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Impact of physical education on psychomotor development of 1st to 8th grade students

Anemari Simona Teodorescu, Mădălina Brândușoiu

*Spiru Haret University, Faculty of Physical Education and Sports, 24 Berceni Road, sector 4, Bucharest
Carol I National College, 2 Ion Măiorescu Street, Craiova*

Abstract: Psycho - motion field is one as complex as it is fascinating, both because of its beauty goals and means with which it operates, but it interdisciplinary. The two major concepts are intertwined the psychology and the mobility – make this area a true art scientific.

Our opinion is that it emphasized that one of the two terms you up or confuse the two disciplines language. Body can be expressed in a spatio - temporal situation of freedom and affective all original meaning-cognitive surprised industrial civilization for centuries and verbal. When we realize that motor development has studied and mutual accountability will be the therapist and educator and customize specific global subject that must be adopted from reality in its full realization of potential and his entire autonomy psycho - motric .

Key words: Psychomotricity; Psychomotor development; balance;

Introduction

During the evolutionary phase, the sensor-motor development is the basis of affective and intellectual development. Since the first, the second and the third childhood, adolescence, adulthood, it is unanimously known that motricity and psychic influence each other. In terms of reciprocal interaction and causality between motricity and psychology, we can choose an infinite range of examples, either from neurophysiologic or physic-psycho-pathologic perspective.

Gh. Cârstea considers that *human movement is also called human motricity and represents his capacity of performing movements involving mainly exercise and the notion of movement-motricity represents all movements performed by humans, obviously only by means of the skeletal muscles in order to maintain his relationship with the natural or social environment, including practising sports.* [1]

“Physical education and sports terminology” (1974) defines motricity as *an innate and acquired characteristic of the human being to react by means of the locomotor system to internal and external stimuli, in the form of a movement.*[2]

In the Explanatory Dictionary of the Romanian Language (1975) motricity represents *a capacity of superior nervous activity to move quickly from a process of excitation to another, from a dynamic stereotype to another.*[3]

Adrian Dragnea and Aura Bota in “Theory of motor activities” (Dragnea, 1999, p.33) mention that *motricity refers to all motor acts performed in order to maintain relationships with the natural or social environment, including performing skills specific to sports branches dealing with motor acts performed by skeletal muscle contraction.*[4]

Manno Renato considers that *body and limbs movements adapted to spatial and temporal conditions represent general motricity.* The same author mentions that in today’s society *motor activity has a considerable importance in developing knowing and forming personality, and at the same time, it represents a direct stimulus, almost exclusively of one of the fundamental biological properties of human beings, man in particular: general motricity.*[5]

According to M. Epuran, motricity is *the set of functions which ensures maintaining posture and performing movements specific of human beings, and it is thought in opposition to receptive and sensorial*

functions. From psychological perspective, motricity refers to the function which ensures relationships with material and social environment which has striated muscle as peripheral support. Nowadays, scientific literature prefers the term “sensomotricity” in order to stress the role of sensorial information in initiating, managing and adapting movements”.[6]

Psychomotor structure can include the following elements: kinaesthetic sensibility; sense of balance; sense of rhythm and assessing short duration; coordinating limbs - homolateral or heterolateral; coordinating eyes - hand or leg; general coordinating; agility; precision and establishing movements; assessing the opportunity of actions at different time points; laterality; body schema.

Psychomotor development

Motor development with children between 7 and 14 years old

- **Between 7 and 8 years old**, the child is able to maintain squatting position with eyes closed, so static balance is developed. He jumps over a distance of 5 metres, on one leg – buttons up 6 buttons in 45 seconds, hits legs one at a time and describes a circle in 15 seconds. Speed is often at the expense of accuracy.

- **Between 9 and 10 years old**, he stands on his tiptoes, with his trunk flexed for 10 seconds, jumps from 40 centimetres high, quickly wraps a wire with one hand, touches the thumb to the other fingers, beats time with his feet and simultaneously beats with the index, keeping rhythm.

- **Between 11 and 12 years old**, precision and speed are acquired, the child stands on a leg with the other leg supported above the knee for 15 seconds, jumps on one leg, pushing a tile, opens a hand and closes the fist of the other alternatively and quickly.

- **Between 13 and 14 years old**, he stands on his tiptoes with his eyes closed, jumps on a 45-50 centimetres high chair, can close a single eye. From this age forward it is more than a development, it is a psychomotor perfecting, a better harmonisation between power and dexterity.

Perceptual-motor and psychic development with children between 7 and 14 years old

- **At 7 years old**, he conceives duration as an interval between a series of events. Most children think that a change of form produces a change of quantity, and they

all consider unchanged quantity despite the change of form.

• *At 8 years old*, he conceives speed as a spatial-temporal report and he acquires the concepts of maintaining length despite the distortion of the path, marinating surfaces, discontinuous units, sizes.

• *Between 9-10 years old* there is only a sudden and total organisation of the notions of simultaneity, succession, duration and interval; he coordinates duration and the order of succession reaches equal synchronous durations. Moreover, *at 9 years old*, he perceives maintaining weight, towards *11 and 12 years old*, volume.

• *Coordinating asymmetric relationships* of size and length, analogous, is established *at 7 years old*, weight *at 9 years old* and volume *at 11-12 years old*.

• *In developing thinking*, as well as *affectivity*, the child no longer mistakes his own point of view with the other's.

• *In developing affectivity* he moves from respect for adults to mutual respect for his peers. Lying peers is more serious than lying adults. Out of mutual respect, there is the feeling of justice.

• Measuring the level of psychomotor development

• The test consists in an examination, more frequently in a series of examinations in order to establish presence or absence of an aspect, particularities of occurrence or level of its development.

• *Perceptual-motor (psychomotor) field* – In studying the first field, Fleishman distinguishes 11 factors, which are represented in the table below, which is also confirmed and accepted by R. Thomas, J.P.Eclache, J.Keller (1995). [7]

Table 1 Perceptual factors

FACTORS	DESCRIPTION	TEST
1. Control precision	Common factor of tasks which require finely and rigorously controlled muscle adaptations, especially with important muscle groups. This capacity interests equally movements of the upper and lower limbs.	Circular tracking. The subject tries to maintain his stiletto in contact with the target situated on the edge of a spinning plate.
2. Coordination of all limbs	The ability to simultaneously coordinate the movements of different limbs	Coordination of both hands. The test of the one who is spinning can be considered valid.
3. Response orientation	Common factor of psychomotor tasks on visual discrimination reaction	Discrimination reaction time. The subject has to tilt one of the 4 switches depending on the configuration of light appeared.
4. Reaction time	How fast a subject is able to respond to a stimulus when it appears	Classical reaction test to a light signal. The subject pushes a button as soon as the signal appears
5. Arm movement speed	How fast a subject is able to perform a large arm movement without imposing high accuracy	Knocking the two plates, A and B with a stiletto, alternatively and as soon as possible
6. Speed control	Common factor of tasks which require a continuous anticipation of motor adaptations related to speed and/or direction changes of a moving objects	Keeping a line which randomly changes position on a target with the help of a wheel
7. Manual dexterity	Ability known in work psychology. Adapting the direction of upper limb when handling large objects	"Minnesota" handling test. "O'Connor's" test is also relevant
8. Finger dexterity	Handling small objects which imply using fingers	"Perdue's" test. Placing small wooden nails in holes made in a plank as soon as possible
9. Arm safety	Accuracy in performing movements made by the assembly arm - hand, without requiring speed or force. Moreover, this factor implies placing the set arm - hand.	Test similar to "Bonnardel's Greek".
10. Wrist - finger speed assembly	Fleishman notes that this factor could be also called "tapping".	Beating each circle with a pencil three times, filling as many circles as possible in a given time
11. Scoring or targeting	Coordination between hand and eyes	Making a point with a pencil in the circles of a figure

Material

The subjects of our research were 100 students (between 7 and 14 years old), from Craiova, of 5th to 8th grades at "Carol I" National College.

Methods

- The method of documentation
- The Graphical method
- Tests

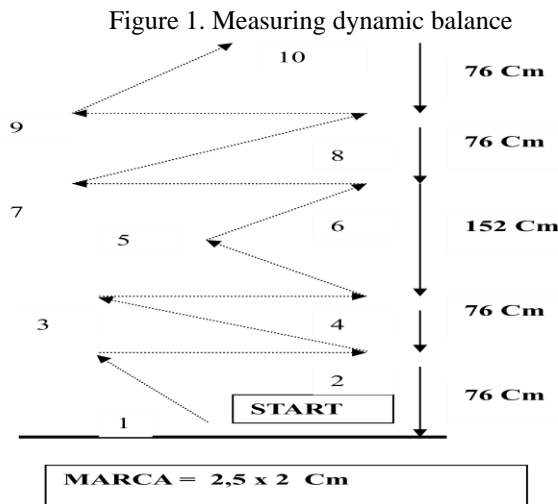
Testing and assessing balance

Balance ability depends on kinaesthetic sensations, visual perception and semicircular canals mechanisms. Among different types of balance, we can mention two major categories, static and dynamic.

- *Static balance* refers to the ability to maintain a stationary position;
- *Dynamic balance* represents the ability to maintain balance while moving.

Measuring dynamic balance (Bass test)

- *Materials:* a chronometer or a timer, 11 brands of 2,54 cm x 2cm (can be made of adhesive binding or tape) and a metric tape. (Kirkendall & col.), cited by Epuran [6] – see figure below.
- 5 points are awarded for each landing and correct covering of the brand and one point is added for each second of keeping static balance. A subject can obtain maximum 10 points for each brand, or a total of 100 points for the complete track.



Balance tests on specially preparing the vestibular system

- The test can be carried out as follows: 5 successive turns are performed in the same direction, and then the subject has to perform the same motor task, moving in a straight line towards a target.
- The subject performs 6 turns, 360 degrees each, by stepping, then he performs 3 rollovers forward and lifts while sitting. Deviations are measured in cm and are assessed according to the table below:
- The subject performs 12 turns, 360 degrees each, followed by 3 rollovers forward with grouped body, performed in a straight line, ended by a right jump and a safety landing. Deviations from the straight line while rolling are assessed according to the table below:
- The subject has his eyes covered with an opaque band; performs 12 turns, 360 degrees each, followed by 5 rollovers forward with the body curled up on a line, right jump and landing in a fixed point. Deviations from the straight line while rolling are measured in cm.

The subject performs 6 turns, 360 degrees each, by stepping, then he performs 3 rollovers forward and lifts while sitting. Deviations are measured in cm and are assessed according to the table below:

Table 2. Balance test 1

Deviation on a line (cm)	Rating (points)
from 0 to 20	5
from 21 to 25	4
from 26 to 30	3
31 forward	2

The subject performs 12 turns, 360 degrees each, followed by 3 rollovers forward with grouped body, performed in a straight line, ended by a right jump and a safety landing. Deviations from the straight line while rolling are assessed according to the table below:

Table 3. Balance test 2

Deviation (in cm)	Rating (in points)
from 0 to 10	5
from 10 to 15	4
from 15 to 20	3
over 20	2

Landing is assessed as follows:

- Safe landing – 5 points;
- Landing with an easy movement of a leg – 4 points;
- Landing with a small step – 3 points;
- Landing with a large step or jumps – 2 points.

The subject has his eyes covered with an opaque band; performs 12 turns, 360 degrees each, followed by 5 rollovers forward with the body curled up on a line, right jump and landing in a fixed point. Deviations from the straight line while rolling are measured in cm and are assessed according to the table below

Table 4. Balance test 3

Deviation (in cm)	Grade in points
from 0 to 15	5
from 15 to 20	4
from 20 to 30	3
over 30	2

Landing is assessed as follows:

- Safe landing – 5 points;
- Imbalance with an easy movement and return to the landing position – 4 points;
- Landing with a small step – 3 points;
- Landing with a step or imbalance with a large movement - 2 points.

Debates

Testing the subjects' psychomotor components (coordination, speed of movements, balance, dexterity, etc.) is an excellent means used in establishing objectives in the process of practising physical exercises, as well as neuromotor recovery. Tests must be applied regularly and combined with rigorously chosen means of improving psychic and motor performances.

It is extremely important to know all evolution phases with their particularities and apply the best and the most suitable methods of education used in psychology and physical education in order to obtain the best results in the educational process.

Conclusions

1. The study of psychomotricity, as an independent science in the field of physical education and sports, is extremely important in the process of familiarising with psychic and motor particularities of children and students, according to age, sex and level of developing motor skills. It is necessary to know and apply the principles of psychomotricity from an early age, when the therapist comes into contact with the child or puber, when the teacher begins education with primary students, followed by one of the "critical ages" – 14-15 years-old-teenager. It is extremely important to know all evolution phases with their particularities, as well as to apply the best and the most suitable methods of education used in psychology and physical education in order to obtain the best results in the educational process.

2. Psychomotricity represents a complementary field which by combining psychical and motor actions helps to complete the wide range of means used in the educational process in order to model the subject's psychomotor behaviour. This is why we must handle the topic seriously and take into consideration its influence, since by correctly applying psychomotricity methods and means, we can obtain numerous and considerable beneficial modifications in the evolution of students.

3. Testing the subjects' psychomotor components (coordination, speed of movements, balance, dexterity, etc.) is an excellent means used in establishing objectives in the process of practising physical exercises, as well as neuromotor recovery. Tests must be applied regularly and combined with rigorously chosen means of improving psychic and motor performances.

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Physical training in volleyball

Danuț Pascu¹, Alexandru Cosma², Laurențiu Lică³

¹*Methodic and Theory Department, University of Craiova, Craiova, Romania*

²*National College N.Titulescu, Craiova, Romania*

³*University of Pitești, Romania, PhD candidate*

Abstract: Physical training is one of the most important factors to achieve performance in volleyball. The aim of this paper is to identify the papers who aboard this aspect, very important in training and to give an overview of available published evidence concerning the association between physical training in volleyball and performance and the means used by coaches. In this research we have introduced all original studies that included the two variables, physical training and volleyball. We used the Anelis Platform who provides access to some international data bases. As a conclusion, many researches think that physical training in volleyball performance is the foundation on which all other factors are optimized sports training, of particular importance at all levels of education which can act effectively, aiming at tackling of model features complete performer and many coaches start to use many unspecific means to create a good performer.

Key words: *physical training, concepts, performance*

Introduction

Performance in sport is an activity of physical and mental limit to the possibilities of the individual. Limiting individual human possibilities is only because of socially and over time, these limits are continuously pushed forward. Training is a difficult, long-term, high intensity, which makes athletes to great efforts on a strict diet and working life, the strain of attention, thought and imagination to practice long and difficult technical and tactical skills and more physical and mental effort.

Developing high-level motor skills specific to a branch of sport, while raising the functional values of the various devices and systems of the human body involved in the effort, is through physical training. Physical training plays an important role in sports training complex structure, being its determinant factor. In this context, the preparation of high performance must be ensured due to the scientific knowledge of all aspects involved in its realization.

About physical training in sport performance has been written but there are still issues that remain untapped by specialists both in theoretical and in practical terms. Many researchers agree the idea that physical training plays an extremely important role in training athletes [1,2,3,4,5,6]

Sports training, like any interdisciplinary activity is the subject to an innovation that sometimes occurs after a particularly dynamic alert.

The game of volleyball has a rich variety of game action, from the simplest to the most complex. This requires continuous training and diligent players and

coaches teaching a gradual sequence of learning and development of the game, which helps to confer a spectacular high note.

General physical preparation is extremely important during pre-competitive, especially for the development of power, agility and explosive strength of volleyball players. [7]

In addition to specific training in volleyball requires a general physical training and training in terms of hypertrophy before the tournament, to develop lower body strength, agility and performance in terms of speed volleyball players.[8]

A good physical training ensures proper development of all motor skills, decisive in achieving future value volleyball player. Initially, it will develop specific motor skills through physical means multilateral and specific training in accordance with the needs of motion in the game. The coach must develop especially those muscle groups that are required in volleyball, but differentiated according to the needs determined mainly by the time evolution of the athlete.

Material and methods

This papers aims to give an overview of available published evidence concerning the association between physical training in volleyball and performance and the means used by coaches.

In this research we have introduced all original studies that included the two variables, physical training and volleyball. We used the Anelis Platform who provides access to some international data bases like in table 1 but also the Google Scholar:

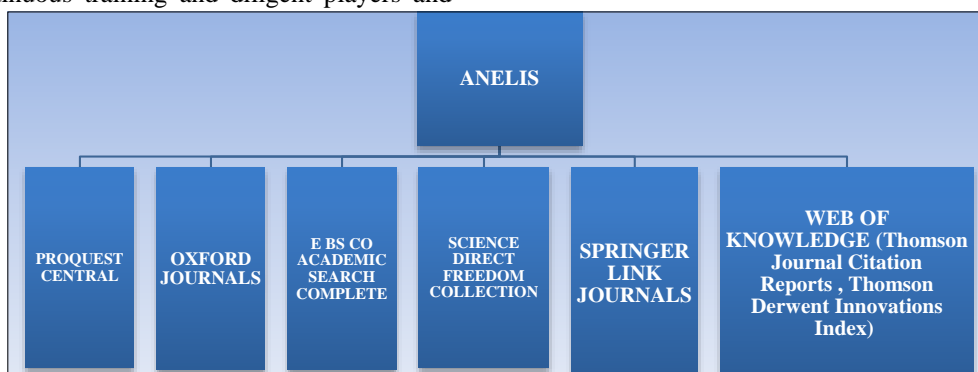


Figure 1 The data bases used by ANELIS Platform

We restrict the search only by academic papers with peer-review and published on journals and we found 4000 articles referring to physical training, free full text available (between 1990 and 2014). Searching criteria an physical training and volleyball, we reduced the number of article at 10, but only 5 highlight the physical training in volleyball.

Results

Physical training volleyball holds special importance because obtaining valuable results cannot be achieved without proper training in all its general and specific game. Between two teams with an equal level of technical and tactical training, the one who possess better physical preparation will always be the winner.

In volleyball players interdependence is evident driving capabilities relative to other sports. There is an accumulation of technical procedures of physical attributes or qualities of driving between them:

- Development of muscle strength under force (specific resistance);
- Development:
- Speed - forward, backward, sideways;
- Resistance in detention;
- Skill (coordination) under stress;
- Improvement technique under strength;
- Technical exercises under the maximum speed;

Stepping motor activity through special exercises and specialized (after executing a specific motor technique) force, endurance strength and endurance, targeting a single result: increased speed of action specific to the athlete's game, which includes games playing sports, especially volleyball.

Complex training involves the completion of a resistance exercise prior to a plyometric exercise. A classic example is to perform vertical jumps or depth jumps after the completion of a back squat exercise.[9] Lately many nonspecific means are introduced in the training of the volleyball players, in order to provide a multilateral training of athletes.

Currently, there are a multitude of ways and means that can be used methodical arsenal becoming more rich and varied. Therefore, according to each specific situation, it is necessary to select the most useful methods to efficiently achieve the objectives and tasks of each stage. One of those means are acrobatic gymnastics which can influence the optimization of the training, proved by some researchers.[10]

Also, the aquatic plyometric training can be one effective means for improving speed, endurance, and explosive power in volley ball players.[11]

Physical training of the athlete is inextricably linked to the rise in the general level of functional possibilities of the body, physical development complex, complete and total.

Also, to the senior level, the coaches should aboard an individual physical training but in Romania there is no time and financial support for that.

This special preparation for each player based on the position represents something new and increases the

performance of each player, and elite or more increases the performances in volleyball. [12]

Conclusions

Given the complexity that has become a training volleyball players as a result of increased athletic performance, optimization training process involves many other factors such as organizational, medical and material base that you drop amplify the scope, exceeding by far that the educational process.

Worldwide continuously finding volleyball game progress, players and teams increase skill as a result of selection and training more scientifically rigorous rally occurring with runaway speed increased.

Physical training in volleyball performance is the foundation on which all other factors are optimized sports training, of particular importance at all levels of education which can act effectively, aiming at tackling of model features complete performer.

In volleyball phenomenon experienced a dramatic curve to reduce workload (due to the introduction tie-break), but not at the expense of quality. This involves increasing the quality in line with the real needs of volume, which is determined by the competitive game. As the effort in playing volleyball has mixed character and requirements require more technical and tactical driving skills, physical training must be multilateral. Development of both forms of exercise capacity, speed and strength, speed and endurance, etc., becomes the main task of training that requires specific effort in the competition and not multilateral principle of physical training.

Referring to the concept of physical training, many teams have now a physical trainer who coordinate that part of the training and that is way we see many unspecific means used. Unfortunately, in Romania, are only several teams who can afford to have such persons in their staff.

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Study about the manifest level determination of the factors involved in the handball game learning technique

Bogdan George Burcea, Brabiescu-Călinescu Luminita, Ghețu Roberta-Georgiana, Ungureanu Aurora

University of Craiova, Faculty of Physical Education and Sport

Abstract: The study aims to establish modalities, solutions for efficient learning of the technology for the handball game by conducting and monitoring the training of a sample of subjects (Junior III). From all the variety of factors that the learning process depends on I mentioned two categories: contributing factors (the knowledge level and the manifest level of physical qualities) psychological associated factors (attention, memory and thinking). By selecting and applying of some significant tests I have tried to establish the implicational level of these psychological associated factors in the technique's learning (methods) of handball game. The results achieved and presented in this study are validating the assumptions.

Key words: learning, evaluation, level of manifestation.

Introduction

The dynamic evolution of sports performance, particularly for the handball game, requires the knowledge of developing trends, features of the game but also of the progress or limiting elements. All these represent essential requirements underlying conception, direction and implementation of sports training. So having a perfectionist purpose of learning and over learning, the training process is based on the accumulations in scientific research (in the field) this influencing its orientation methods and means that are necessary for the preparation. Accessing knowledge from biological, pedagogical, psychological and medical sciences represents a source of inspiration but also a guarantee of the strictness election of the methods and means that must be applied. The main purpose of the training is represented by the influence of sports performance variables through a conscious and synergistic action based on a well scientific argued methodology. Concerning my professional concerns I seek to clarify some theoretical issues that make reference to learning and to find viable solutions, relevant in solving difficulties that I have faced with. Activating as coach to the different sample of sport performance value, I have found that athletes constitute a complex entity with powerful psycho-motor features and often very contradictory. I have accumulated theoretical and practical experience, supplemented by some exchanges of views with experts in field (coach, teachers, doctors) who have confirmed my idea of the fact that there exist a difference between athletes regarding the capacity of a correct execution of a specific technique and even more on the efficiency during the game.

The necessity of finding some solutions for athletes' efficiency performance for the enhancing training, regarding qualitative and temporal component of learning, has motivated me to conceive and realize a study having these objectives. Taking into consideration the variety of factors conditioning the learning process through all the approaches that will be made, we want to bring explanations over some aspects:

improving handball game learning strategies by reconsideration its associating factors' contribution,

limiting us at (memory, attention and thinking) in order to improve the methods and means used in learning; knowing the existence of some individual characteristics regarding learning and improving physical activities, there may be established standards for assessing the efficiency of the learning resources used;

The need for understanding and approach to learning problems regarding the children involved in the preparation process is crucial because it is the main process feature of the technique.

Research objectives

The necessity of a training approach on a capital scientific and viable concept is a certainty of achieving performance in a competitive environment of extreme exigency.

In this idea we want to work in this demarche in order to help identifying some solutions that could lead us to a more efficient learning act of technical actions proposing conceptual and practical optimization of the methodology of technical training junior level II (14-16) years.

The research we undertake, held as a controlled experiment, will acquire meanings in the context of a learning level of technical procedures realized on subjects, compared with the model expressed at an internationally level.

Research hypotheses

1. There are differences of efficacy in correct technical executions of players specialized in different positions.
2. Significant differences are manifesting in the technical execution characteristic phases of the game.
3. There are correlations between forms of manifestation of attention, memory, thinking and correct executions in technical aspect.

Material and Method

The complexity of the issues required by approaching this subject, also the need to ensure a higher quality scientific level, we appealed to using the following research methods:

The method of studying major and interdisciplinary literature

Observing method

The conducted survey method – based on conversation and questionnaire

The method consisted in interviews with specialists in the field of research, teachers, psychologists, methodologists, athletes; the discussions followed a topic related to the objectives of the investigations, methods and means that would also be implemented.

A priority aspect concerned the necessity of reevaluating of the methods and means, of the working methodology based on the information obtained from a significant number of teachers or coaches who are activating at this level (40); the dates have been obtained using a questionnaire.

The case study method

The case study is realized in order to study or resolving situations in relation to the necessities arisen due to general needs of analyzed aspects, facilitating decisions in the covered area. This method has as a purpose to determine the unique characteristics of studied a subject or phenomenon regarding the facility of understanding similar situations.

Designing and conducting the experiment

Establishing the aims of the experiment which consisted of:

Identifying some factors associated with learning, memory, thinking, attention and their level of involvement in improving learning strategies for handball techniques in order to improve the methods and means used in learning.

Knowing the existence of some individual characteristics concerning learning and improving motor actions, standards can be established for assessing the effectiveness learning resources used.

Choosing experimental groups and of control - motivation

The learning level techniques allows that individual characteristics, methods and means of learning to be put in relation.

They correspond to a level of performance recognized through the obtained results.

The chosen level of age (14-16 years) represents a very active period in learning the handball game technique.

Determining factors that will be investigated in accordance with the theme and the purpose of this study

Contributing factors in learning handball game technique

A1. The level of assimilation of handball game technique which is considerate to be influencing the learning of new techniques based on multiple motor structures previously learned.

A2. The level of motor capabilities development facilitates the learning of new processes.

Learning associated factors

B1. Attention, appreciated as one of the most significant indicator for mental state, is proved to be the one that reflects the cerebral energetic level, mental strength and fatigue.

B2. Memory, a storage process of information accumulation and experience using, it represents the ability to retain information timely provided in order to be used.

B3. Thinking occurs in solving some undiscovered situations, by choosing an optimal solution for operating.

Evaluating the level of manifestation through trials and tests

1. Evaluating students level of technical and tactical knowledge

The evaluation procedure of students' technical and tactical knowledge consisted in giving some grades which aimed the determination of the assimilation degree of technical and tactical content in handball.

Evaluation sheets have been prepared with a specific content of the subject's positions and it is structured on the game's phases, both in attack as in the defense.

Table no.1
with attack technique evaluation's clues
calculated on the game's phases (average X) and positions

Phase Position Gr	I		Dif.	II		Dif.	III		Dif.	IV		Dif.
	Exp.	Contr.	e-c	exp	Con.	e-c	Exp.	Con.	e-c	Exp.	con	e-c
9.m.	8,22	7,88	+0,34	8,38	7,89	+0,49	8,6	7,88	+0,72	8,25	8,0	+0,4
Sem.	8,52	8,03	+0,49	8,35	7,95	+0,40	8,27	7,87	+0,40	8,12	8,25	+0,3
goalkeeper	8,16	8,16	+0,	7,63	8,13	-0,5	7,76	8,13	-0,13	7,63	7,69	+0,4

Table no.2
with evaluation clues over technical knowledge used in defense

Phase	I		Dif.	II		Dif.	III		Dif.	IV		Dif.
	Ex.	C	E -c	Ex	C	E -c	Ex.	C	E -c	Ex.	C	E - c
9m.	8,35	8,20	+0,35	8,7	8,5	+0,20	8,7	8,5	+0,2	8,0	7,55	+0,45
Sem.	8,6	8,3	+0,3	8,55	8,15	+0,4	8,55	8,1	+0,45	8,15	8,0	0,15
goalkeeper	8,5	8,4	+0,1	8,6	8,2	+0,4	-	-	-	8,7	8,6	+0,1

2. Evaluating the development level of motor capacities

Table no.3
synthetic with values (X) derived from control tasks

Nr.	Trial	Experiment Gr.			Control Gr.			F.R.H. Exemple		
		9.m	Sem.	Goalk	9m	Sem.	Goalk.	9m.	Sem.	Goalk.
1.	30 m speed running	4,67	4,40	4,50	4,72	4,51	4,70	4,7	4,5	4,9
2.	5 x 30 m. al running	4,80	4,59	4,73	4,87	4,64	4,75	4,9	4,7	4,9
3.	30m.al.pole	7,00	6,69	-	7,25	7,09	-	7,0	6,80	
4.	pentasalt	10,88	10,96	10,8	10,50	10,20	10,40	10,5	10,5	10,5
5.	Handball throwing	37,6	34,0	34,0	35,6	33,0	32,5	35	32	32
6.	Triangular movement	19,32	18,73	19,4	20,6	20,2	20,5	21	21	21
7.	Cooper's test	1785 m	1823	1746	1710	1750	1610	1600	1700	1600

Evaluating the manifestation level of psychological factors associated to learning

In order to achieve a practical foundation of analysis and interpretation of physiological factors manifestation that promotes the training (learning), we established a cumulative sheet with the records made by the subjects that were under the experiment (Tab.no.4)

Table no.4
evaluating sheets with psychological tests' clues

test.	ATTENTION							MEMORY				THINKING			
	Nideffer							c.attention		At.dent		m.kinest.		Lab.P	
	Bet	Oet	Bit	Oit	Nar	Red	T1	T2	T1	T2	T1	T2	T1	T2	
S1	7	2	5	6	6	3	47	45	6	6	7	8	41	42	
S2	7	6	6	3	3	3	38	37	6	6	10	9	41	42	
S3	8	4	6	7	5	4	37	37	6	6	10	9	39	39	
S4	6	5	8	3	5	5	39	38	7	7	8	9	35	34	
S5	3	6	4	4	3	3	44	42	6	6	9	10	44	42	
S6	8	4	2	6	3	3	26	26	7	7	9	8	40	38	
S7	6	4	2	4	5	2	28	28	8	8	9	10	35	35	
S8	7	3	4	3	6	4	35	32	6	7	11	12	37	37	
S9	2	4	4	7	4	6	36	35	6	7	9	9	43	40	
S10	6	6	3	4	8	2	41	40	5	6	12	11	44	42	
S11	5	6	2	4	5	4	39	38	6	6	10	10	37	37	
S12	4	4	4	4	6	5	40	37	4	5	10	10	46	42	
S13	6	5	6	2	2	4	50	45	8	7	11	12	49	45	
S14	6	3	7	3	4	5	26	26	5	6	7	8	45	43	
S15	6	3	7	3	4	5	32	32	6	6	8	9	43	40	
S16	4	5	5	3	5	2	36	35	8	8	10	12	40	40	

Analyzing the results that have been achieved by subjects in psychological tests selected in order to appreciate the manifestation level of learning associated factors to learning, we consider that:

paying a high interest to attention is given to the fact that attention is the most relevant clue of mental state, reflecting the cerebral energy level, mental strength, strain characteristics etc.

