working with weightlifting*

It is important to understand that you need to train for the specific power expression requirements required by different sports. Since the principle of "working fast to be fast" is essential in all explosive sports, it is recommended to use exercises with weights, with great power developments, to train the body both mentally and physically.



*Olympic procedures.* Power exercises such as "Olympic procedures" should be included in the training programme because (<https://www.teachpe.com/sports-coaching/athletics/plyometric-training-for-sprinting>):

- (a) the body is trained to develop the maximum peak of force;
- (b) increase the time during which this force peak is applied;
- (c) more force develops over a shorter period of time.

*Squat clean*(weightlifting). The main purpose of lifting and putting weightlifting to the chest is to develop the large muscles of the body in an explosive action, which requires the use of numerous muscle groups and joints, in a coordinated movement.

Since weights close to the maximum possible weights are used for training for each athlete, an increased force is required in the lower limbs to achieve an effective execution.

*Clean and jerk*(weightlifting, weightlifting on the stand, force apparatus). The main purpose of weightlifting movement is to develop large muscle groups of the body for the action of several joints. This action is carried out explosively.

*Snatch* (weightlifting). The main purpose of the snatch exercises is to develop the explosiveness of the muscle groups of the body in a coordinated multiarticular action.

The strength of the legs is essential at all times of lifting weights, but it is especially important in the rebalancing phase, when weights are lifted close to the maximum possible for each athlete (Sabău I., Sabău E., Pehoiu C., 2001).

The advanced program is made up for high effort intensities. 4 series are performed in which the first with 5 repetitions at 60% of the maximum, the second with 3 repetitions at 75 % of the maximum, the third with 3 repetitions at 85 % of the maximum and the fourth with 2 repetitions at 90 % of the maximum. The foot must be moved in every possible direction. Start with support (one chair) and 8-12 repetitions in all directions.

### 3. Improving explosive force in throws

The following simple program can be easily introduced into the daily training of the pre-competition period. The individual or partner program can be used in the initial (warm up) or final (return) part of the workout.

*Throws and catches with the medicine ball.* Equipment: medicinal balls with weights from 1 to 8 kg. The purpose of this exercise is to develop strength in all directions of movement. The following movements are performed individually, with partner or in group, 8-10 times in each direction (NederParaschița F., 2015):

- (a) forward throws with 2 hands from chest;
- (b) throws back over your head;
- (c) throws with both hands, from bottom to forward;
- (d) throws with both hands from above the head;
- (e) side throws with two hands from one side and from the other.

### 4. Pliometry

Plyometrics, also known as jump training or plyos, are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping (<https://en.wikipedia.org/wiki/Plyometrics>).

Plyometric training involves quick, powerful, jumping and bounding movements. Their purpose is to increase muscular power and dynamic strength and big gains can be made but equally, care must be taken this type of training can have a high risk of injury (<https://www.teachpe.com/sports-coaching/athletics/plyometric-training-for-sprinting>).

In order to use the plyometry correctly, four simple rules must be followed:

(1) Those plyometric exercises must be used which will cause the time of contact with the ground to be shortened. The faster the muscles are forced to lengthen, the greater the tension they will exert.

(2) Follow the technical instructions at each repetition. In all exercises emphasize a position "knee/dorsal flexion of the foot", which will help you maintain balance and will concentrate the effect of the workload around the thighs and legs. When using an exercise for the upper body, emphasize in particular its proper continuation. The essential aspects of plyometric exercises are pushing, extensions and knee actions. Emphasize quality rather than quantity in each jump.

(3) Use 3-6 series of 8-10 jumps with 1-2 minutes rest break between them. It is recommended to add 1-2 jumps to each series.

4. Plyometric exercises under the age of 13 years are not indicated or if not, foot pushing at 2.5 times that of the body may be carried out. Young athletes (in prepuberty) should not use plyometric exercises in training. These exercises have a potential for joint injury, for which a few rules must be followed (SimionGh., 2011):

- Proper warm up by careful use of stretching exercises and general warm up with walking cycles, easy running, running distances of at least 800 m before starting plyometric exercises.

- Jumping only on soft surfaces, grass areas or gym mattresses, never on the asphalt or on the floor of the gym.

- Protecting your heels if there is a predisposition to bruising or contusions in this area.

- At most, athletes could be expected to perform 3-4 plyometric sessions per week. It is recommended that a period of 48 hours is allowed for rest in between sessions (<https://www.teachpe.com/sports-coaching/athletics/plyometric-training-for-sprinting>).

*Jumps on two legs.* From the position of preparation of the long jump on the spot are performed pushing forward arms while the knees and body move and the arms quickly soar forward and upwards.

*Hop continuously on one leg* (successive jumps on the same leg, with displacement). Placing one leg slightly ahead of the other and pushing into the back

leg with lifting the knee of the front leg towards the chest and achieving as much height and length as possible. Continue, immediately after landing, with the other leg.

*Step.* The jumped step represents a sequence of detachments from one leg and landing on the other, executed in length. Contact with the ground is made on the heel or all the sole, followed by rolling to the top and pushing, starting a new detachment. The forward pendulum leg rises with the thigh to the horizontal, the sole is parallel to the ground and the calf is perpendicular to the ground. The torso is straight, and the arms move energetically back and forth (NederParaschița F., 2015).

*Side jumps.* From semi-squat, the pushing of a foot is executed for lateral propulsion. Immediately after landing, push again in the opposite direction, insisting on increasing the lateral distance.

*Successive jumps on one leg at a time.* From the position described above, one of the legs is flexed, insist on the height of the foot.

*Jumping on both legs.* From the starting position with the right back, the shoulders forward and the head raised, run a jump as high as possible, with the raising of the knees to the chest.

*Jumping from squat to squat.* From a starting position with the right back, the jumper performs the simultaneous bending of the torso forward, the legs bend elastically from the knees, while swinging the arms down and back, then forward and upward. The jumper suddenly pushes to its feet and stretches with its whole body forward – upwards. The push ends with the rapid stretching of the legs. After breaking off the ground, the jumper must remain in this stretched position for more than half the distance. Upon landing, the legs go fast forward.

*Sprint-like arm-swing action.* With small dumbbells (1.5 kg) on each hand, 10 repetitions of the sprint-like arm balance action are performed, with 1-2 seconds stopping and repeating another series.

Frequency exercises can also be performed to improve speed.

*The number of jumps in a workout.* So far it is not known how many jumps are needed to get the best result. Coaches of the most different levels require a different number of series and repetitions in the training lesson (Sabău I., Sabău E., Pehoiu C., 2001).

However, it is better to perform slightly fewer jumps than too many. Ideally, the number of jumps should not exceed 75 in the trainings at the beginning of the cycle and 250 after 4-6 weeks of training (Petrescu T., 2003).

### 5. Sprint with weight

We present below some simple methods.

*Sprint at the hill* (NederParaschița F., 2010). There are plenty of pitches suitable for hill running. Although slopes with varying degrees of inclination can be used, it is recommended to run on a slope that does not alter the technique of running.

A slope of 10-30 m with a inclination of 2.5-10 degrees must be covered as quickly as possible, after which a sprint will follow at almost maximum speed on 20-80 m of land with the same inclination, if space allows.

*Stairs.* Stadium stairs or any other stairs can be used just like the slope for sprinting. Try to locate stairs that have about the same inclination.

*The weight sleigh.* A worn tire with a rope and a belt can serve as a cheap heavy sleigh. Loads must be used that allow for proper and high-speed running. Too much weight will cause an incorrect run and prevent explosive movements. The best time to include a weight-training program is the last part of Wednesday's training or later in the week dedicated to speed.

#### *6. Improving running technique and speed resistance*

Running technique and speed resistance have been grouped together as both falls into the speed category

*Speed running technique.* The technique of speed running varies from individual to individual. There is no perfect style for any athlete regardless of the somatic development at his disposal. Each individual has the specific characteristics, for which the principles of theory must be learned and then adapted to personal traits.

The correct technique in speed running is not a natural act. Nine out of ten juniors (from elementary school to college) have flawed styles. Eliminating characteristic mistakes requires special attention.

We will quickly review the key points that will help improve the start technique and eliminate major technical errors during running

*Pushing with both legs simultaneously and with equal force at the start.* All good sprints exert equal forces on both block-starts. A good athlete, on the other hand, exerts more force on the rear block-start even if the attacking foot is in more contact with the block-start and therefore contributes more to speed. It is much easier to learn to push evenly on both legs from the starting position with the legs quite close to each other (Petrescu T., 2003).

- The first move forward must be with your hands, by initiating an aggressive movement of the arms at the starting line.

- A correct start involves complex motor capabilities that must be implanted into long-term memory if they are to be performed automatically. The best way to achieve this goal is to perform hundreds, maybe thousands, of correct starts.

Technical training is difficult. Exercises necessary to improve the technique, provided that these exercises meet three standards (Boseo C., Vittori C., Matteucci E., 1986):

(a) the exercises to improve the technique must be extremely specific to the activity to which the training is directed, with regard to the speed and duration of contact with the ground;

(b) the exercises must involve the same areas of movement (movement amplitudes) as the sprint;

(c) the exercises must involve the same requirements relating to the strength and power involved.

It is interesting to note that the length of the step does not differ much in elite and medium-value sprints. However, there are large differences between elite and medium-value sprints in the frequency of stepping, with the former achieving more steps per second than average sprints. Better sprints athletes run with a slightly lower forward tilt of the body than slower sprints. Accent knee lifts are also another important feature because it allows for larger extensions to the ground.

*Jumping exercises.* These exercises are designed to develop the explosive power of the legs required in the start (NederParaschița F., 2010). They are effective enough to represent a working session itself, or can be part of a working session.

*Sprint exercises.* Exercises develop the technique, strength and power necessary to produce maximum sprint performance. They are designated for use in pre-working warm up. The length and difficulty of each exercise can be changed as desired (Encutescu A., Muraru A., 2005).

It is easy to increase speed resistance. It only takes to sprint over short distances 2 to 3 times a week and keep track of how many series of sprints have been performed, how far and how long rest was needed between each series. At each training session, the running distance is simply increased and the rest time between each series is reduced. In a period of 6 to 8 weeks the speed resistance will increase.

The following tips can help build the best program for developing running speed:

- Sprinting (up to 200 meters) is 90% - 95% anaerobic and training should reflect this percentage. Aerobic training (light or longer runs) should occupy only a small portion of the training plan. Improving aerobic physical condition has little or no effect on short-range speed (SimionGh., 2011).

- Sprints should be used at maximum speed over short durations (10 to 60 seconds).

- Rest periods of several minutes should be used after each maximum effort (Boseo C., Vittori C., Matteucci E., 1986).

- Maximum sprints should also be used over approximately used distances or even longer than in the sport you practice.

- To improve speed resistance use a series of maximum effort runs lasting 1 minute followed by rest periods of 4 to 5 minutes before repeating the run.

*Successive sprints.* Successive sprints are a very effective element of the training program for improving speed resistance (Petrescu T., 2003). These sprints involve a gradual increase from a light run to normal running at the usual frequency and then to a running with maximum effort. A rate of 1:1 should be used between the running distance and the distance travelled for rest after each series. For example: light running on 25 meters, moderate tempo running on 25 meters, maximum sprint on 25 meters and then walking normally on 25 meters. Easy

walking or running must allow for a certain recovery before the start of the next series

This easy running cycle - moderate tempo running - maximum sprint – walking, tends to develop speed resistance and reduce the possibility of muscle injury in the cold period. The cycle is an example of training from the beginning of the season and the exact number of series depends on the level of physical condition.

### 3. Conclusions

1. Physical training is the component with a particularly important role in the sports training process, being the basic element for the other factors of training.

2. Improving the force by working with the weightlifter can be done by the following procedures: Squat clean, snatch, clean and jerk.

3. The increase of the force of the whole body can be done by: throwing and catching with the medicinal ball, plyometric exercises involving strong muscle contractions in response to the rapid, dynamic requests (stretches) of the required muscles.

4. Recommended jumps for the development of explosive force of the legs are: jumps on two legs, hops continuously on one leg (successive jumps on the same leg, with displacement), jumping step, side jumps, successive jumps on one leg, jumping on both legs, jumping from squat to squat

5. Recommended sprint exercises are: hill sprint, stairs and weight sleigh.

6. Improving running technique and speed resistance is an important goal in training for the development of running speed.

All articles will be checked with anti-plagiarism software.

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## **MICRONUTRIENTS AND THEIR IMPORTANCE IN THE STUDENTS SPORTS TRAINING PRACTICING POWERLIFTING**

**Prodan Dumitru**

Merited Coach Republic of Moldova, State University of Physical Education and Sport,  
str. Andrei Doga 22, Chişinău MD-2024, Republic of Moldova

### **Abstract**

Rational nutrition is the basis of human life and it provides the body with energy, macro- and micronutrients needed for vital activities. Such a diet leads to the increase of adaptive processes in practicing sports activities but also the assimilation of information during studying hours. Student life is characterized, for the most part, by the failure to follow daily eating habits, contributing to a deficient diet, which, consequently, leads to the development of micronutrient deficiencies. Insufficient intake of vitamins and minerals affects the body negatively by reducing its physical and mental performance, its resistance to various diseases and favors the negative impact of physical and mental stress on the body. The situation, in the case of micronutrient deficiency, can be aggravated by combining the process of studying with practicing intense physical activity (sport). For this reason, because students of the faculties of Physical Education and Sport are obligated by the curriculum to attend additional classes that contain physical activities or, even more, practice a performance sport, they represent a high risk group for the acquiring poly-hypovitaminosis. The given article represents a theoretical analysis of specialized literature, which explores the value and the necessity of micronutrients for carrying out the activities to which the modern student is subjected. Within the theoretical study, we have formulated a number of recommendations regarding the administration of micronutrients that can be applied in the sports training of students practicing powerlifting.

**Key words:** nutrition, micronutrients, powerlifting, students.

### **Introduction**

Nutrition is the basis of human life, one of the most important factors that act on the human body and determine human health, through which physical and mental performances are achieved (Sbitneva O.A., 2019, p.154). It participates in realizing the adaptive potential of the body in practicing sports activities (Kobelkova I.V., Martinchik A N., Keshabyants E.E., et al. 2019, p.50), *as well as in reducing the risk of developing* pathologies associated with poor nutrition, thus ensuring a long and active life (Lebedeva S.N., Jamsaranova S.D., Chukaev S.A. & Dyimsheeva L.D. 2018, p.36; Kodentsova V.M., Vrjesinskaya O.A., Nikityuk D.B. & Tutelyan V.A. 2018, pp. 62-68).

The ascension to an independent life period, which is associated with enrollment in higher education institutions, is quite significant, as young people are beginning to make important decisions, including in regards to nutrition. (Lipatova L.P., Tavdidishvili D.R. & Rojdestvenskaya L.N., 2017, p.22).

Byih G.M. (2015, p.154) mentions that rational nutrition has the obligation to fully meet the needs of the body in micronutrients. Violation of the nutritional regimen leads to the development of micronutrient deficiency. Students are exposed to this risk against the backdrop of increased psychic and neuro-emotional stress in combination with unjustified use of irrational diets (Vrjesinskaya O.A., Beketova N.A., Kodentsova V.M., et al. 2018, p.39).

Insufficient intake of vitamins and minerals adversely affects the body: it reduces physical and mental performance, the body's resistance to diseases and favors the negative impact of physical and mental stress on the body (Byih G.M., 2015, p.155; Rahmanov R.S., Razgulin S.A., Blinova T.V., et al., 2018, pp.101-106), contributes to the appearance of: atherosclerosis, high blood pressure, dyslipidemia, obesity, diabetes some malignant neoplasms (Kodentsova V.M., Vrjesinskaya O.A., Risnik D.V., Nikityuk D.B. & Tutelyan V.A., 2017, pp.113-124).

### **Material and method**

The goal of this research is to highlight the importance of micronutrients, as part of a rational diet, in the life and activity of students who, in parallel with their studies, practice the sport of powerlifting.

The objectives of the research are: to elucidate the importance of micronutrients in achieving a healthy lifestyle among young students; to highlight the need for intake of micronutrients by students and the impact thereof; to outline the characteristic of micronutrients consumed by powerlifting students.

The methods used in the current research are focused on analyzing theoretical and practical-methodological sources of specialized literature. Achieving the proposed objectives was made possible by the methods of theoretical research: analysis and synthesis, induction and deduction, idealization, comparison and generalization.

### **Results and Discussions**

Lebedeva S.N., Jamsaranova S.D., Chukaev S.A. & Dyimsheeva L.D. (2018, pp.36-38) emphasize the adaptation of former pupils to the student life, which includes the body's systems of compensatory mechanisms. The violation of the nutritional process leads to the development of different pathologies, which is why respecting a systematic and correct diet plan is vital.

Analyzing the articles of several authors (Sbitneva O.A., 2019, p.155; Lipatova L.P., Tavdidishvili D.R. & Rojdestvenskaya L.N., 2017, pp.22-25; Shemetova E.V. & Fominyih I.L., 2018, pp.315-318; Lebedeva S.N., Jamsaranova S.D., Chukaev S.A. & Dyimsheeva L.D., 2018, pp.35-43; Beketova N.A., Kodentsova V.M., Vrjesinskaya O.A., et al., 2015, pp.64-75) I deduced the idea that students are a special category of society, united by specific characteristics of their working and living conditions. However, this is one of the most vulnerable, at risk groups. The causes that determine these statements are as follows:



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- The body of young people is still in a process of growth, especially the physiological, neuro-humoral systems;
- On average, students stay inside an educational institution between 6 and 8 hours;
- The majority of students lead a sedentary lifestyle;
- Low and non-systematic consumption of food. Limitation to periodic snacks;
- The urban environment entails a constant exposure to a variety of aggressive environmental, physical, chemical and biological factors;
- The influence of psycho-emotional and physical stress, especially during exam seasons;
- Lack of financial sources for optimal nutrition and living in dorm rooms;
- Failure to maintain a daily regimen and rational sleeping hours.

Not following the principles of a balanced and rational diet is one of the reasons for developing micronutrient deficiency, poly-hypovitaminosis.

According to the data provided by Kodentsova V.M., Vrjesinskaya O.A., Risnik D.V., Nikityuk D.B. & Tutelyan V.A. (2017, pp.113-124) only 20% of those examined were adequately getting all vitamins. Summarizing the results of the researchers Beketova N.A., Kodentsova V.M., Vrjesinskaya O.A. et al. (2015, pp.64-75) 39% of the students have sufficiently received all needed vitamins. (Vrjesinskaya O.A., Beketova N.A., Kodentsova V.M., et al., 2018, pp. 39-43).