We used the T.A.I.S. Test (NIDIFFER) so that through its elements to identify the manifestation characteristics of the experimented subjects' attention.

Table no.5
with values of the elements from TAIS Test calculated %

Elem.t	BET		OET		BIT		OIT		NAR		RED	
	B	S	B	S	B	S	B	S	B	S	B	S
9m players	80%	10%	25%	75%	80%	20%	60%	40%	60%	40%	80%	20%
Semicircle players	75%	25%	50%	50%	25%	80%	75%	25%	75%	25%	75%	25%
Goalkeepers players	50%	0%	75%	25%	66%	33%	100%	0	100%	0	33%	66%

The recorded results demonstrate that the tested subjects achieved values that show the fact that the manifestation level of the attention level allows a quality training process. Based on these results we may conclude that there are strongly bounded characteristics with the team positions; players from the 9m group have the highest values and players from the goalkeepers' group the lowest values. This individual analysis of subjects' values highlights the special values realized by them and that implies a particular selection process.

The 'Focus' Test together with the achieved results makes us appreciate the following:

Table no.6
with percentage values obtained using the 'Focus' Test

Ratings	Best	Good	Medium	Weak
Groups of players				-
9 m. players	-	40%	60%	-
Semicircle players	25 %	37,5	37,5%	-
Goalkeepers players	66,6%	33,4%	-	-

- players from 9m group fit within good and medium values;
- players from semicircle group fit in a wider boundary of ratings, over 50% fitting within excellent values;
- players from goalkeepers group present the highest index value at this test (66,6%), which shows a correlation between the position requirements in terms of concentration and the selection act.

In the assessment of memory manifestation level we used an adapted test (Philip Carter) which requires the short term memory. Based on values obtained by the subjects at this test and recorded in Tab. no.6 the following considerations can be made.

Table no.7
with values from the 'Attention to Details' Test

Assessment values	Best	Very good	good	weak
Groups of players				
9 m. players	-	80%	-	20%
Semicircle players	25%	62,5	12,3%	
Goalkeepers players	33,3%	66,6%	-	-

- 9m players have a short-term memory with high values; therefore their reaction to stimuli that is represented by the motor action has a positive answer (80%);
- semicircle players are characterized by large values of storage memory (25% excellent and 60% best), which created favorable premises for learning the technique and tactics of the game of handball;
- the goalkeepers' group is endowed with the best storage capacity;

Table no.8
with kinesthetic susceptibility test values and motor memory

Assessment values	Best		Good		Medium	
Groups of players	10 -12	%	6 -8	%	4 -6	%
9 m. players	1	25%	4	75%	-	
Semicircle players	7	87,5%	1	12,5	-	
Goalkeepers players	1	33,3%	2	66,6%		

The test was designed for motor memory testing but also for evaluating the motor learning skills of the subjects.

After analyzing the obtained results, we can make the following assessments:

the subjects fit in high evaluative values which indicates the existence of a high motor learning capacity; there is a clear difference between the groups: players from the semicircle group realized 87% while the players from 9m group realized only 25%. This is the reason why we believe that the differentiation will also be manifested in the ability of a faster acquirement of technical procedures by the semicircle players' group.

Conclusion

We consider that the approach modality of the study issue complies with the main purpose, which was to highlight the involvement level of the implied factors implied in achieving learning handball techniques and tactics; among them we remember: the level of knowledge, the level of motor skills development and also the psychological factors associated to learning.

The use of measurements and the use of tests all confirmed the possibility to assess with sufficient accuracy the level of manifestation of the involved factors in learning, creating a precise and logical basis of action.

Evaluating the manifestation level of factors involved in learning allowed the recognition of some structures (models) of players which facilitated the selection of the intervention means, the training process implementation.

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Sociological Study on the Use of Interactive Technologies in Promoting Health Through Movement

Dragoş Ciuvăţ¹, Luminiţa Gergescu²

¹ *University of Medicine and Pharmacy Craiova, Romania*

² *University of Piteşti, Romania*

Abstract: The aim of the study is to investigate students from the University of Medicine and Pharmacy Craiova about their opinion on the current style of life, the presence of motor activities in their daily schedule, in order to introduce means of promoting interdisciplinary movement among them, in the physical education lessons and in the pauses between courses. The questions applied, guiding the subjects to express their opinions about the use of the HopSport system in the physical education class. The questionnaire included 10 items and was applied to a sample of 60 persons males (25) and females (35), aged 18-30, the selected subjects were students at the University of Medicine and Pharmacy Craiova. It appears that the majority (92%) of the respondents are excited about the possibility of introducing these interactive means in the physical education class.

Key words: *HOPSport, physical activity, students*

Introduction

Physical activity can be considered a cornerstone of a healthy lifestyle and a condition of everyday life. The health formula is the every day mandatory physical activity according to age, gender and activity level". [1] Not practicing exercise is a real fact in our country, the cause may be the lack of a culture for the movement, which should grow since childhood.[2]

In the context of variables that determine the quality and effectiveness of students formative physical education lessons, a wealth of strategic vectors related to the proposed instructional content, the overall methodology of the skills and attitudes of students in the conceptual, scientific, organizational and material opportunities are interconnected, where the decisive mark lies in the competence and professionalism of the teacher. [3]

The organization and content of physical education and sports activities, conducted in a university, bears the imprint of general and specific features, that exist within each higher education institution. [4]

HOPSports redefined the perception of students on the participation in physical education classes, by offering practitioners to choose attractive and rewarding forms of physical activity that will enable them to live sustainably, having a healthy lifestyle throughout adulthood.[5] At present, the system is found in 1,000 schools, after school programs, recreation and treatment, but also in the U.S. military bases worldwide, HOPSports being a bridge between home, school and community, to encourage active and healthy lifestyles throughout life. [6]

Material and Method

The purpose is to investigate students from the University of Medicine and Pharmacy Craiova about

their opinion on the current style of life, the presence of motor activities in their daily schedule, in order to introduce means of promoting interdisciplinary movement among them, in the physical education lessons and in the pauses between courses.

In order to justify the introduction of interdisciplinary resources in medical students' physical education class, we found appropriate to make a survey through the methods of questionnaire and conversation, that way we will provide precise and accurate answers for the purpose of determining the need for popularization and introduction of new means in the physical education classes for students in the UMF Craiova faculty.

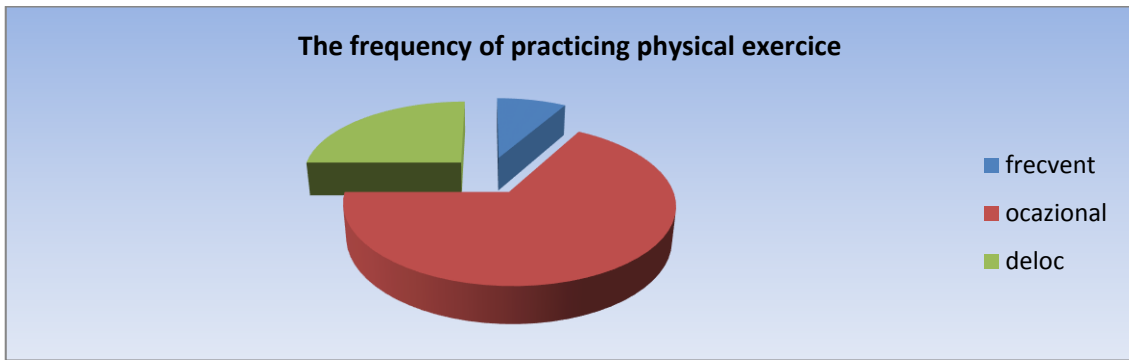
The questionnaires were developed in accordance with the current methodological norms, the questions guiding the subjects to express their opinions about the use of the HopSport system in the physical education class. The questionnaire included 10 items and was applied to a sample of 60 persons males (25) and females (35), aged 18-30, the selected subjects were students at the University of Medicine and Pharmacy Craiova.

The period in which this investigation was conducted was of 2 months (September / October 2013), a period that included the design, implementation, analysis and evaluation.

Because no respondent knew the HopSport system, a series of pictures and videos were shown to form a clear picture of this extremely useful means for a physical education teacher.

Results

From the answers given by students, it appears that only 8.33% practice exercise frequently, 67% occasionally, while 25% do not practice at all.



Graph 1. The frequency of physical education practice

Table 1. The impediments encountered in the practice of physical exercise

The impediments encountered in the practice of physical exercise	Nr. answers	Percent
The lack of free time	35	58%
the financial possibilities	10	17%
The lack of attractiveness of the means used	15	25%
Total	60	100%

Among the impediments encountered in the practice of physical exercise, 58% (35 respondents) stated that the main obstacle is the lack of free time, 25% are not drawn to physical activity, while 17% consider that the financial situation compels them to be inactive.

Medical students' health status is very good in 8% of the sample, good for 35 students (58%), not so good for seven subjects, while 3 of the respondents say that their health is poor.

Table 2. Self-reported health status

Mental fatigue occurs frequently in courses	No. answers	Percent
Frequently	50	84%
seldom	5	8%
never	5	8%
Total	60	100%

Most students (84%) from the UMF Craiova complain about the fact that frequently they get tired mentally during courses, 8% do not bother at all and another 8% sometimes feel tired. (Table 2)

To identify the interest of students towards the physical education class, we wanted to highlight the current frequency in physical education classes, for the compulsory curriculum. Thus, 42% had a presence between 90-100%, 50% attended classes between 50-90%, and 8% had less than half of this. Even if the UMF Craiova students are not very active, in terms of the practice of physical exercise, yet they claim that these may lessen the fatigue due to a prolonged intellectual effort.

Table 3. Attractiveness of the HOPSport

Attractiveness of the HOPSport	No. Of answers	Percent
yes	60	100%
No	0	0%
Total	60	100%

Since, prior to the questionnaire, students have not heard of the HOPSport system, following a short presentation of it, it seemed very attractive to all of them.

From the last question asked, it appears that the majority (92%) of the respondents are excited about the possibility of introducing these interactive means in the physical education class.

Discussion

HOPSports allows teachers to work with small groups or individual students, while the entire group remains fully committed. Students improve their health and gain confidence to be active for life. [7]

According to a study, young people who use the system HopSports are 55% more active than those who attend physical education classes and sports. [8]

From the same study, it appears that obese or overweight students using this system are 23% more active compared with those who attend the traditional physical education and sport courses. [9]

HOPSports redefined the perception of students to participate in physical education by empowering them to choose attractive and rewarding forms of physical activity that will enable them to live sustainably having a healthy lifestyle throughout adulthood.

Physical and sports activities practiced systematically reduce the risk of morbidity and mortality in many chronic diseases in adults. Although young people engage in a greater degree than adults to practice physical exercises, adolescence marks a decline in their physical activism.

To this end, the development of community programs will mitigate this trend by engaging young adults and not only in a active lifestyle, which means moderate exercise conducted systematically at all stages age. In all advanced countries the programs are the result of large interdisciplinary research studies, many of them based on behavioral theories, as well as on the standards of good practice in physical education, sport science, health education.

Conclusions

In our research the questionnaire is a reference point in knowing the wishes of the students, helping us to pay attention to their needs , we can intervene effectively in the next step by introducing interactive media in

physical education classes to increase their attractiveness.

Thus, this can affect their leisure choices in order to change their sedentary behavior.

The variety of existing programs in the HOPSport system, provides a wide range of movements, which increases the attractiveness of physical education classes, the teacher being able to choose exercises based on student preferences.

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Study on the Specific Actions of the Attack, the Senior Volleyball Teams.

Adin-Marian Cojocaru¹, Marilena Cojocaru¹

¹*Spiru Haret University, Faculty of Physical Education and Sport, Bucharest*

Abstract: Paper entitled Study on the specific actions of the attack, the senior volleyball teams, trying to outline the game in attack model parameters practiced in the elite men's world and continental levels and our internal reporting to it, hoping objective sizing differences and highlighting the driving directions to recover the value of the distance still separating Romanian male volleyball teams practiced at the leading continental and global.

Based on the relationship between structure I play (serve, reception from service, setting, attack eminently structure) and structure II of the game (blocking the takeover of attack, attack and setting after reception from attack, more than a defense structure), which is 2/1, but by rethinking defense with libero player introduction, things have changed.

Cannot talk about attack, no action defense, know the fact that between the two there is a relationship of causality and reversibility. It is very evident that the achievement section is based on the one hand, to not let the opponent to score, on the other hand provides building attack defense, which means that lead to the completion of the rally by winning the point. Favored component of the volleyball game - attack contributes to optimize the capacity performance. Addressing the training of players should be ensured in the exclusion of confusion and improvisation, which is producing the concrete approach with more effective attack specific actions. In the context of optimizing and increasing the efficiency of training players for the game of attack needed to be rethought and structured on the basis of modeling, which is found in a logical relationship between strategy, objectives, content and evaluation. Preparing for the attack involves a complex sphere, which requires addressing the multiple plans (physical, driving, technical, tactical, psychological, etc.), being an important place in the training players supporting the progress of future performance.

Key words: *game, efficiency, skills, volleyball*

Introduction

In a modern game of volleyball also practiced the world today, the attack is becoming more aggressive and better organized with increased weight share in the game. Defensive action is approximately 43% of game action, and within line II represents approximately a 14% trying to balance the actions of lock approximately 16% [1].

Combinations of attack is a successful volleyball team, but based mainly on exploiting specific actions within the game and I then those of structure II. Defense is organized differently, depending on each attack tactic which adopts a system of defense.

Can not talk about attack, no action defense, know the fact that between the two there is a relationship of causality and reversibility [2].

It is very obvious that the point is based on the one hand to keep the opponent to score, on the other hand, provides defense building attack, which means that lead to the completion phase of the game winning point.

Research hypotheses

➤ To analyze actual trends that are manifested in volleyball performance in terms of game development and involvement of players and in the content and effectiveness of enforcement action game.

➤ Based on these trends and the factors to prove their usefulness and remain a priority for the future and trying to emphasize the structural and content of the model in the attack game.

➤ In this general context of the analysis, the study's aims is essential to determine to what extent the hypothesis is confirmed that the teams success in the male game is decisive actions related to the effectiveness of attack based on the defense.

But check this hypothesis that the effectiveness of the attack game is based on a defense training is critical to overall efficiency of the team can not be achieved only

on a very objective tools of analysis and evaluation of a methodology to allow evidence of such correlations structure and function are established between the constituents of the team.

Research tasks

In the paper we develop several methodological steps, as follows:

- setting objectives that are within concrete tasks which they reach the initial work;
- documentation specialist browsing through the bibliography by discutii methodical with various
- specialists and selection of findings of its own experience;
- elements shaping the content of the work and methodology development;
- materials analysis, interpretation and conclusions detachment;
- structuring content and drafting work

The method of data processing

Scale assessment of the actions of the game and giving grades is done using the scale developed and presented in the FIVB in „Manual for FIVB Statistical Match Record (SMR)” [3].

Thus the outcome of each action is assessed using a scale of 4-5 degrees, depending on the defense in connection with the attack, based on the score or control the ball after the team plays the ball or the opponent. Assessment was made as follows:

- ✓ As - 4 - point won;
- ✓ Excellent - 3 - gained full control, maintained;
- ✓ Good - 2 - gained limited control, maintained;
- ✓ Insufficient - 1 - lost control, without control;
- ✓ Mistake - 0 - point lost.

“As” (evaluated 4) is used only for operations: service, attack and block.

“Full control” (evaluated 3) is used when all possibilities are created for subsequent construction phase of the game.

“Limited control ” (evaluated 2) is used where the subsequent preparation of the attack can not be done using all the options..

“Without control” (evaluated 1) is used where the construction of the attack is not possible, however the ball remains in play.

Weights (\emptyset) allocated shares game with a 4-5 scaling the levels as you find in the record sheets of FIVB are:

Notes F.I.V.B.	0	1	2	3	4
Scalar	1	2	3	4	5
$f_i = 4$	0	0,33	0,66	1	
$f_i = 5$	0	0,25	0,5	0,75	1

Results

Data processing refers to a real image on the effectiveness of the game.

By processing and data interpretation are proposed as follows:

- determining the number of shares of attack on levels of evaluation;
- determining the number of shares of attack to zone in court .

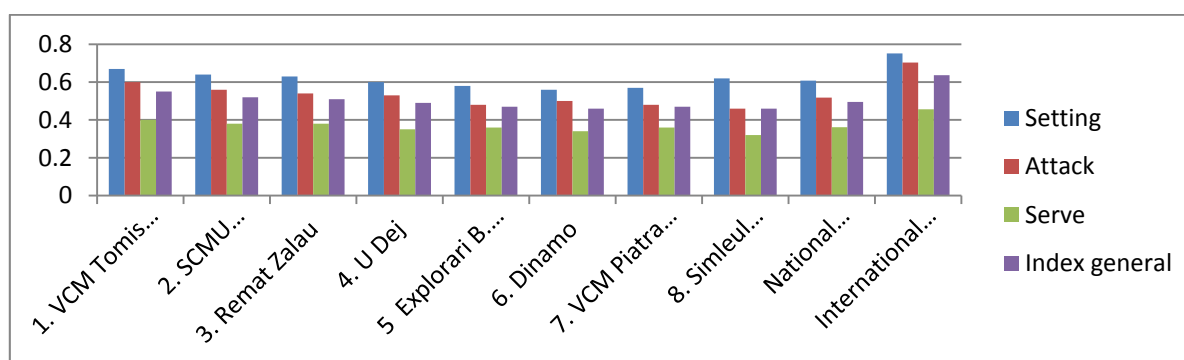
All these data are necessary and useful to study composition. In data interpretation must take into account firstly that the takeover of service attack and stroke and raising precede the attack and is more difficult than the decision (ex attack).

Perhaps in these cases and raising the appeal of taking action becomes difficult, more difficult than lifting executed after taking the service, and therefore it is sent mostly to the combination of 3 tactical collective attack, while 3 find over the safety man.

Recording was done on the first 8 teams that participated in the phases of play-off's volleyball National Championship Senior.

Table 1 – The efficiency of shares of game for teams division male

Team	Setting	Attack	Serve	Index general
1. VCM Costanța	0,67	0,60	0,40	0,55
2. SCMU Craiova	0,64	0,56	0,38	0,52
3. Remat Zalău	0,63	0,54	0,38	0,51
4. U Dej	0,60	0,53	0,35	0,49
5 Explorări B. Mare	0,58	0,48	0,36	0,47
6. Dinamo	0,56	0,50	0,34	0,46
7. VCM Piatra Neamt	0,57	0,48	0,36	0,47
8. Simleul Silvaniei	0,62	0,46	0,32	0,46
National Average	0,608	0,518	0,361	0,495
International Average	0,752	0,704	0,456	0,637



Graphic 1 – The efficiency shares of game in attack

Table 2 - Setting

The game	1	2	3	4	5	6	7	8	Media
Succeeded	41	43	36	22	23	22	24	19	28,7
71-99%	13	12	33	40	28	26	25	16	24,1
31-70%	11	10	13	28	36	23	15	19	19,3
1-30%	7	2	3	13	14	12	12	14	9,6
Wrong	12	9	3	14	10	5	15	6	9,2
Sum	83	76	67	111	123	90	91	74	89
Efficiency	0,67	0,72	0,74	0,57	0,59	0,62	0,58	0,64	0,64
Share	8,9	15,5	16,4	19,7	19,1	19,4	16,8	17,6	16,7

Table 3 - Attack

The game	1	2	3	4	5	6	7	8	Media
Succeeded	9	7	4	0	1	1	0	0	0,25
71-99%	7	6	3	3	5	2	6	5	4,6
31-70%	10	14	12	38	31	18	43	32	24,7
1-30%	15	14	12	8	22	19	26	18	18,1
Wrong	22	19	11	38	48	23	49	30	30,2
Sum	63	60	41	87	107	63	124	85	78,7
Efficiency	0,35	0,40	0,41	0,25	0,2	0,25	0,22	0,24	29,4
Share	14,4	12,2	9,3	15,5	16,1	9,8	13,6	15,8	14,5

Table 4 - Service

The game	1	2	3	4	5	6	7	8	Media
Succeeded	17	23	9	11	7	4	12	11	11,7
71-99%	7	8	7	4	4	0	2	1	8,1
31-70%	27	14	13	27	20	11	7	16	18,8
1-30%	3	16	3	42	22	17	30	14	18,3
Wrong	45	49	46	20	64	61	75	59	52,3
Sum	99	110	78	108	117	93	121	101	103
Efficiency	0,35	0,38	0,27	0,27	0,19	0,15	0,13	0,25	0,29
Share	14,4	12,2	15,5	15,5	16,1	9,8	13,6	15,8	0,25

Discussions

The fact that, in terms of increased efficiency uptake, completion is done mostly in areas of extreme net length is a testament to the organization simplistic attack, which requires specialists amplification concerns for adequate training organization design combination of attack as prerequisites theoretical maximum efficiency in organizing attacks require completion [4].

Analyzing the structure and mechanism combinations in attack teams top priority orientation viability was found to completion during one (T1), in the center of the net, a high-speed lift and completion surprise during 2 (T2) of players 1 or line 2, on the head parameters of the time close to 1, so that the organization of the block may no longer be appropriate. Completion of time one requires players to act only on special passes to have a slight jump, to move quickly to lock and possess very good attack on one leg in zone 2, the change of direction.

"In this attack initiates and participates in a variety of high-speed tactical schemes to confuse the opposition and blockage to enable others to more easily complete the attack. His main task in the game is still blocking the entire length net execution, so you have to be the best player on the team blockage. In the attack to be able to play balls coming from many directions, with increased effectiveness."[5].

Conclusions

The analysis of the attack on the first line, the share of specific actions and efficiency, detached following findings and conclusions:

➤ the attack there is a large variability in weight on the three moments of action (attack of T1, T2 and T3) dependent register tactical construction counter attack. From this angle, we cannot detach maximum tend to

lock the weight for a specific time of execution, with the most frequently reversed the determination of the effectiveness of weight setting and attack;

➤ attack amounts to the removal efficiency, which means special attention to training actions in the attack game opponent at least equal value;

➤ service efficiency analysis highlights the lowest index to the other;

➤ remark is quite a distance between the index efficiency nationally, compared to the world, which emphasizes the national competition;

➤ instruments of analysis and efficiency evaluation methodology proposed in this work and to have proved accessibility, scientific objectivity and efficiency, considering them in this regard is essential in preparing assessments and games of any team;

➤ scaling the efficiency of execution of actions on a scale in five steps qualitative value, providing an increased degree of objectivity of the assessments by providing a higher level of certainty-mathematical and statistical which allows a ranking value more precise execution of game action.

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The Role of Gymnastics Elements in the Junior Volleyball Player's Coordination Development

Alexandru Cosma¹, Dorina Orțănescu², Ligia Rusu³, Mihnea Marin⁴, Germina Cosma²

¹University of Physical Education and Sport, Bucharest, Romania

²Methodic and Theory Department, University of Craiova, Craiova, Romania

³Sport Medicine and Kinesiology Department, University of Craiova, Craiova, Romania

⁴Applied Mechanics, University of Craiova, Craiova, Romania

Abstract: Physical training in volleyball is an important factor to achieve good performances. The aim of this paper is to highlight the specific gymnastics elements with influence on the development of coordination in junior volleyball players (n = 10, age 18 ± 1.5), by making some specific programs, which include gymnastics and acrobatic elements once a week for 10 month. The specific gymnastics exercises, acrobatic gymnastics ones, mostly (like rolling, hand standing), showed positive influence on the coordination ability of the research subjects, the program being validated through the obtaining of statistically significant results, at a p < 0.001, comparing with control group (n = 10, age 18 ± 1.5).

Key words: physical training, volleyball, junior, unspecific means

Introduction

The current leveling trend value, in high performance on a technical and tactical aspect, which is due to the generalization of sport training methods gives back the importance of the muscular component, in an increased size compared to the baseline, so that only this can make the difference between players, being a consequence of physical preparation of the athlete. After its concrete orientation, it is a process of educating the motor skills required in sport.

Meanwhile, the physical preparation of the athlete is inextricably linked to the rise of the general level of body's functional possibilities, complex, complete and total physical development.

The overall physical preparation is extremely important during pre-competitive, especially for the development of power, agility and explosive strength of volleyball players.

Volleyball has become one of the most played sports in the world. The volleyball game requires expertise in several physical fitness and performance often depends on an individual's ability to jump and land.[1]

In addition to specific training volleyball physical training a general training and a hypertrophy preparation is required, before the tournament, for the development of force in the lower part of the body, of the agility and performance in terms of speed in volleyball players.[2]

Volleyball players require well-developed speed, agility, upper-body and lower-body muscular power, and maximal aerobic power (VO_2^{max}). [3]

The technical performance may be limited by the physical characteristics, as well as the physical condition and performance characteristics. This statement is supported in Romania, Croitoru D. Serban MH (2002), stating that physical training in volleyball holds special importance because obtaining valuable results cannot be achieved without proper training in all its general and specific game. Between two teams with an equal level of technical and tactical training, that who possesses better physical preparation will always be winning.[4]

Many specialists are of the opinion that, in a sport like volleyball, success in competition and game efficiency are profoundly dependent on physical training, a level that can be strongly influenced by non-specific means.[5,6,7]

Thus, our choice regarding these tools lies in the fact that gymnastics elements is "a system of physical exercise applied analytically or globally, affecting selective and cumulatively the locomotor apparatus in order to improve and harmonize the human body, its correct posture training." [8].

Material and Method

The research was conducted for 10 months, the experiment group subjects (n = 10) being junior volleyball players aged 16-18. Following the development of new work programs, that have had in their structure gymnastics and acrobatic elements, they were placed in the experimental group trainings. The time allocated to the application of programs was 45 minutes in a session of 90 minutes training, each week, and was kept constant during trainings conducted.

The control group (n = 10, age 16 ± 1.5) followed its training program without using the acrobatic elements or gymnastics in training, our intervention being irretrievable in their case.

The tests used were:

Triple jump from 2 on 2 feet- explosive power of the lower body + coordination

Three standing long jumps -related, measuring the centimeters traveled. They depart standing, slightly apart, executing several series of "step jump" during warming up to prepare the joints, ligaments and muscle groups related.

The general coordination test (Matorin) is a test to determine the space and time coordination. We draw a circle on the ground with a 20 cm gradation, falling under 45 °, 90 °, 180 °, 270 °, 360 °. The subject enters the circle and performs a high jump with rotation around the longitudinal axis of the body to the skilful part. After landing, a ruler is placed midway between the feet and the value of rotation is read in degrees.

Result

After testing the subjects pre and post program (T1 and T2), we register the following results at the two tests that we applied.

Results of the measurements recorded in the triple jump (table 1)

Table 1 The statistical parameters for the triple jump

Parameters	Experiment group		Control group	
	T1	T2	T1	T2
Arithmetic mean	7.984	8.330	8.011	8.12
Std deviation	0.16	0.14	0.09	0.15
Maximum	8.15	8.48	8.15	8.4
Minimum	7.9	8.1	7.9	7.9
Amplitude	0.25	0.38	0.25	0.5
variability quotient	2.03	1.71	1.13	1.84

In the triple jump, the values of the two groups are similar, the experiment group averaging 7.98 m, with the initial testing and 8.33m in the final one. The control group has an average of 8.011m in the initial testing and 8.12m in the final testing.

Applying the Student test for each group, the following values are recorded:

In the experimental group a value of t (-7.32) is obtained, the degrees of freedom (9) and the bidirectional significance ($p < 0.001$). As the significance level is 0.000, the difference between the two tests is very significant. The confidence interval ranging between -0.44 and -0.23 and, since it does not pass through 0, the difference is statistically significant at the 5% significance, bidirectional.

In the control group, the value of t (-1.97) the degrees of freedom (9) and the bidirectional significance ($p >$

0.05), the significance level is 0.081, resulting in the fact that this difference is not significant. The confidence interval ranging between -0.21 and 0.01 and passing through 0, the difference is not statistically significant.

Applying the Student test between the two groups, with the final testing we recorded a level of $p < 0.005$ ($p = 0.001$), indicating that there are significant differences between the two environments.

The (Cohen) D index of effect size (1.46) indicates a large effect, with a significant difference between the average levels of the triple jumps, between the two groups in the final testing.

The measurements are recorded on the Matorin test (Table 2)

Table 2 Statistical parameters for Matorin test

Parameters	Experiment group		Control group	
	T1	T2	T1	T2
Arithmetic mean	353	383.12	355.00	363.75
Std deviation	6.74	9.61	8.50	7.44
Maximum	370	400	370	380
Minimum	340	375	350	350
Amplitude	30	25	20	30
Variability quotient	2.34	2.51	2.39	2.50

In the Matorin test of coordination (table 2), there is an average of $353^\circ (\pm 6.74)$ for the experimental group in the initial testing, in the final testing, the value recorded being 383.12° .

In the control group, the average of the initial testing is $355^\circ (\pm 8.5)$, reaching, with the final testing, to a value of $363.75 (\pm 7.44)$, with values between 350° and 380° .

Both groups are homogeneous, the values of the variation coefficient being less than 10.

The experiment group recorded, with the final testing, a progress of 8.53% (30.12°), the control group - a progress of 2.46% (8.75°).

Applying the student test for each group, the following values are recorded:

In the experimental group we register the value of t (-11.979), the degrees of freedom (9) and the two-way significance ($p < 0.001$). As the significance level is 0.000, this difference is very significant. The confidence interval ranging between -38.63 and -26.36 and since it does not pass through 0, the difference is statistically significant at the 5% significance bidirectional.

• In the control group we get the following results: the value of t (-3.28), the degrees of freedom (9) and the

two-way significance ($p > 0.05$). Since the significance level is of 0.10, this difference is not significant.

Applying the Student test between the two groups, with the final testing, there is a value of $p < 0.05$, indicating that there are significant differences between the two environments.

D index (Cohen) of effect size (2.25) indicates a large effect, an important difference between the average test levels of coordination, between the two groups, with the final testing.

Discussion

The physical training in volleyball performance is the foundation on which all other sports training factors are optimized, of particular importance at all levels of education, which can act effectively, aiming at the direct tackling of model features for the complete performer.

The initial tests revealed that the groups of athletes included in the survey, the experiment group and control group, showed relatively close progress on all indices watched, then with the final tests the differences to be significant, highlighting the effectiveness of this proposed work programs applied to the experiment group, its progress, especially in the development of coordinative capacity, confirming the validity of the research hypothesis.

A good technical training is not necessarily the key to success as a technical player; it does not ensure victory in a match, if you do not have good support from physical training.

The specific gymnastics exercises, acrobatic gymnastics mostly showed positive influences on the coordination capacity of the research subjects.

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Determination of Angle Characteristics on Sport Performance Level in Female Pole Vault

Peter Krška, Ján Košťál, Jaromír Sedláček

Department of Physical Education and Sport, Faculty of Education, Catholic University, Slovakia.

Abstract: This research is aimed at hierarchy revelation of selected angle characteristics of competitive movement activity and their influence on the level of female pole vault sport performance. There are involved 19 female pole vault jumpers with sport performance 380 – 483 cm, divided on 2 different groups from the point of sport performance. From all watched angle parameters there were stressed in the frame of kinetic sport performance structure the angle of take-off and angle of centre of gravity movement after swing up. The group of higher performance level presented itself by higher activity at take-off, which was manifested by proper values mainly in angle of tread-down of take-off, angle of centre of gravity movement after swing up and angle between fore-arm of lower upper extremity with the pole at moment of take-off end. In activity on pole especially in the lower performance group comes at moment of lift end to greater move away of centre of gravity from axis of extension and this caused minimal increase on the centre of gravity height during last phase of jump.

Key words: *female pole vault, sport performance, competitive movement activity, sport performance structure, angle characteristics*

Introduction

Pole vault is the only athletic event in which the performance is reached with use of tool. The pole use put this event away from fundamental locomotion and adjoins it to complex athletic events. The movement activity is realised in two basic parts; the first is approach ended with take-off and the second there are the movement activities of jumper on the pole. The approach has cyclical movement structure and it is influenced both arms holding, bearing and displacing pole. The movement activity on the pole has on the contrary acyclic character and represent the structure of shifting movements in front and upside position at parallel rotation round horizontal and vertical body axes and round pole and that is performed at optimal time sequence – rhythm.

The performance in pole vault depends on the height of centre of gravity of jumper body at jumping and on the economy over the bar transition. The maximal height of the centre of gravity depends on many factors, which from are the most important the height of grip on the pole and the magnitude of lift (standing over) of centre of gravity over the grip.

At quality solution of mastering competition movement activity of sportsman there is important to know not only what the technique is, but also like it is can be evaluated. Without topical state evaluation of mastering technique level it can not be even improved. Sphere of familiarization and further improvement sportsman movement activity structure is not the subject of biomechanics. But biomechanics enables through its methods to evaluate technique of movements, enables to identify differences from ideal model technique and thus even form orientation its further improvement.

At sportsmen technique evaluation we start from mechanic phenomena that are in biomechanics called

biomechanical characteristics. These phenomena make sportsman movement technique more concrete in its kinetic and dynamic manifestation and they can be measured and evaluated.

Kinematical analyse enables to learn movement activity character and thus is formed prerequisite for following movement rationalization. Lately took care with kinematical analyse use of competitive movement activity in athletic events several authors [1,2,3,4,5,6,7,8] they show mostly on its contribution on training process improvement.

Objectives

The aim of this research was to select angle characteristics of competitive female pole vault jumpers movement activity and reveal their influence on sport performance level.

Research tasks:

From the hierarchy level kinematical sport performance structure model [8] select position of angle characteristics.

To analyse mutual relations of these kinematic parameters and explain influence of angle parameters on the level of sport performance.

Material and methods

This research was performed in 2004 - 2006 on the meetings Golden spiked shoes in Ostrava, Czech Republic. Our kinematic parameters were gained by two-dimension analyser Conspont Motion Analysis System (CMAS). There are involved 19 female pole-vaulters with the sport performance 380 – 483 cm. All watched top-level female pole-vaulters (group S) were divided on 2 smaller groups; lower sport performance group (S1) and higher sport performance group (S2). Fundamental statistic characteristic can be seen in tables 1, 2 and 3. In this contribution are used logical methods, mostly analyse, comparison and induction.

Tab 1 Statistical characteristic of kinetic parameters of the whole group S, sport performance 380 – 483 cm (S, n = 19)

Parameter (u)		[unit]	x	X _{max}	X _{min}	s
u1	Maximal centre of gravity height	[cm]	448,03	490,50	408,10	23,07
u2	Absolute height of upper arm grip	[cm]	403,11	420,00	385,00	10,86
u3	Standing over (peak height)	[cm]	44,92	70,50	11,20	16,24

Tab 2 Statistical characteristics of kinetic parameters of the lower sport performance group S1, with sport performance 380 – 430 cm (S1, n = 9)

Parameter (u)		[unit]	x	X _{max}	X _{min}	s
u1	Maximal centre of gravity height	[cm]	428,36	441,14	408,10	12,28
u2	Absolute height of upper arm grip	[cm]	395,89	406,00	385,00	6,81
u3	Standing over (peak height)	[cm]	32,47	49,10	11,20	10,83

Tab 3 Statistical characteristics of kinetic parameters of the higher sport performance group S2, with sport performance 440 – 483 cm (S2, n = 10)

Parameter (u)		[unit]	x	X _{max}	X _{min}	s
u1	Maximal centre of gravity height	[cm]	465,73	490,50	449,30	13,98
u2	Absolute height of upper arm grip	[cm]	409,60	420,00	395,00	9,79
u3	Standing over (peak height)	[cm]	56,13	70,50	33,30	11,35

Results

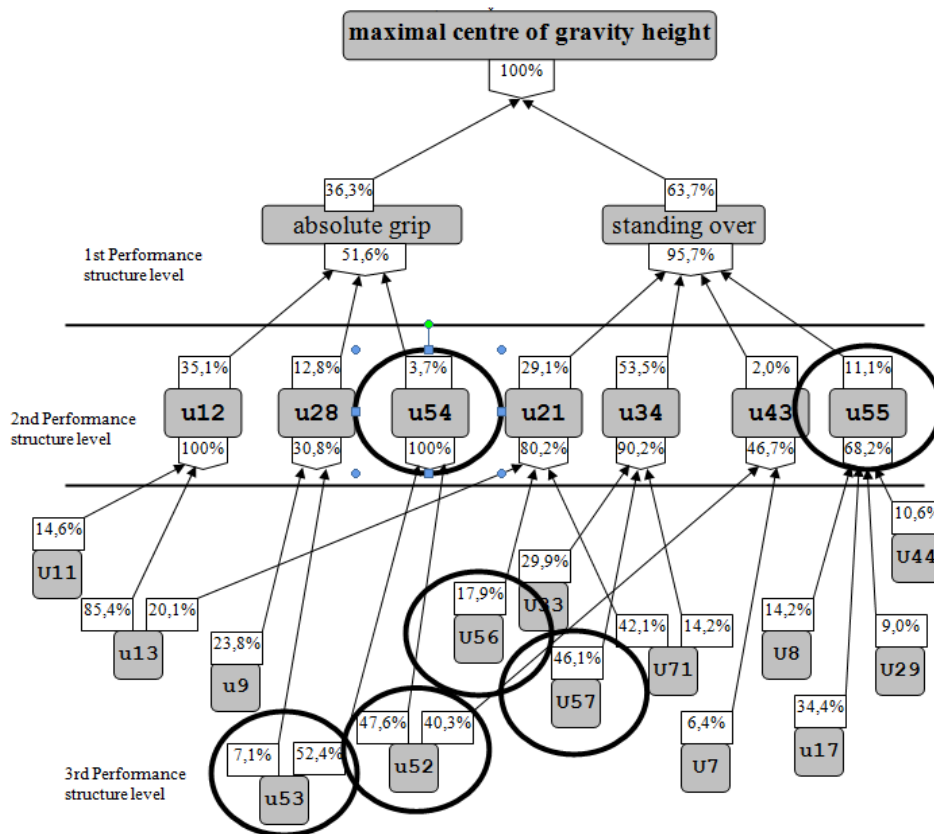


Fig 1 Relations and quantifications of parameters in female pole vault sport performance structure with regard of speed parameters (Krška, 2008)

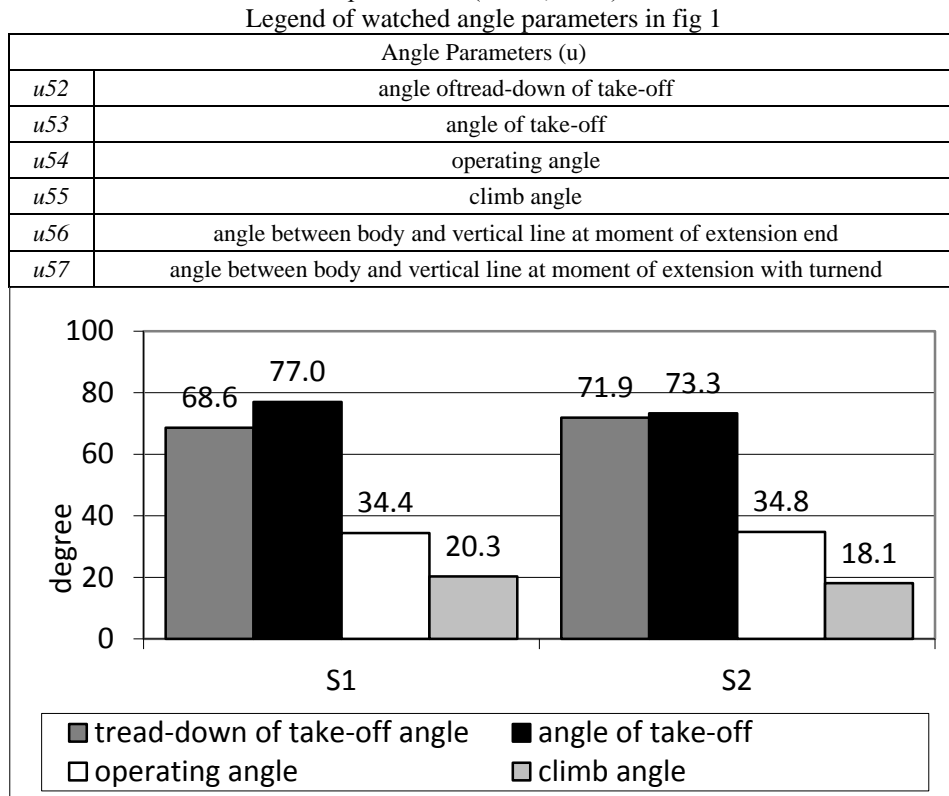


Fig 2 Angle comparison during contact phase of take-off in groups of female pole-vaulters

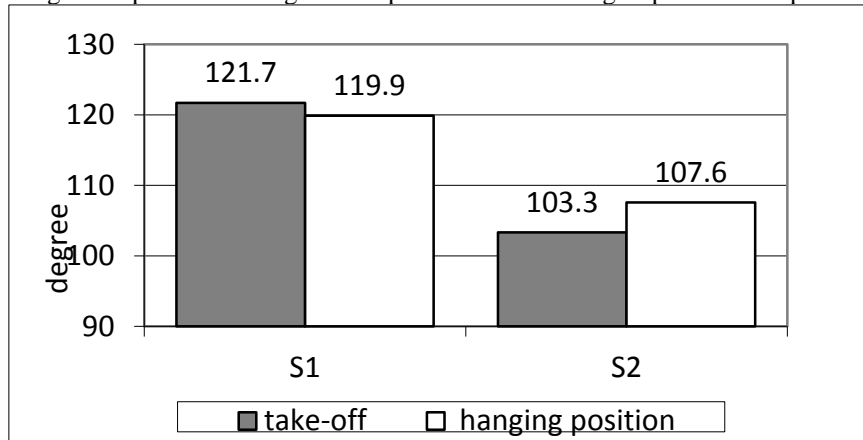


Fig 3 Angles comparison between fore-arm of lower upper extremity and pole at moment of end of take-off and hanging position phases in female jumpers

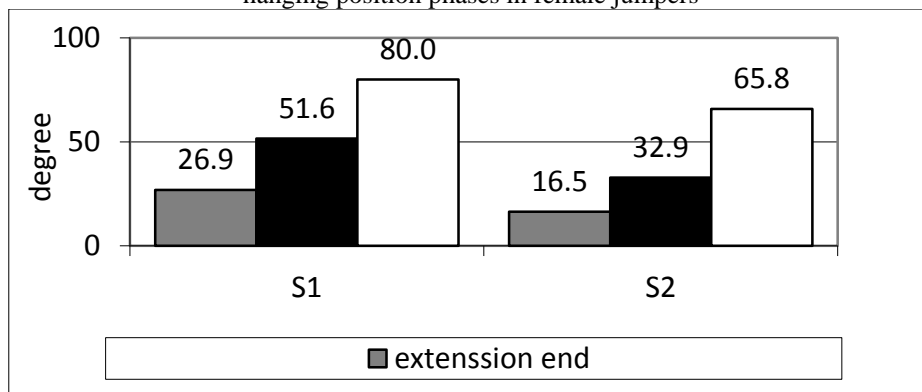


Fig 4 Body angles comparison to vertical line on surface at finishing of selected phases

Discussion

Used registration method of kinematic parameters enabled us by analyse of complicated movement activity to separate numerous quantity of angle values. Importance of their making optimal during effort for performance level improvement confirms their position in the model of kinematic sport performance structure. From those the decisive are operating angle and climb angle; other 4 parameters (u_{52} , u_{53} , u_{56} a u_{57}) belong to supported substructure factors (fig 1). Positive influence on the 1st performance factor level we stay at operating angle of take-off on clean grip height (parameter of condition character) and at climb angle of the centre of gravity body on standing over (parameter of technique character).

Comparison of groups S1 and S2 (fig 2, 3, 4)

Average values of selected angle characteristics learned during take-off activity differ only slightly (fig 2). At tread-down of take-off angle we watch more active take-off action by higher performance jumpers S2 (71,900) comparing with lower performance group S1 (68,600). Following take-off angle is at higher performance group (S2) lower of 3,700 like at jumpers S1; this shows on more effective take-off end connected with better pole squeeze. Average value of operating angle is in both groups very similar - 34,40 at S1 and 34,80 at S2. Lower average climb angle at S2 like at S1 also shows on better transition on pole in the group of higher sport performance female jumpers.

During quality evaluation of transition on pole of female jumpers we watched position (angle) of forearm of lower upper extremity to the pole (fig 3). At take-off end we found in the group S1 angle 121,700 and in S2 103,300; it shows on better arms position in the group of higher sport performance female jumpers. At finishing following phase of hanging position we watch in the group S1 slight improvement of lower arm work and angle decrease of 1,800 on 119,900. On the contrary in the group S2 we found slight angle increase of 4,300 on 107,600; in spite of this increase it permanently proper arm position of the group S2 of more like 12,300 like it is in S1.

Effectiveness of activity on pole of female jumpers can be also estimated by watching of body position from vertical line on the surface during phases of pole extension (fig 4). In the first comparison in the moment of extension phase end we watch at female jumpers S1 angle 26,900 and in S2 more favourable angle 16,500. During phase extension with turn happens in both groups to move away of the centre of gravity from the pole. Average angle increase in S1 is 24,700 and it represent its growth on 51,600 and in S2 is increase on 16,400 and it means its increase on 32,900. At the end of lift when female jumpers leave pole and they get into last phase of bar clearance we watch significant angle growth that confirm move away of the centre of gravity from the pole. In S1 it is in average 80,000 and in S2 it is 65,800. These reached values are courses

of unwanted low resp. zero increase in the height of the centre of gravity during last phase of the jump.

Conclusions

Search and comparison of angle characteristics in selected phases of movement activity in female pole-vault jumpers of various sport performance enabled us to make expression to their position in the frame of kinematic sport performance substructure and up to certain level evaluate effectiveness of female jumpers in take-off activity at transition on pole and at its extension.

From all watched angle parameters there were stressed in the model of kinematic sport performance pole vault substructure 2 parameters: operating angle in take-off and climb angle of centre of gravity; both were directly related to 1st factor parameters of condition resp. technique character.

In take-off activity during transition on pole female jumpers of higher performance level reached in watched parameters more favourable values. It was mostly in angle of take-off/tread-down, climb angle and angle between fore-arm of lower upper extremity with the pole at moment of take-off end.

In the work on pole we found between our groups in watched parameters significant differences. In the group of female lower performance jumpers comes to considerable centre of gravity body move away from extension axis. Too great centre of gravity move away at extension end is the course of minimal, resp. zero growths on maximal centre of gravity height during last phase of jump.

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Study on The Evolution of Taekwondo as an Olympic Sport

Cătălin Păunescu¹, Claudia Georgescu², Gabriela Gagea²,

¹*"Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania*

²*Ecological University in Bucharest, Bucharest, Romania*

Abstract. Worldwide, the number of members affiliated to World Taekwondo Federation in 2013 has reached 205 countries, represented by the five continental unions, thus showing a steady and continuous development. On the 17th of July 1980 the International Olympic Committee admits World Taekwondo Federation as an official member, while in 1985 Taekwondo is accepted as a demonstrative game for the Olympic Games in 1988 and 1992. After these two editions, in September 1994 Taekwondo becomes an official Olympic sport at Sydney 2000 Olympic Games. For this work we used the method of bibliographical study of the most relevant existing works and of specific web pages on, or connected to this theme and the method of graphical representation provides a clear image of the obtained results, their dynamics and their structure. The results point out to the fact that the countries' percent in the Olympic Games qualification, for the four seasons, is the following: 5% of the Oceanic union, 20% of the African Union, 22% of Pan American Union, 25% of Asian Union and 28% of European Union. The number of medals in the four seasons is distributed as follows: two (2) for the Oceanic Union, three (3) for the African Union, 27 for the Pan African Union, 33 for the European Union and 43 medals for the Asian Union. Conclusions: from the data processing we can say that, out of 99 countries qualified, so far, only 26 countries have had a continuous presence in the Olympic Games and 53 countries have had a random presence.

Keywords: Taekwondo, Olympics, participating countries, Continental Union.

Preamble

Taekwondo originated over 2000 years ago in Korea. Taekwondo is now a global sport and martial art. It has been contributing tremendously to the health and fitness of millions of practitioners for many years [1]. On April 11, 1955, in South Korea, there occurred the unification of the various styles of many schools under a common name, Taekwondo, which was supported by most of the masters of the largest school named Kwan. This name was chosen for two reasons: it describes the content correctly (hands and feet techniques); it resembles the old name, Tea kkyon [2]. Taekwondo nurtures the mind and body by creating harmony between physical and mental training, through the use of the hands and feet. The word *taekwondo* delivers the full meaning of the martial art. Tae stands for basic kicks, including kick in the air. The word *kwon* means "fist that blocks and punches". Finally, the word *do* translates into a philosophy of conduct that is cultivated through body and mind discipline and training [3]

Taekwondo can be described briefly as follows [4]:

It is a form of physical exercise with positive influence on the vitality and health of those who practice this sport. All techniques involve the whole body working in a balanced and coordinated way, resulting in a natural position and economic movements at all levels. As an addition to these benefits, exclusively, physical, taekwondo offers great opportunities for enhancing mental forces for harmless purposes, by strong concentration while performing specific procedures of attack and defense.

It is a martial art (a form of fighting) targeting self-defense and overcoming the opponent by using his own body. The specifics of taekwondo is the predilection to the use of kicking techniques, strong and numerous, which may cause dangerous effects over the years due to the corresponding strengthening of the lower limbs. Although called "foot striking art", taekwondo includes

an enormous variety of arm techniques, both for self defense and annihilation of a potential attacker.

It is a modern sport with Olympic status. Taekwondo is really a "sport for everyone" because of its rules and protective equipment. Multiple weight categories also guarantee equal opportunities between competing subjects; the high level of taekwondo with those series of quick and skillful kicks against a single fighting spirit.

Taekwondo is also an education, teachers having mentors role of moral counselors. In a modern society, dangerous struggle learning methods can't be separated from the legal rules and moral teaching, omnipresent in the practice of taekwondo within *dojang* (training hall). Besides, taekwondo is transmitted to practitioners, primarily, as a desire for peace, and only then as a sport of athletic combat.

Introduction

Taekwondo appears as an official sport for the first time in the 43d edition of the Korean National Games, on October 24, 1962. As of May 28, 1973 the World Taekwondo Federation ("WTF") is based in Kukkiwon (the headquarters), which comes from the Korean Taekwondo Association [5]. Through its socio-cultural dimensions, taekwondo offers an opportunity to meet other people, communicate with them, to assume different roles, to acquire moral attitudes, the acceptance of work-related attitudes, of experiencing emotions, that are more difficult to feel in other spheres of life, an acceptance of any positive elements of lifestyle, of adaptation to the goal of becoming socially active, through the performance of others. Being recognized as an Olympic sport, taekwondo has become the international language that unifies the masters of martial arts around the world, irrespective of religion and political status. Taekwondo is neither better, nor inferior to Japan or China styles. It depends heavily on the preparation and dedication that is taught in the gym and, last but not least, on the consciousness,

will, perseverance and seriousness with which the practitioners treat the training [4].

Globally, in 2013, the number of affiliates reached 205 countries, with an estimate number of 55 million practitioners, represented by the five continents members of the World Federation, manifesting a continuous and almost constant development.

In our country, in accordance with the MTS 464/1997 order, the Romanian Federation of Taekwondo is founded in January 1998, coordinating all the activity in this branch.

On the 17th of July 1980, the International Olympic Committee admits the World Taekwondo Federation as an official member, as in 1985 Taekwondo to be accepted as a demonstration game for the Olympic Games of 1988, with a participation of 192 athletes from 35 countries and in 1992 edition in Barcelona, with a participation of 128 athletes from over 30 countries. After these two events, in September 1994, Taekwondo became an official Olympic sport, with the Olympic Games of Sydney, 2000 [6]. Olympism is to be found in taekwondo in its athletic essence and the values promoted by coaches and, consequently, displayed by its athletes. It is a sport in its purest form – an individual display of speed and skill and provides athletes with self-discipline, respect and self-awareness [7].

On the occasion of the 125th General Assembly of the International Olympic Committee, held at the Hilton Hotel in Buenos Aires, the Executive Committee approved the recommendation to maintain Taekwondo among the 25 Olympic summer sports program. The president of the World Taekwondo Federation, Chungwon Chou, expressed his gratitude for the committee decision, assuring the audience that Taekwondo WTF will work with other sports to promote CIO programs and strategies.

Our federal delegation succeeded, against all the inconsistencies and the vicissitudes of time, to participate in the qualifying tournament in Kazan Olympic Games - London 2012 and get valuable positions, like female fifth place -57 kg category- and male seventh place -68 kg category-, only the first 4

places being qualified. The result has kept open the chance of qualification to the Olympic Games, the athlete being eligible for the drawing for a "Wildcard" [8,9].

Other official international taekwondo competitions include the World Taekwondo Championship; the World Junior Taekwondo Championship; the World University Taekwondo Championship, sponsored by the International University Sport Federation (FISU); the World International Servicemen Taekwondo Championship; and the World Cup. The competitive aspect of taekwondo, the matches in which athletes measure their power and skill, against each other, is the highlight of the sport. The purpose of competition is to provide an arena in which athletes can measure their skills against those of other athletes [3].

The purpose of this study is derived from the title and highlights the dynamics of TKD participation in the Olympics. In this regard, the data on the number of World Taekwondo Federation member states, the number of countries qualified in the Olympics and the five continental unions will be analyzed and processed.

Material and method

Bibliographic study method

The scientific approach began with the documentation of numerous bibliographical works and specialist sites, that gave us relevant information on the subjects. The bibliographic documentation has two coordinates of optimization: shortening the access to documents time, reducing the duplication of information (of available documents) [10]. It represents an indispensable research method because of the explosion of information and of further information restructuring in all areas.

The graphic representation method

The graphic representation gives a clear picture of the results achieved, their dynamics and their structure. For the tabular and graphic representation of the survey data, we used the IBM SPSS Statistics 19.

Data analysis

The qualified countries worldwide to participate in the Olympic Games during 2000 - 2012 are shown in the chart below.

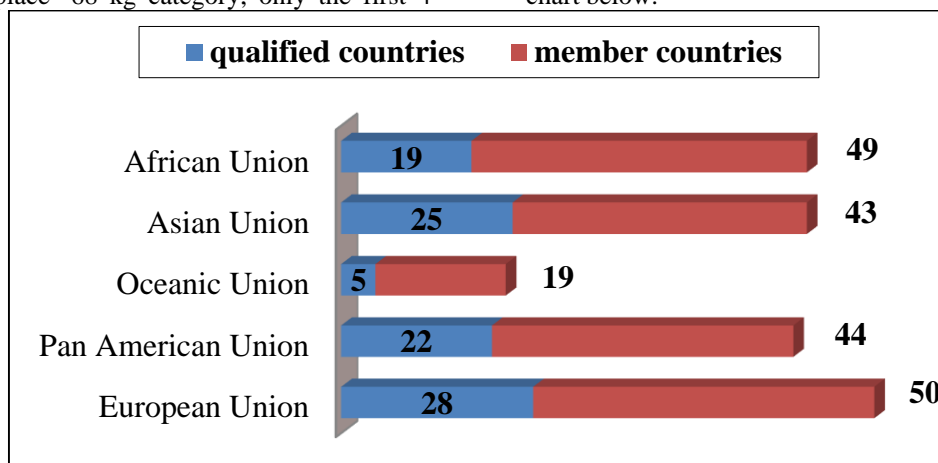


Fig. 1. The share of the qualified countries to the Olympic Games

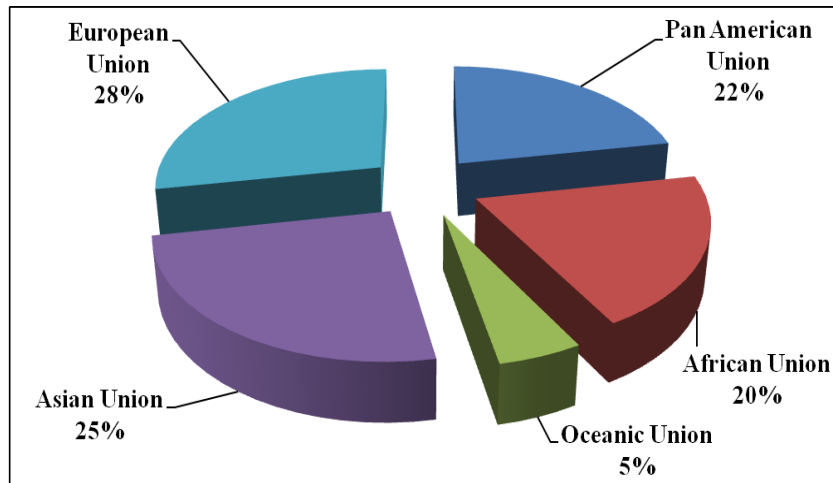


Fig. 2 The share of the qualified countries to the Olympic Games

Globally, from the 205 countries of the World Taekwondo Federation WTF, only 99 have been qualified to participate in the Olympics. Such results show that in the four editions 5% from the Oceanic Union, 20% from the African Union, 22% from the Pan American Union, 25% from the Asian and 28% from the European Union were qualified.

The great number of qualified countries is due to many factors. According to ETU, Taekwondo has been continuously evolving into a fair, exciting and media-friendly sport with all the demands and expectations associated with any Olympic sport. Taekwondo has continued to show progress in both its technical and its operational aspects. During London 2012 Olympic Games, the taekwondo competition was staged successfully with the participation of 128 athletes from 63 countries – the largest number of participating countries in taekwondo's Olympic history [11].