Voronkov Yu.I. (2011, pp.66-67) specifies that micronutrients are a heterogeneous group of organic substances that are necessary to all living organisms for normal growth, vital activity and the fulfillment of specific physiological functions. Vitamins are either not formed in the body or not synthesized in sufficient quantities. They participate in metabolism as catalysts and regulators for biochemical and physiological processes. The daily quantity required depends on various factors, such as: individual qualities, intensity of physical and intellectual work, psychological stress, as well as other external factors. (Kochetkov M.A., 2012, pp. 154-159)

The presence of vitamins in the diet is extremely important for the body while it is still in the process of growing during student years. The need increases even more with significant physical effort, adaptation and acclimatization in a new environment, stressful situations. (Rahmanov R.S., Razgulin S.A., Blinova T.V., et al., 2018, pp.101-106). Adequate intake of micronutrients ensures high physical and mental performance (Radjabkadiiev R.M., Vrjesinskaya O.A., Beketova N.A., Kosheleva O.V., Vyibornaya K.V. & Kodentsova V.M., 2018, pp. 43-51).

The situation, in the case of achieving saturation with micronutrients, can be aggravated by combining the process of studying with practicing a physical (sporting) activity. This is the reason why students of the faculties of Physical Education and Sport, obligated by the curriculum to attend additional classes that contain physical activities or, even more, practice a performance sport, represent a high risk group in regards to developing poly-hypovitaminosis.

The reasons for an insufficiency in vitamins and minerals are both incorrect diets and poor quality of the products themselves, which contain a reduced nutritional value due to the use of modern technologies of preparation or the consumption of refined foods, high in calories, but with a low level of micronutrients. (Kodentsova V.M., Vrjesinskaya O.A., Risnik D.V., Nikityuk D.B. & Tutelyan V.A., 2017, pp.113-124).

Sport is associated with a mobilization of all adaptive capacities of the body. The motor activities are accompanied by a metabolic intensification, which requires an additional intake of vitamins and minerals (Anton V.E. & Galstyan A.G., 2017, pp.23-31). A person involved in sports activities is not able to assess the loss of macro- and micronutrients during or after training. Moreover, the basic objective of post-stress recovery is muscle recovery and recovery of nutrient loss. (Achkasov E.E., Mashkovskiy E.V., Bezuglov E.N., et al., 2018, pp.126-132; Manolachi V., 2018, p.499).

The authors Achkasov E.E., Mashkovskiy E.V., Bezuglov E.N. et al. mention in their article (2018, pp.126-132) that mental functions improve under the influence of physical efforts, in medium and long term, but immediately after a training, one observes a decrease thereof. Continued physical activity can initiate processes that inhibit the central nervous system, installing mental fatigue syndrome. At the same time, long-term mental effort does not affect the workings of the muscular system, but it can indirectly reduce physical capacities due to decreased concentration, attention and inhibition of thought processes. Excessive mental stress also reduces the quality of recovery after physical exertion.

In order to meet the intellectual and sporting demands, the body needs additional energy. For this reason, the need for micro-nutrients is even greater (Kochetkov M.A., 2012, pp.154-159; Rahmanov R.S., Razgulin S.A., Blinova T.V., et al., 2018, pp.101-106; Lipatova L.P., Tavdidishvili D.R. & Rojdestvenskaya L.N., 2017, pp. 22-25). Even a diet perfect for adults, calculated at 2500 kcal per day, is deficient in most vitamins with at least 20% (Kodentsova V.M., Vrjesinskaya O.A., Risnik D.V., Nikityuk D.B. & Tutelyan V.A., 2017, p.113-124). Moreover, when practicing sports, the required energy value of the diet can exceed 3800 kcal, which increases the need for vitamins, especially of the B complex. Thus, the diets followed by students in the training process, as well as during the recovery period, does not provide an adequate intake of micronutrients. Therefore, the basic recommendation is to use complex dietary supplements containing vitamins and minerals (Vrjesinskaya O.A., Beketova N.A., Kodentsova V.M., et al., 2018, pp.39-43; Kochetkov M.A., 2012, pp.154-159; Ghicavîi V., Gavriluța V. & Gușuică Gh., 2015, pp. 72-75). This will prevent and counteract disorders caused by intense physical exertion (Radjabkadiev R.M., Vrjesinskaya O.A., Beketova N.A., Kosheleva O.V., Vyibornaya K.V. & Kodentsova V.M., 2018, pp.43-51).

Bakasheva M.K. & Suhov S.V. (2017, p. 9) mention that Vitamins A, C, E, zinc, iron and magnesium are used to maintain a good physical and athletic form.

Additionally, Vitamins B6, B12, A, C, E, and others help to reduce the risk of developing cardiovascular diseases.

Denisova N.N., Pogojeva A.V. & Keshabyants E.E. (2018, pp.81-86) mention in their work that the need for vitamins and minerals may increase in the practice of strength training, including powerlifting – a fact which is explained by the activation of growth hormone secretion, as well as testosterone, corticosteroids, cortisol. This leads to specific changes in protein synthesis and subsequently to increased muscle mass. Protein metabolism is closely linked to the exchange of micronutrients, especially potassium, calcium and some vitamins. If the amount of dietary protein exceeds 2.0 g / kg, the loss of potassium and calcium increases sharply. And with the decrease in protein intake, there is an increase in the excretion of certain vitamins (C, B1, B2, B6, PP) through urine. Thus, a shortage of micro-nutrients will negatively affect athletic performance. In conclusion, the authors draw attention to the fact that an increased intake of B vitamins (B1, B2, B6, P) and C is needed for strength sports.

Voronkov Yu.I. (2011, pp.66-70) and Ghicavii V., Gavriluța V. & Gușuică Gh. (2015, pp.72-75) specify that vitamins and minerals can manifest both positive and negative actions on the body. Properly associated (vitamins with each other or with minerals) manifest synergistic interactions. The wrong combination will increase their antagonistic effects because a series of microelements, by being heavy metals, destroy some vitamins. Therefore, it is understood that it is useless to take supplements containing the full range of vitamins, macro- and microelements, but which do not take into account their interaction.

In the accompanying sheet of Vitamin B12 (solution for injection) one can find the following indications ([https://farmacie.md/catalog/detail/31358/vitamina\\_b12\\_sol\\_inj\\_0\\_5\\_mg\\_ml\\_1ml\\_n10\\_\(darnita\)](https://farmacie.md/catalog/detail/31358/vitamina_b12_sol_inj_0_5_mg_ml_1ml_n10_(darnita)), accessed 25.03.2020): This substance is pharmaceutically incompatible with ascorbic acid, (Vitamin C), heavy metal salts, thiamine bromide (B1), pyridoxine (B6), riboflavin (B2) (the cobalt ion in the cyanocobalamin component destroys other vitamins).

For this reason, there are a series of useful recommendations suggested by Ghicavii V., Gavriluța V. & Gușuică Gh. (2015, pp. 72-75): namely, the selection of complex supplements in which the nycthemeral dose is divided into several tablets administered separately during the day (i.e. separation of vitamins from minerals); the use of solid pharmaceutical forms that are prepared in layers, which favor the gradual assimilation of substances; reducing the amount of water (when administering the supplement) and lyophilisation of substances that helps to avoid interactions.

Using excessive doses of vitamins does not offer the benefits of maintaining optimal vitamin status, and can lead to unwanted long-term consequences (Radjabkadiev R.M., Vrjesinskaya O.A. & Kodentsova V.M., 2019, pp.33-39).

It is obvious that the principle "the more, the better" is not attributed to the consumption of vitamins and minerals.

When calculating the amount of micronutrients, all their sources must be taken into account: food, water (mineral), foods rich in vitamins and minerals, dietary supplements and others.

Micronutrients are divided into categories, depending on the risk of exceeding the maximum permitted level of consumption (Table 1) (Kodentsova V.M., 2014, p.47).

*Table 1. Classification of micronutrients according to the degree of risk of exceeding the maximum permitted level of consumption.*

<i>Category</i>	<i>Risk of excessive consumption</i>	<i>Vitamins and minerals</i>
I (A)	No health risk in the current consumption rate	B <sub>1</sub> , B <sub>2</sub> , B <sub>12</sub> , K, biotin, pantothenic acid
II (B)	Low risk of exceeding the maximum allowed level of consumption (UL)	C, D, E, B <sub>6</sub> , folic acid, nicotinamide, phosphor, magnesium
III (C)	Emphasized risk of overdose	A, $\beta$ -carotene, calcium, copper, iodine, iron, manganese, zinc, fluoride

Denisova N.N., Pogojeva A.V. & Keshabyants E.E. (2018, p.84) propose certain doses of micronutrients for athletes who practice strength sports. Namely Vitamins: C (mg) 175-210; B<sub>1</sub> (mg) 2,5-4,0; B<sub>2</sub> (mg) 4,0-5,5; B<sub>3</sub> (mg) 20; B<sub>6</sub> (mg) 7-10; B<sub>9</sub> (mkg) 450-600; B<sub>12</sub> (mkg) 0,004-0,009; PP (mg) 25-45; A (mg) 2,8-3,8; E (mg) 20-35. And Minerals: Calcium (g) 2,0-2,4; Phosphorus (g) 2,5-3,0; Iron (mg) 20-35; Magnesium (g) 0,5-0,7; Potassium (g) 4,0-6,5.

Kodentsova V.M. (2014, p.49) suggests some recommendations regarding the intake of micronutrient complexes, namely: in the first stage, in order to obtain a saturation of the body a large dose is prescribed (100-300% of RDA) for a short term (3-4 weeks), Then, the second stage of maintenance, with the use of 15-50% of the RDA or the inclusion in the diet of foods rich in vitamins and minerals.

## **Conclusions**

According to the objectives proposed in the article, it was determined that, through poor nutrition, students have a limited intake of micronutrients. This fact is aggravated by combining the process of studying and practicing sport; Micronutrients act beneficially on the students' bodies, which are under continuous conditions of adaptation and stress; The article offers suggestions and recommendations regarding the intake of micronutrients that can and should be followed by students practicing powerlifting.

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## **CRITERIA OF SELECTION IN COMBAT SPORTS**

*Prof., DSc. Yuriy Briskin, PhD Serhiy Smyrnovskyy, Sofia Smerechynska  
Ivan Bobersky, Lviv state university of physical culture, Ukraine*

**Keywords:** Criteria talent, combat sports, martial arts, sport selection

### **Introduction.**

The evolution of competitive activity in martial arts has led to changes in the system of training athletes in these sports. Thus, there is a need to find new ways and reserves to improve the effectiveness of professional skills and to identify the most talented athletes at various stages of long-term training.

**The aim of the research.** Identify the main criteria of talent in martial arts.

### **Research methods.**

Theoretical analysis and synthesis, documentary method, survey (questionnaire), methods of mathematical statistics.

During the research, a survey of 45 martial arts coaches was held. 15 fencing coaches, 15 boxing coaches and 15 karate coaches with different experience and qualifications and working in Ukraine and abroad were interviewed. As a result of the survey, it was found that one of the most informative criteria of talent in martial arts at first years of long-term training are psychophysiological characteristics of athletes (Speed motor reactions, speed of thinking, information processing and decision making, resistance to interference, balance and strength of the nervous system), such thoughts were 52% of coaches. In addition, an important criterion of talent in martial arts (in the opinion of 31% of coaches) are psychological specialties of the athlete and motivation for go in for particular sport. Only 19% of the coaches thought that anthropometric data are informative criteria of talent in martial arts. The smallest number of coaches - 4% believe that the physical fitness of the athlete at the beginning of sports training can be criteria of the talent in martial arts.



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## **BIOMECHANICAL CHARACTERISTICS OF THE TECHNICAL STRUCTURE OF TSUKAHARA VAULT WITH TEMPO**

Potop Vladimir<sup>1</sup>, Cîmpeanu Mariana<sup>2</sup>, Moga Carolina<sup>3</sup>, Buftea Victor<sup>4</sup>

<sup>1</sup>*Ecological University of Bucharest, 1G Vasile Milea Bvd., 061341, Bucharest, Romania*

<sup>2</sup>*„Dinamo” School Sports Club, 7-9 Stefan cel Mare Road, 020121, Bucharest, Romania*

<sup>3,4</sup>*State University of Physical Education and Sport, 22 Andrei Doga street, MD 2024, Chisinau, Republic of Moldova*

This paper aimed at highlighting the kinematic and dynamic characteristics of the technical structure of Tsukahara vault with tempo. This vault is a specific amendment at the classification category Junior III, level 3 of the Romanian Gymnastics Federation. In this respect, a case study was conducted with one female gymnast of 11 years old (height 134 cm and weight 27 kg) from the “Dinamo” School Sports Club of Bucharest. The research used the biomechanical video method of analyzing the sports technique of the studied vault. Also, on the basis of the movement postural orientation method, the indicators of the biomechanical characteristics of the technique key elements were measured and analyzed as follows: travel of the body general center of mass (trajectory); linear and angular velocities of body segments; resultant of the force at the repulsion from springboard, vault table (apparatus) and mats; moment of landing damping. The level of specific physical training, especially the strength of the lower limbs (spring), scapular belt, the abdominal and back strength in isotonic, isometric and mixed work conditions was monitored through observation of the executions all along the study, not by tests. From a didactic point of view, there were applied the linear and branching algorithmic schemes for learning the vault under study. The outcomes of the study show the influence of the specific physical training level necessary for the vault execution and the correction of the technical mistakes. Highlighting the values of the indicators of the kinematic and dynamic characteristics of the key elements of tempo Tsukahara vault contributed to a deeper knowledge of the technique and to a more efficient development of the algorithmic schemes for their learning and improvement.

**Keywords:** *specific physical training, indicators, key elements, biomechanical video method, algorithmic learning*

### **1. Introduction**

Artistic gymnastics shows remarkable progress from one Olympic cycle to another, highlighting the fact that it develops permanently by increasing the difficulty, complexity and spectacularity of the exercises, at the same time with the improvement of the technique and the execution mastery (Vieru, 1997; Arkev, Suchilin, 2004).

The effort in artistic gymnastics is distributed differently for each of the 4 apparatus in women’s artistic gymnastics (vaults, uneven bars, balance beam and floor) and 6 apparatus in men’s artistic gymnastics (floor, pommel horse, rings, vaults, parallel bars and high bar), because the competitive effort on each apparatus lasts for a short time relatively (from 5-7 sec for vaults up to 50-90 sec on the other apparatus (Grigore, 2001).

Knowing the biomechanical particular features and the physiological stress of the body in artistic gymnastics requires the correct assessment of the physical effort

made by the athletes. On this matter, the biomechanical methods and also the methods taken from other fields of knowledge (pedagogical, mechanical, physiological, psychological, medical etc.) can be used with the general purpose of highlighting the characteristics of movement on various apparatus by choosing the means of recording, processing and analyzing the data obtained (Potop, 2007).

In artistic gymnastic, the technical training must be very demanding, because the exercises in competitions are evaluated depending on the accuracy of the movement (amplitude, expressiveness, fluency of the movement etc.), according to the FIG norms provided in the Code of Points. The evaluation of exercises on apparatus is made by giving two types of score: difficulty (D) and execution (E). In the specific case of the handspring vaults, the score D also includes the Difficulty Value (DV) corresponding to the elements included in the tables of the Code of Points (Readhead, 2011).

The handspring vaults event has a single basic technical structure and the variants of this one, namely the turn over through handstand. All handspring vaults have a common feature, determined by the phases of their entire execution, namely: *run, hurdle into the springboard, first flight, support (hit) with hands on the vault table, second flight and landing*. Therefore, the correct knowledge and learning of the technique of these component phases must be ensured from the very beginning of the training (Vieru, 1997; Gaverdovskij, 2014; Filipenco, E., Tomşa, N., & Bufta V. (2014).

In conformity with the International Code of Points (FIG, 2017), the handspring vaults are divided into 5 groups. The Tsukahara vault (forward turn over with  $\frac{1}{4}$  -  $\frac{1}{2}$  twist ( $90^\circ$  -  $180^\circ$ ) in the first flight – backward salto with / without twist in the second flight) is included in the group 3 in Women’s Artistic Gymnastics and in group 4 in Men’s Artistic Gymnastics.

The analysis of the Romanian female gymnasts’ training for the vaults event revealed that the vaults belonging to group 3 Tsukahara are no longer so frequently used in the superior categories of gymnasts, even if they are stipulated in the classification program for category III, level 3. Giving up the continuity of learning this vault would have a cause of a didactic nature.

In this regard, we have aimed in this research to highlight the kinematic and dynamic characteristics of the ”Tsukahara tempo” vault as quantitative indicators necessary for learning the technical structure.

## **2. Material and method**

For this purpose, a case study was conducted with one female gymnast aged 11 years (height 134 cm and weight 27 kg) from the “Dinamo” School Sports Club of Bucharest. The biomechanical characteristics of ”Tsukahara tempo” vault were highlighted by means of the computerized video method for analysis of the sports technique. Based on the method of postural orientation of movement (Boloban, 2013 and Potop, et al., 2015; Sadovski, et al., 2009), the angular characteristics were measured by means of Kinovea program and the indicators of the

biomechanical characteristics of technique key elements by means of Physics Toolkit. The biomechanical characteristics refer to the displacement of the center of mass of the body (CoM - trajectory), the angular velocity of body segments, the resultant of the repulsion force from the springboard, the vault table (apparatus), mats and at landing.

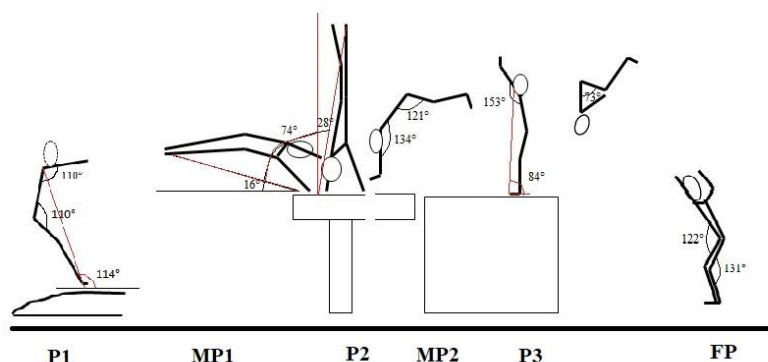
For a more in-depth knowledge of the vault phasic structure, the video analysis focused also on the vaults viewed from frontal plane, anterior and posterior view, using the Kinovea program.

**3. Results and Discussions**

The computerized video analysis was performed using the Physics Toolkit program; the biomechanical indicators in Table no. 1 were automatically processed.

**Table no. 1.** Biomechanical indicators of "Tsukahara – tempo" vault

Height, m	Weight, kg	I.R., (kg.m <sup>2</sup> )	Radius of the motion (m)		
			foot	shoulder	arm
1.34	27	6.06	0.542	0.367	0.6



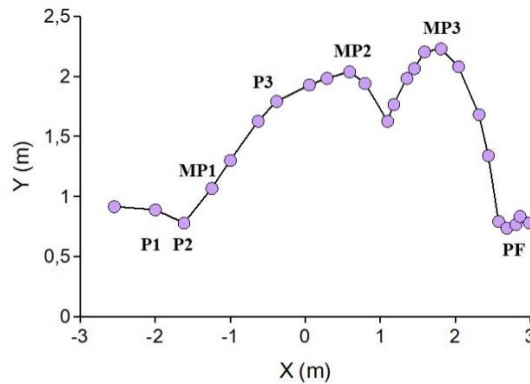
**Fig. 1.** Phases of "Tsukahara – tempo" vault

**Table no. 2.** Results of the displacement of body segments during "Tsukahara -tempo" vault

Key elements	times (s)	CoM		foot		shoulder		arm		
		X(m)	Y(m)	X(m)	Y(m)	X(m)	Y(m)	X(m)	Y(m0)	
P1	a	0.067	-1.615	0.78	-1.328	0.301	-1.561	1.191	-1.246	1,095
	b	0.1	-1.246	1.068	-1.328	0.342	-1.04	1.396	-0.671	1,52
MP1	0,133	-0.999	1.301	-1.369	0.808	-0.739	1.561	-0.287	1.396	
P2	0,233	0.055	1.93	-0.096	2.491	0.164	1.574	0.342	1.136	
MP2	0,3	0.589	2.04	1.123	1.944	0.301	1.67	0.301	1.246	
P3	0,4	1.177	1.766	1.095	1.095	1.191	2.19	0.999	2.533	
MP3	0,533	1.807	2.231	2.026	2.615	1.834	1.889	2.081	2.231	
FP	0,7	2.683	0.739	2.628	0.205	2.56	1.054	2.3	1.164	

Note: P1 – position of body in contact with springboard (a – before contact; b – before take-off); P2 – position before the take-off from springboard; MP1 – the first flight; P3 – position of body during vertical support on the vault table; MP2 – the second flight; P4 – position before take-off

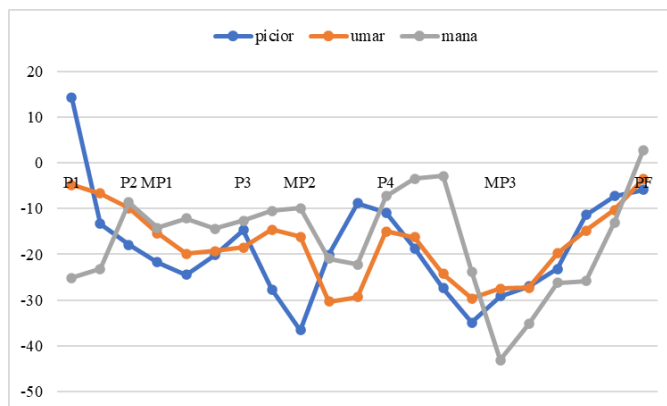
from the mat; MP3 – flight during backward tuck salto; PF – landing.



**Fig. 2.** Trajectory of the body center of mass in "Tsukahara tempo" vault (C.A., 11 years old)

**Table no. 3.** Resultant of force and angular velocity of body segments during "Tsukahara – tempo" vault

Key elements	times (s)	CoM	foot	shoulder	arm
		F, N	Omega, rad/s	Omega, rad/s	Omega, rad/s
P1	a	4.52E+03	-13.311	-6.723	-23.19
	b	2.52E+03	-17.938	-9.892	-8.663
MP1	0.133	169.705	-21.748	-15.336	-14.196
P2	0.233	1.51E+03	-14.676	-18.458	-12.645
MP2	0.3	3.23E+03	-36.507	-16.141	-9.918
P3	0.4	3.05E+03	-10.902	-15	-7.309
MP3	0.533	4.51E+03	-29.159	-27.512	-43.1
FP	0.7	4.35E+03	-5.854	-3.561	2.733



**Fig. 3.** Angular velocity of body segments during "Tsukahara – tempo" vault

The results of the biomechanical indicators automatically processed by Physics Toolkit software highlight the value of the inertia of rotation related to the

gymnast's body mass and height and the radius of the segmental movement of the foot, shoulder and hand. From the data obtained it is observed that the radius of movement of the arms has the highest value in the entire exercise (table no. 1).



**Fig. 4.** *Deviations of trajectory of the movement in frontal plane, posterior view ("Tsukahara – tempo" vault)*



**Fig. 5.** *Deviations of trajectory of the movement in frontal plane, anterior view ("Tsukahara – tempo" vault)*

The video analysis of the segmental angular characteristics within the phasic structure of the vault is shown in figure 1, regarding the positions of the key elements at the launching posture 1 (angle of attack) before contact with the springboard, angle between shoulder and horizontal (floor), angle between thigh - torso and torso – arms (P1); multiplication of body posture in the first flight – position of the body turned 90° (MP1), launching posture 2 – support before contact and take-off from the apparatus (P2), multiplication of body posture (second flight) (MP2), launching posture 3 before take-off for execution of the salto; MP3 – height of the flight of the CoM and concluding posture – landing (CP).

The results of the displacement of body segments during "Tsukahara -tempo" vault are presented in table no. 2; figure 2 shows the temporal and spatial characteristics of the key elements of the vault in terms of trajectory of CoM (hip, leg, shoulder and hand). From the obtained data it is possible to analyze the height of CoM flights, MP3 especially, in the backward tuck salto, and the length of the vault from the table to the landing spot.

Concerning the resultant of force and angular velocity of body segments during ”Tsukahara – tempo” vault, shown in table no. 3 and figure 3, the obtained data point out higher values at the position angle of attack before the hurdle onto the springboard and the force accumulated in MP3 during salto, followed by the landing. Thus the dynamics of the biomechanical characteristics of the phasic structure is highlighted.

In order to know more thoroughly the phasic structure of ”Tsukahara tempo” vault, the executions were also monitored from the frontal plane. In this respect, the deviations of the trajectory (presented in figures 4 and 5) were shown from anterior and posterior view.

Some authors such as: G.P. Bruggmann, 1994, Prassas, S., Kwon, Y. H., & Sands, W. (2006)., Crețu, M., Simăr I.I., Bărbuceanu, M. 2004, study the elastic parameters of the springboard, the parameters of contact with the floor, the support and the parameters of landing, as well as the correlation between the mechanical variables and the scoring of the vault (Buftea, V., 2017; Penitente, et al., 2010). There were also accepted as important values and submitted to the study the following elements: the running speed (horizontal speed), the linear speed of take-off from the springboard, the angular parameters during the support on apparatus, the vertical impulsive speed, the angular momentum of the flight related to the landing distance from the apparatus and the landing characteristics.

From a didactic point of view, linear and branching algorithmic schemes for learning the studied vault were applied, monitoring the level of the specific physical training. Thus, it was monitored the development of the lower limbs strength (spring), scapular belt, abdominal and back strength in isotonic and isometric working conditions and in mixed conditions as well; preparatory/auxiliary exercises for learning the vault phases; control and correction exercises (Potop, V., Grigore, V., Boloban, V., 2015).

#### **4. Conclusions**

The results of the study highlight the influence of the level of specific physical training necessary both for the execution of the vault and for the correction of the technical mistakes with the help of the obtained biomechanical characteristics.

Highlighting the values of the indicators of the kinematic and dynamic characteristics of the key elements of Tsukahara-tempo vault contributed to a more in-depth knowledge of the technique, to the selection of more efficient preparatory/auxiliary exercises, to the control and correction of the execution mistakes, required by the algorithmic schemes for the learning and improvement of these elements.

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## **KINETOTHERAPY**



## **MELOTHERAPY – TOOLS USED IN WORKING WITH THE AUTISTIC CHILD**

Apostol Popovici Dana Gabriela

*The “Ion Creangă” State Pedagogical University of Chisinau, Republic of Moldova;*  
*Corresponding author: danagabriela\_popovici@yahoo.com*

### **Abstract**

Children with emotional and / or adaptation difficulties find in the therapeutic work with music a secure environment in which they can express themselves and in which they can live the acceptance, the connection, the understanding of their emotions.

Here the emotional liability becomes a creative resource, and the emotions that are difficult to manage become musical sounds, possibly even emotions of some story characters. Once externalized, they become bearable, understandable, can be modified.

**Keywords:** *melotherapy, emotional difficulties, music, instruments*

**Music therapy is a systematic process** of interventions when the therapist helps the client to promote health, using musical experiences and the relationships developed through them as dynamic forces of change ”(Bruscia, KE-1998 - translated by K. Molnar, 2015), but and a **reflective process** in which the therapist helps the client in optimizing health, using, as an impulse for change, the different facets of musical experiences and the relationships formed by them ”(Bruscia, KE, 2014- trans. K. Molnar, 2015).

Summarizing the above, we can conclude that MusicTherapy is a therapeutic framework in which communication between the client and the therapist is made with the help of sounds, in order to rehabilitate, heal, prevent, and / or personal development, by a person specialized in therapy through music”. (L. Bunt, 2002).

Children with emotional and / or adaptation difficulties find in the therapeutic work with music a secure environment in which they can express themselves and in which they can live the acceptance, the connection, the understanding of their emotions.

Here the emotional liability becomes a creative resource, and the emotions that are difficult to manage become musical sounds, possibly even emotions of some story characters. Once externalized, they become bearable, understandable, can be modified. Children live the experience of accepting and understanding emotions, learn to accept each other's emotions, learn that the emotions we react to different events are natural and are our friends who signal us when something is good or not for us.

In group sessions, children practice interaction, listening, waiting, collaborating and paying attention to each other, thus developing emotional intelligence. In these sessions they can have those experiences that they need to reach the psychosocial development that will ensure their transition to the next stage of development.

Thus, younger children can experience the feeling of competence, of autonomy, they can explore, and they can overcome the feeling of shame, of guilt.

Students can gain self-confidence and overcome feelings of inferiority.

Adolescents, by choosing their favorite music, by identifying with various characters, by naming their own emotions, or transferring them to other characters, by composing songs or imagery can better know themselves, live group membership and reduce the feeling of isolation. Thus, for them the way in establishing the identity becomes clearer. In the case of children who have suffered traumas and have come to cleave various parts of the personality, therapeutic work sessions with music are opportunities to reintegrate these parts, to overcome emotional blockages. The positive therapeutic relationship leads to the experience of a secure attachment for children who have not had such a relationship with their parents. Through the transfer, the positive experiences of the sessions will be extended to other contexts.

In order to reach a greater cooperation during the therapeutic sessions, some games can be used, such as:

- Improvising a musical dialogue between children
- Stimulating the ability to imitate: do as I do!
- The statue of sounds
- Listen to my improvisation!
- My emotion today
- The king of music: one of the children sings solo and then the others answer
- Stimulating cooperation between children: Played on the instrument held by the partner: Imitation of a rhythm produced by the partner; Response to a given signal
- Musical games: the conductor, the tambourine flies, looking for the lost object, who sang?, the train, natural phenomena
- Creating a musical story some can play the instrument what is happening and others can show with the gesture, or can mimic the emotions of the lived events
- Musical audition and imagery, accompanied by drawing.

Another method can be **the use of various musical instruments** in stimulating sensory integration:

**-Use of body sounds:** Provides the necessary feedback to form the body scheme, self-awareness, orientation on one's own body, spatial relationships between different parts of the body. Clapping favors the execution of symmetrical

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parallel movements at the level of the central axis but also in various spatial positions.

**-Use of percussion instruments:** Provides proprioceptive, tactile, vibrational stimulation, develops muscle tone, provides proprioceptive information: a harder percussion instrument strengthens this information, indicating where the arms are, how much force it needs to sustain, how much energy it requires to emit sound desired, allows internalization of rhythm, beat pressure, permanent visual control, use of one arm or two arms - symmetrical movement of the arms, movement planning in imitation exercises, harmonizes brain activity, body rhythms

**-Ocean drum:** Provides auditory stimulus information for progressive coordination / inhibition of movement, develops proprioception, muscle control in the hands, maintains motivation for execution through auditory and visual stimulation, the child being fascinated by balls. The movement is bilateral, symmetrical, opposite.

**-raindrops:** Provides auditory and visual information, stimulates coordination of movements. The movement is bilateral, symmetrical, opposite, develops muscular control in the arms and hands. Through visual information, (stopping the balls at various levels), it forces the child to produce other movements, shaking, developing new patterns of action. It also develops grasping, hand position awareness, proprioception.

**-2 sticks, two dinners:** -involves auditory stimulation, visual control and organization of movement in the central axis - symmetrical bilateral movement, opposite (up-down) -as the dinners do from the outside to the inside and vice versa. The chisels force the learning of lateral movements. By playing with the partner, the child can also learn the crossed movement of the arms and the orientation of the movement in different parts of the space. Practice grasping, the collision provides proprioceptive and vestibular feedback.

**-cabasa:** - "brush" children's palm, can be considered part of the sensory diet, can desensitize, reduce tactile defense, pleasant rhythm relaxes the brain; can also be used to massage the feet, body on different rhythms; it includes motor planning, non-parallel bilateral coordination of the hands at the level of the central axis, stimulation of finger movement by rotating the beads.

**-Wooden tulip, cow bells, etc.** - stimulates the non-parallel bilateral coordination of the hands at the level of the central axis, visual, proprioceptive, auditory control.

**-Use of instruments from different materials, wood, metal-** favors auditory discrimination.

**-Acoustic sticks:** -Located in various positions can promote the use of upper limbs in various directions of space. It forces the separate use of the fingers; through the auditory feedback it provides information - the stimulus for the light pressure of the sticks to stop them.

**-Finger chisels:** - Can develop skills in finger movement, differentiation of nerve centers. Keyboard instruments: -favors the auditory, proprioceptive, tactile,

vibratory stimulation, with the synthesizer - the child can differentiate various timbres. The child can discover the separate movement of the fingers, which will promote the differentiation of the nerve centers and these skills will be transferred - holding the pencil. As the child develops skills to use the limbs in different directions, not just at the level of the central axis, he will even be able to reach the crossing of the upper limbs.

-**Maracas**: - Contributes to the motor planning of the lateral movement of the arms, permanently providing proprioceptive information about the position of the arms strengthened by auditory feedback. In the meantime, the differentiation of the nerve centers of the upper and lower limbs develops. It supports the internalization of the rhythm because the instrument is silent if it is not moved, motivating the child to execute the movement.

-**Xylophone** - Develops visual, spatial attention, oculomotor coordination, information planning, differentiation, abstraction, and succession.

-**Use of stringed instruments**: - Involves bilateral motor planning, central visual focus, towards the central axis of the body, performing non-parallel bilateral movements, involves visual, tactile, proprioceptive control of the instrument, motivation - if all are performed correctly, the sound is more pleasant.

-**Blowing instruments**: - Organizes breathing, diaphragm control, with impact on language development, stimulates proprioceptive-permanently informing about the position of fingers, arms, central axis, vibrations in the case stimulates the oral motor system, emitting vocalizations, skills that can be transferred on improving eating behavior.

-**Vocalization**: - Provides inflection, helping prosody, articulation of language, hearing acuity, breath control, stimulating expiration. The use of nonverbal vocalizations influences vocal imitation, stimulating more than the singing of some songs, especially in nonverbal children.

### **Preparation for completion and completion of melotherapy**

In conclusion, all children need a stage of preparation for the end of therapy or a ritual of ending therapy before the holiday or at the end. All the more so, children who have emotional difficulties need this ending. For those who do not understand the verbal message, we can visualize the end of a session, by taking an icon or cubes from a whole that represents the work sessions with music. For those who understand the verbal message, we can prepare them verbally, offering musical suggestions, anchors, such as the common song, the chance to express emotions towards the end. We help them by stimulating autonomy and creativity. Finally, we can offer a personalized song, we can have an imaging session in which to see in the future. The song on which the imagery takes place is preferable to being an invigorating one, because it will probably serve as an anchor in the most difficult moments.

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## **GYMNASTICS IN PREGNANCY**

**Parascan Mihai-Marius**

*Ecological University, Bucharest, Romania;*  
*Corresponding author: mariusparascan@yahoo.com*

### **Summary**

Pregnancy is a physiological process that involves a series of modifications of the entire body that require adaptation to the new conditions created.

There are multiple benefits to practicing physiotherapy during pregnancy that helps with the specific training of the muscles that are actively involved during labor and birth, the pregnant woman being able to easily detect tension in different parts of the body - to reduce tension and relax. Kinetotherapy makes labor shorter, birth easier and recovery faster after birth, increasing joint mobility - especially of the co-femoral and pelvic joints, ensuring body weight control to maintain adequate values for pregnancy and the fetus is better oxygenated.

***Keywords:** pregnancy, physiotherapy, benefits, changes.*

### **Introduction**

Pregnancy is a physiological process that involves a series of modifications of the entire body that require adaptation to the new conditions created.

There are profound changes in the metabolic processes and in the hydroelectrolyte balance, which cause corresponding transformations depending on the different systems and devices.

#### **1. Gymnastics for pregnant women in the first trimester:**

The first trimester is the most dangerous for the embryo. During this period it is not recommended that future mothers practice gymnastics intensively.

Breathing exercises and thigh exercises are recommended. The following exercises can be performed in the morning when you wake up or in any other period suitable for pregnancy.

- Stand on the back of your seat and make semi-adjustments with your legs open. You can alternate the settlements with the elevator on the tip of your feet.

- For stretch marks and birth preparation exercises for abdominal oblique muscles are useful: rest your hands on the back of the chair and move your foot forward, then sideways and backwards.

- Pregnancy affects the bust. To maintain its shape, perform the following exercises: place your hands together on your chest and press them tightly together. You will feel how your chest muscles tighten.



- Rotate the basin first in one direction and then in the other. It is important to have a correct position when performing this exercise: the legs at the level of the shoulders, with the knees bent.

- To avoid cramps and varicose veins, it is recommended to perform circular movements of the toes, even from the sitting position at the desk: raise your feet on the tips and rotate your heels.

## **2. Gymnastics for pregnant women in the second trimester:**

The second quarter is most favorable for physical exertion. During this period the risk of miscarriage is reduced and the woman can afford more efforts. The exercises in the second trimester are focused on the pelvic area. They allow the incontinence to be avoided, often encountered in pregnant women with the second child at the age of 30-35. In addition to the set of exercises for incontinence prophylaxis, Kegel exercises are recommended.

In the second trimester, starting with weeks 16-18 of pregnancy, the exercises should be performed with bandage. There are no exercises from the back position, because there is a risk of obstruction of the hollow vein, which leads to a deficiency of oxygen in the fetus.

Gymnastics starts with a warm-up:

- sitting on the floor with your feet tight, turn your head to the right, then to the left. then gently turn the body in different parts, hands folded sideways.