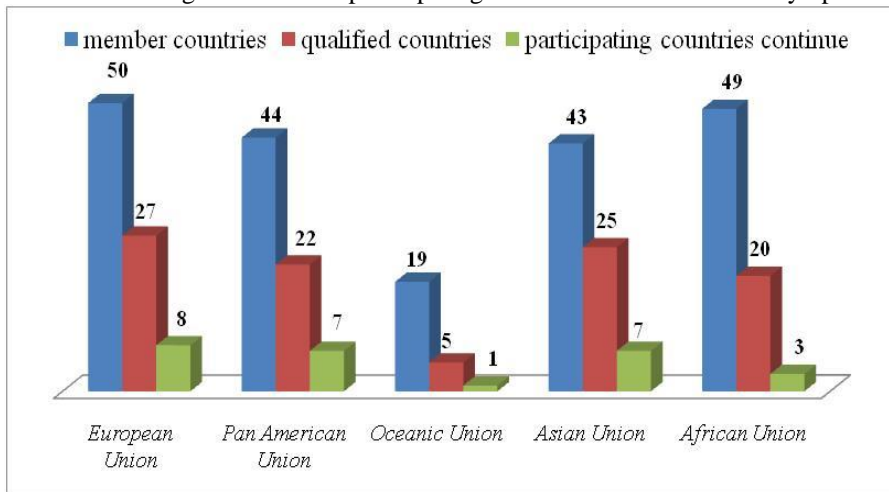


Fig. 3 The evolution of countries qualification compared to the members' number

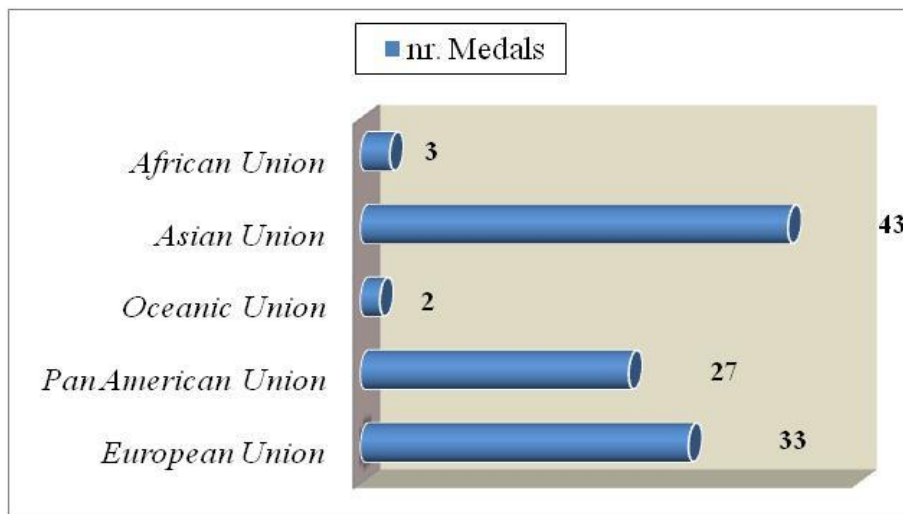


Fig. 4. The share of medals won on the five Continental Unions

As shown in the chart above, most of the medals, along the four Olympic Games, are accumulated by the Asian Union with 43, followed by the European Union with 33 medals.

Conclusions

Until the Berlin Olympics (1936), under Baillet-Latour Presidency, the same figurative doctrine was maintained and perpetuated. However, after the Second World War, firstly with the leadership of Sigfrid Edström and confronting the relevant problem of "the two Chinas" and later on, under the mandates of Avery Brundage and his obsession with the no politicization, commercialism and professionalism of the Olympic Movement, the IOC has become a battleground for the Cold War and for the new styled figure of diplomacy called "hard power". Under the Samaranch Presidency, there was an impetus to the opening of the IOC to large companies and to sports professionals, an important new phase coming to pacify the IOC [12].

Globalization is becoming a process of increased interdependence among societies and people on an economic, political, cultural and social level. Trade ties, battles, migration and culture have been present everywhere in mankind's history. The recent globalization process has freed from chains and brought independence to many people, from different parts of the Globe [13].

After processing the data, we can see that, of the 99 qualified countries from the 205, so far, only 26 countries had a continuous presence to the Olympic Games and 53 countries had a random presence. At the last edition, London 2012, there were, on average, two countries qualified for the first time for each regional union. The medals won in the four seasons are distributed as follows: 1.8% the Oceanic Union, 2.8% the African Union, 25%, the Pan American Union, 30.6% the European Union and 39.8% the Asian Union.

As a final conclusion, we can say that a continuous increase, in the level of technical and tactical training of athletes worldwide, has been revealed.

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Elementary School Students' perception of Physical Education

Elena Sabău ¹, Georgeta Niculescu ¹

¹*Spiru Haret University*

Abstract: The work is a non-experimental study applied to a group of elementary school students from Bucharest. The aim of the study was to investigate the physical education satisfaction level in students aged 10-11 attending the elementary school. We try to find out if practicing physical education would have a positive influence on enjoyment and motivation of the young pupils in their education. The measurement research instrument used for the study was the survey of ten items. The survey items were developed based on the literature of the field and in the view of the aim and objectives of the study. The items were set to find out qualitative data collection. For this aim the samples of study consisted fifty-two elementary schoolchildren (22 boys and 30 girls), 10-11 years old in two 4th grade, from different schools.

Key words: *children, elementary school, physical education, survey*

Introduction

Education aims is to develop awareness of potential biological and forming a proper personality typed to nowadays society. Physical education in school influences socialization, that become an organized work. Children get friends and they are part of group or team, relating more in physical education, than in other subjects in elementary school. Physical education offers children new experiences, different situations and tasks according to the requirements imposed by the role that they play in the games on physical education lessons. Close aboard with physical education, extended curriculum sports activities contribute equally to the achievement of general education.[1, 2] . Children in elementary school are active and they like to play a long period of day time. That is an normal behavior for their age. Children have a large range of activities and interests, with different behaviors. Kids like to play and to interact with another children. At elementary school age, children play during the school breaks in the schoolyard or in their classrooms. Physical education activity is an opportunity for this interest of the children.

Children are involved in the important tasks of learning in physical education. They enjoy but they learn to move with joy, efficiency and control. They are developing a variety of fundamental and specialized movement skills. According to Gallahue, D.[3] children like to take part with success in different physical activities if they can manage the skills movement and for this goal physical education is a proper opportunity. The author considers that there are three factors that influence children's movement skills in physical education: first is the accumulation of improper habits instead of correct movements. The second reason is self-consciousness and embarrassment and the third factor is the fear of being injured or being ridiculed by peers. That factors can trouble the children's movement abilities development.

Influences of physical education go beyond motor plans and induce in elementary children positive effects in the intellectual and motivational development. Physical education favors integration group's ability, but elementary pupils have sometimes difficulties on relations with children and teachers.[4]. Fourth grade students that participate in physical education classes may be more effective through

awareness activity stimulated by reasoning and reinforcement during training. Interest and attention of students for physical education activity becomes greater, if they are made aware of the effort they make. The effect of this approach is that students get better grades in performance and skills.[5] Physical exercises that request coordination, give greater ability for the boy versus the girls. Children motor skills in elementary school can develop successfully and that help to increase their self-esteem.[6]. An important education and emulation mean for elementary school students is locomotor games. This is the best way of instruction, because play and game are very suitable for their age. In the literature, the game is defined and explained as playful activity that contributes to personality development and integration in the group or team.[7]. Locomotor games and locomotor relay are used in elementary school's physical education to develop fundamental and manipulative locomotor skills as running, jumping, throwing and catching.[8]. According to Firea, E. and al. [9] children want to practice team games. Most boys prefer playing football and most girls want to play basketball. An important percentage children's preference are locomotor games in physical education lessons but it seems that this teaching means are not enough used. The teachers must choose carefully locomotor games which enjoy children, contribute to their education, emulation and motivation. [10, 11]. Some studies indicate that elementary school students' motor development in cities are higher than those in rural areas, which highlights the most testing movement.[12] Nowadays way of life shows lower natural movement. Children are living in small spaces without outdoor playgrounds. Thus they became sedentary children. So they became deprived of vigor with a low natural resistance and exposed to various diseases. In these conditions, adults, as teachers and parents should ensure children since early childhood conditions for physical education and sports. [13]

Unfortunately when elementary school students grow up their interest for physical activity decreases. Children nowadays become sedentary in the upper grades because of the technological progress, the reduction of the physical education and sport activities and bad eating habits.[14]

Material and methods

This research is a non-experimental study. The aim of the study was to investigate the physical education satisfaction level in pupils aged 10-11 attending the elementary school. We try to find out if practicing physical education would have a positive influence on enjoyment and motivation of the young pupils in this field of compulsory school activities.

The methods used on the study were: specialized literature, a survey and statistical analysis. The operational instrument used for the study was the survey

of ten items to which answering yes/no resulted in the level of satisfaction in the physical education of the schoolchildren. The survey items were developed based on the literature of the field and in the view of the aim and objectives of the study. The items were set to find out qualitative data collection. For this aim the samples of study consisted of fifty-two elementary schoolchildren (22 boys and 30 girls), 10-11 years old in two 4th grade, from different schools. The children were encouraged to give honest answers.

Results

Item 1 Do you enjoy physical education?

Almost everyone agrees the physical education, that means 92% boys and 84% girls. For a percentage of 6% boys and 11% girls, physical education is not a pleasant activity. There are some children, about 7% boys and 5% girls who sometimes enjoyed physical activities in school (Chart 1).

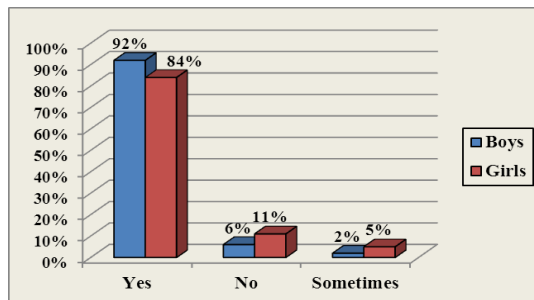


Chart 1 Item 1

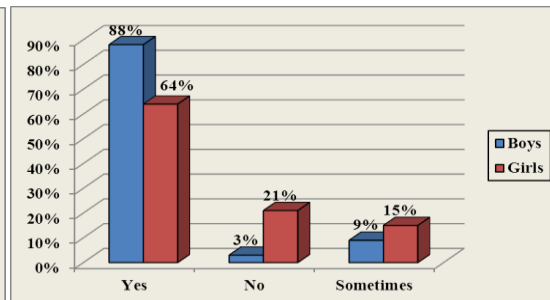


Chart 2 Item 2

Item 2 Do you like to practice with another in physical education lessons?

Most boys (88%) like to interact with another school fellow, but less girls (64%) agree to practice with another in physical education lessons. Very few boys, 3% don't like activities with another and more girls (21%) feel the same. For 9% boys and 15% girls sometimes it is interesting to interact with other students in physical education lessons (Chart 2).

Item 3 Are you stronger after physical education lessons?

An important number of boys, about 74% feel stronger after physical education classes. It seems that only half of girls (53%) have the feeling of vigor after physical education classes. A few of boys 12% declare that they are not stronger after physical activities and more girls 32% feel the same. There are some children (14% boys and 15% girls) that don't realize if the physical education makes them stronger (Chart 3).

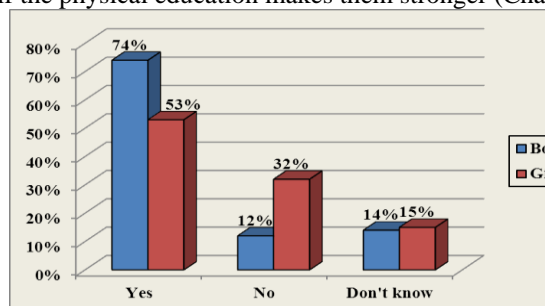


Chart 3 Item 3

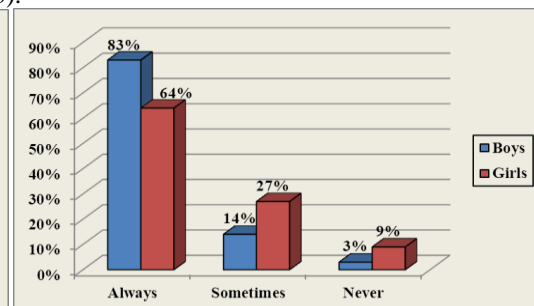


Chart 4 Item 4

Item 4 Can you handle physical education?

Most of the boys (83%) can handle physical education lesson. For girls the answers show that a percentage 64% of girls can handle physical education requirements. On opposite side 3% boys and 9% girls, can not handle on physical education lessons. 14% boys and 27% girls sometimes have difficulties on physical activities at school (Chart 4).

Item 5 Are you afraid of injuries in physical education lessons?

Many boys (89%) are not afraid of getting injuries during the physical practice and half of the girls (51%) are not concerned in getting hurt on physical education lessons. 32% girls are absolutely afraid of getting injuries, but few of boys (7%) are not afraid. Going on we can notice that about 17% girls and 4% boys sometimes are worried on this matter (Chart 5).

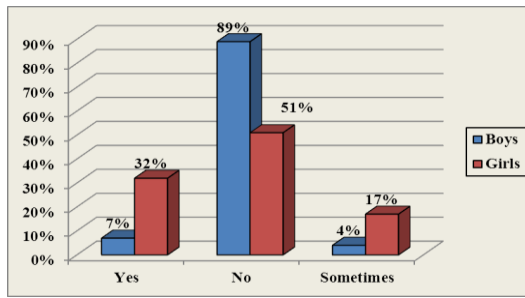


Chart 5 Item 5

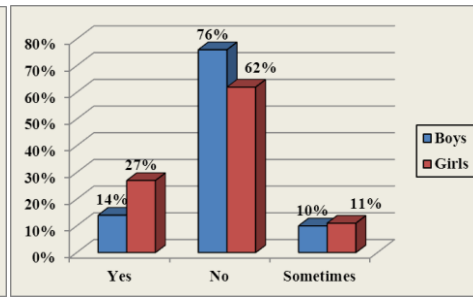


Chart 6 Item 6

Item 6 Are you afraid of bad grades on physical education?

A percentage of 76% boys and 62% girls are not concerned on getting bad grades on physical education. About 27% girls and 14% boys are afraid of getting bad grades at physical education. An equal percentage 10% boys and 11% girls consider that sometimes have problems on assessment on physical education (Chart 6).

Item 7 Do you like the place you practice physical education lessons?

Both boys (74%) and girls (67%) like the school place for physical education. Some children (5% boys and 19% girls) categorically don't agree the background of their physical education lessons. A percentage of 21% boys and 14% girls sometimes don't like the place they do physical education (Chart 7).

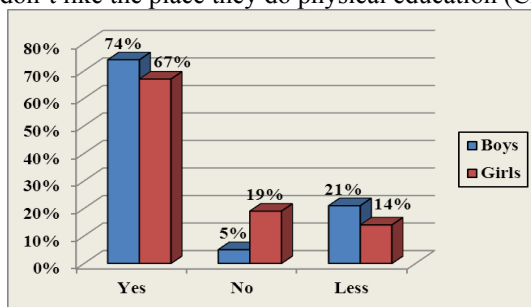


Chart 7 Item 7

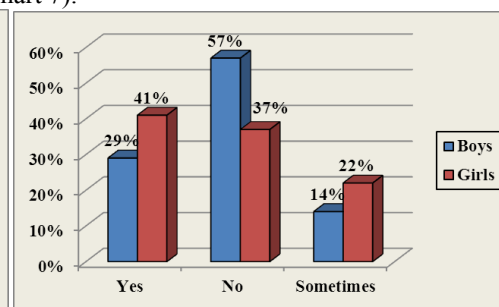


Chart 8 Item 8

Item 8. Are you tired in physical education lessons?

Children feel different fatigue during physical activities. Most boys (57%) declare they are not tired and 37% girls feel the same in physical education lessons. The children who get tired is bigger for girls (41%) and smaller for boys (29%). About 14% boys and 22% girls sporadically are tired (Chart 8).

Item 9. What do you prefer for physical education lessons?

The children have different preferences: 82% the boys like sports and only 7% of them prefer only locomotor games. A little over half of girls (54%) like locomotor games versus 29% who want sports. Closed values 11% boys and 17% girls prefer both sports and locomotor games (Chart 9).

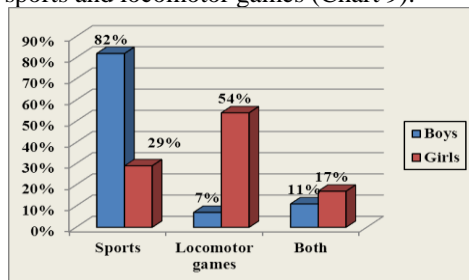


Chart 9 Item 9

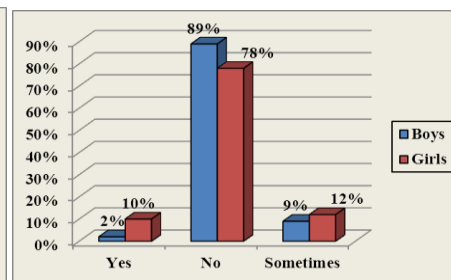


Chart 10 Item 10

10 Item. Would you like to do something else instead of physical education lessons?

The children like to do physical education, 89% boys and 78% girls and they would not change it. Only 2% boys and 10% girls prefer other activity instead of physical education. A percentage of 9% boys and 12% girls feel that they would sometimes change that field of activity (Chart 10).

Discussions and conclusions

The study indicates a high interest of children for physical education. They like to interact together in sports and locomotor games. The vast majority of children, especially boys do not get tired evident in lessons.

Most children consider them fit for physical education and they are not afraid of any sports injuries. Almost all boys answer that they are safe from injured. Many children do not fear bad grades, but an important

number of them are concerned about this. That is an aspect that affect the perception of the children on physical education. The physical education field is accepted by children, but there is an important percentage, about a third part of them agree more or less the schoolyard for sports activities.

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Determinations of Somatic Parameters, by Sex, Age, Education and Sport Activity of Czech Adult Population

Jaromir Sedlacek, Martin Sebera, Jan Cacek, Josef Michalek

Faculty of Sport Studies, Masaryk University.

Abstract: In this article are presented results of monitoring the level of physical activity (inactivity) in selected age groups of the population of men and women in the Czech Republic" (CZ.1.07/2.3.00/20.0044). During three years there were collected 5859 questionnaires by which we can learn physical activity – inactivity, age, sex, socio-cultural, education, etc. characteristics of Czech adult population older than 18 years. Some of these respondents (1443) were measured by machine Inbody 720. In this contribution there is discussed determination of 6 physical development parameters: body height (BH), body weight (BW), BMI, fat tissue percentage %FAT), waist hips rate (WHR) and fitness score (FS) by some questionnaire characteristics. Presented results show rather negative trends. Over 73% of Czech adult population does not practice regularly any movement activity. Parameters of body weight, BMI, fat tissue percentage and waist hips rate seem to be mutually connected. BH, BMI, %FAT and WHR increases according higher age in all watched periods, both in groups of males and of females, though the body height decreases. This influences also BMI, when 5 male groups and 3 oldest female groups are of overweight. Similarly results can be seen in parameters of fat tissue percentage and waist hips rate. The male groups reach in these somatic parameters significantly worse results. Fitness score parameters show greater decrease in male groups when the younger groups have the better results. This parameter in female groups keeps more equal balance and slightly falls after age of 49. Those who practice sport or are not trainees or possess good education level have better results in these watched parameters.

Key words: *somatic parameters, Czech adult population, sport practicing, sex, education*

Introduction

Movement activities of nowadays man start to play more and more important role. The purpose of any recreational movement activity is the health increase and prolonging of active life. To keep needed level of health and motor performance all the life is a very difficult task. It needs systematic effort, self-discipline, endurance and strong willing. Movement activity as a mean of keeping the demanded level of physical fitness cannot be substituted with anything else. There is shown that lack of movement activity leads to lowering of physical fitness, this is parallel manifested by negative trends in somatic parameters [1,2] (Cacek, 2012, Kunesova, 2006), also with typical diseases occurrence (back and joints pains), plus bad habits like smoking and especially in Czech Republic with alcohol consumption [3,4] (Anderson, 2012; Andrlová, 2012); this of course very often negatively influences the quality of individual life.

Many analysis show in Europe and also in Czech Republic that quantity and also the quality (intensity) of sport activity among adult population are insufficient as a whole. Most Europeans state that the main reason for absence of sports activities is lack of time. One third of European Union citizens (34%) never play sport due to a lack of time. The second reason for not been involved in is a fact of not liking sport (25%). However, neither the fee (4%) nor the lack of suitable facilities (3%) seems to be significant reasons for the lack of sports activity. It was shown [5] that adult men exercise more than women. Regarding age the situation shows that frequency of movement activities decrease as the age category rises; from 60% in age 15 – 24 it falls to 28% in age over 55 years. The practice of sports is directly linked to the level of education; the more years a man was attending school, the more time is devoting the sport and movement activities. The analysis also show that most frequently is sport practiced „elsewhere“ (over 60%); fitness and

sport centres cited about 30% of European (more often youngsters) like a condition for sport activity. Neither the fee nor the lack of facilities prevents Europeans from doing some sports activity. Generally a strong majority of citizens in the European Union cite the improvement of health as being the principal benefit of sport (78%). It shows the good level of education in the field of positive influence of sport and movement activities as a benefit to one's physical and mental health and for remaining active life. Other reasons for sport practicing are the development of physical performance (46%), relaxation (43%), having fun (39%) and fact of being with friends (31%). Supports rates for other propositions are considerably weaker.

In adult Czech Republic population is prevailing overweight and obesity. Near 52% of adult Czech population have BMI over normal value. From it is 35% overweight and 17% is in the category obesity. Difference from last researches (6 years) is plus 3% more with overweight. To this great population overweight contribute more often men and older people. In the adult population is near 60% men with overweight, but only 46% of women. Among adults in age 18 – 44 years is with normal body weight 67%, but over 45 years it is only 30%. One fifth of population underestimates his/her overweight more often this is subjective feeling among men than among women. In general the time devoted by population to physical activity has been shortened. Czech population daily walks about 1 hour and 30 minutes in slower speed, 1 hour and 5 minutes devotes house works and about 41 minutes to exercise or movement. Comparison with former researches show decrease mainly in walking (2 hours 30 minutes less per week), in more challenging movement activities (loss from 4 on 3 hours per week) – recommended quantity is minimally 3 hours 30 minutes per week; this fulfil only one third of Czech adult population. Comparison with former researches present man devotes the most watched movement

activities significantly less quantity of time, with the exception of sleeping and TV watching. People with overweight spend significantly more period of time with watching TV and with housework, but significantly less time is devoted to sport and movement activities, occupation, school and self-study [1,2](Cacek, 2012, Kunesova, 2006).

Objectives

In this contribution we want to show mutual determination of somatic parameters, age, sex, movement activity and education level in Czech adult population.

Material and methods

Results

Tab 1 Values of somatic parameters of our groups (N = 1443)

Age [year]		18 – 29,9	30 – 39,9	40 – 49,9	50 – 59,9	60 – 69,9	> 70
Males/ N = 668	n	252	154	112	60	64	26
Females/ N = 775	n	218	173	145	99	110	30
Body height [cm]	M	x	181,3	180,2	179,1	177,0	175,8
	F	x	169,0	167,3	167,8	164,2	161,9
Body weight [kg]	M	x	79,5	83,7	87,0	84,8	88,2
	F	x	62,9	66,4	68,5	69,7	69,5
BMI [1]	M	x	24,1	25,7	27,1	26,9	28,1
	F	x	22,0	23,6	24,3	25,7	26,4
Fat tissue [%]	M	x	13,9	18,7	21,4	22,2	25,9
	F	x	24,3	27,5	28,0	33,4	34,4
Waist hip rate [1]	M	x	0,87	0,89	0,90	0,91	0,94
	F	x	0,83	0,85	0,86	0,89	0,90
Fitness score [1]	M	x	84,1	82,0	80,9	78,8	75,9
	F	x	76,0	74,9	75,7	71,0	70,3

Tab 2 Recreational sport practice (question „do you practise sport regularly?“) with regard of sex

Answer:	YES		NO		Total
Sex	n	%	n	%	n
Females	682	22,55	2342	77,45	3024
Males	889	31,36	1946	68,64	2835
Total	1571	26,81	4288	73,18	5859

Tab 3 Sport practice with regard of age

Answer:	YES		NO		Total
Age range	n	%	n	%	n
18-34,9	1000	35,79	1794	64,21	2794
35-54,9	386	17,85	1776	82,15	2162
>55	185	20,49	718	79,51	903
Total	1571	26,81	4288	73,18	5859

Tab 4 Sport practice with regard of education

Answer:	YES		NO		Total
Education	n	%	n	%	n
Fundamental	129	31,85	276	68,15	405
Trainee	144	15,29	798	84,71	942
GCE Exam	754	29,37	1813	70,63	2567
University	542	27,98	1395	72,02	1937
Total	1569	26,81	4282	73,18	5851

Tab 5 Significance of differences with regard of the highest reached education

Sex	Parameters:	BH			BW			BMI			FAT			WHR			FS		
	Education	C	D	E	C	D	E	C	D	E	C	D	E	C	D	E	C	D	E
Males (n=668)	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C	1	*	*	1	*	*	1	*	*	1	*	*	1	*	*	1	-	-
	D		1	-		1	-	*	1	-		1	-		1	-		1	-
	E																		

Females (n=775)	B	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C	1	-	*	1	*	*	1	*	*	1	*	*	1	*	*	1	*	*
	D		1	-		1	-		1	-		1	-		1	-		1	-

Legend: 1) * –statistically significant difference (p > 0,05)

2)The highest reached education: A – without education, B – fundamental, C – trainee, D – GCE Exam , E – university

Tab 6 Statistically significant differences in somatic parameters with regard of sex and sport practice

	Sport practice	BH	BW	BMI	%FAT	WHR	FS
Males (n=668)	Yes	-	-	*	*	*	*
	No	-	-	-	*	-	*

Legend: * – statistically significant difference (p > 0,05)