- the following exercise is performed from the position sitting on the floor, with the legs extended slightly to the side, with the legs crossed (posture of the siren). During inspiration raise your hands up, then, exhaling, lay your head on your back. Liedown; lay your hands forward, one over the other. Rotate your upper arm 180 degrees through body movement, then return. Repeat with the other hand.

- Sit on your feet with your heels under your buttocks, reach out and touch the floor with your forehead. If it bothers your tummy, you can loosen your legs slightly. Also useful in the second trimester are the exercises for the pelvis.

### Exercises for the pelvis (Figure 1)

- pelvic balance: forward-backward, left-right, circumscision.



**Figure 1.** Exercises for the pelvis  
Exercises for arm muscles (Figure 2)



**Figure 2.** Exercises for the arms

Exercises for the muscles of the thighs and buttocks (Figure 3)



**Figure 3.** Exercises for the muscles of the thighs and buttocks

Exercises for back muscles

- Exercises with the stick, with the elastic band.
- The position of the "cat":

Stretching (Figure 4)



**Figure 4.** Stretching

**3. Gymnastics for pregnant women in the third trimester**

In the third trimester, weight gain is accentuated, which causes more severe back pain, more frequent uterine contractions, discomfort in the pelvis and hips, as the ligaments will stretch in the process of preparing the body for labor, muscle cramps frequently occur, the legs swell due to water retention and poor venous circulation, frequent urination occurs due to pressure on the bladder, numbness, tingling and stiffness in the joints of the hands, pregnancy becomes more and more tired, and normal activities begin to become more demanding, tired much faster than usual, and sleep is disturbed by the frequent wakes at night to urinate.

#### Exercises

- The exercise program for the last trimester may contain all the exercises from the second trimester, with a different dosage, depending on each pregnancy, starting with the same heating program.

It is important during this period to insist more on exercises for the pelvis, such as those on the gym ball, exercises for the back, exercises performed from the ankle joint and the leg joints that favor venous return and prevent the development of edema (dorsal fluxions, plantar fluxions, circumcission), deep breathing exercises and relaxation. The most important thing during this period is the sleeping position it is illustrated in Figure 5.



**Figure 5.** Sleeping position during pregnancy

#### **4. Conclusions**

The practice of gymnastics in pregnancy has several advantages:

- assists in the specific training of the muscles that are actively involved during labor and birth
- the pregnant woman is able to easily detect the tension in different parts of the body, reduce the tension and relax
- it alleviates the postural discomfort caused by the changes of the curves of the spine and the change of the center of weight of the body
- makes labor shorter, birth easier and recovery faster after birth
- Increased joint mobility - especially of the co-femoral and pelvic joints
- Prevention of edema
- Body weight control for maintaining adequate values for the pregnancy period
- The fetus is better oxygenated.

- Restrictions during pregnancy can be caused by the appearance of the following manifestations: discomfort, bleeding, loss of amniotic fluid, modification and shortening of breaths, dizziness, temperature rise, high blood pressure.

If there are no contraindications, gymnastics can be practiced until birth, at a rate of two to three times a week.

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## **THE IMPORTANCE OF EARLY DIAGNOSIS IN CONGENITAL HIPS DISLOCATION**

**Parascan Mihai-Marius**

*Ecological University, Bucharest, Romania;*  
*Corresponding author: mariusparascan@yahoo.com*

### **Summary**

Congenital dislocation of the hip is a condition that begins in the uterine life and can aggravate after birth, which means that if we fail to diagnose changes in the coxofemoral joint very quickly, more precisely in the first weeks of life, with the passage over time, the femoral head will emerge from the cotyledon and the dislocation of the hip itself will be installed, the treatment of which is particularly difficult, cumbersome with modest results. In some cases we face serious situations right from birth, represented by advanced modifications that interest all the constituent elements of the coxofemoral joint and the femoral head is dislocated as soon as the child is born - that is why we insist on the importance of early diagnosis.

**Keywords:** *congenital dislocation, affection, early diagnosis.*

### **1. Introduction**

Congenital dislocation of the hip is considered one of the most common and serious orthopedic pathologies, encountered in the newborn baby. The problem of early diagnosis represents an important vector in the success of the conservative treatment and in the recovery, represented by the success of the treatment throughout the life.

Congenital dislocation of the hip is observed in 2 - 20% children of 1000 newborns. According to Ariz. Data, 82% of children with pathology have dislocated hips and only 18% have femoral dislocations. In most cases, the dislocated hips have a favorable spontaneous evolution, which does not exist in the femur dislocations.

### **2. Congenital hip dislocation - symptoms**

There are several symptoms that may indicate congenital dislocation of the hip, but each child may have different manifestations, depending on the evolution of the disease. These consist of:

- Apparent shortening of the affected leg
- Higher position of one of the legs to the horizontal
- Limited abduction of the affected hip joint
- Asymmetrical folds on the thighs and buttocks
- Large opening between the legs
- Instability of hip joint
- A sound like a click in the hip area

- Delay in the development of motor skills, which can affect the way the child sits, goes crazy, crawls etc.

### **3. Congenital hip dislocation: causes**

The exact genetic causes of congenital hip dislocation are not yet known, but some factors are known that could increase the risk of developing this condition, such as:

- Pelvic presentation at birth (baby comes out with his legs forward)
- The position adopted by the fetus in the belly - if it is in the pelvic position, there is an increased pressure on the ligaments, hips and bones of the baby
- Sex - hip dysplasia is 6 times more common in girls than in boys
- Genetic inheritance - if a mother had or has hip dysplasia, the first born has a 12% risk of getting this disease
- Lack of space in the womb - can be caused by: pelvic presentation, reduced volume of amniotic fluid, pregnancy hypertension, the mother is at the first pregnancy.

### **4. Congenital hip dislocation: diagnosis**

Hip dysplasia may be present from birth or may develop in the first weeks, Parents may notice that the baby tends to go flush like cancer, with legs twisted and heels close to the front. They can also detect symptoms such as asymmetrical folds that develop in the groin area, that of the knees or thighs.

For a correct diagnosis, parents who are concerned about these symptoms should consult an orthopedic pediatrician.

The doctor will examine the position of the child's feet and perform certain movements in various positions. A sign that can raise the suspicion of congenital dislocation of the hip is the click-like noise that occurs when the foot is moving in a certain direction. In order to confirm or deny the suspicion of hip dysplasia, the doctor will recommend performing a hip ultrasound (in children under 5 years old) or an x-ray (recommended for children over 5 years old).

Computed tomography is not required in the diagnosis of hip dysplasia, this imaging method being usually used only to monitor the treatment of dysplasia.

### **5. Congenital hip dislocation: treatment**

The treatment of hip dysplasia depends on the degree of its evolution and the time of the disease, but also on the age of the child. Depending on these aspects, the doctor will choose the most effective treatment for correcting the position of the hip joint.

This may consist of wearing a special harness (which helps keep the feet in a far position, at a correct angle), called the Pavlik harness, supplemented by physiotherapy sessions, or other orthopedic devices (ties or atheists), but also in repositioning. hip (performed by the surgeon), followed by fixation in gypsum (spicamold) - this is to fix and hold the femur in the correct position.

Remember: the sooner the condition is discovered, the more likely the treatment is to succeed. It is estimated that 80-95% of the cases detected early respond better to the therapeutic methods.

The lack of treatment or its delay can lead to the development of early arthritis and severe pain at maturity, which may necessitate the replacement of the affected hip with prosthesis.

## **6. Research objectives and methodology**

### The goal

The purpose of the work is represented by:

- Highlighting the means, benefits and role of secondary and tertiary kinetoprohylaxis

- Verification of recovery programs
- Monitoring patients during recovery
- Training of patients on the effects of kinetotherapy

### The research objectives

The research objectives are:

- Theoretical objective - represented by a set of theoretical materials, which helps to implement the general picture regarding congenital hip dislocation. It is represented by (etiopathogeny, clinic and emergency treatment of this condition).

- The practical objective consists in the implementation of a kinetic program that will serve to recover the suffering patients in order to optimally operate the locomotive system and to implement the well-being.

### The tasks of research

The tasks of the research have been classified so as to serve the fulfillment of the proposed objectives, being:

- Bibliographic research focused on identifying the requirements to be achieved in the recovery of the hip after congenital dislocation.

- Study of the references related to the traumatology of the hip at birth (symptomatology, etiology, recovery or diminution modalities).

- Construction of the experimental plan:

- a) Choosing experimental cases;

- b) Choosing the exercise program;

- Carrying out the proposed kinetic and recovery program.

- Formulation of conclusions and proposals.

### Hypotheses

The implementation of kinetic programs in order to recover as much as possible the traumas represented by the congenital dislocation of the hip, will lead to the resumption in optimal conditions of the ADLs (Activities of daily living) and the fastest return to the resumption of a normal life which implies ensuring the reintegration of patients into society.

Research methods used.

- Method of analyzing specialized literature:

- Observation method:

Measurement method - exploration and evaluation:

The Ortolani test

The Palm test

The Thomas Test

- The experimental method:
- The method of recording, processing and graphically presenting the data:

Conducting the experiment

The experiment was carried out over a period of about 3 months (from **September 1, 2019 - February 1, 2020** in the Emergency Clinical Hospital for Children in Brasov).

**7. Presentation of experimental cases**

The case study was performed in 2 patients:

• Patient 1, male, 13 years - congenital dislocation of the hip, not treated in time, which subsequently needed surgery. Diseases of mobility of the hip joint are represented by the limitations of the main movements:

- Active flexion = 47 °, passive flexion = 115 °;
- Active extension = 18 °, passive extension = 38 °;
- Abduction - adduction - active = 49 °, passive = 68 °;
- Internal rotation, active = 7 °, passive = 16 °;
- External rotation, active = 28 °, passive = 32 °;

The muscular strength is classified in the 2/5 degree (Scale 0-5). Walking, coordination and stability are totally affected.

• Patient 2, female, 5 years - congenital hip dislocation. Like the parameters of the amplitude of movement of the coxofemoral joint, they are affected as follows:

- Active flexion = 44 °, passive flexion = 109 °;
- Active extension = 13 °, passive extension = 32 °;
- Abduction - adduction - active = 43 °, passive = 62 °;
- Internal rotation, active = 5 °, passive = 12 °;
- External rotation, active = 24 °, passive = 28 °;

Muscular strength rated at 1/5, (Scale 0 - 5), which implies the impossibility of movement and orthostation.

**8. The methodology used to achieve the research objectives.**

Recovery programs aimed at the recovery and reintegration into the community of patients diagnosed with congenital hip dislocation.

The kinetic and recovery program was carried out on 5 objectives, namely:

- Pain control;
- Increased joint mobility;
- Increased muscle strength;
- Restoring hip stability;
- Re-education of walking.

The kinetic and recovery program is carried out in 2 main stages:

Stage 1 - preoperative.

This program aimed to prepare the patient for the recovery period after the surgery.

This program included:



- Breathing exercises;
- Exercises to increase the strength of the muscles of the upper limbs (for walking in crutches);
- Exercises to increase healthy lower limb muscles and healthy lower limb joints
- Massage - regional - smoothing, to relax the muscles after the exercise program;

### Stage 2 - postoperative

Program 1 - is represented by breathing exercises to avoid lung complications and upper limb exercises to avoid decreased tone and muscle strength for 5 days.

Program 2 - this program was performed by patients 4 days after the surgery, so it coincided with the period of immobilization. The number of repetitions was 2-3 in series, 4-5, with breaks of 5-10 minutes. This program has been carried out for at least 2 hours / day for 1 week.

Program 3 - this program was developed to increase joint mobility and muscle strength.

### Resumption of walking

- In the first days after the operation, the patient was in bed and performed exercises without leaving the bed.
- After this period, he was placed on the edge of the bed with his feet on the floor. The body weight was transferred to the seat and legs.
- In phase II, the patient was taught to pass from the bed on an adjacent chair.
- In the fourth phase, the walking in the crutches / frame started progressively.
- From the Phase I continued the tolerance to walking by training between parallel bars, with visual control in the mirror.
- The last phase corresponded to the start of the ride and the increase of the load. The flexion-extension was emphasized.

## **9. Conclusions**

The role of kinetotherapy in the recovery of congenital dislocation of the hip is to restore mobility, by re-training all movements in the hip, maintaining or improving muscle strength and tone.

- For Patient I, a recovery of (90%) is observed for the active / passive extension and for the rotations (internal / external) - both passive and active. The rest of the very important movements in the functioning of the coxofemoral joint recovered almost completely (over 90%).
- Its muscular strength consisted of 86% recovery.
- The second patient recovered completely on the flexor / extensor and external rotator muscles, the rest of the movements presenting an almost total recovery (over 95%).

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## **KINETOTHERAPEUT- PATIENT RELATIONSHIP FROM AN ETHICAL POINT OF VIEW**

Popovici Denisa<sup>1</sup>, Gheorghisor Laurențiu<sup>2</sup>, Rădoi Alexandru<sup>3</sup>

<sup>1</sup> CF 2 Clinical Hospital, Bucharest, Romania; Corresponding author: *undsindcfr@yahoo.com*

<sup>2</sup> CF Witting Clinic Hospital, Romania; Corresponding author: *lumi\_gheorghisor@yahoo.com*

<sup>3</sup> CF 2 Clinical Hospital, Bucharest, Romania; Corresponding author: *alexandrion09@yahoo.com*

### **Abstract**

Historically and traditionally, the professional kinetotherapist has the moral obligation to provide care to the sick. Although this obligation is the collective physician - the kinetotherapist, in particular is obliged to do his part to ensure that all the sick people receive adequate treatment. discrimination between classes or categories of patients.

At the beginning of the kinetotherapist-patient relationship, the kinetotherapist must understand the patient's pain, the feelings that accompany them, the purpose and expectations. Once the patient and he agree on the problem and the purpose of the therapy, the kinetotherapist presents one or more paths of action. parties agree, the patient may authorize the teacher to start on one of the pathways of action. The relationship has mutual obligations. The therapist must be professionally competent, responsible for his / her actions, and treat the patient with compassion and respect and the patient must understand and understand consent to the treatment that is transmitted and to participate responsibly in the care.

**Keywords:** *kinetotherapist, patient, truth, privacy, confidentiality.*

The kinetotherapist- patient relationship inherits, brings with it, the special obligations of the kinetotherapist to serve the interests of the patient due to his specialized knowledge.

The first obligation of the physical therapist must always be the patient's well-being and the best ones in the therapies even if he prevents or treats the disease or helps the patient to live with the disease, the infirmity. The physiotherapist should encourage the dignity of all persons and respect their uniqueness. The interests of the patient should always be promoted in terms of financial arrangements, the direction of health care and the characteristics of the patient such as decision-making ability or social status.

Earlier therapist-patient relationship, the therapist must understand patient pain, feelings that accompany them, goals and expectations. After the patient agrees to issue them and the goal of therapy, the therapist shows one or more courses of action. If both parties agree, the patient may authorize the teacher to start on one of the pathways of action. Relationships have mutual obligations.

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The therapist must be professionally competent, responsible for his / her actions, and treat the patient with compassion and respect and the patient must understand and consent to the treatment being transmitted and participate responsibly in the care.

### Initiation and termination of the Patient-Kinetotherapist relationship

Historical and traditional, professional therapist has the obligation moral obligation to provide care to the sick people. Although this obligation is collective doctor - therapist, in particular is obliged to do his part to ensure that all sick people first receive adequate treatment. He cannot make discriminate between classes or categories of patients.

An Individual Relationship The patient- therapist is formed on the basis of a mutual understanding regarding the patient's medical care. In the absence of a pre-existing reaction, the therapist is not ethically obliged to provide care to a person unless another colleague is not available, such as it is that of isolated communities or when emergency treatment is needed. In these conditions, he is morally obliged to provide care and, if necessary, to guide what he has done.

Physiotherapists and patients have different concepts of understanding and solving medical problems. Patient care and satisfaction of both parties are best met if they discuss their expectations and concerns.

Although the teacher should address the patient's concerns, it is necessary not to violate the fundamental personal values, scientific or ethical standards or the law. When the patient's beliefs - religious, cultural or otherwise contradict the medical recommendations, he is obliged to try to understand clearly the patient's beliefs and views. If the therapist is not able to fulfill the patient wishes after trying several times to resolve differences, he should transfer the patient to another's care.

In exceptional circumstances the therapist may discontinue the professional relationship announcing the patient and with its consent, transfer it to another colleague with information from sheet, ensuring that the care that the patient receives it is appropriate and that health the patient does not suffer from this process. Continuity of care should be ensured at the highest costs that the physical therapist can have. Initiation of the relationship by the kinetotherapist is a serious event, especially if the patient is seriously ill and should be made only after genuine attempts to understand and solve the problem have been made. A patient is released to choose his or her kinetotherapist and is remarried. to have access to the information contained in his medical record.

### Confidentiality

Confidentiality is a fundamental dogma of medical care. It is a problem of respecting the privacy, privacy of patients, encouraging them to seek medical care and discuss their problems openly and to prevent discrimination based on their medical conditions. The physiotherapist should not release the information without the patient's consent (often referred to as the term "privileged communication"). However, confidentiality, like other ethical duties, is not absolute. It may be violated in order to protect individual persons or the public, or

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to protect disclose information when required by law. Before breach of confidence, doctor and therapist would have to make every effort to discuss problems with the patient, if the breach confidentiality is still required, it should be done in a way that minimizes damage to the patient and carefully vis-a-vis law.

Confidentiality is increasingly difficult to maintain in this era of computerized medical records and electronic data processing, faxing with patient information, third-party payment of medical services, and dividing the patient into medical care between numerous medical institutions and professional clinicians.

Discussions about the problems of an identified patient carried by a professional team in public places (for example in the elevator or in the cafeteria) violate confidentiality and is against ethics. In addition to an educational framework, discussions about a potentially identifiable patient in front of people who are not involved in the care of the patient they are not recommended and diminishes the confidence of the profession of kinetotherapist in the public eye. The physiotherapist of patients who are well known to the public should remember that they are not free to discuss or learn about a patient's health without the explicit consent of the patient. In the care of the adolescent patient, family support is important. However, this support should be balanced by confidentiality and respect for adolescent autonomy in health care decisions with health care providers.

### Informed consent

Any unauthorized touch of a person is considered to be violence, even in the medical sense.

Consent can be expressed or implied. Consent most often occurs in the context of the hospital, when written or oral consent is given for a particular procedure. In many medical situations the patient may come to recovery for examination and care, consent can be presumed. The condition of the underlying and treatment options is explained to the patient and the treatment is followed or refused.