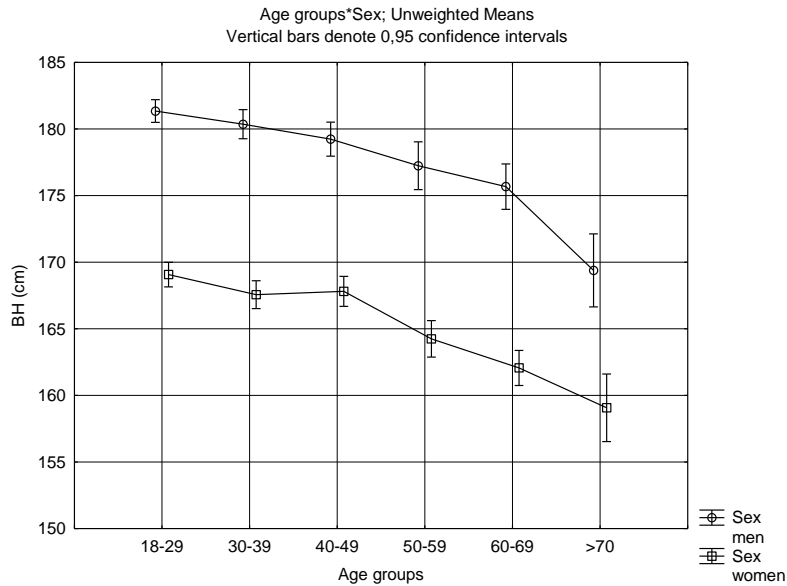


Fig 1 Body height parameter changes

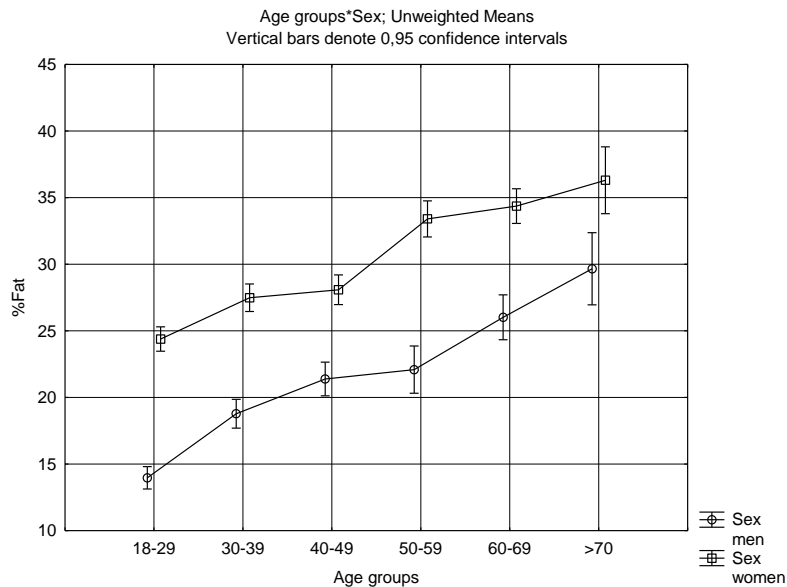


Fig 2 Fat tissue parameter changes

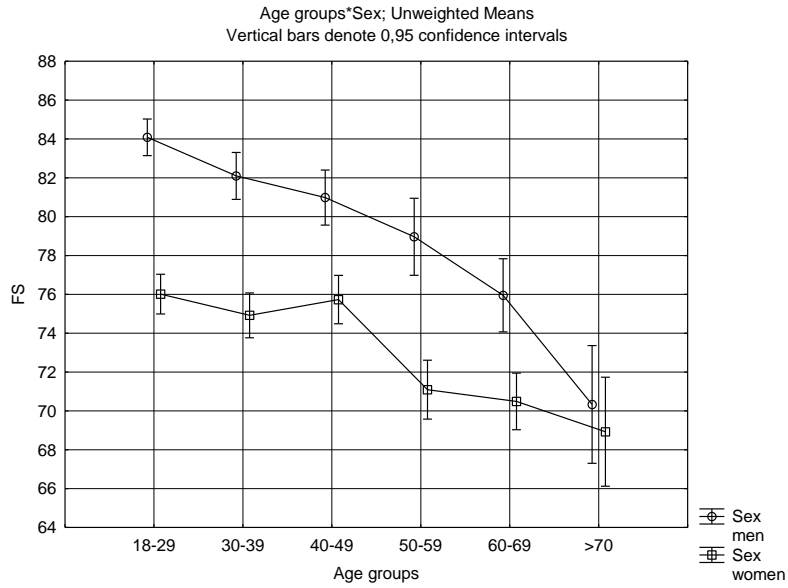


Fig 3 Fitness score parameter change

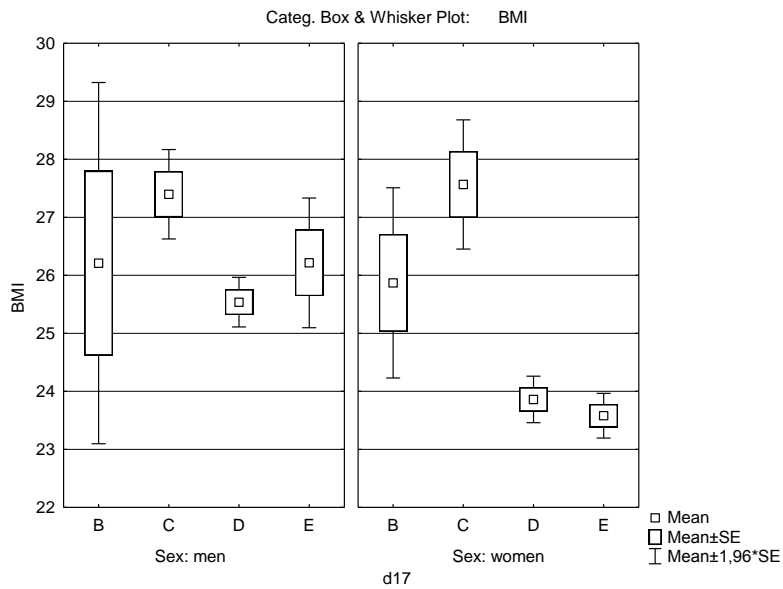


Fig 4 BMI differences with regard of education

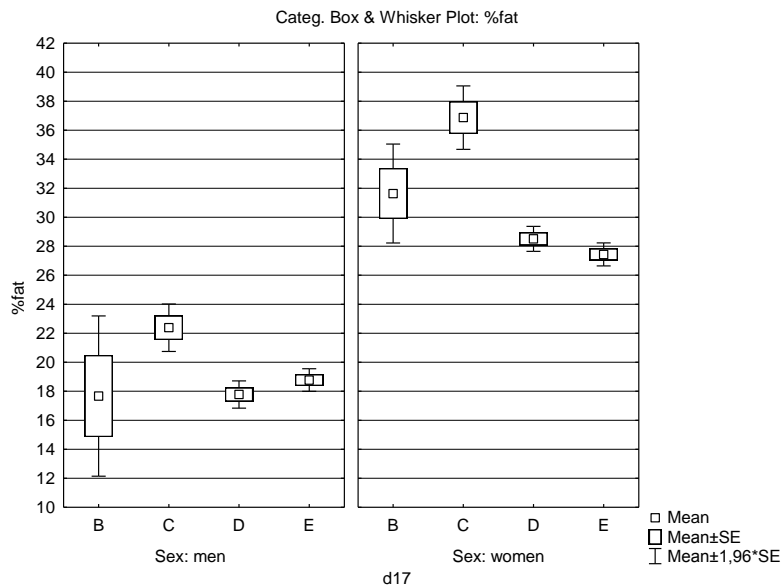


Fig 5 Differences of fat tissue percentage with regard of education

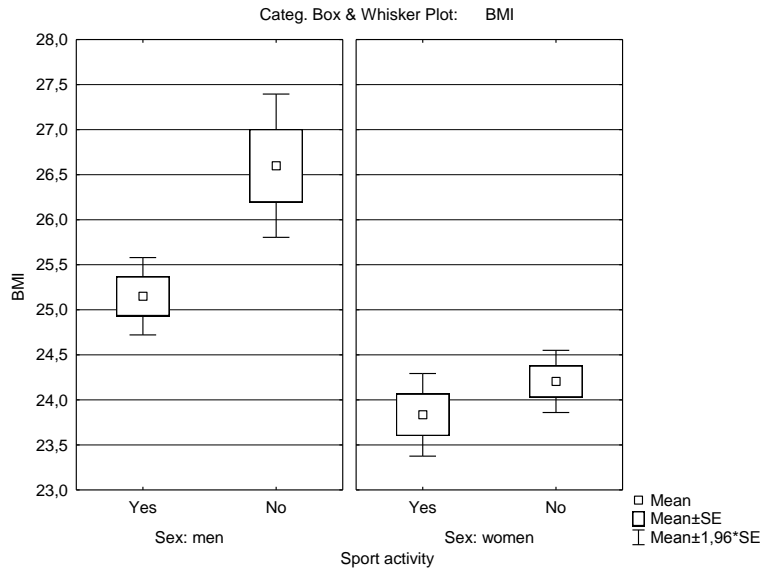


Fig 6 BMI differences of sport practising and not practising

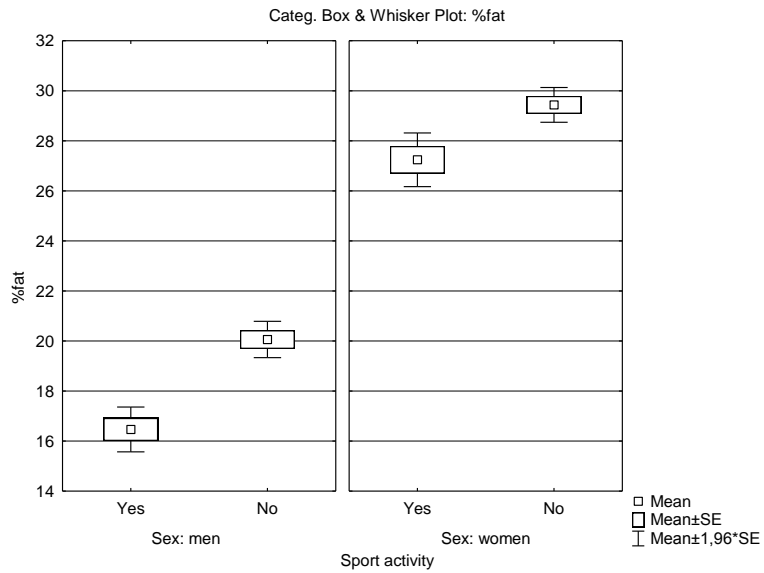


Fig 7 Fat tissue differences of sport practising and not practising



Fig 8 Fitness score differences of sport practising and not practising

Discussion

In table 1 and figures 1, 2 and 3 can be seen, that from somatic parameters of our groups two of them (BH and FS) have tendency to fall down and four others (BW, BMI, %FAT and WHR) are increasing. Those four parameters seem to be connected and they express similar components. Parameter BH (fig 1) is in each older decade falling, both in groups of males and females. The differences between decades are higher as the age arises. The tallest are the youngest generations, while the oldest are the smallest. It can be seen that this parameter body height shows us the tendency known as the secular trends that were watched from 50-ies to 90-ies in Czechoslovakia, when youths and adults accelerated each 20 years for 3 – 5 cm [5,6] (Moravec, 1990; Moravec – Kampmiller – Sedlacek, 1996). This trend is not at present generations so obvious.

Parameter FS (fig 3) shows us the differences between males and females. There is a significant difference between sexes mainly in younger age. In groups of males this parameter is falling down continuously in all watched decades. In females groups is FS in first three decades on near the same level; it starts to fall down deeply after age 50 years. In age over 70 years we can see that there are neat the same values between males and females and the level of its value falls on so called critical value that is seventy and less.

Other 4 parameters are increasing (tab 1), when the best values have the youngest individuals. Complex parameter BMI shows very negative trends, mainly in groups of males. Only the youngest decade have normal (optimal) values – less than 25. All older male groups are over these recommended values, so in means that males are mostly overweighted and even the oldest groups are getting close to obese I level (the border is 30). In female groups is situation in this parameter better like it is in male groups; also females reach each decade higher values, but over normal values they get after age 50. So the values of females are far better when we compare them with males. On the other side in the parameter %FAT (fig 2) the female groups have far higher values like males (this difference is normal), even more differences like it could be expected. Negative trends accelerate in age 40 years in female groups and in age 50 years in male groups. In BW and WHR can be seen similar changes, though the negative trends are not so obvious.

From the table 2 we can see that on the whole majority of Czech adult population does not practice sport activities regularly (over 73%). This is very negative information. We can see that there are differences between male and female groups. Males are sport practising significantly ($p > 0,05$) often like females. Average difference is about 9%.

In table 3 can be seen that the youngest generations practice sport approximately twice more often like medium generations (over 35% resp. over 17%). Even the senior generations practice sport activities slightly more often like medium generations. Differences were

found among younger generations and those older ($p > 0,05$).

In table 4 and figures 4 and 5 we can see that there are great differences in regular sport practising. The lowest values (15,29%) have group of trainees. Other groups have approximately two times higher values. Differences are statistically significant (tab 5). It can be said that higher level of reached education means significantly more often participation in regular sport practising.

In table 6 and figures 6, 7 and 8 can be seen differences in somatic parameters with regard of sex and sport practice. In groups of males we found statistically differences between sport practising and not practising in parameters BMI, %FAT, WHR and FS; in female groups were found statistically significant differences only in parameters %FAT and FS. In groups of females it can be caused by sport activity orientation; it may be more probable that females accent more often not only fat tissue reduction, but also muscle growth, while male activities are oriented in different way.

Conclusions

Majority of adult Czech population do not perform regular sport activity (over 73%).

Development of watched somatic parameters show negative trends in both sexes. Though the male practise sport activities significantly more often like females, their somatic parameters are far worse like it is in female groups.

Regular sport activity influence positively somatic parameters, especially in male groups.

Younger generations perform significantly more often sport activities (2 times more) like medium and senior generations. The worst volumes of sport activities are found in our medium age generations.

Education level and also type of work determine individual sport activity; it seems that trainees (skill work professions) perform the less quantity of movement activities.

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Appendix

The project "Creating a research team for the purpose of determining the level of physical activity (inactivity) in selected age groups of the population of men and women in the Czech Republic" (CZ.1.07/2.3.00/20.0044) is financed by the European Social Fund and the state budget of the Czech Republic.

Considerations regarding the etiology and prophylaxis of low back pain at junior athletes

Mirela Lucia Călina^{1,2}, Enescu-Bieru Denisa¹, Valentina Dinu², Ana Maria Stanomirescu^{1,2}

¹ Faculty of Physical Education and Sport, University of Craiova, Romania

² Polyclinic of Sports Medicine, Craiova, Romania

Abstract. In present, the general tendency is that the primary selection of athletes was to be made at a very young age. Thus, such body, characterized by a continuing growth and develop, with biggest changes at puberty, must adjust at different types of effort. Low back pains are frequently present at young athletes, in a proportion of 10-15% of cases (5). Their incidence is higher at sports as football, figure skating, gymnastic (1,2,4). Junior athletes low back pains must be regarded seriously, in order to avoid diagnose and treatment delays. Usually, infantile low back pain etiology is totally different from adults one. Thus, at young athletes, low back pains can have a traumatic cause (spondylolysis), while intervertebral discs pathology and muscular sprains are less frequent (1,2,3,4). The present paper aims to analyze some of the most frequent causes of low back pain at junior athletes.

Key words: low back pain, junior athletes

Introduction. In present, the general tendency is that the primary selection of athletes was to be made at a very young age. Thus, such body, characterized by a continuing growth and develop, with biggest changes at puberty, must adjust at different types of effort. Low back pains are frequently present at young athletes, in a proportion of 10-15% of cases (5). Their incidence is higher at sports as football, figure skating, gymnastic (1,2,4). Junior athletes low back pains must be regarded seriously, in order to avoid diagnose and treatment delays. Usually, infantile low back pain etiology is totally different from adults one. Thus, at young athletes, low back pains can have a traumatic cause (spondylolysis), while intervertebral discs pathology and muscular sprains are less frequent (1,2,3,4).

The present paper aims to analyze some of the most frequent causes of low back pain at junior athletes.

Risk factors. The presence of vertebral column pains at teenagers are due to muscular disequilibrium, lack of flexibility, spine structural differences or to an inappropriate training. During growth periods, the muscle ligament elements cannot follow the growth rhythm and that determines a decrease of the flexibility and the appearance of muscle disequilibrium (5).

At child, there are spine structural differences, that include growth cartilages and secondary ossification centers subject to compression, traction and torsion forces. Cartilaginous vertebral plateaus and fibrous rings that are superposed over conjugation cartilages at the two extremities of the vertebral body, can be deteriorated due to repeated flexion of the spine. On the other hand, due to these flexion, can appear intervertebral discs herniation through a fibrous ring or a secondary ossification center. In addition, the ossification process of the vertebral inter-articular isthm cannot be finished, this aspect predisposes to spondylolysis (2,5).

At young athletes, during rapid growth periods, the vertebral traumas can be caused by excessive training or by using a wrong technique (5). Duration and intensity characteristic to a training vary from person to person, because each sportive tolerate in different way the trainings, this toleration can change during its growth and develop (2).

The most frequent causes of vertebral pains at junior athletes are represented by :

Spondyloysis. Spondylolysis is a stress fracture of the vertebral inter-articular isthm, caused by repetitive extension and rotations of spine. Sports where these kind of movements are performed, are represented by gymnastic, figure skating and sportive dance, that increase the apparition risk of spondylolysis (2,5).

The spine pain is felt by the athletes during extension and has an insidious character. Hamstrings flexibility is low, the athletes can feel pain during activities that imply an impact on the ground, like running, jumping. The physical exam shows a hyperlordosis, paravertebral muscles contracture and a stiffness of hamstrings.

Paraclinical explorations include radiographic exam, bone scintigraphy and eventually, tomodensitometry, that establish the diagnostic. Profile spine radiography emphasizes the intervertebral isthm sclerosis and bone scintigraphy shows a preferential capture of vertebral inter-articular isthm, characteristic to spondylolysis. Tomodensitometry can confirm the spondylolysis diagnostic and allows recovering monitoring (1,2,5).

The therapeutic approach consists on avoiding the painful movements (extension). It is also recommended to perform concentric trimmer of abdominal wall muscles, eccentric trimmer of hip and hamstrings flexor muscles, exercises that decrease the spine lordosis, under the surveillance of a kinetotherapist (2). Sometime, in order to limit the spine extension it is recommended the athlete to wear a personalized thoraco-lumbar brace for 4-8 weeks or untill the pain disappears. Sportive activity must be resumed progressively, until all movements become painless. During the following months, the brace will be removed (1,5).

If it is not used an brace, the sportive effort is contraindicated for a period of 3-6 months or until the pain disappears and is followed by progressive resuming of specific movements (1). An athlete that performs all sportive activities, without having any pain and without wearing an brace, is considered to be clinically cured.

Overloading spine pains are referring to pains produced by hyperlordosis or to pains of mechanic or muscular nature, that affect the posterior side of the

spine, including the musculotendinous unit, lumbar ligaments and vertebral bodies (3).

Vertebral pains are felt by the athlete during extension move and have an insidious character, as in spondylolysis case, but are strictly localized at lumbar spine and paravertebral muscles. Usually, the paraclinical exams are negative.

Treatment is based on cryotherapy and anti-inflammatory medication, which ameliorate pain and inflammation. The painless activities are allowed (must be avoid extension movements). Under the surveillance of a kinetherapist will be performed exercises that decrease the spine lordosis, trimmer abdominal wall muscles and stretch hamstring and thoraco-lumbar muscles (1,2,5). Wearing an anti-lordosis brace can be useful until the pain disappears. Usually, athletes can resume their sportive activity without feeling any pain during a period of 4-8 weeks.

Fracture produced by the snatch of the apophysis vertebral body. Repetitive flexion and extension of the spine can affect the apophysis ring, producing fractures, which later can slip toward posterior, into the spinal canal together with the intervertebral disc (2). Fractures produced by apophysis snatch can appear during sports, as volleyball, gymnastic or weightlifting (2). Athletes accuse acute low back pains during flexion movement, as in the case of spinal disc herniation, but without connected neurologic symptoms. Clinical exam reveals spine flexion and extension limitation and paravertebral muscle contracture.

Profile spine radiography can reveal the presence of an osseous fragment into the spinal canal. Tomodensitometry represents an elected imagistic investigation, that allow the localization of a slipped apophysis fragment which MRI cannot reveal. Therapeutic approach consists on repose, local applications of warm and anti-inflammatory. Sportive repose can be maintained 3-6 months, until the symptomatology disappears. Important neurologic affection characterized by important weakness of limbs muscle or by vesical or intestinal control lose, requires the chirurgical remove of the osseous fragment (2).

Spinal disc herniation. Only 11% of the cases with low back pains at young athletes are caused by lumbar disc herniation (3). Usually, at beginning pain is acute, connected with flexion movement and associated with spasms of back muscles, hamstrings muscle stiffness and gluteal muscles pain (2,4,5). Symptoms due to nervous roots irritation as, muscular weakness, paresthesia are less frequent (1). Clinical exam emphasizes the decrease of spine flexion movement amplitude, Lasègue maneuver positive and inconstantly, a diminish of limbs reflexes or muscular force.

Lumbar radiography can discover connected affections as fractures or tumoral lesions. MRI exam will be always correlated with clinical exam and can appreciate herniation dimensions or the presence of a nervous root lesion associated with severe symptomatology or nonresponsive treatment

General state of most patients improves in 3-6 months, by using a prudent therapeutic approach, based on anti-inflammatory medication and physiotherapy. Chirurgial treatment is indicated for cauda equina syndrome (intestinal or vesical control lose and limbs paralysis caused by nervous root compression), a severe neurologic deficiency or a pain non-responsive to treatment (2,5).

Other causes of low back pain include inflammatory, infectious, tumoral affections and visceral pathology which can manifest as low back pains. Alarm signs as fever, nocturne pains, neurologic irritation, weight loss, abdominal discomfort impose an immediate detailed examination.

In order to prevent traumas is essential to identify the risk factors as excessive training, wrong technique, muscular disequilibrium and lack of flexibility (2). Must be reduced the intensity of trainings during rapid growth periods of young athletes and be used training correct techniques. It can be reduced traumas risk apparition by using general trimmer and stretching exercises for hamstrings and hip flexor muscles (2).

Sportive activities resuming.

Recommendation for sportive activities resuming must take into consideration the diagnosis, practiced sport type, age, child development and collaboration between athletes, parents and coach (2). Usually a relative repose favours healing, but painful activities must be avoid. Young athletes can be exempted of physical education until symptomatology disappears. When athletes regain their normal movement amplitude and muscular force, they can resume their sportive activity without any restrictions.

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The role of risk factors in the cardiovascular events during the exercise

Daniela Ciobanu¹, D. Ditescu², F.Petrescu¹

¹University of Medicine and Pharmacy of Craiova, Emergency Hospital of Craiova, Internal Medicine Department,²Constantin Brancusi University of Targu Jiu, Faculty of Medical and Behavioral Sciences

Abstract: Cardiovascular events during the exercise, especially sudden cardiac death is a fact that raised attention of specialists. It is estimated that approximately 4-15% of heart attacks occur during an exercise in men, as in women rate is low. Low-intensity exercise performed periodically (3-5 times a week) can lead to improved quality of life, changing the chemical structure of the body and decrease of cardiovascular risk factors. Cardiovascular risk factors play an important role in the onset of cardiovascular events during the exercise. The most important cardiovascular events are myocardial infarction and sudden cardiac death, 23% of cardiovascular events occurring during physical activity. During intense exercise, the risk of a cardiovascular event increases 100 times. This risk increases with age.

Key words: cardiovascular events, risk factors, physical activity

Introduction

Pathophysiological factors responsible for cardiovascular events during exercise are:

1. atheromatous plaque that decreased blood flow
2. vascular thrombosis caused by platelet aggregation and coagulation.

Intermittent intense physical activity can produce cardiovascular events by two mechanisms: 1. plaque

rupture (exercise increases blood pressure and breaks the fragile platelets) 2. platelet activation (activating the sympathetic nervous system due to exercise, with subsequent stimulation of the secretion of coagulation factors).

The risk of cardiovascular events is reduced to people performing regular physical activity.

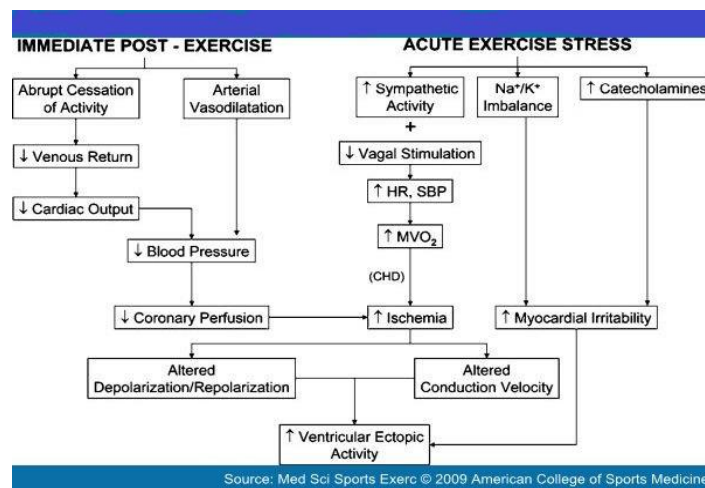


Figure 1. Risk factors contributing to cardiovascular risk during and after physical activity, adapted from Mittleman [1].

The benefits of exercise on cardiovascular risk factors

The benefits of physical activity on cardiovascular risk factors in primary prevention are recognized and numerous studies have demonstrated the protective role of physical activity on the risk of mortality from cardiovascular disease and diabetes. These benefits are demonstrated in secondary prevention in coronary patients. A meta-analysis from Oldbridge in 1988 [16] and O'Connor in 1989 [16] showed the decrease of total and cardiovascular mortality through physical activity. These data were combined with the last analysis published in 2004 by Taylor et al [15], on the 9000 patients. Despite the development of therapeutic arsenal, the angioplasty and stenting, results demonstrated the efficacy of regular physical activity in preventing cardiovascular events. The strongest predictive factor of morbidity and mortality is the level

of physical ability whatever the age or sex. Cohort studies have confirmed that the exercise capacity is measured in metabolic equivalents (METs). This is inversely correlated with the occurrence of cardiovascular events. Whatever the risk factors associates, the risk of death is significantly increased if the subject do not touch a target value of 5 METs and is doubled in those than 8 METs. Physical inactivity is an independent risk factor, but modifiable. It has been shown the survival increase by 12% for an increase by 1 METs in physical capacity. More recent studies suggest that physical activity does not have to be intense to be beneficial and the exercise capacity and regularity are more effective than intensity and discontinuity.

Figure2. Mechanism of beneficial effects of physical activity on the cardiovascular structures [2].

- 1) Improved endothelial function
- 2) Attenuated plaque progression/regression and outward remodeling
- 3) Stabilization of vulnerable plaques preventing plaque rupture
- 4) Infarct sparing due to myocardial preconditioning
- 5) Correction of autonomic imbalance
- 6) Reduction in myocardial oxygen demand
- 7) Decreased thrombosis
- 8) Enhanced collateralization
- 9) Decreased inflammatory mediator release from skeletal muscle and adipose tissue

The benefits of physical exercise in healthy man are: reducing the incidence and severity of [obesity](#) and the risk of [type 2 diabetes](#) [3], improved glucose tolerance, enhanced fibrinolysis, improved endothelial function [4,5], improved lipid metabolism.

Pathophysiological mechanisms of cardiovascular events during the exercise

The pathophysiological mechanism of cardiovascular events during the exercise comprise: atherosclerotic plaque, chronic atherosclerotic disease, disorders of the cardiac conduction system, and microvascular disease. In the presence of a vulnerable atherosclerotic plaque, chemical, physical, and psychological stressors may

trigger transient vasoconstrictive and prothrombotic effects that ultimately cause plaque disruption and thrombosis. Physical activity and psychological stress have been shown to increase heart rate and blood pressure, partially resulting from direct effects on the vasculature and partially mediated by catecholamine secretion. The activity procoagulatory induce hemostatic alterations, including increased platelet aggregation and plasma viscosity, via activation of the sympathetic nervous system. As a result occurs the plaque disruption and thrombotic occlusion with an ischemic event.

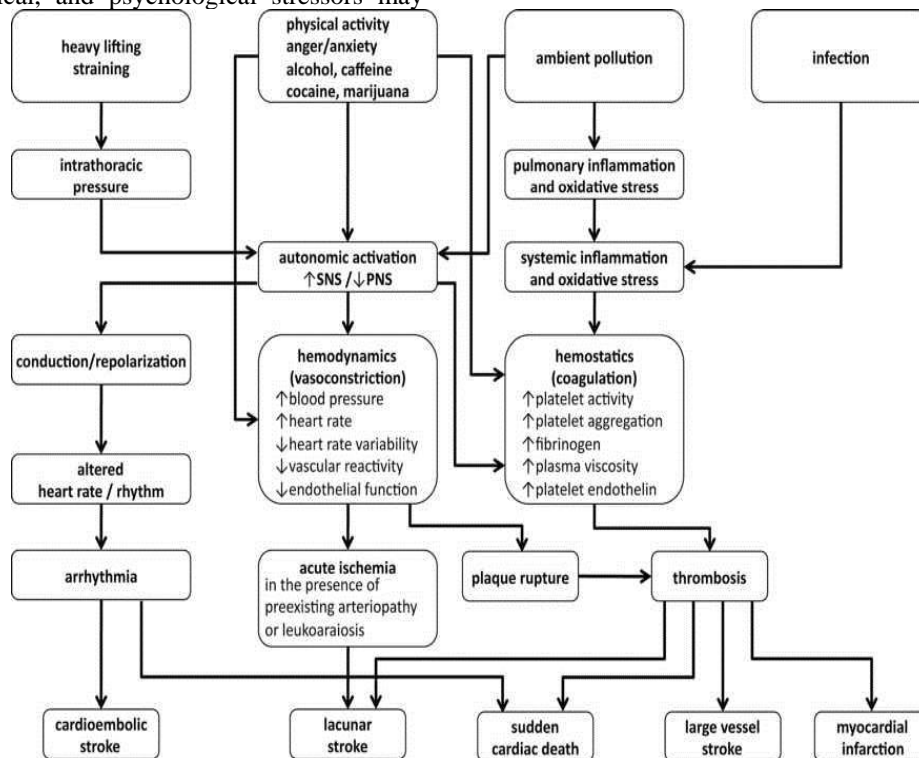


Figure3. Pathophysiological mechanisms of cardiovascular risk factors during the exercise [6].

The regular physical activity is associated with a lower baseline risk of cardiovascular disease. On the contrary, each episode of physical activity is associated with an increased risk of MI [8,9], sudden cardiac death, and hemorrhagic or ischemic stroke. The risk is reduced by habitual physical activity. In the Myocardial Infarction Onset Study (MIOS), [7] the risk of MI was 5.9 times higher within 1 hour of periods of heavy physical

activity compared with periods of lower levels of activity or rest.

The parameter relative risk (RR) of cardiovascular events was higher among those who usually exercised < 1 time a week (RR, 107) compared with those who usually exercised >5 times per week (RR, 2,4).

On age groups, before 35 years, the cardiovascular events are: hypertrophic cardiomyopathy, congenital

coronary anomalies, commotio cordis, aortic anomalies, arrhythmogenic right ventricular dysplasia, Brugada syndrome, arrhythmias, including long-QT syndrome. Myocarditis also is associated with exercise-related deaths in young individuals. Ventricular

arrhythmias are the immediate cause of death. After 35 years, the risk of accident is generally linked to the existence of coronary disease and rarely, coronary spasm.

Figure4. Causes of cardiovascular events in young athletes [14].

	Van Camp et al. (n = 100),% [10]	Maron et al. (n = 134), % [11]	Corrado et al. (n = 55),% [12,13]
Hypertrophic cardiomyopathy	51	36	1
Coronary anomalies§	18	23	9
Valvular and subvalvular aortic stenosis	8	4	
Dilated and nonspecific cardiomyopathy	7	3	1
Atherosclerotic CAD	3	2	10
Aortic dissection/rupture	2	5	1
Arrhythmogenic right ventricular cardiomyopathy	1	3	11
Myocardial scarring		3	
Mitral valve prolapse	1	2	6
Other congenital abnormalities		1.5	
Long-QT syndrome		0.5	1
Wolff-Parkinson-White syndrome	1		1

The risk of exercise-related cardiovascular events varies with the prevalence of diagnosis or occult cardiac disease but appears to be extremely low in ostensibly healthy subjects.