The doctrine of informed consent goes beyond the question of whether consent was given for treatment or intervention. Rather, it focuses on the content and process of consent. It is desirable for the kinetotherapist to provide enough information to enable the patient to do so. an informed judgment on how to proceed. The presentation should be understandable to the patient, uncut and should include the doctor recommendation. The patient or proxy choice should be free and non-constrained.

The principle and practice of informed consent is based on the ability of patients to ask questions when they are uncertain about the information they receive, to think carefully about elections and to be honest with their physiotherapist about their values, concerns and reservations. related to a particular recommendation. Once the patient and the therapist decided on a path of action patients should make every effort to take care of aspects of care incumbent upon them or to inform promptly if you can.

Most adults can participate and thus share the responsibility for their health care. The therapist must try to create an environment in which honesty can develop and patient concerns are resolved.

### Ethics of practice

The therapist must contribute to responsible sharing of resources for health care. With clinical authority and discretion comes responsibility. Care that uses the most effective diagnostic methods respects the need to use resources wisely and to help ensure that resources are valid and reputable. Management plans should not restrict health information or advice that physiotherapist then give patients.

Although the physiotherapist should provide patient information on all appropriate health options and referrals, the health plan should exclude all obvious benefit information including any financial restrictions that could adversely affect patient access to health care.

When patients get involved in the health insurance plan, they get to big mass of information on the rules governing benefits and reimbursements. Patients should familiarize themselves with this information

Conclusions:

1. The first obligation of the physiotherapist should always be the patient's well-being and best interests even if he prevents or treats the disease or helps the patient to live with the disease, the infirmity

2. The physiotherapist must try to create an environment where honesty can develop and patient concerns are reduced.

3. The physiotherapist should not release information without the patient's consent (often referred to as the term "privileged communication").

4. The recommendations of the physiotherapist to patients in the spirit of the guides and regulations of their medical practice should reflect the best clinical literature, the best and current knowledge in the field.

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## **PATIENT MANEUVERING - RISK FACTORS IN KINETOTHERAPY ACTIVITY**

Rădoi Alexandru<sup>1</sup>, Neder Florina<sup>2</sup>, Panduru Cristian<sup>3</sup>

<sup>1</sup> *CF 2 Clinical Hospital, Bucharest, Romania; Corresponding author: alexandrion09@yahoo.com*

<sup>2</sup> *Ecological University, Bucharest, Romania; Corresponding author: luludenia@yahoo.com*

<sup>3</sup> *CF 2 Clinical Hospital, Bucharest, Romania; Corresponding author: cristian.panduru@yahoo.com*

### **Abstract**

A significant risk factor for the occurrence of musculoskeletal disorders among physiotherapists is patient **handling**, which is one of the major causes of accidents due to overloads. Health workers suffering from musculoskeletal disorders frequently report as their cause the handling of patients, this task being considered very demanding for the spine.

Among the types of maneuvers, repositioning the patient in bed, and lifting / transferring the patient are considered to be the most stressful, or the most common causes of the injuries caused by the patient's handling. A recent biomechanical study that evaluated several types of maneuvers, found that the risks of spinal cord injury are higher during transfer and repositioning of the patient in bed.

**Keywords:** *Physical factors, incorrect posture, patient maneuvering*

A significant risk factor for developing diseases musculoskeletal your physical therapists among you has patient handling, it is a major cause of accidents due to saturation. Health workers suffering from musculoskeletal disorders, frequently reported as the cause of their handling patients, this task is considered stressful for backbone, as shown in biomechanical studies.

According to a review by Jensen, the prevalence of spinal cord injury among physiotherapists handling patients is 3.7 times higher than those who do not.

Studies on the biomechanical load of the kinetic therapist during patient handling have shown that the high loads in these situations exceed the permissible limits set by NIOSH (National Institute for Occupational Safety and Health in America) and others.

Among the types of maneuvers, the patient's repository in bed, and the patient's lifting / transfer are considered to be the most stressful, or as the most frequent causes of the injuries caused by the patient's handling. A recent biomechanical study that evaluated several types of maneuvers, found that the risks of spinal cord injury are higher during transfer and repositioning of the patient in bed.

*Physical factors are manual lifting and incorrect posture*

The therapeutic plan can be performed under the conditions in which the patient is placed in a *favorable position* (represents the alignment of the body and its segments with respect to the line; it is a static attitude that the body and its segments can take to ensure optimal conditions for the execution of the movement according to the purpose pursued), the application of corrective means.

There are situations in which the patient does not have the ability to act voluntarily to be in a favorable position (e.g. stroke - stroke, immediately after injury; TVM - acute spinal cord trauma) which causes the kinetherapist to intervene for position it and thus ensure optimal conditions for the application of the therapeutic plan. It ensures the correct *positioning* (it is found in the actions of the kinetherapist to place the patient's body and segments in an appropriate position, which facilitates the execution of the proposed therapeutic exercise), as it can be adapted to the needs of the moment.

If the patient presents some particularities: overweight, post-traumatic sequelae, gypsum device, certain morpho-pathological changes, etc., the kinetherapist should seek help from a colleague in order to perform a *correct, efficient and safe maneuver for the patient but also for himself*.

In order to achieve this, we must take into account the principles of Chaput Richard "for safe handling" (manutention - French physiotherapist, Paul Dotte, 50 years ago):

### 1. *PHYSICAL SAFETY*

- Surround weight
- Keep your back in a neutral position
- Protect your back by wearing protective belts
- Check the position of your feet - they must be movable and aligned with the load
- The legs are the ones that have to work

### 2. *THE ECONOMY OF MOTION*

- Decide which is the easiest way to handle weight - e.g. by pivoting, sliding, rolling etc.
- Use your body weight
- Allow the moment to make the move
- Work at a certain pace - don't rush.

### 3. *ERGONOMIE*

- Adapt things around in order to be helpful in carrying out the action, wearing appropriate clothing and footwear.
- Adapt the maneuver to your person - know your limits.

Consequently, the value of a correct and safe maneuver is highlighted by:

- informing the patient about how to act globally on the body or only segmentally;



- use of the types of sockets and counterparts corresponding to the planned actions;
- placing the assistant according to the actions to be carried out with the patient;
- the proper preparation of the place of the maneuvers.

Frequent heavy loads lifting was identified as risk factors for musculoskeletal lesions in turn therapist. A study comparing weight lifting by medical staff and that performed by other types of workers, suggests that medical staff practice longer lifts in strange positions, higher weight lifting, more demanding by applying horizontal forces and a frequency higher rapid and unexpected rises compared to other workers; it has been suggested that this type of lifting places the activity of medical personnel at the highest risk of producing musculoskeletal lesions .

Biomechanical analyzes suggest that many of the positions taken by medical staff are incorrect, and working in an incorrect posture (e.g. in locked, flexed or twisted positions) has been rated as a major risk factor for musculoskeletal injuries in the line of health workers.

The spine consists of 33 vertebrae separated by cartilaginous structures intended for shock absorption (intervertebral discs). The spine is supported by ligaments and muscles. The natural shape of the spine creates three equilibrium curves (cervical region with lordotic curvature, thoracic region with kyphotic curve and lumbar region with lordotic curvature).

Many positions can produce changes in the geometry of the column, but the change in position during the shift from standing to bent before and then returning to standing (during these movements the column changes its curvature from lordotic to kyphotic and again to lordotic) combined with raising or lowering a weights, creates a particular risk for damage / damage to the spine.

In 1981 the National Institute for Occupational Safety and Health of America (NIOSH) developed a *Work Guide for manual handling* that uses 350 kg. compressive strength at the L5-S1 level as one of the criteria used in establishing the Action Limit (LA). Exceeding the action limit requires the implementation of administrative control or reorganization of the workplace. The action limit is the weight that can be lifted safely by 75% of women and 99% of men. A Maximum Permissible Limit (LMP represents 3 times the action limit) has been established as the equivalent of a 350 kg compressive force on the spine at the L5 - S1 level.

Lifting weights safely will protect your back during lifting. Before lifting a weight, you should ask yourself the following questions:

- Do you think you can lift it yourself?
- Is the weight too big or too weird?
- Does the weight have good handles or can it be grasped properly?
- There is an obstacle that can prevent it proper lifting?

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–The load may change or change its position when lifted

And for a safe lift you must remember:

- stand as close as possible to the weight to be lifted
- bend your knees, do not bend from the waist
- grasp the weight and hold it as close to the body as possible
- you get up through the strong contraction of the thigh muscles.

*In conclusion*, in order to perform a correct, efficient and safe maneuver for both the patient and himself, each patient should be evaluated for factors such as: mental acuity, ability to understand instructions and cooperation in pick-ups and transfers, combativeness, weight, the strength of the upper train, the ability to maintain the weight of the segment above the initial position and associated medical conditions that may influence the selection of the most appropriate lift or transfer mode .

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## **A PHYSICAL THERAPY CONTRIBUTION TO THE MANAGEMENT OF RELAPSING ACQUIRED TORTICOLLIS**

Caracas Eugen

National Institute of Rehabilitation, Physical Medicine and Balneology, Bucharest, Romania

### **Abstract**

Acquired torticollis tends to relapse in 4-6 month in approximately 15% of patients.

After a complex assessment of patients with relapsing acquired torticollis treated by standard therapies, we concluded that these therapies are insufficient, therefore we decided to introduce an additional treatment in order to improve patients' outcome. Our new treatment uses postural reflexes to correct muscle imbalance, especially in patients with muscle aches.

We applied our new treatment to 20 patients: 4 women and 16 men.

We measured patients' spine before and after applying the new treatment and our measurements show an improvement of sagittal frontal spinal curvature and an increase flexibility of their cervical spine, which demonstrates an overall benefit of applying postural reflexes method in patients with relapsing acquired torticollis.

We followed our patients every 6 months for a period of 2 years and none of them had relapses.

Based on our findings, we consider that this treatment brings further benefits to standard therapy of relapsing acquired torticollis, therefore we propose it as an additional therapy to the standard management of these patients.

**Key words:** acquired torticollis, kinetic programs, cervical pain, muscle contracture, postural reflexes.

### **1. The importance of the problem**

Pain affects the spine as a whole, but sometimes can involve only a segment, therefore it can be defined as lower back pain, thoracic back pain and cervical/neck pain.

Cervical pain is a very common type of back pain and its most frequent cause is mechanical, therefore it benefits from physical therapy.

Recovery through physical therapy re-educated local statics, toning and reflexing muscles.

### *2. Hypothesis, purpose and tasks*

Kinetic action on the cervical spine can slow down the evolution of cervical arthrosis and its symptoms, i.e. muscle contracture and neck pain. These corrective kinetic programs also aim to improve some other secondary deficiencies, like kyphosis.

In this paper we discuss the effects of physical therapy applied to patients with relapsing acquired torticollis.

### *3. Material and Method*

#### *3.1. Subjects*

On a batch of 20 subjects (4 women and 16 men) who presented with relapsing acquired torticollis, we performed a kinetic experiment based on postural reflexes.

The age of these patients was between 20 and 55, with a median of 37.5, and their profession involved an average psychological and physical stress.

#### *3.2. Organizing and conducting research*

Our study was conducted between January 2018 and March 2020 at the Qi Integrative Medicine Clinic and at the National Institute of Rehabilitation, Physical Medicine and Balneology, Bucharest, Romania

The duration of treatment was on average 6 months, of which 20 days of complex therapy while admitted at the National Institute of Rehabilitation, Physical Medicine and Balneology.

#### *3.3. Research methodology*

Our research methods of morphological and functional investigation consisted of: anamnesis, general clinical examination, joint muscular testing, measurement of the amplitudes of movement in the joints on all directions of movement, i.e. flexion, extension, laterality, rotation and circumduction.

The functional gain is expressed in degree and percentages, the muscle testing is assessed through the 6 steps international assessment system of muscle strength, where the muscle balance was evaluated before and after therapy.

#### *3.4. Recovery methodology*

In this project we applied the method based on postural reflexes through kinetic exercise programmes during hospitalization and at patients' home.

The kinetic programmes were tailored for each patient, depending on their clinical shape, age and degree of muscle contraction. Our programmes also aimed at correcting the general statics and reducing the differences in the amplitude of the lumbar, dorsal and cervical curvature when abnormal. We insisted on raising the spine, reducing muscle retractions and toning antagonists of the retracted muscles. Patients did their physical exercises while lying down, sitting and standing, starting from a corrected and fixed position and maintaining position against resistance, and as a result of this their pain and muscle contracture were reduced.

### *4. Presentation and discussion of results*

In our patients group this disease was more frequent in men than women, i.e. 16 vs 4. Both men and women were similar median age of 36.5 and 37, respectively.

Our final results show a similar recovered axillary thoracic perimeter in men and women of 3.43cm and 3cm, respectively.

Of note there is a notable difference in the increase of xiphoid thoracic perimeter in men and women after recovery, of 2.5cm and 4cm, respectively, and this is probably due to increased bone elasticity in premenopausal women.

Regarding the average values of gain on antero-posterior diameters in centimeters, as a result of spine recovery, we note that these are generally lower in men than women: at Spoint (intergluteal cleft point) this gain is 0.31cm in men compared to 0.50 cm in women, at L4 point (lumbar point) also 0.31cm in men compared to 0.50 cm in women, at C7 point (cervical point) the gain is 1.43cm in men compared to much higher of 2cm in women, only at I point (occipital point) these values are identical, of 2cm, in men and women.

Spine profile measurements show almost similar values for men and women at points S and I, but these are higher in men of 2.06cm compared to 1.5cm in women at L4 point, then lower in men of 1.37cm compared to 2 cm in women at point D7, also lower in men of 1.13cm compared to women of 2.5cm at point C7.

In addition there is higher gain in the rotational movement of the spine in men, of 13.1 degrees, compared to a gain of 9 degrees in women. Also, with regards to asymmetry of the shoulderblades, there are slightly higher values in men compared to women.

Altogether we note that the initial and final individual values of spine measurements show a marked improvement in the spine's curves in the antero-posterior plane and an increase in the movements of cervical spine, which demonstrate a significant improvement after applying the postural reflex method in relapsing acquired torticollis.

#### *5. Conclusions*

Therapy using medical gymnastics in patients with acquired torticollis, based on postural reflexes method, is mainly beneficial for patients with myalgia.

Acquired torticollis tends to recur between 4 – 6 months after the initial recovery in approximately 15% of patients.

Following the application of postural reflexes method, the patients in our study were periodically reassessed at 6 months intervals for 2 years and none of them did recur.

These good results we obtained imply that this method is used in the context of a more complex medical treatment for the patients with relapsing acquired torticollis. Thus, beneficial cumulative effects are achieved, with great implications in the static and dynamic characteristics of these patients, which had favourable results in their physical and psychological wellbeing and socio-professional integration.

We therefore consider that this study is original, by treating patients with relapsing acquired torticollis using the postural reflexes method, which we have not found in the literature so far, and it is properly documented.

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## **RECOVERY BY PHYSICAL THERAPY AND MELOTHERAPY OF SURGICALLY TREATED COXARTHROSIS**

Caracas Eugen

Professional Physiotherapy Services, Aberdeen, Scotland

### **Abstract**

Recovery of surgically treated coxarthrosis aims to restore joint functionality and muscle strength. We considered that the standard recovery management of surgically treated coxarthrosis is not adequate, therefore we introduced an improvement to it. Our new treatment adds melotherapy to physical therapy.

We applied this new method to 20 patients: 10 women and 10 men. The measurements of active and passive joint function tests are superior to standard management, being improved by 26,5% - 80,8% compared to standard.

Muscle testing by the difference between the final and initial values showed a functional muscle gain, which proves the advantage of our new method.

In addition to this, we noticed that these patients had reduced anxiety levels and an improvement of their mental health, as a secondary benefit to melotherapy.

**Key words:** surgically treated coxarthrosis, melotherapy, kinetic programs, the stages of didactic project

### *1. The importance of the problem*

Surgically treated coxarthrosis have specific recovery features. Re-education in surgically treated coxarthrosis must follow the general principles of physical rehabilitation, i.e: to be performed soon after surgery, to be active, progressive, continuous and painless. It is performed in stages and it aims to:

- restore joint amplitude and muscle strength
- readjust to the usual movements and gestures

### *2. The purpose and tasks of this paper*

We analyse the use of physical therapy and melotherapy in patients with surgically treated coxarthrosis, in the view of the good results achieved and demonstrated objectively by clinical examination, joint and muscle testing.

### *3. Research hypothesis*

We suggest a new method to improve and accelerate the recovery of patients with surgically treated coxarthrosis. This method uses melotherapy in addition to physical therapy in the recovery of surgically treated coxarthrosis and demonstrates an advantage over the use of physical therapy alone.

### *4. Organized research*

#### *4.1. Material and method*

#### *4.2. Subjects*

We applied our new method of physical therapy combined with melotherapy to a group of 20 patients with surgically treated coxarthrosis: 10 women and 10 men. All the 10 women had bilateral coxarthrosis which was initially treated by surgery, on the opposite all the 10 men had unilateral coxarthrosis which was initially treated by surgery.

The age of the subjects was between 33 and 70, with an average of 51,5 years old. By gender, the age of the 10 women was between 33 and 68 years, with an average of 50,5 years old, and the age of the 10 men was between 55 and 70, with an average of 62,6 years old.

All the subjects' daily activity, at home and at work, had involved a medium physical and psychological stress, which does not correlate with the development of coxarthrosis, this suggesting that other risk factors were most likely involved (genetics, BMI etc).

### *4.3. Place of treatment*

The physical therapy combined with melotherapy programme was performed between January 2019 and February 2020 at own patients' homes in Aberdeen City, Scotland, UK.

#### *4.3.1. Methods*

In our research we applied morphological and functional investigation methods. All the subjects were assessed using:

1. clinical examination
2. joint testing on the axes and movement plans of the coxo-femoral joint, which assessed flexion, extension, abduction, adduction, internal rotation and external rotation
3. muscle testing was performed on each individual muscle group, by comparing the initial muscle balance before the kinetic treatment with the functional gain achieved after it.

#### *4.3.2. Melotherapy or music therapy*

Melotherapy, also known as music therapy, is a form of psychotherapy that uses music in different ways, in order to improve the physical and mental health of the subjects.

Music therapy is a form of non-verbal therapy which can be applied to all age groups in order to remove the harmful effects of stress on the body. Therefore music has been shown to have benefits on the human psyche, in particular helping with the expression of emotions and feelings, inducing relaxation, reducing insomnia, contributing to the development and improvement of some motor skills.

#### *4.3.3. Physical therapy methods*



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Four physical exercise programmes were applied to each patient, these being performed in two stages: the first stage was while the patients were still in the hospital and the second stage, much longer, was after the patients were discharged from the hospital. The hospital stage consisted of specific physical therapy programmes applied in the 6<sup>th</sup> and 9<sup>th</sup> day after their surgery.

All the physical therapy programmes aimed softening, mobilization and joint toning.