The most recent studies suggest that exercise acutely increases the risk of cardiovascular events, despite a reduction in cardiac heart disease with habitual physical activity. The relative risk varies inversely with habitual physical activity and is greatest in the least physically active individuals.

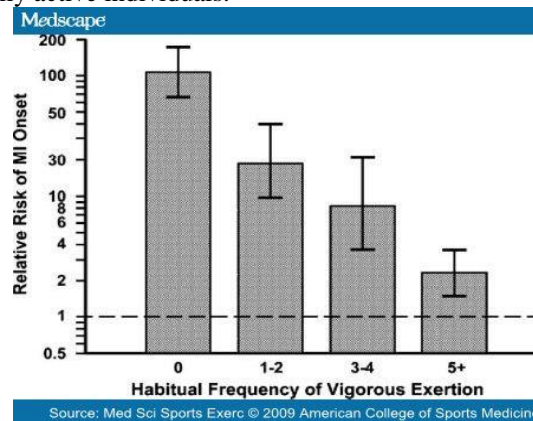


Figure5. Relative risk of MI associated with intense exercise (≥ 6 METs) [1]

Many reports suggest that many individuals with exercise-related cardiovascular events had prodromal symptoms that were ignored by the victims or their physician: chest pain/angina, increasing fatigue, gastrointestinal symptoms, excessive breathlessness, vague malaise. It is prudent for exercising adults to know the nature of prodromal cardiac symptoms and the need for prompt medical attention. The physicians should carefully evaluate possible cardiac symptoms in physically active individuals.

Conclusions

The intense physical activity can increase the risk of acute myocardial infarction (AMI) and sudden cardiac death in susceptible individuals. The recent studies present the cardiovascular complications of intense exercise, the pathophysiological substrate, and the incidence in specific patient groups and evaluate strategies directed at reducing these complications. The aim is to provide healthcare professionals the information that they need to advise patients more accurately about the benefits and risks of physical activity.

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Needs analysis of Romanian participants to M-CARE Project

Part I: Questionnaire design

Eugenia Rosulescu¹, Ilona Ilinca¹, Mihaela Zavaleanu¹, Lidia Constantinescu², Germina Cosma¹, Ioana Pistol²

¹*Department of Sports Medicine and Kinesiology, University of Craiova, Romania*

²*Residential Rehabilitation Centers, DGASPC, Craiova, Romania*

Introduction: The focus of this paper is on the role of demand and motivation, through participants's needs analyzes, in adult education. The research has been carried out within the framework of the Grundtvig Learning Partnership project "M-CARE – Mutual caring—from knowledge to action". We premised that an assessment of carer's needs is an opportunity to talk and reflect on needs as a carer, share experience of caring and to recognise the role as a carer.

Material and methods: The main parts of the questionnaire were discussed during Romanian partners meeting, where representatives of partners' organizations and experts took part. It was agreed that questionnaire should contain following parts: Introduction (demographic information about respondents); Personal knowledge about medical or social medical issues, legislation and standards of care; Training/educational needs on care approaches (information concerning training on care standards in which respondents took part, availability of such courses and the need for trainings on different topics of care process); Motivation (main aim of this part was to collect information why adults would participate in courses on care approaches).

Conclusions: This questionnaire offer different aspects concerning the needs for medical/caring education and point to a possibility of a gap between the EU policy and programs and the general public awareness disability themes.

Keywords: Care process, need analysis, lifelong learning.

Introduction

The focus of this paper is on the role of demand and motivation, through participants's needs analyzes, in adult education and formulating agendas for health, social, educational policy and quality based on their own needs and experiences. The research has been carried out within the framework of the *Grundtvig Learning Partnership* project "M-CARE – Mutual caring—from knowledge to action". The project basic premise is that mutual caring understanding and transfer (routines and ways of coping developed by families through both the caring person and affected person are looking after each other) can provide the basis for an innovative learning approach, in which 'mutual care' and 'interdependency' should underlie educational topics on disability issues. The main objective of this project is to understand/define, develop and promote good practices in supporting families to plan for a future where a person with chronically ill/disabilities is providing care to their elderly carers through the concept of mutual caring. The introduction and practical application of these new concepts (but universally applicable) into care process can lead to innovative strategies that are sustainable and cost neutral.

The concept behind the *mutual care approach* focuses on the interpersonal care-dependent person or carer-patient dynamics where there is a mutual exchange of care between the carer and care recipient, in contrast to the conventional approach to carer-care recipient relationships where care is provided by the carer to the cared person. The *project basic premise is that mutual caring knowledge and transfer* (routines and ways of coping developed by families through both the caring person and the affected person are looking after each other) can provide the basis for an innovative learning approach in a joined up work between those in need and disability/social/healthcare services, and for development of the capacity of local/national

authorities to respond to the needs of these groups of people. There is an abundance of projects and initiatives that target persons with disability and their carers. However challenges and barriers still exist. We have identified some impediments to effective knowledge, care services, education and real inclusion:

A. Most of these initiatives are still constructed, largely subconsciously, within the framework of the dominant world views and paradigms; thereby –to some extent– perpetuating of these ways of being and doing must to be changed. For too long our tendency has been to study and measure problems and to take curative action, instead of examining the underlying causes, imagining how they can be avoided and embarking on the necessary integrated programs of personal and political change.

B. Neither "care" nor "dependency" has simple, uncontested meanings. Both refer to a range of social phenomena that involve diverse characteristics that extend from physical activities, through the social relationships among individuals and groups, to the mental states or dispositions involved in caring about someone or being dependent [1]. Research and theoretical critiques have suggested that 'care' does not denote a narrow set of activities or tasks, undertaken without the active engagement of the supposed beneficiary. Instead, 'care' is a complex concept that (with the exception of forms of self-care) cannot be undertaken by one person alone; it is a daily reality, a set of practices and ways of going about support. Recent studies of care suggest that qualities of reciprocal dependence underlie much of what is termed 'care'. Rather than being a unidirectional activity in which an active care-giver does something to a passive and dependent recipient, these accounts suggest that 'care' is best understood as the product or outcome of the relationship between two or more people [2].

C. The concept of 'dependency' too often connotes negative 'burdens' and deficiencies on the part of the

person needing help, and we argued that the voices of those needing help must be heard as clearly as those who provide it. The 'individualizing and excluding' language of dependency should be replaced by recognition of the basic social condition of 'interdependence' and caring solidarity. Recognition of the increased risks of dependence in advanced old age, and of the need for care of those who are dependent, must involve an acknowledgment of *human interdependencies*. Such a concept is not an assertion of interdependency as an alternative nor a negation of dependency, but rather one based on the recognition of 'nested-dependencies' that link those who need support with those who help them and which, in turn, link the helpers to a set of broader supports [3].

D. The person with first-hand experience will know that care relationships are often mutual, that most people are involved in both receiving and providing care, although perhaps in very different ways. 'Mutual caring' means caring for someone who also cares for you. Mutual caring is common in elderly couples, but can also occur if an elderly parent has a son or daughter with a disability or an older person with health needs cares for a disabled grandchild. Patients and carers often describe their long experience in what the sanitary system should provide (and it not provide), with what carers meet to cope with this reality, and the critical importance of inclusion. Moreover, in some European countries are still problems regarding social inclusion and accessibility for disabled people (public transport, general public services, restaurants and hotels, universities and schools, working places, sport events and cultural events). The public policy response to the issue of dependency (from any cause: disability, illness, age, accident, etc.) in most EU countries is at present inadequate or non-existent. The gap therefore has to be filled in many cases by friends and family. Families are the largest provider of care for disabled and chronically ill people of all ages, saving Governments across Europe by billions of euros each year. Recognition of and support for family carers are necessary to help to maintain and/or improve the quality of life of family carers and care recipients, to enhance family carers' social inclusion and to foster quality care.

Our limited and informal prior survey had shown that many learners/trainers (be they family or specialists carers) have difficulties to address some of the emotional, medical, financial conflictive aspects, for example:

- treatments available for the patient's pathology,
- informations or guide of available centres for treatment, or centers for support from NGOs, support and knowledge to access them if there are any available,
- information on networks of families in similar situation,
- emotional support to accept the gift of taking care of the development of a special human being,
- professional care networks and interdisciplinary teams care consisting of educational, social and healthcare specialists.

Objective

This study aimed to identify the M-CARE project participant's educational, professional/personal needs in caring process and social inclusion. We have premised that M-CARE participant learners (parents, patients, healthcare and social workers) can be productively involved in formulating agendas for health/social/educational policy and quality based on their own needs and experiences. To produce such statements this Partnership is thought to be not only a learning experience in itself, but a basis for negotiation with providers.

Material and methods

To develop and design the Project's workshops concept, the project partners in their countries have to conduct needs analyzes to be able to adequately address the actual needs of learners and trainers within the field of interdisciplinary approach and patients/family carers participation in multidisciplinary team care of impaired people.

These surveys addressed to the personal and professional issues and difficulties for family/professional trainers/carers that arise in their life and work with adults or children affected by disabilities. The survey data will be collected through local interviews in the Project participant country Romania, with the help of a questionnaire (see results), jointly created by Romanian partners.

We premised that an assessment of carer's needs is an opportunity to talk and reflect on needs as a carer, share experience of caring, to recognise the role as a carer, be given information and advice, to identify and discuss any difficulties that carer may have, make contingency plans if he/she is ill or cannot continue in the caring role.

Factors and needs for questionnaire

1. Carer's needs

More people are living longer than ever before, including people with various disabilities. An increasing number of people with disabilities are still living at home with family carers who are aged 70 or older. The Carers may be parents/siblings/grandparents/close relatives or friends. They have often spent a lifetime care and assistance in a regular and sustained manner without payment, to a person who is frail and/or aged, disabled/chronically ill. Carers are at risk of financial, health and social burden, not only when caring, but when caring comes to an end because significant barriers to reengaging with society. Many do not recognize the skills they have gained through caring.

From our experience of work with caregivers, we found the next priorities for them:

- Carers to be recognized respected and valued
- Hidden carers to be identified and supported
- Services for carers and the people they care for to be improved
- Carers to be supported to combine caring and education or work

2. Cared persons' needs

Over time, because the years go, the family carers start needing more support themselves, and families develop

routines and ways of coping, that mean that both the older person and the person with disabilities, whether mental or physical, are looking after each other. Often the cared persons are providing regular care for their ageing relatives (shopping, cleaning, cooking, accompanying each other on days out, providing emotional support). Therefore, without each other's support, neither person would be able to remain living independently within their local community. Thus they reach to meet the above mentioned 'nested-dependencies' that characterize 'exchange-based reciprocity', which is the basis of mutual care.

But even though the mutual caring among families is increasing, often remains hidden. Some of the main dissatisfactions for people with disabilities which are turn into caregivers include:

- not being recognized for their role as a carer
- many do not recognize the skills they have gained through caring
- not being offered many choices about how support is provided or continuing to care
- lack of information that is accessible and easy to understand about rights as a carer, available support health conditions of their elderly relative
- lack of practical support and benefit advice that could make a big difference with shopping, getting to appointments
- isolation and reduced opportunities for breaks from caring and friendship
- fear of being separated if social workers discover the extent of the mutual caring that is happening

These are issues for many carers but are often more of a struggle for persons with disabilities. And when they surmount, they want to feel proud of helping out and returning the care and support that has been provided to them by their parents for so many years.

3. Educational needs

-Redefining the terms 'care' and 'dependency' into 'mutual care' and 'interdependency' is not only an appealing linguistic solution to the difficult dilemmas we have considered, but should underlie educational approaches on disability issues

-Extrapolating, mutuality (simultaneously recognizing similarities in one another's experiences, thinking and feeling/being willing to share them openly, experiencing connectedness, communion and a sense of 'we) could redesign educational systems to enable learning and transformation, rather than by imposing the learning agendas of others

-By recognition that families and unpaid carers constitute the largest care force, they should be considered as key partners and providers not only in the planning/design/delivery of care, but also in professionals' education.

-Professional training for all health and social care staff should include a substantial component which relates to unpaid carers as partners in care, carers' needs and the diversity of the unpaid caring experience; that training should contain carer modules and input from carers and service users.

-Carers and care receivers should be able to access education and training as and when required to support

their caring task and help them develop their own skills, knowledge and expertise; these must be maintained and easily accessible to all.

An assessment is not about carer capability to care but it will look at ways in which professionals can best help in the caring role. To understand the caring role and agree how best professionals can offer support, the carer should be asked about:

- the caring role – how much time is taken up; do you feel you have a choice to care; which aspects do you find particularly difficult; do you understand the condition of the person you care for?
- about having a break from caring – do you have any leisure time for yourself or time with friends; when did you last have time for yourself?
- emotional and physical health – are you well; are you doing any caring tasks that put you at risk, for example lifting someone; do you get a full night's sleep; are you feeling anxious or stressed?
- relationships – if you are a parent, do your caring responsibilities make parenting harder; how is your relationship with the person you care for?
- caring for home/accommodation – are you finding it difficult to maintain your home and look after the person you care for; do you do all of the housework; would adaptations/ equipment help?
- finances – are they a problem?
- work/education and training – do you want to stay in work or return to work; are you worried that you might have to give up education or training because of your caring role?
- support – what help do you get at the moment – is it enough?
- other responsibilities – what other responsibilities do you have, for example, are you a parent/carer for another person; is balancing these responsibilities causing you difficulties?
- the future – how do you see the future; what is likely to affect your ability to care long term?
- emergencies/alternative arrangements – what would happen to the person you care for if you were to suddenly become ill; do you know who to contact in an emergency? What might signal that you can no longer cope/care?

The recommendations for the design of questionnaire for the assessment and expression of their needs by family/professional carers, are based on the cumulative work of the M-CARE, specifically:

- guiding principles of the learning partnership (these guiding principles have been elaborated and agreed upon by partners in order to give an ethical framework to the partnership);
- findings from national surveys to identify obstacles to family/specialists -assessment of their needs;
- the characteristics identified during the examination of best practice examples collected at national level;
- recommendations on training provision to be made for family carers and professionals to help family carers assess and express their needs.

Results

The objectives in designing M-CARE needs questionnaire have been:

- To maximize the proportion of subjects answering our questionnaire—that is, the response rate.
- To obtain accurate relevant information for M-CARE needs survey.

A number of issues to be considered were included: research questions to be answered, target audience, resources, content and wording, question placement, sequence, layout, length, response format.

Representatives from participant organizations decided to use independent variables that stand alone and aren't changed by the other variables they were trying to measure, based on the fact that in a research study, the independent variable defines a principal focus of research interest. It is the consequent variable that is presumably affected by one or more independent variables that are either manipulated by the researcher or observed by the researcher and regarded as antecedent conditions that determine the value of the dependent variable; the dependent variable is the participant's response [4].

The main parts of the questionnaire were discussed during Romanian partners meeting, where representatives of partners' organizations and experts

took part. It was very important to develop framework of the questionnaire during the meeting, because in such case all partners had possibility to contribute to it with their experience and develop common idea for the research. It was agreed that questionnaire should contain following parts:

- Introduction (demographic information about respondents);
- Personal knowledge about medical or social medical issues, legislation and standards of care;
- Training/educational needs on mutual care approaches (information concerning training on care standards in which respondents took part, availability of such courses and the need for trainings on different topics of care process);
- Motivation (main aim of this part was to collect information why adults would participate in courses on care approaches).

The questionnaires will be sent to patients, their families and health/social care professionals (medical specialists, physical therapists, social workers, and students).

**QUESTIONNAIRE: Needs analysis on participants to M-CARE Project (patients or their carers/families)
1st part.**

Introduction

1.1. You are (check only one answer)

- Patient
- Family member/carer
- Professional carer (health/social)

1.2. You are

- Female
- Male

1.3. You are aged

- 15-17
- 18-30
- 31-40
- 41-50
- 51-60
- 61+

1.4. Main target group served by your organisation

- Patients and families
- Patients care (hospitals, rehabilitation clinics, other medical practices)
- Social care (public or private services)
- None of the above

2nd part.

Personal knowledge about medical or social medical issues, legislation and standards of care

2.1. National level (please rate each question).

		4 - Yes, completely	3 - Yes, to a great extent	2 - Yes, to some extent	1 - Not at all
a.	Are you familiar with the disability legislation in your country?				
b.	Are you familiar with disability health policy in your country (National programmes, plans etc?)				
c.	Are you familiar with your disability networks or patients registries (National registry on different diseases) in your country?				

2.2. Do you know of any statistical publication in your country on disability themes?

- Yes
- No

2.3. If Yes, do you personally use this publication in your work/activities?

- Yes
- No

2.4. European and International levels (please rate each question)

		4 - Yes, completely	3 - Yes, to a great extent	2 - Yes, to some extent	1 - Not at all
a.	Are you familiar with the European legislation on disability?				
b.	Are you familiar with the Multidisciplinary or Interdisciplinary Approach on diagnosis and management of different disorders/disabilities?				
c.	Are you familiar with the EU institutions/ organisations dealing with care guidelines on different disorders/disabilities?				
d.	Are you familiar with European networks or global patients registries of different disorders/disabilities?				
e.	Are you familiar with European research/care projects?				

2.5. Personal knowledge about multidisciplinary/interdisciplinary management:

		4 - Yes, completely	3 - Yes, to a great extent	2 - Yes, to some extent	1 - Not at all
a.	Are you familiar with the framework of coordinated multidisciplinary team in disorder/disability management?				
b.	Are you familiar with Rehabilitation management (Stretching, Positioning, Splinting, Orthoses, Exercise/activity, Seating, Standing devices, Adaptive equipment, Assistive technology, Manual/motorized wheelchairs)?				
c.	Are you familiar with Psychosocial management (Intervention for learning, behavior and coping, Psychotherapy, Pharmacological, Social, Educational, Supportive care)?				

3rd part.**Personal knowledge about Care topics available educational/training sessions****3.1. Have you participated in any training on medical/social care themes?**[Yes]No **3.2. If yes, how many training sessions did you get on care themes during last 5 years:**[1]2]3/more **3.3. Is the offer of courses on care issues in your country sufficient?**[Yes]No]No opinion **3.4. Is the information about available adult education courses on care themes easy accessible?**[Yes, I know where to find such information.] No, it is very difficult to find. [Yes, but it might be more efficient.]No, I can not find any information. [I have never searched for such information.] I have no opinion. **3.5. Please circle a number on each line from the scale that best describe your level of satisfaction with each form of care topics available to you:**

Education/training sessions		Not required	Not satisfied	Slightly satisfied	Very satisfied
a.	Location of education sessions				
b.	Education sessions about your specific disorder/disability for you				
c.	Education sessions about your specific disorder/disability for your carer				
d.	Education sessions about medical treatments				
e.	Community awareness about disability				
f.	Education about symptoms management (ex: exercise, nutrition, physical therapy, rehabilitation)				
g.	Online educational resources				

3.6. Please circle a number on each line from the scale that best describe your level of satisfaction with each type of information topics available to you:

Information – printed or online		Not required	Not satisfied	Slightly satisfied	Very satisfied
a.	Up-to-date information about current research in your disability field				
b.	What services the local organization of your disability provide				
c.	What services you are eligible for from local government/council services				
d.	What financial assistance you are eligible for				
e.	Information about welfare and benefits entitlements				

Discussions and conclusions

The questionnaire was designed to focus on the personal needs, experience and skills of interviewed people when facing and/or addressing difficult and conflictive situations regarding communication, knowledge of medical decisions/treatment alternatives or caring process issues with the patients or other specialists they work with (learners, colleagues). The development of tools that enable the assessment of family carers' needs is a step towards recognising family carers as partners in care. These tools will enable family carers to identify as such and to express their needs, and will empower them. It will be easier for them to access information and advice, and to make alternative or contingency plans if they are not willing or are unable to continue to provide care. This assessment will also promote greater collaboration

between service providers and family carers, and will inform the development of family carer training programmes.

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Rehabilitation after arthroscopic anterior cruciate ligament reconstruction in junior female tennis player- a case study

Ilona Ilinca¹, Eugenia Rosulescu^{1,2}, Mihaela Zavaleanu^{1,3}, Mihai Marian Dragomir¹

¹University of Craiova, Faculty of Physical Education and Sport, Craiova

²Neuromotor Adults Rehabilitation Center St. Maria, Craiova

³Sama Medical Center, Craiova

Abstract: Background & Purpose. For junior athletes, participating in an increased number of intense training and competitions increases the risk to injuries due to the frequency, intensity and duration of participation, associated to the high biomechanical and physiological demands of the game features. The purpose of this case study is to describe and report the results of a kinetic program of recovering a junior tennis player, who underwent a surgical arthroscopic ligamentoplasty.

Case Description. The patient was a 15 year old junior tennis player who suffered a ruptured anterior cruciate ligament of her left knee, during a tennis match, following a fall with the knee flexed and rotated, while maintaining contact with the sole ground. Three weeks later the athlete underwent an arthroscopic ACL reconstruction surgery with semitendinosus-gracilis tendon autograft, fixed proximally with tight rope RT screw and distal screw interface. The patient was included in a rehabilitation program after surgery performed with a frequency and duration appropriate to that stage / recovery stage.

Outcome Measures. Postoperatively, the patient was assessed objectively based on ligamentous laxity tests - Lachman, anterior drawer, joint testing, and subjective muscle testing by functional scale for Cincinnati "The Cincinnati Knee Rating System". The pain was assessed using visual analogue scale (VAS)

Results. Comparing the results achieved at all evaluation times, we found that knee flexion improved significantly reaching a normal value, previous to the trauma, in six months of the entry into the recovery program. The muscle strength of the knee extensor and flexor muscles improved, reaching almost the normal limits with the final testing, compared with the unaffected limb. Between 2 months and 4 months post-traumatic, the patient achieved a significant functional improvement compared with the first period of evaluation.

Key words: tennis player, anterior cruciate ligament, rehabilitation

Introduction

Tennis is a demanding sport for competitive athletes, because it requires a combination of technique, speed, agility, explosive strength and aerobic capacity, associated with the players' ability to react quickly and to anticipate, to cope with fatigue and pressure during a match.

For junior athletes, participating in an increased number of intense training and competitions increases the risk to injuries. This is due to the frequency, intensity and duration of participation, associated to the high biomechanical and physiological demands of the game features.

These factors are indeed problematic for players who do not have adequate muscle strength levels and exercise capacity, to compensate for the enormous forces placed at the upper and lower extremities. The characteristics mentioned, require appropriate training and a technical high performance, in terms of sports, as well as specific and basic physical training.

The most common injuries that occur during tennis are to the lower extremity, such as muscle strains, meniscus tears, and ligament sprains, which account for 39–59% of the total incidence of injuries [1].

The cruciate knee ligament injuries in junior tennis players have a low frequency. The mechanism is complex and in most cases indirect. The cruciate ligament injuries occur in the trauma of the sagittal knee shift, by an anteroposterior shock with the knee in hyperextension for injuries to the anterior cruciate ligament and with the flexed knee for the post-anterior cruciate ligament injuries. Obviously, the force that causes

these movements must overcome the ligament resistance.

Both ligament and meniscal ruptures receive modern repair surgery. After surgery, patients will benefit from individualized physical therapy intervention that aims to restore the previous functional parameters prior to the injury.

Arthroscopically assisted ACL reconstruction using a hamstring or patella-bone- tendon-bone auto-graft is the standard surgical treatment particularly for those who are unable to perform jumping and cutting manoeuvres in sports because of resulting knee instability [2]. Arthroscopic anterior cruciate ligament reconstruction techniques appear to dramatically decrease tissue trauma and resultant pain.

The post trauma recovery period required nowadays has been even significantly reduced, due to the kinetic treatment applied earlier and more intensive after surgery new, performant, less invasive techniques.

The recovery after arthroscopic ligamentoplastia continues to suffer permanent changes, currently the emphasis laying on the immediate reopening of support and walking, and the joint mobilization, while progressing as quickly as possible to tone the affected muscles, to regain proprioception, dynamic stability and neuromuscular control.

The purpose of this case study is to describe and report the results of a kinetic program of recovering a junior tennis player, who underwent a surgical arthroscopic ligamentoplasty. The main objective of this treatment followed the recovering of the injured segment, so that the athlete to resume the activity in an optimally short time.

CASE REPORT

History of Presenting Condition

Three weeks ago, a patient aged 15, a tennis player in "Cojan Sports Club" suffered an injury to her left knee, during a tennis match, following a fall with the knee flexed and rotated, while maintaining contact with the sole ground. The performance athlete practices tennis from age 6. The adverse weather conditions (4 ° C) and the poor state of the field (the match was held outdoors on a wet playground, after 2 days of rain) could **increase the risk of** injury. The athlete accused pain and was unable to continue the match.

After the injury, the athlete was transported to a local hospital where she was examined radiographically. It was recommended to perform a MRI examination to her return in the country. The patient went to the hospital of St. John in Bucharest, where she was confirmed by clinical and ligament laxity tests by MRI examination, with the diagnostic of rupture of the anterior cruciate ligament with associated meniscal injuries. It was decided the ligament restoring by arthroscopic surgery. The reconstruction was done with semitendinosus-gracilis tendon autograft, fixed proximally with tight rope RT screw and distal screw interface.

The surgery was performed 3 weeks after the injury at the same hospital, length of stay was 5 days. During hospitalization the patient received medical recovery initially carried to bed and then under the guidance of physical therapists, in physical therapy room.

Physical therapy intervention

The patient was included in a rehabilitation program after surgery performed with a frequency and duration appropriate to that stage/recovery stage. The general objectives of the rehabilitation program attended by the patient were: early control of pain and inflammatory process, obtain and maintain full amplitude of motion, regaining static and dynamic stability, regaining strength and endurance of the quadriceps muscle in particular, regaining walking safety.

In the first week the exercise program, specific to the stage of recovery the patient was performed 2-3 times per day. In the next phases the frequency was 1/day. The recovery program was divided into 5 stages or steps the transition from one phase to another is accomplished only after the patient has reached the specific remit and objectives of that stage.

In phase I (the first two weeks after surgery) the recovery program objectives pursued the pain and inflammation control, early joint mobilization, the release of the extensor apparatus-attaining and maintaining maximum passive knee extension, restoring muscle tone inhibited by trauma, walking rehabilitation with support on the operated limb with the help of crutches.

The pain and inflammation control was performed with local tissue compression and ice - for 15-20 minutes/hour in the first 2-3 days, antideclive posts. The recovery of joint mobility and soft tissue extensibility was achieved by passive mobilization techniques, active assisted exercises and active

exercises to prevent joint stiffness. In the first week walking was done with the aid of crutches and with 50% of the body weight support on the operated member. In the second week there was a 50-75% support.

In phase II (2-4 weeks) the kinetic program objectives were: the maintenance of maximum extension, the achievement of 100 ° - 120 ° flexion, good muscle development control, improving the thigh and knee muscle strength, the control inflammation and pain, the resume of complete support during ambulation without the aid of crutches. After two weeks walking was done with one crutch worn on the healthy leg. Exercises were resumed in the first phase respecting the principle of progression, to which other exercises were added. Walking reeducation exercises based on the crossing over small obstacles, walking sideways, backwards in the direction of travel and coordinating rehabilitation temporo-spatial.

Phase III (4-8 weeks) of the program was based on regaining full range of motion, increase active knee stability, improve functional muscle strength, improve proprioception. To achieve these objectives we resumed phase II exercises, respecting the principle of progressivity. Exercises on an unstable surface balance and proprioception (balance board, balance disc) were added to physiotherapy. Elastic band attached sandbags, initially 10-15 cm above the patella and subsequently supramalleolar were introduced, to improve muscle strength exercises. The patient has, also, executed exercises in swimming pool, back or front crawl style.

In phase IV (8-12 weeks) we continued exercises to improve muscle strength and endurance. Sand bags were attached to the ankle. Flexion and extension exercises with weights for knee quadriceps were introduced. The number of repetitions X10 ponds 50m or 25m X 10 increased. To load on the 50w-60w-80w/45 ergo-bicycle revolutions per min increased. The late phase started with short distances jogging, progressing towards paced up and running on longer distances.

Phase V (the fourth month) - before returning to sports activities, agility drills, plyometric exercises specific to tennis were introduced, once the patient has gained good control of joint, muscular strength and appropriate coordination. Although the period of time varies from one patient to another, these activities can generally be initiated in this phase of the recovery. The deadline for the resumption of sports activity is 6 months.

Outcome Measures

Postoperatively, the patient was assessed objectively based on ligamentous laxity tests - Lachman, anterior drawer, joint testing, and subjective muscle testing by functional scale for Cincinnati "The Cincinnati Knee Rating System". The pain was assessed using visual analogue scale (VAS)

The ligament laxity Lachman test [3] considered positive or negative and the anterior drawer test was

considered significant if it exceeded 3mm to the contralateral pelvic limb considered normal.

The active range of motion ROM for knee flexion/extension were obtained using a universal goniometer, which has been demonstrated to be a sufficiently reliable tool for measuring lower limb ROM [4]. The knee freedom of movement was measured, it was considered poor when there was a deficit of more than 5 degrees of flexion or extension of the affected knee.

The lower-limb key muscles were graded by manual muscle testing on a five-point scale for each limb. Manual Muscle Testing is an easily accessible and reliable method of determining the strength of individual muscles [5].

The Cincinnati Knee Rating System is a comprehensive set of tools for assessing functional outcomes after knee ligament surgery and has been adequately tested for reliability, validity, and responsiveness [6]. This scale includes a functional assessment based on 6 abilities (walking, using stairs, squatting and kneeling, straight running, jumping and landing, hard twists cuts and pivots) important for participation in sports.

Visual analogue scale (VAS) Pain was assessed using a visual analogical scale (VAS) [7]. The VAS consists of a 10-cm line, with the left extremity indicating “no

pain” and the right extremity indicating “unbearable pain.” The subjects were asked to mark the intensity of the pain which they felt during the sport activity. Higher values suggest more intense pain.

Results

Preoperatively, the Lachmann test was positive in the patient studied there is a real instability, while the postoperative test was negative. The anterior drawer test was + 1 compared with the contralateral knee.

The passive knee flexion was originally assessed 5 days after the surgery, when the patient has reached a value of 30° flexion. At 21 days post-intervention, the patient experienced a passive knee flexion assessed goniometrically, 102° while in 6 weeks postoperatively, the patient improved joint mobility leading to a value of 120°.

After 4 months of kinetic treatment recovery the value of flexion was considerably near normal reaching 138°. The evaluation of knee joint mobility in 6 months postoperatively, demonstrates an increase of up to 142°, which demonstrates the effectiveness of the kinetic therapy applied (table1).

Table 1. The measurements of knee ROM

Moments of assessment	Knee flexion Passive Range of Motion (degrees)
5 days post- surgical	30°
3weeks post- surgical	102°
6weeks post- surgical	120°
4 months post- surgical	138°
6 months post- surgical	142°

With the initial testing there was a clear reduction in the thigh muscle strength mainly affecting the limb muscles involved in the execution of knee extension, the decrease can be attributed to several causes such as: the degree of tissue damage and related physiological and psychological phenomena - the pain and fear of contracting the muscles affected (table 2).

After two months of rehabilitation treatment, manual muscle test grades of 4+/5 were given to the knee flexor, and 4-/5 knee extensor strength. In the final testing (4 months postoperatively) we found that the patient has reached a 5/5 normal level of force.

Table 2 . Evaluation of knee muscle strength at all evaluation moments

Muscle strength	Moments of assessment		
	3weeks post- surgical	2 months post- surgical	4 months post- surgical
Knee flexion	3+/5	4+/5	5/5
Knee extension	3+/5	4-/5	5/5

The functional rating scale score showed a significant increase in its value, comparing the moments assessments, a significant increase in scores occurring after 6 months of the patient recovery (table 3).

Table 3 . Evaluation of knee muscle strength at all evaluation moments

Moments of assessment	The Cincinnati Knee Rating System
1 months post- surgical	100
4 months post- surgical	280
6 months post- surgical	420

of knee muscle strength at all

Initially one month after the intervention a minimum score of 100 points has been achieved, because of the contraindications for various activities such as running, jumping, pivoting climbing in and out of a large number of steps. After four months, the score increased to a value of 280 points, and at 6 months there was a maximum score of 420 points with complete functional recovery of the patient and the possibility of practicing sport.

The intensity of pain during the practice of the exercise program, assessed by VAS was 7 th / 8 to 3 weeks after surgery and a decrease reaching 4 after 2 months of recovery and 2 in 3 months.

Discussion

The post trauma recovery period required nowadays has been even significantly reduced, due to the kinetic treatment applied earlier and more intensive after new minimally invasive surgical techniques.

Kinethotherapy is the safest method of gradual recovery of joint mobility, muscle strength and endurance improvement as well as knee stability. The purpose of this case study is to describe and report the results of a kinetic program to recover junior tennis players, who underwent a surgical arthroscopic ligamentoplastia.

The physical rehabilitation program described in this study was based on various techniques of joint mobilization to prevent joint stiffness and muscle toning, especially muscle flexion and extension of knee, surgery affected. In advanced stages of recovery we have added exercises that aimed to increase active knee stability and proprioception. In the final phase of treatment the objective aimed at the functional development of sports skills. The patient completed the rehabilitation program with no complications and there were no adverse events registered after our rehabilitation.

The evolution of the subject had a positive trajectory registered noticeable improvements in almost all measured parameters, in the period between assessments.

Comparing the results achieved at all evaluation times, we found that knee flexion improved significantly reaching a normal value, previous to the trauma, in six months of the entry into the recovery program. The muscle strength of the knee extensor and flexor improved, reaching almost the normal limits with the final testing, compared with the unaffected limb. Between 2 months and 4 months post-traumatic, the patient achieved a significant functional improvement compared with the first period of evaluation.

Despite the outcomes presented in this case study, care must be taken in establishing cause and effect based on a single patient.

Conclusions

This study demonstrates that a rehabilitation program, tailored to the particular subject and the type of surgical intervention, mode of fixation and possible co-existing injury to the knee's soft tissues can ensure full recovery of the patient, to resumption of sports activities, prior to the injury. The correlation of orthopedic-surgical intervention and rehabilitation measures, the earliness recovery measures enforcement can create the necessary support to shorten significantly the rehabilitation process of patients.

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Aspects of kinetic rehabilitation in shoulder pain

Ligia Rusu, Germina Cosma, Elvira Paun

University of Craiova, Romania

Abstract: The aim of this paper is to present the algorithm for assessment and treatment in infraspinatus syndrome at athletes. The study includes 20 athletes that present shoulder weakness, pain, decrease of joint mobility regards abduction and external rotation of shoulder.

Assessment of patients includes: physical examination, specific assessment use Neer and Hawkins test, electromyographic assessment for estimate the evolution during the treatment. Treatment consists in physical therapy and kinetic therapy using physical exercises for shoulder stabilizing, muscle force increase and also joint mobility increase. The results show to us a good evolution for all patients after treatment after 2 months of treatment and return to sport activity.

Key words: *infraspinatus syndrome, assessment, kinetic therapy*

Introduction:

Shoulder pain, atrophy of the shoulder muscle could be caused by suprascapular neuropathy. The syndrome typically(1,2) causes symptoms that mimic those of rotator cuff tendinopathy, and the diagnosis is often overlooked until the condition fails to respond to a traditional rotator cuff treatment program. The athletes presented shoulder pain, limits of mobility, shoulder instability, limits of mobility. For most cases we prefer conservator treatment, can be treat by physical therapy, kinetic therapy and also drugs therapy using Diclofenac retard(100mg/day) and local application of Fastum gel 2times/day. We excluded from this study the athletes that need surgical decompression of suprascapular nerve(3)

Biomechanopathogeny of shoulder pain instability- the first point is the biomechanic aspect and anatomic structure of suprascapular nerve that has two sites of potential entrapment: suprascapular notch and spinoglenoid notch(4). Second site represent the most common site of entrapment. Involvement of this site induce isolated atrophy and weakness of the infraspinatus muscle that characterizes infraspinatus syndrome. During the movement of the scapula like protracts and retracts with functional use of the upper limb, some traction of the suprascapular nerve can be expected to occur at 1 or both notches. So this nerve will be expose to damaging sheer stress. All these aspects are base on few observations regards spinoglenoid ligament that becomes taut when the ipsilateral upper limb is adducted across the body or internally rotated and so suprascapular nerve is vulnerable to direct compression by the medial border of the spinati tendons at the spinoglenoid notch(5) when the upper limb is abducted and externally rotated. Many studies reveal an ischemia that can involve disorders of suprascapular nerve and that is caused by migration of posttraumatic microemboli from the suprascapular artery to the vasa nervorum. Because glenohumeral joint is the most mobile joint from human body, is posible to increase the risk of shoulder instability.(6)

Material and method:

We made a study of 20subjects, average of age were 38years, athletes. Most of them are typical patient, athletes who reports vague posterior shoulder pain. The

pain has an insidious onset and is described as a deep, dull, aching discomfort. Activities exacerbate symptoms including weakness, reduce endurance in performing overhead and also no sports performance.

Assesment methods included: *physical assessment and functional assessment* (7,8) means used specific test for shoulder like Neer test and Hawkin test..

Physical assessment showed to us: focal atrophy ofsupraspinatus and infraspinatus muscle. These atrophy was observed in suprascapular and infrascapular fossa. No muscle fasciculations.

Suprascapular muscle involmment we diagnosed when we assessed during mobility assessment also. Active range of motion showed loss of 60degrees of abduction and weakness of shoulder Active range motion showed: external rotation in adduction 20degrees and passive range of motion showed external rotation in 45degrees of abduction, measures 60degrees and external rotation in adduction measures 30degrees. Passive range of motion was normal of both shoulders. During active and passive motion pain was present. Neck range of motion was normal. Also normal range of motion for elbow and hand were normal.

Muscle test showed to us presence of weakness of shoulder during abduction and external rotation, pain in according with literature (9,10). From our patients 17 athletes muscle tests using scale 0-5 showed values 4/5 and 5/5 for 3 athletes,for abduction. For external rotations 17 athletes presented values 3/5 and 3 athletes 4/5.

Functional specific tests

We used some specific tests for functional assessment like(11):Neer test for explore the integrity of infraspinatus muscle during specific movement , internal and external rotation associate with arm flexion. If the pain increase or the movement is impossible the test is positive.

Hawkin test is use for explore also the integrity of rotator cuff muscles during arm flexion at 90 elbow flexion 90 and rotation, internal and external. Presence of pain or instability not permit the movements, and so the test is positive(12).

Functionl tests helped also us to assess glenohumeral stability that was normal and symmetric. Shoulder MRI may reveal suprascapular or infraspinatus muscle

edema(5) in acute cases and atrophy with fatty replacement in more chronic cases.

Propose of complex rehabilitation program:

At the first point we must to say that we made two lots: first lot included athletes with acute phases, they presented pain, edema and no mobility. We excluded this lot because they are suspect regards requires of surgical intervention. Second lot included patients with chronic aspects regards shoulder repetitive microtrauma. This lot came to us and presented some acute aspect like presence of pain. This lot included all 20 patients. Acute phase(3)- had a rehabilitation program that depend on severity of clinical phenom because in absence of compression we used conservator treatment . *First goal* of rehabilitation program was to reduce pain using analgesic and nonsteroids antinflammatory like Diclofenac retard (100mg/day). Heat, low voltage surge stimulation, spray and stretch on infraspinatus and suprascapular muscle. Also we used at the beginning transcutaneous neuromuscular stimulation, using a high rate, low intensity conventional setting dual channels. Transcutaneous stimulation 8 hours per day.

Second goal of rehabilitation is reduce edema. For this we used massage for facilitates the reabsorption of interstitial fluids into lymphatic system. After decrease of pain and edema we proposed the restore full passive range of motion and increase scapular stabilization (1). So in this situation we proposed a programm of physical exercises for scapular stabilization, increase rotator cuff muscle tonus. So we obtain a possible prevent of impingement syndrome.

Also we recommend this goals of rehabilitation, even after acute phase, because we can improvement flexibility of shoulder.

Third goal of rehabilitation program is increase muscle joint control, prevent neural dissociation to the reinnervating muscles. For this we added also proprioceptive exercises (7,13) for increas shoulder stability, endurance and muscles balance around shoulder joint. These exercises are development in closed chain exercise like press up, 3 sets of 10 repetitions, rest 2minutes between sets, multiple session of 3 daily, working in a pain free range.

Even most of authors dont recognize chronic phase of infraspinatus syndrome, we consider that this is the recovery phase. During this phase we prepare the athletes to return to play at soon at possible. Rehabilitation goals is the *fourth goal* of rehabilitation means: maintain shoulder mobility, prevention of muscletendinous retraction, promote scapular stabilization and shoulder stabilization, increase motor and muscle control, coordination. These goals can be achieve by exercises for increase muscle force and balance. We used exercises with progressive weight begining from 500g, 8-10 repetitions, 3sets, but under the control of pain and cardiovascular status.

For that reasons we used isotonic contraction, concentric and excentric contraction, and if is possible to use usually exercises that are the part from training programme of our athletes. Exercises for increase

muscle force means to improvement the role of scapula and tonify(14) the scapular msclues including: scaption in internal rotation, rowing, horizontal abduction in external rotation.

Also we used in according with recent research rotator cuff exercise patterns, 5times per week, training program performing the exercises for 2sets of 10 repetitions for 1 month. This help us to increase shoulder stability and muscle control. Role of these exercises is to activation in the rotator cuff muscles.

The end of one rehabilitation program must includ plyometric exercises for development muscle power. Plyometric method can improvement muscle force(15,16) because it combine force and speed contraction, facilitate nervous control and muscle contraction.

The recovery phase is during 6-8months even if the athletes began the sport activity, we must to accord attention for continue the final rehabilitation program, for prevent another disorders.

Results:

We present the dynamic evolution of specific test and pain because we consider that these are important for periodical assesment of our patients.

Specific and functional tests

Using specific assessment by Neer and Hawkin test we observed that we had an early diagnose and also we had the possibility to monitoring the efcency of rehabilitation program.

We used the McNemar's test to show if exists a significant change in the test result, before and after the treatment. The results can be classified as "positive" – presence of the pain, or "negative" – absence of the pain.

The 2x2 classification table has two concordant cells in which the two paired measurements from the same subject are either positive or both negative (ignored by the McNemar's test) and two discordant cells with positive-negative or negative-positive changes for the same subject.

1. Neer test

After the treatment only 2 subjects (10%) were reported to have pain compared to 14 (70%) before the treatment.

The difference before and after treatment is 60% with 95% CI from 28,24% to 60%, which is significant (P=0.0005, n=20) and suggests that the proportion of positive results is significantly different for the two modalities.

2. Hawkins test

After the treatment 6 subjects (30%) were reported to have pain compared to 18 (90%) before the treatment.

The difference before and after treatment is 60% with 95% CI from 28,24% to 60%, which is significant (P=0.0005, n=20) and suggests that the proportion of positive results is significantly different for the two modalities.

Mobility

We consider the semnificative results are in active range of motion because these can be correlate with specific tests. So we observed 30%from patients

achieved a best evolution and have 90 degrees for abduction, 35% had abduction on 80-85 degrees. So we can see that more than 50% from our patients have an increase of active range mobility, they are very closely to normal abduction.

Discussions and Conclusions:

How we seen is important to make a good assesment for decide wich is the best way for rehabilitation and for return to play. So we consider that specific assessment can help us to observe the dynamic evolution in infraspinatus syndrome. Much more if we apply earlier the rehabilitation protocol that we propose is possible to reduce the risk of recidive and the risk to increase shoulder injuries. Most individuals with suprascapular neuropathy are asymptomatic and compete with little to no discernible performance deficit. This observation complicates the issue of how to handle the return-to-play decision.

In symptomatic athletes, a more restrictive course seems reasonable. Once the athlete can perform sport-specific skills in a pain-free manner, they can return to play. Athletes who undergo surgical decompression should participate in an appropriate postoperative rehabilitation program to restore their strength, flexibility, and endurance before returning to play.

No definitive study findings implicate specific spiking styles in suprascapular neuropathy; thus, providing technical advice about biomechanics to volleyball athletes with suprascapular neuropathy is difficult. Additional considerations remain unanswered; for example, the appropriate amount of skill training necessary to minimize the risk of volleyball shoulder is unknown.

The prognosis for a favorable clinical outcome is good. At the time of diagnosis, affected athletes report surprisingly little functional limitation. According to the literature, most cases respond favorably to either conservative treatment programs or, when indicated, surgical intervention, and most athletes were able to return to their prior level of sports participation.

We must to say that the first electromyographic changes had appeared after 3 weeks from clinical aspects, weakness, pain, edema, reduce of mobility. For this reason we consider that is important to assess also by electromyography, because so we can observe the involve of rotator cuff muscles or only one of them. This is important for choice the rehabilitation way regards the start moment and the methods of rehabilitation. The clinician establishes appropriate goals within the constraints of nerve reinnervation and uses the preferred practice patterns to predict the impairments and functional losses and to determine the prognosis. The patient progresses through each phase based on the clinician's continued reevaluation of signs and symptoms, and discharge takes place when clinical tests and evaluation indicate no further improvement in the patient's motor capabilities.

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Influence of swimming practicing upon self-esteem in adults

Silviu Petrescu¹, Gabriel Pițigoi¹, Cătălin Păunescu¹

¹ "Carol Davila" University of Medicine and Pharmacy, 37 Dionisie Lupu St., Bucharest, Romania

Abstract. The experience of body movement is increasingly relevant in today's society, both in its volume and variety, each epoch bringing other forms of involvement in activities that were previously unimaginable. This paper presents the effects of swimming practicing on the self-esteem in adult persons, professionally active. The processing of the results demonstrates that women have better self-esteem than men because the mean of this variable is higher in their case than in men's case, both at initial testing and final testing. In conclusion, the findings of the study line up with the existing international researches which claim that the practice of swimming has significant effects on health.

Key words: swimming, self-esteem, adults;

Introduction

The specialized literature defines swimming as the art of harmonizing the functions of the respiratory system with the combined movements in order to give continuous propulsion and balance to the body in a certain rhythm.

As part of improving the quality of life, we believe that swimming is the most efficient way to spend the time available for ourselves and to combat youth violence.

Recent professional works demonstrate that body movement experience acquires increased relevance in the contemporary society, both in its volume and variety, each epoch bringing other forms of involvement in activities that were previously unimaginable. Along with other fields in which physical activism is manifested, health field is perhaps the most anchored in immediate reality taking into account the alarming statistics on the state of morbidity in Romania and abroad [1].

Nationally, the concern for a decent quality of life has become increasingly important in recent years in the world of science, governments and public policy makers and ordinary people as well. The interest in the quality of life had some important sources, in which the need for sustainable development of society has become increasingly evident following up the natural environment deterioration resulting from the economic growth that had not taken into account the exhaustible character of natural resources. In this context there was rapprochement between the sustainable development and quality of life, the latter outlined as an end in itself for development, development that takes into consideration the social element closely related to the economic and the environmental ones. Addressing the relationship between environment and personality, [2] states that there is yet another attempt to understand this new concept of normality and its relationship to the environment.

Thus, the main stages of the development in adulthood are: **youth: 18-40 years**. According to [3] this period is characterized by maximum energy but also stress and strong contradictions. The period starts with the transition to adulthood, during which

the individual builds a personal dream that describes the major goals of his life from a cognitive point of view. At this stage, all cognitive processes can operate at full capacity. Development refers mainly to the broadening of the experience - resulting in the increase and reorganization of the knowledge which will lead to more effective problem solving. This kind of thinking combines what is objective (rational or logical elements) and what is subjective (concrete elements based on individual experience). Consequently, individuals may consider their own experiences and feelings when they solve problems [4]. **Middle stage: 40-60 years**. This period begins with the transition phase that is characteristic of the middle of the life, followed by the entry into the specific structure of the middle adulthood (45 to 50 years), during which the individual develops a life style characteristic of this period; **old age: 60 years and over** [5]. The period begins with the transition phase mentioned above and continues for a period of adjustments that become necessary as a result of retirement, declining health, old age, other specific issues of old age that will be discussed in detail in the next section.

However, Erikson accepts that there may be differences between men and women regarding the sequence of the stages described above. For example, men develop a sense of identity before intimacy with a sexual partner when young; in contrast with them, women often do not develop fully their own identity before finding a potential spouse.

The purpose of this paper is the highlighting of differences between men and women regarding the manifestation of self-esteem in adults who practice swimming.

Material and method

Subjects of the study

The study was conducted on a total of 16 subjects, adults aged 29 to 60 years, socio-professionally active. 9 subjects were male and seven female.

Rosenberg Scale[6]

Rosenberg Scale was applied to measure self-esteem. Self-esteem is a deep and powerful human

need, essential for individual’s healthy adaptation, namely for optimal functioning and self-fulfillment. In other words, self-esteem is genuine confidence in his own mind, in his own judgment. It means confidence in the ability to make correct decisions and make appropriate choices. The scale is formed of 10 items and measures the level of personal self-esteem in adulthood.

Independent variable of the study

The independent variable of the study was the specific swimming exercises program, suitable for

subjects' age particularities and for the functional characteristics. The duration of this stage was 4 months, three times a week. The duration of each session was 60 minutes. The study was conducted in the swimming pool at Carol Davila University of Medicine and Pharmacy of Bucharest. The subjects were tested before and after application of the independent variable.

Results

The results of the study were analyzed by means of SPSS program for psychology.

Table no. 1. Descriptive statistics - Rosenberg scale controlling sex factor

		No	Mean	Std. Dev.	Std. Error	95% Confidence Interval for mean	
						Lower Bound	Lower Bound
Rosenberg Scale Initial testing	F	7	19.86	1.464	.553	18.50	21.21
	M	9	19.44	1.130	.377	18.58	20.31
	Total	16	19.63	1.258	.315	18.95	20.30
Rosenberg Scale Final testing	F	7	21.14	.900	.340	20.31	21.97
	M	9	20.67	.866	.289	20.00	21.33
	Total	16	20.88	.885	.221	20.40	21.35

Table no. 2. Anova test - Scala Rosenberg

		Sum of Squares	df	Mean Square	F	Sig.
Rosenberg Scale Initial testing	Between Groups	.671	1	.671	.407	.534
	Within Groups	23.079	14	1.649		
	Total	23.750	15			
Rosenberg Scale Final testing	Between Groups	.893	1	.893	1.151	.301
	Within Groups	10.857	14	.776		
	Total	11.750	15			

Table no. 3. Level of correlation between the two moments

			Rosenberg Scale Initial testing	Rosenberg Scale Final testing
Spearman's rho	Rosenberg Scale Initial testing	Coefficient of correlation	1.000	.821**
		Significance level (2-tailed)	.	.000
		No.	16	16
	Rosenberg Scale Final testing	Coefficient of correlation	.821**	1.000
		Significance level (2-tailed)	.000	.
		No.	16	16

****.** Correlation is significant at a significance level of 0.01 (2- tailed).

The level of correlation for the two moments is 0.821, for a bidirectional level $p < 0.01$, with 16 degrees of freedom. The level of correlation for the two points is 0.821, for a Bidirectional $p < 0.01$, with 16 degrees of freedom. The significance level of the correlation enables us to say that the application on the aquatic program had significant influences upon *self-esteem* variable.

The statistical processing between the two moments (initial testing – before the application of the aquatic

program - and final testing - after the application of the aquatic program) indicates the following:

In the case of female subjects, the mean of the self-esteem in initial testing is 19.86, with a standard deviation of 1.464 and a standard error of 0.553. The confidence interval ranges between 18.50 and 21.21. In the final situation, the mean of the self-esteem, when sex factor is controlled, increases up to 21.14, with a standard deviation of 0.900 and a standard

error of 0.340. The confidence interval for a mean of 95% is modified, ranging between 20.31 and 21.97.

In the case of male subjects - the mean of the self-esteem in initial testing is 19.44, with a standard deviation of 1.130 and a standard error of 0.377. The confidence interval for the mean of 95% ranges between 18.58 and 20.31. After the application of the aquatic program, the statistics in men's case changes significantly, the mean of the self-esteem is 20.67, with a standard deviation of 0.86 and an error of only 0.289 and the values of the confidence interval for a mean of 95% are between 20.00 and 21.33.

Anova test for Rosenberg scale indicates the extent to which the means of the two moments vary differently in both women and men. Table no. 2 shows the results of variance analysis, the F ratio for the initial testing is 0.407 at a significance level of 0.534. The F ratio for final testing has a value of 1.151 at a significance level of 0.301.

Thus, we are able to report the results as follows: the overall effect of the aquatic program had significant influences because the significance level of the means of the two research moments goes from 0.534 to 0.301.

Conclusions

It appears that women have a better image of self-esteem than men because the mean of this variable is higher in their case than in men's case.

In conclusion, the findings of the study line up with the existing international researches which claim that the practice of swimming has significant effects on health. This study enables us to say that the application of the aquatic program proposed by us led to significant influences in terms of self-image in adults.

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Kinetherapy in arterial hypertension in athletes

Neamțu Marius Cristian¹, Elena Taina Avramescu², Oana Maria Neamțu², Giorgios Antonopoulos³, Codruța Teodora Domnica Curteanu⁴, Germina Alina Cosma⁵

¹ *Department of Pathologic Physiology, University of Medicine and Pharmacy of Craiova*

² *Department of Sports Medicine and Kinesiology, University of Craiova*

³ *Metropolitan Rehab, Stockholm, Sweden, PhD student, University of Craiova, Romania*

⁴ *Department of Modern Languages, University of Medicine and Pharmacy of Craiova*

⁵ *Department of theory and methods of motor activities, University of Craiova*

Abstract. It is considered that people involved in sustained sport activities leading to an improved physical condition do not develop cardiovascular pathology. The incidence of arterial hypertension for this category of people is 50 % less than for the rest of the population. Knowing the physiopathology of this condition, associated with the effects of physical activity on the human body, may be an important factor in establishing a non-pharmacological or a new pharmacological treatment, and in maintaining arterial hypertension levels under control, allowing the physical activity progress and preventing further complications. The aim of this study is to present the incidence of prehypertension and of arterial hypertension in athletes, to identify the relations with age and sport characteristics, and to set up recommendations regarding the athletes participation in competitions and training programs. The diagnosis, evaluation, prevention and treatment of cardiovascular diseases are interconnected, and the sports doctor and trainer need to keep a close contact for this end. In arterial hypertension treatment, the effects of various drugs upon the body resistance to effort and the anti-doping regulations established by different sport federations must be taken into consideration, all these aspects being discussed in the study. According to arterial hypertension level and the presence of other factors, certain recommendations regarding physical effort are established.

Key words: cardiovascular risk factors, coronary disease, physical effort

Introduction. The cardiovascular diseases are the main cause of more than 1,5 million cases of heart accidents annually, approximately a third of these ending with death. More than 250.000 cases die yearly before making a special medical consult. Because of the great incidence of cardiovascular diseases and their prognostic is important to identify and remove the risk factors. The lowest rates of mortality were registered in France and the highest in Romania, Bulgaria, Cehia, and Slovakia (1). From this point of view, the east European country have a mortality by cardiovascular disease approximately double compare to the west countries. In these circumstances the main concern consists in identification, appropriateion and prophylaxis of cardiovascular risk factors.

Definition of fundamental notions in present research.

Cardiovascular risk factors (CVRF) is a common term use for the definition of some elements characterizing healthy human being, but it is associated statistically with the possibility of future apparition of ischemic cardiopathy and/or of some other cardiovascular atherosclerotic diseases. This expression joins the classic concept of relation between causality and probability.

Cardiovascular risk (CVR) refer to the global consequence of factors that generate atherosclerotic disease on human body. Absolute risk: probability of apparition of a clinical event in a precise time period. Relative risk: probability of apparition of a clinical event reported to a standard value (a different population).

Estimate (CVR): risk state rapid evaluation for establishing screen methods.

Quantification of CVR; exact evaluation of risk for establishing the therapeutically and efficiency objectives of clinical management.

Clinical management includes the totality of methods with which we control risk factors (diet, physical exercise, drugs).

Actual stage of discover CVRF. Presently, there are 280 variables recognized like risk factors. There are a number of previous studies from which we observe Framingam and PROCAM. European experts systematize risk factors in following way:

- Life style (changeable): hipercaloric alimentation, rich in cholesterol and unsaturated fats, smooking, alcohol (2, 3, 4);

- Biochemical and physiologic charactersitics (changeable): high blood pressure, hypercholesterol (raise of LDL- cholesterol), high triglyceride, high glicemy (diabetes mellitus, alteration of basal glicemy), obesity (5, 6); tromboembolic factors.

- Personal characteristics (unchangeable): age, sex, family history of ischemic cardiopathy and/or of some other cardiovascular atherosclerotic diseases appeared at early age (55 at man and 65 at woman); personal history of ischemic cardiopathy and/or of some other cardiovascular atherosclerotic disease.

Recently, secondary risk factors are added to the list, signs with influence on others organs are microalbuminuria and the increased seric creatinin concentration. C reactive Protein is considered by several authors like a prognostic factor in patients with cardiovascular diseases, specially in those with atherosclerosis. Assessment of individual cardiovascular risk has a special importance because it provides to the practitioner the option of establishing therapeutical objectives and individual methods of clinical management.

All these events are division from preventive medicine (7). Already exist lots of scales for estimate cardiovascular risk in differents forms: like equations,

diagrams, computer programs, trying to simplify the evaluation of cardiovascular risk.

Risk classification. Presently, risk is defined as absolute risk to develop a fatal cardiovascular event within the following 10 years. The high risk degree based on fatal cerebral vascular accident (CVA) is now considered as $\geq 5\%$. This degree is sufficient to identify the patients with a high risk degree for non-fatal events. Nowadays, there are many models and risk maps which can be adapted to the national conditions, resources and priorities (12).

C. Cardiovascular prevention

The objectives of cardiovascular prevention consist in:

Reduction of the incidence of coronary disease events, ischemic CVA and arteriopathies.

The aim of recommendations is avoiding premature death and invalidity.

Presently, most guidelines approach changes of lifestyle, influence of major CV risk factors, and the use of preventive and therapeutical physical effort.

D. The role of physical activity and physical effort in the prevention and rehabilitation of cardiovascular pathology.

Dr. Aktas et al. reported that the functional capacity alteration during effort test and the delay in coming back to normal values of heart rate (HR) after the effort, associated with SCORE charts of CVRF (European Systematic Coronary Risk Evaluation)(8), can be useful in risk management in asymptomatic patients. A previous study demonstrated that HR at rest, adjusted according to age and sex, represented a predictive factor for all deaths in patients with coronary diseases (hazard ratio aHRs, 1.29; $P < .001$). HR at rest as associated with cardiovascular mortality in other studies as well.