### *4.3.4. Melotherapy methods*

After assessing each patient, the therapist was able to choose the appropriate music for each individual. Initially it was used just one musical piece, but following this 2 or 3 more musical pieces were added, as requested by the patients.

The melotherapy programmes were applied taking into account the circadian rhythm of each patient.

Some of the patients had experienced panic attacks prior to their surgery and continued to get them after their surgery as well. These patients had symptoms of palpitations, irregular cardiac rhythm, shortness of breath, chest pain, balance difficulties, periods of fainting, insomnia, increased pain in the affected hip. They were concerned they would not recover and would not be able to walk independently.

The following musical pieces were chosen:

- Johann Sebastian Bach: Mix
- Wolfgang Amadeus Mozart: Serenade No 13 for strings in G major, The Concerto for Flute, Harp and Orchestra in C major.
- Giuseppe Verdi: La Traviata/Act 1 – “Sempre libera”
- Maurice Ravel: Bolero.
- Johann Strauss II: The Blue Danube
- Louis Armstrong: The Best of Louis Armstrong
- Piotr Ilici Tchaikovsky: The Best of Tchaikovsky
- Traditional Indian Music
- Chinese Romantic Music & Meditation music
- Sadness Chinese Instrumental Music – Bamboo Flute
- Chinese Relaxing Music for Stress Relief, Studying and Sleeping
- Japanese Classical Music: Beautiful Relaxing Music
- Great Scottish Singalong
- Traditional Scottish Music
- Antonio Vivaldi: The Four Seasons
- Frederic Chopin: Waltzes
- Been Buzzing
- Gheorghe Zamfir: “Ciocarlia” and Meditation
- Ludwig van Beethoven: The 9<sup>th</sup> Symphony

All the patients applied melotherapy 3 times a day in the first 2 months, then twice a day in the third month, then once daily long term thereafter.

### **5. Results**

The baseline values were registered just after the surgery and the final values were registered at the end of the combined programme of physical therapy and melotherapy. By analysing these values, we could see a functional gain in all the movements, at both the active and passive testing.

The order of the increase in functional gain in patients with surgically treated coxarthrosis by gender and movements registered at the active and passive testing, highlights the following:

- In female patients, the active testing shows that the extension movement had the most important functional gain, with an average of 80.81 % increase from the baseline, followed by the internal rotation movement with an average increase of 68.75 % from the baseline, then the adduction, external rotation and abduction movements in descending order, the last movement to have a functional gain being the flexion with an average increase of 23.39% from the baseline.
  
- At the passive testing the movement with the best functional gain was the extension with an average increase of 59.00 % from the baseline, followed by adduction with an average increase of 49.35%, then abduction, external rotation, internal rotation in descending order, the movement which had the poorest functional gain being the flexion with average increase of 26,50 % from baseline.
  
- In male patients, the active testing shows that the movement with the best functional gain was the extension with a 72.33% increase from the baseline, followed by the internal rotation with average increase of 55.60% from the baseline, then the external rotation, adduction, abduction in descending order, the last one to have a functional gain being the flexion movement with average increase of 23% from the baseline.
  
- At the passive testing in male patients, the most important functional gain was seen in the extension movement with an average increase of 57.33% from the baseline, followed by the adduction with an average increase of 46.5% from the baseline, then the abduction, external rotation and internal rotation in descending order, the last movement to have a functional gain being the flexion movement with an average increase of 23% from the baseline.

Therefore we note that patients of both genders with surgically treated coxarthrosis and recovered through our combined programme of physical therapy and melotherapy proved to have an effective functional gain, highlighted by active and passive testing of all joint movements, which registered an increase between 23% and 80.81% from the baseline. These demonstrate the efficacy of our combined programme in the recovery of surgically treated coxarthrosis.

The functional gain in each joint was also confirmed by an objective increase in the overall articular mobility.

In addition, muscle testing showed a functional muscle benefit, illustrated by the difference between the final and initial values.

### **CONCLUSIONS AND PROPOSAL**

#### *6.0. General conclusions*

On a group of 20 patients, of which 10 women and 10 men, aged between 33 – 70 years, with surgically treated coxarthrosis, we applied a recovery programme consisting individualised physical exercises and melotherapy sessions, which was performed over an average period of 6 months, including 18 days of complex hospital treatment. The entire programme was guided by the orthopaedic surgeon initially and then by the physical therapist.

The results we registered by active and passive joint testing together with muscle testing, following the combined physical therapy and melotherapy programme detailed above in patients with surgically treated coxarthrosis, show a functional benefit compared to applying physical therapy alone, which was statistically significant.

The beneficial results obtained after this complex combined recovery treatment were:

- Segmental and general relaxation
- Reduced stress
- Reduced or completely treated panic attacks
- Reduced anxiety
- Reduced spasticity
- Reduced or completely treated depression
- Reduced or completely treated pain
- Disappearance of insomnia and normalisation of the circadian rhythm
- Good communication between the patient and the healthcare professional involved in the patient's treatment.

#### *6.1. Proposals*

Therefore we propose the above combined programme of physical therapy and melotherapy as a therapeutic option in the recovery of patients with

surgically treated coxarthrosis, having shown additional benefits compared to the application on physical therapy alone. Our combined programme was tailored to each individual patient's needs and was applied soon after their surgery, which was more advantageous, as demonstrated by the final results.

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## **RESEARCH ON RECOVERY TREATMENT IN OSTEOPOROSIS**

Florina – Liliana Neder<sup>1</sup>, Cosmina Cheran<sup>2</sup>

<sup>1,2</sup>*Ecological University of Bucharest, 1G Vasile Milea Street, Bucharest, Romania*

### **Abstract**

Osteoporosis is essentially a bone atrophy characterized by an equal damage to the two components of the bone (fundamental organic substance and mineral substance), atrophy that starts from physiological alterations, (senile ones), considered normal processes, to the pathological form. The purpose of this paper is to determine the best means of treatment for osteoporosis. The hypothesis of the work. It is assumed that if osteoporosis is diagnosed early then the means of physiotherapy associated with medication improve the evolution of osteoporosis. Osteoporosis is a disease with an extremely slow evolution, almost indistinguishable until the appearance of the first fracture usually produced spontaneously or as a result of a minor trauma. Prophylactic treatment plays a particularly important role in decreasing the clinical incidence of osteoporosis manifestations (approximately 5%) and is aimed at all people exposed to osteoporosis (women over 50 years of age, men over 65 years of age). Prophylactic treatment can be done through therapeutic education programs aimed at lifestyle change, combating sedentary life, through physical activity. Recovery treatment in osteoporosis is done by the following means: Electrotherapy, Hydro thermotherapy, Massage and Kinesiotherapy.

**Key words:** *osteoporosis, treatment, therapy*

### **1. Introduction**

Osteoporosis is a serious health problem of the 21<sup>st</sup> century or, as the World Health Organization considers it, as one of the major diseases of the modern age, affecting mostly the elderly.

Osteoporosis is the medical term that describes a phenomenon characterized by loss of bone density as a result of extensive processes of bone resorption that are not balanced by proper osteosynthesis (an imbalance in bone metabolism occurs, with increased destruction and decrease destruction, which ultimately causes decrease in bone mass) (Şuteanu S., 1999).

The contribution of the factor "age" in determining this disorder is major. Thus it is known that bone mass is genetically determined and differs according to sex, being superior in men by one third compared to women: the bone skeleton, like any living tissue, undergoes a process of aging, therefore aging is constantly accompanied by a progressive reduction in bone mass which, between certain limits, can be considered physiological-senile osteopenia or physiological osteoporosis of age (senile) (Ispas C., 2005).

However, when they occur as a result, fractures or later, postural disorders (deformations, disability) they can no longer be considered physiological, it is osteoporosis-disease.

In most cases, the diagnosis is made when a mechanical deficiency occurs, i.e. fracture of a segment of the skeleton, becoming fragile; at this point the disease acquires an obvious clinical expression. It is what some authors call the "fracture stage", which can be followed later by another study characterized by (Cordun M. 1999): detachment of the vertebral bodies, reduction of the height of the skeleton, malposition of the spine, all of which lead to an overload of the postural muscle and consecutively in advanced cases, due to static insufficiency of the skeleton, a partial or total disability can be installed.

The following clinical elements may cause suspicion of osteoporosis and search, for confirmation, of radiological elements: back pain and low back pain occurring brutally during minimal or even spontaneous exertion, muscle relaxations, kyphosis, height reduction, trunk shortening, appearance of a transverse skin fold, rounded abdomen (Kiss I., 2007).

## **2. Material and Methods**

The purpose of this paper is to determine the best means of treatment for osteoporosis.

The hypothesis of the work. It is assumed that if osteoporosis is diagnosed early then the means of physiotherapy associated with medication improve the development of osteoporosis.

## **3. Results and Discussions**

Osteoporosis is essentially a bone atrophy characterized by an equal impairment of the two components of the bone (fundamental organic substance and mineral substance), atrophy that starts from physiological alterations, (senile ones), considered normal processes, to the pathological form. Osteoporosis has a long subclinical period; subjects with osteoporosis are usually asymptomatic. Vertebral osteoporosis becomes clearly symptomatic with the appearance of a fracture - spinal tasing (Ispas C., 2005).

Prophylaxis and treatment. One can speak of a prophylaxis of senile osteoporosis by identifying and eliminating or mitigating the etiological determinants and favourable factors. If the age factor cannot be influenced, it can act on the other factors namely: physical activity, hormonal correction, (in the prevention of post-climate osteoporosis, replacement treatment), nutrition disorders and circulatory disorders.

The therapeutic purpose is to maintain or move the subject outside a risk of fracture. According to this principle, prophylaxis and treatment of osteoporosis is identified with fracture prophylaxis (Şuteanu S., 1999).

Moreover, in the elderly, therapeutic procedures to combat osteoporosis are currently of a physical nature (physiotherapy, kinesiotherapy), included in the broader framework of rehabilitation (recovery).

Treatment of osteoporosis means practically the treatment that replaces at the stage of fractures.

Avoiding prolonged immobilization after a fracture and early mobilization is the first act of this therapy. After the detection of the first painful phases of fractures, i.e. between 10 days and three weeks, the subject is required a special gymnastics program, directed, oriented towards increasing mobility and muscle strength, especially dorsal (Kiss I., 2007).

### RECOVERY TREATMENT IN OSTEOPOROSA

Orthopedic treatment is especially important in combating undesirable effects and complications in the bone of osteoporosis. In the case of osteoporosis of age, with damage to the trabecular and cortical bone we can have: fracture of the vertebral neck, fractures in the spine.

In postmenopausal osteoporosis that mainly affects the trabecular bone, we encounter: distal radius fractures and ankle fractures. Methods of orthopedic treatment: gypsum apparatus held between 3 weeks-1 month, gypsum splint, corsets. Lobostates, dorso-lumbar orthotics, thoracic supports are used (Cordun M., 1999).

Hygiene-dietetic treatment (Mark V., Dan M., 2010):

- bed rest to combat pain in large joints and spine;
- balanced diet and avoiding excess weight;
- avoiding cold and wet;
- daily gymnastics 30 minutes/day;
- walking about 1 km/day, favors the formation of bone tissue and reduces calcium loss;
- avoiding prolonged rest in orthostatism and anthalgic positions;
- dairy-rich diet, dried fruits (nuts, hazelnuts, almonds), vegetables (white cabbage, cauliflower, leeks, spinach, endives);
- prohibition of alcohol and smoking;
- consumption of Vitamin D, Calcium and sunbathing;
- avoiding improper footwear;
- prevention of falls, sufficient lighting of the dwelling;
- correction of visual and balance disorders;
- the use of the cane for support;
- avoiding large flexions of the torso and wearing weights.

The objectives of recovery treatment for osteoporosis are (Şuteanu S., 1999):

- pain relief;
- prevention of fractures;
- decreased bone loss/increase in BMD;
- prevention or correction of static disorders in the spine;
- maintaining joint mobility;



- maintaining muscle strength and strength;
- increasing coordination, balance in order to prevent falls;
- improving the quality of life physically, emotionally, socially;
- a better and faster recovery of the patient;
- increase the body's defence power.

Achieving these objectives shall be achieved by the following means:

1. *Electrotherapy* – is very good when it occurs, as a side effect of osteoporosis, a root syndrome. Basic effects of electrotherapy: analgesic, local and systemic hyperemia, neuromotor stimulation, muscle decontraction (Rădulescu A., 2005).

As electrotherapy procedures indicated in osteoporosis we encounter (Kiss I., 2007; Sidenco E.L., 2005):

*Galvanic current* - simple galvanization or ionogalvanization with calcium chloride, longitudinal, along the spine, intensity at the threshold, duration 20 minutes.

*Diadynamic currents*. This current results in a rapid removal of pain, a marked trophic action especially on cellulites, a dynamic effect on the striated muscles and a resorptive effect of edema and exudates.

*Ultrasound* (U.S.) In the application technique, the handling of the projector (the transmitter head) and the handling of the appliance will be followed during the procedure. In the emitter head is placed the piezoelectric crystal that generates ultrasonic waves. They are designed in a straight line in the form of a beam, perpendicular to the emission surface of the locator.

*TENS* - is a non-traumatizing way of combating acute and chronic neuralgic syndrome, of various causes, using low-frequency rectangular pulse currents (Synthesis D., 2003).

*Diapulse* – is a form of deep thermotherapy with analgesic effect and stimulating bone recovery. In terms of mode of action, most research in the field tends to explain and demonstrate the important biotrophic tissue effects obtained by using short pulsating waves: balancing sodium pumps, stimulating tissue anabolic processes, increasing local vascularity, favoring the regeneration processes of nervous tissue, favoring collagen formation in tissue repair processes, etc. As therapeutic effects are mentioned: obvious improvement of osteoporosis, especially post-traumatic, localized, accelerations of process of calluse of fractures, etc.

*Low-frequency magnetic fields* (Kiss I., 2007). Magnetodiaflux- with general sedative, antialgic and myorelaxant effects and stimulating bone recovery after fractures. Continuous, general, rhythmically interrupted or arrhythmic magnetic field forms may be applied, with frequencies chosen between 50-100 Hz or localized that would have notable effects of stimulating osteogenesis.

*Ultraviolet rays*. It is known the effect of RUV on mineral metabolism, in the formation, activation of Vitamin D in the skin. RUV with wavelengths between 280 and 300 millimicrons works most effectively in producing the activation effect of Vitamin D.

*LASER therapy* – in osteoporosis is used low power laser with antialgic or reflex purpose – laseropuncture (Şuteanu S., 1999).

*RIR* – use 10-20 minutes, followed by a shower at 15-22° C. Do 3 procedures per week.

2. *Hydrothermotherapy* – is preferable for its myorelaxant effect especially when, due to long suffering, the patient presents muscle contractions (Sidenco E.L., 2005). It is not recommended when the T score of the DEXA test is very low or when there is an inflammatory process.

The basic effects of hydrothermotherapy are (Plas F., Hagron E., 2001):

- analgesia;
- local and systemic hyperemia;
- reduction of muscle tone;
- increasing the elasticity of connective tissue.

Among the hydrothermotherapy procedures indicated to patients with osteoporosis are recommended:

*Paraffin wraps* at the spine, shoulders, 50° C. Necessary materials: sofa, white paraffin, a melting tray, board trays, 8 cm wide brushes, flannel pieces, a blanket, water bath, resou, a bucket of water at room temperature and a towel.

*Sludge* in the form of onctions, wraps, general baths:

*Mud onroads* are generally practiced on the coast, in addition to the salt lakes of Transylvania and the Danube Plain.

*Mud baths* – general applications that are carried out in tubs (Kiss I., 2007). Required materials: 2 wooden tubs, tile or concrete with a capacity of 250 liters, shower, thermometer, head compress, flag clock, rubber pillow or thermophorus with cold water.

*Simple/plant-plant general baths 37°C* For herbal baths - mode of action - thermal, chemical and mechanical factor.

*Sunbathing* – means total or partial exposure of the body to the action of direct sunlight and air.

*Hot air baths* – overheated radiators are used in the closed atmosphere, temperatures between 60-120 degrees C.

*Showers* - are hydrotherapeutic procedures represented by columns of water, steam or hot air of different temperatures and pressures projected from a certain distance on certain surfaces of the body or throughout the body.

*Sauna* - This thermal procedure, long known, is carried out in a closed space. The classic and original application uses a pine wood cottage, in which the source of heat is represented by hot stones over which water is poured

*Frictions* - There are hydrotherapy procedures with toning action, the effects of which are based on the thermal factor and the mechanical factor (Danila D.M., 2002).

*Kneipp cure* – or thermal contrast thermotherapy aims to optimize the homeotherm function by using contrasting thermal factors - hot and cold - that

require the rapid and efficient mobilization of the mechanisms involved in thermoregulation, both peripherally and centrally.

The Kneipp cure comprises the following procedures: Priessnitz compress, alternating or cold washes, alternating or cold frictions, alternating or cold afusions, dry and wet wraps, alternating or cold showers with Scottish shower, cold or alternating baths, sludge oncing, walking through the water (Cinthesis D., 2003).

3. *Massage* – is highly indicated in most sufferings of an osteoporotic nature due to its effects: muscle relaxation, muscle toning, local and systemic hyperemia, neuromotor stimulation, increased elasticity of connective tissue, removal of interstitial fluids.

The effects of massage are multiple and can be classified according to several criteria (Cordun M., 1999):

- effects – direct on tissues and indirect - deep on internal organs (deep massage), on the opposite limb, at a distance;
- effects – stimulating, exciting and calming, relaxing, soothing;
- effects – partial (local) – pain relief, local hyperemia, increased local circulation, removal of stasis, acceleration of resorption and general processes – stimulation of respiratory and circulatory functions, increased metabolism, improvement of mental state and sleep, removal of fatigue;
- effects – immediate and late;
- effects – objectives, which can be monitored by the doctor by clinical and paraclinical and subjective methods, declared by the patient.

Contraindications of massage are divided into: general and partial; (D.M., 2002).

- General contraindication – implies the prohibition of the application of any massage technique;

- Partial contraindication – refers either to the application of massage manoeuvres only on certain areas of the body or only to the application of certain manoeuvres;

- Definitive contraindication – is decided only in the case of serious incurable chronic diseases, which could worsen by massage;

- Temporary contraindications – commonly encountered – are imposed by mild and transient diseases, disorders or lesions.

4. *Kinesiotherapy* – remains the main therapeutic means of recovery in osteoporosis (Mark V., Dan M., 2010). The increase in BMD or decreased bone loss is achieved only through physical therapy.

The objectives of kinetic programs in osteoporosis are aimed at (Ispas C., 2005):

- a. toning of the paravertebral and abdominal muscles causing an increase in bone mineral density;
- b. formation of new bone tissue by excitation of bone perioste.

Physical exercises must be dynamic and repetitive and consist of movements of the torso, upper and lower limbs, breathing and applicative exercises, recovery and relaxation exercises. Trunk movements consist of flexion, extension, lateral inclinations, twists, circumductions. Upper and lower limb movements consist of movements of the entire limb or segmentational movements (Plas F., Hagron E., 2001).

Breathing exercises have a direct role in mobilizing the osteoarticular and muscular system in the torso, as well as in oxygenation of the body during physical exertion.

In principle, two types of exercises are recognized for the development and maintenance of bone mass and BMD: exercises with loading and exercises with resistance.

Loading exercises are those in which gravity is worked (Mark V., Dan M., 2010). These are all the exercises in which the lower limbs bear the weight of the body: jogging, walking with fast steps, climbing stairs, dancing and football.

Walking with fast steps is ideal for patients with osteoporosis. Advantages: can be applied anywhere, does not require special equipment, is accompanied by a minimum risk for trauma (Cordun M., 1999). Patients who have not exercised for a long time should gradually increase the duration of each walking period, starting with 5 minutes and gradually increasing to 15-20 minutes/day, 3-4 days a week.

The second type of exercises is those with endurance or activities that use muscle strength to improve muscle mass and bone strength. These include: lifting weights or using machines in gyms (Ispas C., 2005).

Daily activities and many sports involve a combination of the two types of exercises, thus an active lifestyle accompanied by a variety of physical activities, tone the muscles and increase bone strength.

Strength training is a slow process. It starts at a low level that gradually increases over several months.

Climbing-down exercises – it takes an aerobic gymnastics board placed in front of the patient – it climbs and descends alternately on the plate, right and left leg.

Exercises for toning the brachial biceps – while the climb-down exercises are performed, holding a weightlift in the hand, flexion-extension movements are made at the elbows (Cordun M., 1999).

Exercises in semi-squat - with the back glued to a wall and the legs 20 cm from that wall, bend the knees, sliding down with the body on the wall, keep the position as count to 5 and then rise.

Push-up exercises – sitting on a hard surface (floor), put your hands on the floor on either side of the body and push your hands on the floor. The program ends with climb-down exercises.

#### **4. Conclusions**

1. Osteoporosis is a disease with extremely slow evolution, almost indistinguishable until the appearance of the first fracture usually produced spontaneously or as a result of a minor trauma.

2. The investigation and diagnosis of osteoporosis should be carried out in specialized centres equipped with appropriate medical equipment (DEXA-dual X-ray absorption).

3. Prophylactic treatment plays a particularly important role in decreasing the clinical incidence of osteoporosis manifestations (approximately 5%) and is aimed at all people exposed to osteoporosis (women over 50 years of age, men over 65 years of age).

4. Prophylactic treatment can be done through therapeutic education programs aimed at changing lifestyle, combating sedentaryism, through physical activity. These goals can be achieved through proper nutrition (optimal dietary intake of calcium through milk and derivatives especially in childhood and adolescence, balanced eating avoiding excess protein, cold cuts, salt, concentrated sweets or whole grain products), sun exposure for vitamin D synthesis, practicing constant exercise, periodically, walking for 30 minutes a day 3-4 times a week being an excellent stimulus for the formation of new bone tissue.

5. The hypothesis is confirmed. The means of physiotherapy associated with medication improve the development of osteoporosis; recovery treatment in osteoporosis is done by the following means: Electrotherapy, Hydrothermotherapy, Massage and Kinesiotherapy.

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**VARIA**





## **THE FORMATION OF HEALTHY PERSON BY MEANS OF ART**

Tetiana Yermakova

Kharkiv State Academy of Design and Arts, Kharkiv, Ukraine

**Abstract.** *Background.* In the digital world, where most of the time we spend on smartphones, tablets, laptops, where an incredible amount of available information, sports and any physical activity goes by the wayside. All these affect the state of human health. As a result of which, there is a need to find a new way to attract human attention to physical education and to show other possible ways of creating a healthy lifestyle and a health culture. *The aim* of the article is to show the approach to the formation of healthy lifestyle consciousness with the help of art. *Results and discussion.* Art is essential for building a healthy personality. It has always stood for the promotion of a conscious attitude to different types of behavior and human activities. That is why the study of paintings by prominent artists, the subject of which was sports, physical education and physical activity, is a relatively new direction in modern education. This type of activity helps to influence the psychologically emotional and physical state of a person. The person's experience of the variety of images, colours, movements and rhythms in the film "cleans" of unnecessary emotional tension, relieves anxiety, and immerses them in the world of sports using art. *Conclusion.* The shown in the article approach helps to develop different abilities, especially to a healthy lifestyle.

**Keywords:** art, physical culture, healthy lifestyle, physical activity.

### **Introduction.**

There has been an alarming trend of deteriorating health in recent decades. This is primarily due to economic and environmental issues. Second, society underestimates the role of maintaining and promoting health, not just fighting against disease. The health of young people is one of the most important indicators of socio-cultural development of any country. Some responsibility in the implementation of this task rests with the higher educational institutions.

The formation of students' need for a healthy lifestyle is actualized not only by the proposed requirements for a professional in their field of knowledge, but also the possession of various skills and abilities to restore the body after hard work. There is no doubt that students, regardless of time and social status, have always been and remain one of the most vulnerable categories of the population, experiencing a set of unfavorable organizational and pedagogical, socio-hygienic and material factors. It is a group at increased risk due to difficult age problems, such as: changes associated with the process of "maturation" (adaptive, physiological and anatomical), adaptation to new living and learning conditions, the formation of interpersonal relationships outside the family [1].

According to the World Health Organization, declining stability in society and deteriorating living conditions contribute to the growth of stressful situations. At the same time, the current situation is such that people interact mainly with the digital world. This world often requires a long, sedentary pastime, which leads to a decrease in the level of physical activity of users and, consequently, a decrease in

overall health. Therefore, such a negative trend that has developed recently will only increase [2].

There is a situation in which students are very familiar with computers and smartphones, which easily and organically entered our daily lives. But at the same time, all this has negatively affected the state of health of modern man [3]. Own health and physical activity have receded into the background. As a result, there is a need to find other ways to draw people's attention to knowledge about ways to form a healthy lifestyle and health culture. In this aspect, a special role is given to the means of art. Therefore, the student youth deserves special attention in the context of maintaining good health.

**The aim** of the article is to show the approach to the formation of healthy lifestyle consciousness with the help of art.

### **Results and discussion.**

For many years, scientists have studied the impact of art on human health in its various manifestations. The healing properties of the art have long been known in ancient times and have been associated primarily with catharsis – purification. Catharsis can be achieved both through perception and through expression. To express something means to get rid of it or at least reduce its intensity, to share with others, to see from the side [4, 5, 6]. In this sense, through the means of art, one person expresses his thoughts, feelings, emotions, knowledge. And the second “reads”. Such interaction gives good positive results. According to R. Birdwhistell's research, less than 35% of information is transmitted through communication, while more than 65% is transmitted through non-verbal means of communication [7].

The peculiarity of art is its complex impact on a man – it both expands the scope of knowledge and forms the spiritual world, and some of its types are means of physical education. It allows not only to obtain information about the world around us, but also to form their attitude to it, to inherit the spiritual culture of their ancestors, to ensure the harmonious, comprehensive development of the individual [8].

The image of people involved in different sports, the image of athletes of ancient Greece and Athens, the image of scenes from the Olympic Games on the canvases of prominent masters of the Renaissance, Baroque, Classicism, Romanticism and the Enlightenment was a leading art of the time [9].

Note that works of art on physical culture and sports have not been studied as a holistic systemic phenomenon of art. However, the topic of forming a healthy lifestyle and a positive attitude to one's health, presented in this way, has every chance to interest young people.

Mostly, the theme of physical culture and sports on canvases is typical of the Soviet period. After all, physical culture and sports at this time were considered one of the main areas of personal education in the spirit of Soviet ideology. Sport

became closer to a man; it became part of him / her. This was one of the areas of promoting a healthy lifestyle for young people.

A wide panorama of objectively operating processes in the physical culture and sports movement of those years, rethought by the artistic vision of outstanding Master of Fine Arts, gave a vivid and unforgettable evidence of a living reality that is changing forever. Among the most famous artists are the following – O. Deineka, Yu. Pimenov, O. Samokhvalov, S. Luchshkin, O. Vaulina, O. Vinogradova, V. Dubosarskyi. Coverage of sports in works of art is primarily an analytical study of psychological processes that took place in the sports movement of that time. Looking at these works of art, you subconsciously feel the heat of sporting events of those times, the mass of the sports movement. For example, in O. Deineka's painting “The Goalkeeper” (1934) is depicted a goalkeeper hovering in the air, holding out his hands for a ball flying into the goal. In addition to artistic value, play with perspective, like the artists of the Italian Renaissance, and movement, there are important meanings: the goalkeeper, according to many art critics, appears as a divine being, a titan who hangs in conventional space, where the ball itself resembles a planet. That is, the goalkeeper, a sporty and fit man, becomes the center of the universe. But this is not just a cold image of a Soviet winner, Deineka still romanticizes his character, striving for a beautiful future, for which in those years there was still hope.

The theme of a healthy lifestyle, physical culture and sports for the artist finds a completely allegorical sound: sports as the embodiment of strength, health and joy, a symbol of physical and, consequently, spiritual harmony of a new person. His works reproduce the sense of patriotism and uplift that existed in Soviet history in the 1920's and 1930's [10].

The work of O. Vaulina “In the gym” depicts a young man and a young woman in the gym, who are clearly caught in the interval between repetitions. It is possible to study, in what it was accepted to go on training in that epoch.

In addition to the images (characters) presented in the pictures, you can emphasize other details. For example, the choice of colour, shape, background and perspective, etc. You can be interested in the feelings and emotions that are conveyed in the picture and at the same time what emotions we feel. You can track physical movement, physical activity, criteria for body ownership, energy expended, etc. You can visualize: virtually add what happened before and what happened after the picture. What can be fixed, for example, in a picture. The movement may not be displayed correctly.

On the other hand, sculptures can be also considered as a theme for the formation of a healthy lifestyle by means of art. They have a three-dimensional structure, clearly traced relief, dynamics of movement, more realistic construction of the composition, subtlety of forms, etc.

The perfect human figure was reproduced by sculptors of ancient Greece, where there was a kind of cult of the “trained body”. This topic has a special impact on students' perceptions. It serves as a kind of impetus for changes in attitudes to their

health, to their own way of life. After all, the sculpture conveys a huge internal tension, the silhouette is clearly defined, there is a dynamic of movement, the tension of the body is transmitted.

By studying sculpture in this way, students, on the other hand, have the opportunity to engage in physical culture, analyze, discuss the situation and even recreate the pose, thus making the same effort when performing, for example, a throw. Namely, the arms are pulled back as much as possible, the leg muscles are tense, the body is taken back to counteract the heavy “hammer” (sculpture “Hammer thrower” R. Derbentsev, 1927; sculpture “Figure of the goalkeeper, in the throw”, R. Derbentsev, 1958; sculpture “World Champion in discus throw Nina Dumbadze”, 1967) [11, 12].

### **Conclusion.**

Thus, this approach allows you to develop professionally important natural abilities – creative thinking, imagination, perception, give impetus to optimize the mechanisms of the process of forming healthy lifestyle skills, psychologically and emotionally feel what is depicted. And the introduction of such technology in the educational process will form the need to maintain the necessary state of health and will become an element of the general culture.

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## **INTERNET ADDICTION: TECHNOLOGY OR PATHOLOGY**

Apostol Popovici Dana Gabriela

*The “Ion Creangă” State Pedagogical University of Chisinau, Republic of Moldova;  
Corresponding author: danagabriela\_popovici@yahoo.com*

### **Abstract**

Internet addicts believe that they live in reality, when in fact they live in cyberspace. Especially those who play on the internet confuse their real identity with the identity in the game. Also, as in any other addiction, internet addicts want to do nothing but stay on the internet all day, become inactive and downright anti-social. The more addictive they become, the more they want to do nothing but spend an incredible number of hours on the internet, which destroys or distorts many features of their real life. Instead of talking to real friends, they prefer to communicate with strangers on the Internet. Specialists have come to the conclusion that if you spend 6 hours a day on the Internet every day, for 3 consecutive months, not for the purpose of working or studying, those who are in this situation are liable for the diagnosis "dependent on the Internet".

**Keywords:** *technology, addiction, pathology, internet*

In 1989, when Europe was shaken by the great liberation movements under communism, the British Tim Berners-Lee inaugurated the entrance to that virtual universe that would have the "code" of entry WWW (short for the World Wide Web). Sir Tim Berners-Lee, who was also in Romania in November 2015, was a graduate of Oxford University and his invention (the WWW universe) was a key moment in the development of the Information Age. The components he developed at the time, such as URL, HTTP or HTML, were refined as the technology spread, and are still essential for browsing the Internet. Originally intended as a research tool for use by scientists in universities around the world, the Web has quickly become a way to communicate and exchange information (text, photo, audio or video content) for a much wider audience. It allows users to interact with several people at the same time, even if they are at a great distance from each other, with the help of the internet. The ease and speed of this communication, however, soon transformed the parallel universe of the WWW, from a scientific research tool (what remains) to pathology, and even a social pandemic.

Returning to the "pathology" of the WWW virtual universe - or, more precisely, to the transformation of a useful tool into pathological dependence, it has its roots in the unrestricted access of an "untrained" public, from an educational point of view, to the reception / filtering of overwhelming information, both qualitatively and quantitatively. The same Mihai Eminescu, in another memorable text, made the distinction, extraordinarily current, between education and culture,

which explains, 128 years after his physical disappearance, the phenomenon of social pathology we are talking about:

*"There is a lot of difference between education and culture. Foreign education involves foreign spirit, foreign, not culture. Education is the culture of character; culture is the education of the mind. Education has to cultivate the heart and morals, culture have to educate the mind. Therefore, a well-educated man, with a good heart, character and morals, can be with a small circle of knowledge, while, on the contrary, culture, the widest knowledge can be contained by a man without character, immoral, heartless. Thus, foreign culture as such cannot harm man because it passes through the prism of a character, of an already formed heart; education, growth, falls, however, into that danger of human life when the still unformed heart of man resembles a piece of wax in which you can print what you want, and when the heart, with age, hardens, you can no longer straighten it, you can it just breaks. "* (in "Opere", vol. IX, p. 446).

At this time, due to the emergence of social networks, the expansion of the blogosphere has "calmed down", but has increased in quality. Some veterans of the blogosphere, involved witnesses of the evolution of blogs from hobby to business, aroused the envy of the traditional press, even before the "great crisis", often becoming a source (quoted or unquoted). Some have become real entrepreneurs, involving not only communities of readers, but also networks of blogs for projects and campaigns. At this moment, the situation of the Romanian blogosphere looks something like this:



*The current state of the Blogosphere, January 8-14, according to [www.zelist.ro](http://www.zelist.ro)*

But the real invasion of the Internet in our lives appeared only after the emergence of social networks, especially Facebook. This network was created by Mark Zuckerberg in 2004, to offer the possibility of quick contact of close people, but also of people still unknown. At the moment, Facebook is one of the most widespread social networks in the world. Users can access this network from anywhere where there is Internet access based on a password, initially set once the registration form is completed. At the level of 2015, the Facebook site had about 1.44 billion members worldwide. Appreciated to be the second social site in the world after google.com, taken by the number of visits, Facebook is part of the recent phenomenon called Web 2.0.

**Internet addiction is a psychological disorder** that affects a very large number of people, especially teenagers. They see the internet as a safe place to hide if they are stressed or have problems they cannot confess to. Internet addicts

believe that they live in reality, when in fact they live in cyberspace. Especially those who play on the internet confuse their real identity with the identity in the game. Also, as in any other addiction, internet addicts want to do nothing but stay on the internet all day, become inactive and downright anti-social. The more addictive they become, the more they want to do nothing but spend an incredible number of hours on the internet, which destroys or distorts many features of their real life. Instead of talking to real friends, they prefer to communicate with strangers on the Internet. Specialists have come to the conclusion that if you spend 6 hours a day on the internet every day, for 3 consecutive months, not for the purpose of working or studying, those who are in this situation are liable for the diagnosis "internet addict".

After China and South Korea acknowledged that they were facing serious problems in this regard and decided to allocate space and funds to find serious treatments, the first clinic for the detoxification of Internet addicts was opened in Europe in March 2007, in Amsterdam.

Here are some consequences of internet addiction:

1. Neglect of work and personal obligations;
2. The desire to spend more and more time online;
3. Gradual neglect of the family;
4. The drastic decrease of the socialization activity, the result being the alienation of friends;
5. Sleep deprivation or changes in sleep rhythm for the same purpose;
6. Giving up important activities in order to stay longer on the net;
7. Disinterest in one's own health;
8. Decreased physical activity;
9. Lifestyle changes, in order to spend as much time on the net as possible;

Doctors unanimously agree that uncontrolled or excessive use of the Internet can be considered pathological. Here is what the psychiatrist Mădălina Sîrbu, from the Clinical Psychiatric Hospital “Prof. Dr. Al. Obregia”:*“There is a tendency among young people to increase online communication at the expense of direct communication, which, over time, leads to sedentary lifestyle, decreased ability to adapt to real life situations, depersonalization of the individual and the emergence of major problems of communication. This addiction can have an impact on the socio-professional performance of the individual, on family relationships, but also on health, both physical and mental. Internet addiction can be defined as a compulsive loss of control of impulses related to Internet use (online games, social networks, Internet browsing marathon sessions) which mainly involves psychological dependence on the Internet, and the symptoms are comparable to other addictive behaviors, the closest being the pathological gambling”.*

And the psychotherapist Prof. Dr. Florin Ulete also confirms, adding the following: *“Especially this addiction occurs in preadolescents and adolescents because face-to-face communication has moved online. Computer or computer*



*games stimulate the senses much more than a book. Teenagers can communicate everything they want online much easier, because in the case of face-to-face communication, the barrier of emotions appears. They can often present a language with a sexual connotation and prefer the Internet, because, probing the ground for a possible relationship, they receive instant feedback. This makes it much easier to push the boundaries.”*

### **Forms of the disease**

✓ **Information addiction**—info-maniacal internet users. They spend a few hours a day in front of the computer - browsing sites, searching databases, surfing the web.

✓ **Virtual relationship dependence** - individuals dependent on social networks (Facebook, tweeter, Instagram, Pinterest,etc.). They make a lot of "friends" and end up, at some point, feeling much better in the company of friends on the network, than in the company of real life or family.

✓ **Compulsive behaviors on the Internet.** This includes the category of gamblers or those who compulsively use online shopping or auction sites. Here the implications can be very serious, because the financial status of the person suffers, the addicts being able to commit crimes in order to procure money.

✓ **Virtual sex addiction** (Cybersex addiction). The compulsive use of pornography on the Internet has a negative impact on intimate relationships in real life. Healthy sexuality is an integrated life experience, while virtual sexual behavior is a means of overcoming negative emotions, boredom, anxiety, couple problems, relationship difficulties or the need to feel that you are important, wanted or strong.

✓ **Computer addiction** - offline games. The individual stays locked in the house all day and replaces the need to socialize with offline games, forgets to eat, to take care of his health.

✓ **Smartphone addiction.** The main functions of this type of device have made the mobile phone an extension of computers. We see in public spaces young people sitting with their heads bowed over the phone, in a position that requires their spine, we see young people who, although gathered at a table to socialize, check their emails or notifications and rarely talk between them, and with the menu I ask for the Wi-Fi password so as not to lose anything in the virtual sphere.

✓ **Selfie addiction** is one of the most common addictions to the virtual environment. Selfies have entered our culture very easily, being those self-portraits made with various cameras. Taking a selfie has easily become a fad practiced by people of all ages. Especially, the girls spend quite a lot of time in making the perfect selfie: the one in which they look best and all

their physical qualities can be observed. *"It is a period when the adolescent's personality and self-image crystallize. Thanks to the Internet, they can receive immediate feedback. The number of likes shows them if they are popular or not, and the reason is to raise their self-esteem "*, explains Prof. Dr. Florin Ulete. *"For young people who adopt this fashion, the danger comes from too much exposure of their personal life, from too much time they spend on various social networks, which in time leads to social isolation. By virtual isolation, the human interaction is reduced, which is an acquired, learned ability and which, if it is not permanently practiced, in time, is lost and with it the inner balance of the individual is lost "*, adds Mădălina Sîrbu.

### **IT addiction "treatment" industry**

However, the fact that the dependence on the internet and its virtual accessories is really a social pathology is indicated by the fact that in the world a real industry of "treatment" of the multiple diseases of this pathology has started to develop.

More and more companies promise to cure internet addiction, through activities ranging from the actual therapy to adventure camps in nature.

In the US, such programs are aimed at both adolescents and adults, and participants say that the treatment can have impressive results, writes "The Atlantic".

However, the publication states that the industry that is being foreshadowed exists in a "gray" medical area. Internet addiction is not an official diagnosis in the "Handbook of Diagnosis and Statistics of Mental Disorders," published by the American Psychiatric Association, and mental health experts argue that excessive technology attachment can actually be considered an addiction that needs to be treated.

However, many people are willing to pay to "get rid" of smartphones and the Internet, at least for a while, and the offer is varied.

For example, Outback Therapeutic Expeditions in Utah is a center for treating teens' Internet addiction. To assess the severity of the situation of potential patients, young people need to complete a few questionnaires. Changing eating and sleeping habits, as well as failed attempts to reduce time spent online, are considered alarm signals.

According to experts, it is not only the number of hours spent on the internet that is relevant, but also the way in which daily life is affected in terms of relationships, work or health.

The Outback program includes mental health services, but also outdoor adventure activities. The cost of the program, which lasts 44 days, is between \$ 25,000 and \$ 30,000.

In such centers are treated those addicted to video games, but also those who feel a compulsive desire to constantly enter Facebook or Instagram. Here are some of these centers:

- At **The reSTART Center for Digital Technology Sustainability** in Washington, people can participate in off-site therapy sessions, but also in support groups designed after the 12-step recovery model promoted by Alcoholics Anonymous. The program lasts between eight and 12 weeks. For eight weeks, participants will pay approximately \$ 30,000.
- **Digital Detox**, a company whose slogan is "Disconnect to reconnect", has already opened several camps in different areas of the USA, due to the growing demand. The price for a weekend without technology starts at \$ 495. Many of the activities offered are specific to a summer camp: archery, hiking, swimming, arts and crafts, but it is not uncommon for people to talk about how they use technology.
- In Europe, a course called "**Unplugged Weekend**" takes place in a hilly area of **Wales** and costs about \$ 300, which includes accommodation, food and specific activities, writes BBC. Any electronic device remains at the input.
- **Westin Hotels in Dublin** offer a special digital detoxification package. Those interested pay 175 euros per night.

The fact that these programs exist does not necessarily mean that we can talk about a real addiction, critics say. According to them, sticking the label "addiction" to excessive use of the Internet can lead to stigma, unnecessary drug treatment and setting a precedent in which any activity can be considered pathological.

However, as long as people believe that technology affects their quality of life, the demand for such services will continue. And some of the most prominent experts in the field believe that it is only a matter of time before Internet addiction becomes a widely accepted diagnosis, at least in the United States, which will make treatment more accessible.

However, there are countries where Internet addiction is really considered a disease and its treatment involves very radical methods. In 2005, in some clinics in China, patients with such an addiction were given electric shocks for healing. Many doctors around the world do not agree with such treatment, because it is brutal and can cause psychological trauma, especially in children, but so far it is applied in many countries around the world. Other methods are also used: acupuncture, medicines and special physical exercises.

But there are also "human" methods, which are available to anyone, provided, of course, they want to get rid of internet addiction. Here are some:

- An Internet addict must initially be determined to admit that he or she has a problem so that he or she will be more easily persuaded to get rid of it. For this purpose, the help of a psychologist can be requested.

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- A young person addicted to the Internet must be persuaded to go to a class, play a sport, read a book, or pursue a hobby.
- An adult must be concerned with new interests, solving existential problems, spending free time with family and friends, etc.
- Those who use the Internet for work should take frequent breaks. Even if the working time will be extended, it is necessary to take several breaks to rest your eyes and mind.
- Do not eat food while sitting at the computer, take a lunch break and relax.
- The list of reasons not to overuse the Internet is helpful.
- Sleep hours must be observed, it is contraindicated to stay on the Internet day and night.

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## **MATHEMATICS IN THE SERVICE OF SPORT**

Neder Florina <sup>1</sup>, Apostol Popovici Dana Gabriela <sup>2</sup>

<sup>1</sup>*Ecological University, Bucharest, Romania; Corresponding author:  
luludenia@yahoo.com*

<sup>2</sup>*The “Ion Creangă” State Pedagogical University of Chisinau, Republic of Moldova ;  
Corresponding author: danagabriela\_popovici@yahoo.com*

### **Abstract**

In the elaboration of the mathematical model of the human individual, there is always the temptation to make a model as thorough as possible, which reflects a maximum number of characteristics of the object studied and ensures correspondence with the body down to the smallest details (so-called "powerful" model). , the practice of modeling shows that the most valuable results are due not to the "strong" models, but to the "weak" models, that is to say the models with a high degree of particularization, which model only the specific and most suitable qualities of the organism, which describe only the most important parts of the object, process, phenomenon studied.

For the future use of computers, an adequate intellectual training is already needed, based on the mathematical interpretation of the demands of the coaches, the formalization of the pedagogical experiences, the application of new mathematical models in sport.

Keywords: *mathematical modeling, sports, customization.*

### **Introduction**

Do we have to master the science of sport? The great philosopher of the eighteenth century, Immanuel Kant, asserted that in every science there is as much truth as mathematics. In contemporary sport, the further development of the sports branches will occur due to the so-called "bifurcation points". It is about those moments of sports training, of the movement technique, of the material endowment and mixing assures a completely different level of progress in different sports branches. In athletics, for example, among these "bifurcation points" the bottom start in running may be included; long saltojump, PO Brien's throw and Barashnikov's spinning technique at weight throw, Flosbury's (flop) high jump technique, as well as special technical means (synthetic surfaces, gliding soles, elastic fiber boards). Previously, in their vast majority, these "breaches" were "founders" of the coaches. Currently, they are the result of scientific research, mathematical calculation of optimization of one movement or another. Several examples of such modern searches and "bifurcation points" can be given, either when the coaches request the mathematical calculation after their talent intuition, or when they effectively use the already existing thematic methods.

The notion of "bifurcation points" best demonstrates the possibility of mathematical modeling in sport. Lately, these "bifurcation points" have started to refer to modeling moments that are not related to man, but to sports inventory - materials, surfaces, footwear, etc. (called the field of sports ergonomics). However,

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the most difficult and at the same time the most important and perspective is precisely to model the human subject, the sports technique, the psychic. The talented trainer solves modeling problems every day at workouts; the computational technique is used to strengthen and enhance the possibilities of the intellect in the process of modeling the technique and sports training.

In this way, the mathematization of the pedagogical experience and of the trainer's knowledge can appear as an interpretation of the results of the practical modeling in order to create new forms of technique, of psychological intervention, to increase the efficiency of the training process and to objectify the competitive experience in all its complexity.

The field of human knowledge in sports has many "white spots". Why is the human science system in sports less developed than ergonomics, cosmic medicine, or psychological engineering? First of all, the science of sport is not half a century old, and secondly, in the sport of performance the data are not interesting, but the individual differences. In addition, we must not neglect financial problems.

The best financed and, consequently, the most developed part of the normal unname activity close to the sport is astronautical physiology and medicine. However, the secret nature of information in these areas does not yet allow us to use their latest achievements. Most often, even the technology is old, out of use; applied without adapting it to the specific and problematic of certain branches of sport, although, according to many scientists, human activity in high performance sports, after the degree of perfection of movements and self-control, generally does not equal among other human activities. Besides, for the science of sport, to a large extent, all the difficulties facing science in the USSR are characteristic: immobility, poor financing, poor technical endowment, lack of a well-organized system of contemporary technical information and so on.

In these conditions, mathematical modelling in the field of sport develops (as does the work of coaches) mainly due to the talent of the scientist.

It is time to unite coach talent with mathematical modelling possibilities if we continue to resist our opponent's competition, and to no longer work "under the old system."

What do we mean by the mathematization of the creative process, including that of sports training?

Mathematical modelling and its adaptation to a specific field has two fine and very important links. The first is the moment of formulating the task: how precise, detailed and concrete the coach will express his desire, how he will "understand" himself with the mathematician, all the subsequent solution of the problem depends. The second link is that of interpreting the result of modelling, where it will also require close contact with the mathematician. In this way, the insurance of the circuit is considered: coach-mathematician-coach.

So far, the coaches have addressed science (and mathematics at the same time) mainly in two cases: for obtaining data and making certain measurements. The practice gives us other examples. At the scientific conference

"biomechanics and sport", one of the authors of this article, after presenting his report on mathematical modeling, was asked by an athletics trainer with the question: "is there a mathematical model of the sprint start?"

It is an example of correct problem solving, denoting, first of all, an obvious confidence in mathematical modeling and, secondly, respecting the correct succession of the stages of collaboration. The experience of the coach indicates the most important and difficult moments of the technique, which needs to be optimized according to the principle mentioned above, of the "bifurcation points".

In the elaboration of the mathematical model of the human individual, there is always the temptation to make a model as thorough as possible, which reflects a maximum number of characteristics of the object studied and ensures correspondence with the body down to the smallest details (so-called "powerful" model). , the practice of modeling shows that the most valuable results are due not to the "strong" models, but to the "weak" models, that is to say the models with a high degree of particularization, which model only the specific and most suitable qualities of the organism, which describe only the most important parts of the object, process, phenomenon studied.

For example, here is a mathematical modeling in the field of sports psychology (which still constitutes a great reserve of "bifurcation points" in sport). Which coach does not know the situation in which the athlete cannot even achieve in the competition the result obtained in training? In these cases, speculative conclusions regarding the lack of will of the athlete, his weakness of soul and the space of competition are formulated. To a modern psychologist all these are just words. How to properly ask the question if, after the competition, the athlete is back in training?

In the sports psychology laboratory of the Central Research Institute "Sport", a sports diagnostic system is applied, based on the use of three IBM personal computers, which allows, in the process of modeling the different moments of training and competition, to be tested. more important indices of the athlete's condition and to compare these data with the recorded parameters of the athlete's temperament, personality and particularities of nervous activity. Sophisticated mathematical models, and not "eye-tracking" assessments, make it possible to highlight the weak link in the concurs. Sometimes, the cause of the diminished competitive certainty is due to a system of psychological requirements incorrectly dosed for the competition from the trainer to the sportsman. For example, the very rigid requirement to achieve the best results without first discussing, analyzing, consequently without being aware of. Such fixists can be very good during the training sessions but they can be completely inappropriate in the changing conditions of the competition. Once upon a time, in such situations, there are some peculiarities of the athlete. But a final diagnosis and a prognosis for the future can only be made through systematic research using mathematical modeling.

In conclusion, the introduction of mathematics and calculation techniques in the work of coaches is conditioned by:

1. Modeling and computer work must be done by specially trained people, who have the necessary knowledge in the field of mathematical and sports modeling. To do this, mathematical modeling sectors must be created in physical education institutes.

2. The existence not only of computers and of a wide range of appropriate programs, but also of an interface module, improvement of the measuring equipment and procedures, because mathematical modeling is closely linked and depends on the collection of information, processing with the help of computing technology, the accuracy of the measurement methods.

3. Scientific research should not be limited to the established forms of organization. For the purposes of mathematical modeling, relatively cheap and compact personal computers can be used, which are convenient for use.

4. For the future use of computers, an adequate intellectual training is already needed, based on the mathematical interpretation of the demands of the coaches, the formalization of the pedagogical experiences, the application of new mathematical models in sport.

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## **STRESS AT WORK**

**Pană Gabriela**

Gymnasium School No.30 Braşov – Romania  
Corresponding author: gabitza\_p@yahoo.com

### **Abstract**

Stress itself is neither good nor bad: only its consequences on the body and mind of an individual allow us to evaluate whether the overall effect is positive or negative.

We must learn to live with the stress that is often inevitable. The secret lies in turning stress into a winning energy. It is always good to learn to listen to one's own body and make it our friend. We cannot combat stress without knowing our self: we must know ourselves better (self-analyze) to know others better. Each individual should know their own rhythm, their own "climate".

**Keywords:** *education, stress, environment, career*

What is stress? Stress is the body's non-specific response to any request.

Of the definitions existing in the literature on psychic stress, we find the definition somewhat descriptive - but including most of the circumstances of triggering stress - given by M. Golu: "state of tension, strain, discomfort, determined by negatively significant (or positive, in the case of the eustres), of frustration or repression of some motivations (needs, desires, aspirations - including sub-solicitation), of the difficulty or impossibility of solving some problems. "

Regarding the character of the agent that causes the stress, of the action of the stressor, it is indifferent whether the situation or the work in front of which we are put is pleasant or unpleasant; only the size of the need for rehabilitation matters.

It is difficult to understand how things as different as high temperature, cold, drugs, hormones, upset and joy can cause identical biochemical reactions in the body. However, this is the true truth and by reliable biochemical analyzes it can be quantitatively demonstrated that certain reactions are unambiguously unspecific and that they occur at modifications of any kind.

Also exercising responsibility is a stress agent related to the organizational role. Responsibility for human beings is more stressful than for equipment; this means that the teacher exercising responsibility must spend more time interacting with others: attending work sessions, working alone and, consequently, coping with the terms of teaching the reports and / or the terms of teaching the and to watch over the activity of the students.

Personality differences are important determinants in the responsiveness of individuals to conflicts due to the role they play in the activity process; French and

Caplan point out that individuals with adaptive behavior are better at stress than psychologically inflexible individuals.

In general, in education we can distinguish 6 sources of professional and organizational stress, as inherent sources, those related to: 1) function exercised, 2) role played in the respective school, 3) career development, 4) workplace relations, 5) structure and organizational climate, 6) family / work relationship.

These sources of stress or tension refer to the work environment, to work in a particular job, to excess or inactivity, to physical danger, to the adequacy between the individual and the environment or to the family / work relationship.

1. Sources related to the working environment. Conditions or working environment are stressors for a long time, studied for more than a century and a half and discussed by specialists in occupational medicine and ergonomics.

2. Sources related to work in a specific position.

Working in a specific job affects the neuro-physiological rhythms, such as temperature, blood glucose, metabolism, as well as mental efficiency and motivation to work. Although it has been concluded that working in a fixed position becomes physically less stressful when individuals become accustomed to working conditions, those who perform complain that they feel "excluded from society".

3. Sources related to overload and labor shortages.

French and Caplan state in one of their researches that overwork, as a stressor, is either quantitative or qualitative (for example, considering a job as too heavy) or associated with dysfunctional behaviors. One of their studies thus indicates a close relationship between excessive workload and high cigarette consumption, considered to be one of the symptoms of coronary heart disease. Other research shows that overwork is associated with symptoms such as loss of self-esteem and refuge in alcoholism. Work deficiencies are another stressor related to the environment, where the activity is repetitive, less stimulating, routine. and psychic disinterest in work can diminish teachers' responsiveness in emergencies and unforeseen situations.

4. Sources related to physical danger.

Physical danger is another source of stress that we encounter in high-risk professions such as special schools, correction schools, schools in high-crime areas.

5. Sources related to the person / environment suitability.

Job satisfaction, which can be assessed due to the person / environment (p / m) concept, that is, the adequacy of the psycho-social characteristics of an individual to the working conditions in his or her environment, is another criterion for determining stress-tension. In the event of an inadequacy, a number of symptoms would appear, such as anxiety, depression, dissatisfaction and somatic diseases.

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Progressively, the border between work and organization, has been exceeded, moving from the study of professional stress to that of organizational stress; can we really isolate the subject from the environment or the environment?

The modern man suffers from chronic fatigue ("fatigue nerveuse"): he always feels the need for a vacation, longer weekends, extra hours of sleep. The excess of competition and responsibility leads to an intense increase of stress.

"One gram of stress does not hurt; it can add salt and pepper to life. "

Too little stress is harmful, just like too much. "Finding the right level of stress means giving the violin its own existence," says Robert S. Elliot.

For a normal life it is necessary to know how to manage stress.

Indeed, stress can be a stimulus capable of mobilizing the energy reserves needed to overcome causes. Selye hypothesized that each of us is endowed with a certain amount of "anti-stress energy" that cannot be recovered by relaxation and should be used sparingly during life.

Stress itself is neither good nor bad: only its consequences on the body and mind of an individual allow us to evaluate whether the overall effect is positive or negative.

How to save anti-stress "vital energy", how not to waste it in unnecessary quarrels, in unmotivated fear, in states of tension disproportionate to causes, in detail?

We must learn to live with the stress that is often inevitable. The secret lies in turning stress into a winning energy. It is always good to learn to listen to one's own body and make it our friend. We cannot fight stress without knowing ourselves: we must know ourselves better (self-analyze) to get to know others better. Each individual should know their own rhythm, their own "climate".

In conclusion, we can say that most of the time stress puts its mark on everything we do in life. It influences, most of the times, not only its own person but also its relations with the other people in the surroundings, including service colleagues together with all the related staff.

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