Cardiovascular risk factors can be appropriated or adjusted by physical exercise programs. There cardiovascular diseases, being involved in normal HR, normal weight, and normal lipid levels (8, 9). It is a direct relation between physical effort and cardiovascular risk. Physical activity increases the effort capacity and it has an important role in the primary and secondary prevention of risk and considered that the persons involved in intense sport activities leading to an improved physical condition do not develop cardiovascular pathology. The incidence of arterial hypertension for this category is 50 % less than for the rest of the population. The Center for Disease Control and Prevention in the US (CDC) recommends/advises that an adult should exert moderate physical effort (i.e. walking, jogging, cycling, swimming) at least 30 minutes/day, 5 days/week. Unfortunately, these recommendations are not respected by 60% of Americans (10, 11). Data gathered from more than 40 research studies show that moderate and low intensity endurance physical activity decrease systolic arterial hypertension as well as diastolic arterial hypertension with 10 mm Hg (20 - 60 minutes at 40% - 70% from VO_2 max, 3-5 days/week).

The aims of the research consist in:

- the identification of cardiovascular risk factors, their correction or adjustment through physical activity programs. It is necessary a periodical medical check-up, reducing physical activity and the intensity of physical training, and even stopping it when the conditions are more serious or persist. These recommendations are applied only individually, after assessing each case.

- the diagnosis, evaluation and prevention of cardiovascular diseases; these activities are interconnected, and the sports doctor and the kinesiotherapist have to collaborate in the process of diagnosis, evaluation and therapy implementation.

Materials and methods

This research study assumes that the kinesiotherapist has a major role in the drug-free treatment of athletes arterial hypertension, provided appropriate training and physical effort.

A second hypothesis is that the kinesiotherapist actively involves in the control of risk factors for arterial hypertension (body weight regulation, dyslipidemia control).

The early diagnosis of certain aspects concerning the cardiovascular pathology by the kinesiotherapist involved in sport activities can be extremely valuable through hospitalization and the implementation of profilactic physical exercise programs that can control the evolution of the disease and the possible complications. Furthermore, the role of the kinesiotherapist is important even afterwards in following the doctor's recommendations, mostly because one of the risk factors for arterial hypertension is disobeying the medical recommendations by the athlete.

Our research study monitored the incidence of high normal tension and of arterial hypertension for a mixed group formed by 267 athletes/sportmen that exerted various sports, both for juniors and for seniors; 44 female subjects, 223 male subjects; 155 junior subjects with average age of 12,4 years, 112 adult subjects with average age of 25 years. The incidence of this disease was compared to the incidence of other cardiovascular diseases appeared within the monitored group. Tests were performed to establish the diagnosis and the type (functional or organic) of the disease. The diseases were monitored in progress following the drug-free treatment and/ or drug treatment, as shown later. The distribution of the cases in ratio to the number of subjects, age, type of exerted sport and performance level was the following:

- Soccer: - adults, 80 sportsmen, males, average age 25,2 years, 19 cases with cardiovascular interest/ , 9 cases with prehypertension, 6 cases with 1st degree arterial hypertension.

- juniors, 40 sportsmen, males, average age 14,3 years, 12 cases with cardiovascular interest, 10 cases with prehypertension, 2 cases with 1st degree arterial hypertension.

- Handball: - adults 20 sportsmen, males, average age 27, 8 years, 6 cases with cardiovascular interest, 5

cases with pre HTN, 1 case with 1st degree arterial hypertension.

- juniors, 25 sportsmen, males, average age 12,4 years, 8 cases with cardiovascular interest, 5 cases with prehypertension.

- Boxing: - adults, 20 sportsmen, males, average age 24,5 years, 7 cases with cardiovascular interest, 5 cases with prehypertension, 2 cases with 1st degree arterial hypertension.

- Tennis: - juniors, 25 sportsmen, 10 males, 15 females, average age 11,1 years, 6 cases with cardiovascular interest, 4 cases with prehypertension.

- Volleyball: - adults, 28 sportsmen, males, average age 23,5 years, 5 cases with cardiovascular interest, 3 cases with prehypertension.

- juniors, 40 sportsmen, 20 males, 20 females, average age 4,3 years, 8 cases with cardiovascular interest, 4 cases with prehypertension.

- Athletics: - juniors, 25 sportsmen, 7 males, 18 female, average age 14,3 years, 4 cases with cardiovascular interest, 2 cases with prehypertension.

The first stage in the research study consisted in the identification of the arterial hypertension risk factors through sports medical anamnesis, the actors including: increased intake of sodium or other saturated fats, excessive alcohol drinking, cocaine use, the use of CNS stimulants, high stress levels, male sex, race (black people are affected twice as much as white people; the least affected are asians), positive family history (arterial hypertension antecedents or cardiac disease in males over 55 and females over 65), diabetes or lactose intolerance, smoking, and obesity. In this respect, the anamnesis was based on significant personal and heredocollateral antecedents of associated conditions or arterial hypertension triggering conditions (cardiopathies, diabetes, obesity, ORL infections, stomatological infections, genital infections, scarlet fever, nephritis, endocrinopathies), states of physical and mental exhaustion, hyperreactivity (dermographism, eritema pudoris, anxiety). Moreover, the time period of sport practice, the training program, and the training methods were investigated.

Except these factors, the anamnesis as also focused on possible antiinflammatory drug administration, coffee, body weight regulation pills, decongestive

medication. The patients were asked whether they used food supplements, especially energizers. These supplements frequently contain substances belonging to the stimulants category. The stress level was investigated through appreciating the life and work circumstances that can determine increases of catecholamines or chronic neurogene activations of SNS with direct influence on arterial hypertension genesis. A supplementary intake of potassium can improve the control upon the blood pressure, mainly in endurance sports in which hypokalemias are frequent. All these aspects have been studied through self-conceived forms, set up within the CERES program of monitoring high performance sportsmen.

Arterial hypertension diagnosis was established by correct measuring of arterial tension, of anamnesis, of clinical examination and paraclinical explorations. The method of investigation for arterial hypertension in sportswomen took into consideration the differentiation between primary and secondary hypertensions, and the differentiation of various nosological entities allow the doctor to direct toward the primary and secondary cause of arterial hypertension.

Results.

The incidence of prehypertension and of arterial hypertension in the study group is shown in the table below (table 1).

We observe that the maximum incidence of prehypertension and of arterial hypertension in seniors was recorded for boxing and handball (35%), while the minimum incidence was for volleyball (14,3%). In juniors, the arterial hypertension incidence as maximum for soccer (30%) and minimum for athletics semifond (8%) and volleyball (7,5%).

Furthermore, it must be observed that within the volleyball, tennis and athletics groups, the registered cases were only for prehypertension.

The arterial hypertension cases were included in stages I-II; for these particular cases, specific individual treatment was established and indications were made according to the principles previously stated.

All recorded cases were provided with recommendations regarding diet and/or the correction of risk factors.

Table 1. The distribution of cases with prehypertension and arterial hypertension in ratio to the number of subjects, age, type of performed sport, and the performance level.

Sport type	Level	No. of subjects.	Average age	Sex	No. of cases prehypertension	Incidence-specific group	No. of cases arterial hypertension / stage	Incidence-specific group	Other cardiovascular conditions /no. of cases
Soccer	seniors	80	25,2	M	9	11,2%	5/ std. 1 1 std.1-2	7,5%	Right side block -1st degree-innocent - 6 cases. Physiologic systolic murmur 1st degree -4 cases. ECG repolarization abnormalities -5 cases Hyperkinetic syndrome-2 cases.
	juniors	40	14,3	M	10	25%	2/ std. 1	5%	Supraventricular extrasystole arrhythmia; spasmophilia-1 case.

									Supraventricular extrasystole arrhythmia; systolic murmur 1st/2nd degree, 1 case Right side block -1st degree-innocent--4 cases. Physiologic systolic murmur -6 cases 1st degree - 3 cases.. Mitral valve prolapse without mitral backflow -3 cases.; Mitral valve prolapse with reduced backflow-1 case.
Handball	seniors	20	27,8	M	5	25%	2/ std. 1	10%	Murmur ECG repolarization abnormalities -3 cases. Right side block -1st degree-innocent--3 cases.
	juniors	25	12,4	M	5	20%	2/ std. 1	8%	Right side block -1st degree-innocent--4 cases. Physiologic systolic murmur -5 cases.
Volleyball	seniors	28	23,5	M	4	14,3%	-	-	BRDI inocent-2 cases. Physiologic systolic murmur -1 case. ECG repolarization abnormalities -1case.
	juniors	40	14,3	20M 20F	3	7,5%	-	-	Sinus tachycardia - 2 cases. neurovegetative dystonia -2 cases. Physiologic right side block -2 cases. Functional atrioventricular block 2nd degree
Boxing	seniors	20	24,5	M	5	25%	2/ std. 1	10%	ECG repolarization abnormalities -3cases. Right side block -1st degree-innocent-2 cases.
Tennis	juniors	25	11,1	9M 16F	4	16%	-	-	Right side block -1st degree-innocent--3 cases.; Physiologic systole murmur-2 cases. Mitral valve prolapse without mitral backflow -2 cases
Athletics	juniors	25	14,3	7M 18F	2	8%	-	-	Supraventricular extrasystole arrhythmia; spasmophilia-2 cases. Apex systolic murmur sistolic 1st and 2nd degree-1 case. Physiologic systole murmur -3 cases.

The indications regarding effort took into consideration the fact that the majority of sport activities have a dynamic and static component. Contraindications for effort should be based on the cardiovascular requirements of the sportsman. Dynamic effort increases systolic arterial tensions and decreases diastolic arterial tensions, it diminishes the peripheral vascular endurance stays the same. A too large muscle mass development can lead to arterial hypertension even in rest. The role of the sports doctor and sportsmen management is vital. The main objective is avoiding cardiovascular risks, but sport activity is not contraindicated without serious reasons. The

recommendations were established according to the degree arterial hypertension and to the presence/absence of risk factors.

An important aspect is that even in sportsmen with arterial hypertension the effort must be continued, with a close monitoring of arterial tensions, as it helps regulating it, probably through SNS activity decrease, cardiac frequency and volume decrease. The recommendations included exerting moderate intensity effort –at low and moderate intensity endurance training (20-60 minutes at 40% - 70% of VO₂ max, 3-5 days/week). Force training were also performed, involving 8-10 muscle groups, 2-3 times/week,

maintaining the intensity at 40% - 50% from maximum value/repetition.

Stages 1 and 2. The sportsmen participated to static and dynamic sport activities even if there were signs of cardiac affection or of other organ. For those with moderate arterial hypertensions (under 160/90-105 mm Hg) the effort as mainly dynamic.

The physical exercises performed to decrease arterial tensions levels included the following types of exercises:

- exercises for moderate intensification of metabolism in all groups of skeleton muscles, in order to obtain local vasodilatation and for the diminishing of peripheral resistance.
- exercises for muscle and neuropsychic relaxation.

From the first set of exercises, we applied: mobility exercises for all body parts. They prepare the muscles and must be performed slowly, with a moderate intensity of muscle contraction, associated with breathing, between the contractions with rest periods. A rapid rhythm is avoided as it can lead to large differences of arterial tension values, even if the exercises are exerted on small muscle groups and the activity of the cardiovascular apparatus is insignificant. Isometric or intermediary muscle contraction lasting 6-10 seconds, with rest periods of 10-15 seconds between contractions.

Conclusions

Not all increases of arterial tensions values represent a hypertension disease and require treatment. If the arterial tension values are slightly increased 3 measurements in 2 different occasions are performed, and the evaluation is done through 4-6 weeks check-up. When the values are kept normal, it is considered that there is no arterial hypertension, so another check-up is done at 6 months or 1 year, the patient does not have any medication, but some indications concerning the diminishing of physical effort intensity or elimination of onset factors. If the values are slightly or moderately increased, the patient is informed about his/her condition and general rules are applied in periodical check-up every 2-3 months, evaluating the risk, etiology, severity and treatment.

The objective of any antihypertension treatment is to decrease/lower arterial tensions values in order to prevent the onset of secondary organ lesions. Theoretically, the treatment should be applied to all the persons with constant increased values to prevent the onset of ischemic cardiopathy and of stroke. The therapeutic protocol is the following:

1. Prehypertension and systolic arterial hypertension, slightly unstable, with diastole values under 95-105 mm Hg found in the sportman with neurovegetative dystonia without other health modifications require paraclinical investigation and medical monitoring during specific effort. There is no medication treatment, but a profilactic and nonpharmacological treatment is indicated consisting in:

- hyposodic diet; 3g/salt /day are allowed, knowing that 1 g of salt contains approximately 400 mg of sodium. This can be achieved through no salt adding at all in

food, avoiding cans, salamis, cheese, pickles, olives, aspic and milk. For a better taste, potassium salt can be added.

- reducing body weight (hypocaloric diet, with no fats or sweets);
- moderate physical effort ;
- avoidance of CNS stimulants (alcohol, smoke, coffee, cola);
- elimination of stress and nervous tension;
- monitorization of arterial tension in dynamics by the team doctor in rest and activity.

2. In cases when there is an infection, with physical and psychic stress, the interpretation of arterial tension values is reserved, requesting a period of effort interdiction to eliminate the infection or the restructuring of the training program in overstress cases.

3. If the investigations show the presence of an infection, cardiopathies, renal diseases, endocrine, the investigations are amplified, and other investigations including renal functions, arteriography hormone dosage. If the conditions are treatable, and arterial tension values lower in time, patients can restart sport activity.

In conclusion, the increased values of arterial tension are interpreted in clinical context and in anamnesis, and the interdiction for sport performance depends on etiopathogeny, effort capacity, hemodynamic implication, and the type of effort involved.

Arterial hypertensions for values over 150/90 mm Hg (140/90 in persons over 15 years without antihypertension treatment) represent a contraindication for effort.

In children if the arterial tension is higher with 10 mm Hg than the maximum arterial tension appropriate for their age, the child is inapt for performance sport.

Arterial hypertensions for maximal effort over 240 mm Hg for systolic arterial tensions or 110 mm Hg diastole arterial hypertensions - inapt for 1 and 3 degrees.

Arterial tension with rapid aggravation and effort arterial hypertensions represent contraindications for 1 and 3 degrees.

In conclusion, moderate unstable arterial hypertension requires further investigations: lab exams, pulmonary x-rays, renal echography, rest and effort EKG.

The recommendations of the WHO divide the paraclinical explorations as follows:

- compulsory explorations (urine summary for density, glycosuria, proteinuria; creatine for renal disfunctions; potassemie; EKG for detecting hypertrophy of the left ventricular, modifications of ST-T, rhythm issues.
- additional explorations: natremia (serum and urine ionogram); glycemia (diabetes); lipemia, cholesterolemia, lipidogram (establishing the lipidic profile), X-ray of heart lung (hypertrophy of the left ventricular, heart enlargement, pulmonary stases, arterosclerosis); ecography (wall thickness left ventricular, of heart cavities, functional parameters)
- extensive examinations in order to establish differentiated diagnosis in secondary arterial

hypertensions : eye examination, EEG, additional renal and cardiac explorations.

- if arterial hypertensions coexists with the risk factors: obesity, dyslipidemia, diabetes, it requires treatment even for lower values than those without risk factors.

Absolute Contraindications for sport include essential arterial hypertensions or secondary one, stages II-III, with vascular bed affection (neurogene, oscillatory arterial hypertensions).

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The relationship between smoking and incidence of physical deficiencies in athletes

Marius Cristian Neamțu¹, Elena Taina Avramescu², Oana Maria Neamțu², Giorgios Antonopoulos³, George Ionescu², Denisa Enescu Bieru²

1 Department of Pathologic Physiology, University of Medicine and Pharmacy of Craiova

2 Department of Sports Medicine and Kinesiology, University of Craiova

3 Metropolitan Rehab, Stockholm, Sweden, PhD student, University of Craiova, Romania

Abstract. In Romania the number of smokers represents 50% of the population, smoking registering high incidence in adolescents. The present study involved a total of 107 adolescents, aged between 15 and 18, practicing various sports, selected on the basis of their regular medical control at the Sports Polyclinic, Craiova. The subjects were medically evaluated within a period of 12 months, with initial assessments at 6 months and 12 months. The evaluation included clinical examination, orthopedic examination, somatic and somatoscopic examinations. The initial assessment consisted in a questionnaire on the subjects' conditions of life and work, quantitative and qualitative assessment of their nutrition and non-sporting habits, namely smoking. The lumbago occurring at least once a week during the prior 6 months was considered significant from the medical point of view. Of the 107 adolescents studied, 69 were smokers, and the remaining 38 non-smokers. In the first period of evaluation (0-6 months) 19% of smokers and 11% of non-smokers had low back pain and during the next assessment period, 6-12 months, 14% of smokers and 7% of non-smokers had lumbago pain. Moreover, there was a direct relationship between the number of cigarettes consumed daily and the incidence of low back pain, with a rate of 2.28 for an average consumption of 1-25 cigarettes/week, and of 3.78 for a higher consumption. Therefore, smoking is definitely a risk factor for low back pain in adolescents. Epidemiological studies have shown that low back pain in adolescence represents a predictive factor of lumbago in adulthood.

Key words: cigarettes, athletes, evaluation

Introduction. Smoking has become a dangerous addiction and more and more athletes have taken up the habit becoming addicted and showing significant aging and physical condition impairment. Nicotine is easily absorbed in the gastrointestinal buccal mucosa and respiratory mucosa, being chemically modified in a proportion of 80-90 % in the liver, kidneys and lungs. The undetoxified fraction is eliminated within 16 hours, mostly through urine. In addition to nicotine, tobacco contains pyridine and other nitrogen bases, volatile acids, phenolic tar substances, especially acrolein and furfural, which is supposed to have a carcinogenic effect. It stimulates the adrenaline secretion of medulla adrenal gland, causing tachycardia, increased peristalsis, temporary hyperglycemia, etc. It acts upon the supraoptic pituitary system, stimulating the secretion of antidiuretic pituitary hormone, inhibiting aqueous secretion [1.2]. Nicotine acts on the sympathetic and parasympathetic ganglia, firstly stimulating them and then inhibiting them, creating a stimulation in the central nervous system (tremors and convulsions) and then a depression of the nerve cells. It also influences the breathing centers, the vasomotor and vomiting centers [3.4].

Smoking effect on the digestive system: smoking decreases gustatory perception of sweet products, then of bitter ones (the esterases of the papilla buds are destroyed) and, ultimately, of salty and sour ones. Smoking cessation enables restoration of normal taste function (5). Initially, the salivary secretion (as well as bronchial secretion) increases and then decreases with CNS inhibition. The gastric secretion increases due to the vagus nerve but the acidity decreases during interdigestive periods, which can cause ulcers. Tobacco consumption increases gastrointestinal peristalsis through vagal stimulation (Bargeron). It is assumed that it also influences biliary secretion, causing spasms

in Oddi sphincter, with gallbladder stasis. Tobacco consumption affects the circulatory system as well, causing tachycardia, peripheral vasoconstriction, and ischemic events in the myocardium [6,7,8,9]. Smoking influences food preferences and leads to a liking for food rich in fats, spicy sauces, sour aliments, etc. Smokers consume more meat, eggs, butter, cheese and milk compared with nonsmokers. These alimentary habits lead to hyperlipidemia and hypercholesterolemia and, consequently, to atherosclerosis [10].

It is a well-known fact that smoking reduces fitness. It does this in a number of ways, chiefly by reducing the amount of oxygen available in the body. Since oxygen plays a major role in energy production, even a minor depletion has an impact on physical performance. [11]. The present paper starts from the following assumptions:

- The 1st hypothesis:

Physical deficiency is frequently the limiting factor in performance.

Smoking definitely affects health, acting negatively on physical development and exercise capacity. In Romania the number of smokers represents 50% of the population, smoking registering high incidence in adolescents.

- The 2nd hypothesis:

Smoking is definitely a risk factor for low back pain in adolescents. This finding is very important as epidemiological studies have shown that low back pain in adolescence represents a predictive factor of lumbago in adulthood.

- The 3rd hypothesis:

Correction of the recorded pathological aspects can be done by remedial medical gymnastics exercises within the training sessions or physical education lessons, saving thus the time needed to go to a specialized

clinics and emphasizing the role of the physiotherapist in school and / or sports team.

We recommend that athletes should avoid smoking, considering its unpleasant and even dangerous effects.

Material and methods.

The present study involved a total of 107 adolescents, aged between 15-18, practicing various sports, selected on the basis of their regular medical control at the Sport Polyclinic, Craiova. The investigated athletes practiced basketball, table tennis, rhythmic gymnastics. The subjects were selected considering their medical files and records of previous physiotherapy examinations performed in the Sports Polyclinic of Craiova between 1999-2002. The evaluation of their physical development was based on somatoscopic, anthropometric and physiometric examinations, proportion indices and nutritional status assessment. The somatoscopic examination was preceded by the subjects' medical history, their family antecedents with possible implications in growth and development. The physical deficiencies in junior athletes were classified and analyzed in terms of etiology, severity, rehabilitation treatment and preventive measures.

The classification of postural deficiencies was made according both to the criteria outlined in the theoretical part of this work and to the corrective measures proposed by adjusting the athletes' training in rehabilitation purpose, considering the counter-indications of sports performance. The complex examinations were completed by dynamometric and myotonometric measurements, the rehabilitation treatment having consisted in medical gymnastics, corrective posture methods and toning methods for poor muscle tone. The subjects were medically evaluated within a period of 12 months, with initial assessments at 6 months and 12 months. The evaluation included clinical examination, orthopedic examination, somatic and somatoscopic examinations. The initial assessment consisted in a questionnaire on the subjects' conditions of life and work, quantitative and qualitative assessment of their nutrition, non-sporting habits: smoking (no. cigarettes / day, type of cigarettes, smoking addiction period, smoking parents, smoking entourage). The lumbago occurring at least once a week during the prior 6 months was considered significant from the medical point of view.

* The study took into consideration the fact that basketball had certain unilateral influences, especially on the spine and muscles despite the fact it is a complex game involving natural movements (running, jumping and throwing). These technical data specific to this tactical game were presented in detail in the theoretical part.

* Also, while practicing table tennis, the player's basic position predisposes to the appearance and installation of faulty spine posture attitudes (kyphosis, scoliosis), as well as to certain deficiencies such as the right shoulder down, hypotrophy of the left arm and, generally, of the left hemithorax. Knowing the cause of all these deficiencies it is, therefore, imperious to take preventive steps.

Gymnastics requires all motor skills (strength, skill, speed, endurance); it encourages the development of certain motor skills and useful dynamic stereotypes and also gives a high degree of coordination and mastery of movements to the musculoskeletal system. We expect, therefore, a lower number of physical deficiencies in the group of gymnasts investigated.

As the first study method we used the meta-analysis method (a review of specialty literature), because we felt that the specialty literature review is not simply a summary of the fundamental works but a logical type of research that leads to validate the findings, to evaluate the assumptions, possibly to reconsider the theory and the proposed hypotheses.

Results.

Of the 107 adolescents studied, 69 were smokers, and the remaining 38 non-smokers. In the first period of evaluation (0-6 months) 19% of smokers and 11% of non-smokers had low back pain and during the next assessment period, 6-12 months, 14% of smokers and 7% of non-smokers had lumbago pain. Moreover, there was a direct relationship between the number of cigarettes consumed daily and the incidence of low back pain, with a rate of 2.28 for an average consumption of 1-25 cigarettes / week, and of 3.78 for a higher consumption (more than 25 cigarettes / week). Therefore, smoking is definitely a risk factor for low back pain in adolescents. This finding is very important as epidemiological studies have shown that low back pain in adolescence represents a predictive factor of lumbago in adulthood.

1. Following the recording and interpreting the above mentioned parameters in the lot of basketball studied, 30% of the subjects had a very good orthostatic posture, 60% of them showed a good orthostatic position and 10% had a satisfactory orthostatic position (Fig. 1). As for the position of the shoulders and clavicles, there were recorded inclinations and asymmetries in 30% of cases and designed scapulae in 30 of the cases investigated.

In the studied group 50% of subjects showed normal thorax (NT), 30% flat thorax (FT) and 20% cylinder thorax (T), the limits ranging between 12 cm and 3 cm, as shown in Fig. Two.

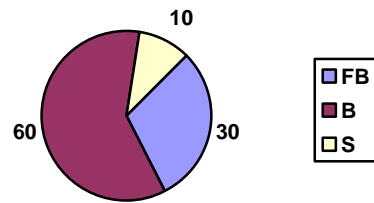


Fig. 1

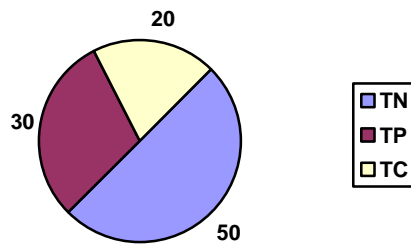


Fig. 2

In one case pelvic examination revealed an asymmetry of the lower limbs. All female athletes showed normal abdomen in terms of volume and disposition of body fat but a lower tonicity of the abdominal muscles in 40% of cases, which corresponded to the type of the identified physical deficiencies. Most of them recorded unequal development of abdominal and paravertebral muscle mass.

Examination of the upper and lower limbs did not show any deviation from the normal values in terms of symmetry or in terms of their properties, except for one case in which the left leg was 1 cm shorter than the right leg.

We left the spine analysis in the last place because there were recorded several deviations from the normal, but none of the postural faults seriously affected the athletic performance. Thus, there were recorded paramorphisms (kyphotic posture) in 30% of cases, dorsal kyphosis in 30% of cases, dorsal scoliosis with right convexity in 30% of cases, the spine axis in 30% of cases. The dorsal kyphosis identified was of grade I and II and was chiefly due to a low tone of paravertebral muscles. The dorsal scoliosis showed right convexity, which is explained by asymmetric predominant usage of the right upper limb in playing basketball.

2. Data processing of the above mentioned parameters in the studied group of athletes practicing table tennis showed that 30% had a very good orthostatic posture, 60% had a good orthostatic posture and 10% had a satisfactory orthostatic position (Fig. 3). We recorded inclinations and asymmetries of the shoulders and clavicles in 30% of cases and projected scapulae in 30 subjects.

In the studied group 70% of the subjects had normal thorax (NT) and 30% of them asthenic thorax (AT), as shown in Fig. 4.

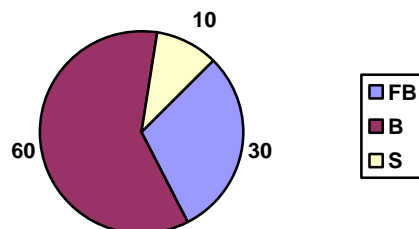


Fig. 3

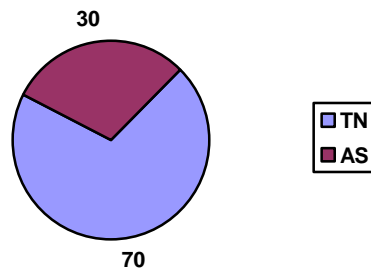


Fig. 4

All the studied athletes showed a normal abdomen in terms of volume and disposition of body fat, but a lower tonicity of the abdominal muscles in 40% of the cases, which corresponds to the identified physical deficiencies.

Examination of upper and lower limbs showed no deviation from normal values in terms of symmetry or proportions.

The values recorded for the spine were as follows:

- spine axe: 10%;
- scoliosis degree: 10%;
- scoliosis degree: 10%;
- kyphosis degree: 10%;
- kypholordosis: 10%;
- spine straightness: 10%;
- kyphoscoliosis: 20%;
- lordosis: 20%.

All the cases of dorsal scoliosis showed right convexity, which is explained by the asymmetric posture while performing table tennis, predominantly in the upper limb. It is, therefore, important for coaches to determine and adapt certain training programs, including compensatory exercises to counter this postural distorting effect. Thus, it is recommended for the subjects to perform specific exercises which require powerful movements to have a stronger muscle contraction in the affected side of the body.

3. In the studied group of rhythmic gymnasts we recorded only 60% of lumbar lordosis, without any pathological changes. The study of the muscle groups required in specific exercises of rhythmic gymnastics was completed with indications, when necessary, to develop back muscles and abdominal belt muscles (to control the body balance during specific flight positions, to strengthen the upper limb kinematic chains, the chains of triple flexion and simple extensions of the lower limbs, to create the capability of reflex relaxation of antagonistic muscles, of alternative or simultaneous execution of muscle contraction and relaxation).

Conclusions

Following data analysis and processing we can highlight the following conclusions:

1. Of the 107 adolescents studied, 69 were smokers, and the remaining 38 non-smokers. In the first period of evaluation (0-6 months) 19% of smokers and 11% of non-smokers had low back pain and during the next assessment period, 6-12 months, 14% of smokers and

7% of non-smokers had lumbago pain. Moreover, there was a direct relationship between the number of cigarettes consumed daily and the incidence of low back pain, with a rate of 2.28 for an average consumption of 1-25 cigarettes / week, and of 3.78 for a higher consumption (more than 25 cigarettes / week). Therefore, smoking is definitely a risk factor for low back pain in adolescents. Epidemiological studies have shown that low back pain in adolescence represents a predictive factor of lumbago in adulthood.

2. Although basketball is one of the most complex sports games consisting of natural movements (running, jumping and throwing), the musculo-articular application is uneven, leading to physical impairments in the long practice. The recorded deficiencies were somatic, partial and mild or moderate in severity, without limiting performance significantly.

3. There were recorded inclinations/asymmetries in the shoulders and clavicles position in 30% of cases and also posterior scapulae projections in 30% of the cases.

4. 50% of cases showed normal thorax, 30% of the athletes had flat thorax and 20% of them cylinder thorax. Also, there were recorded rickets sequelae in 50% of the studied subjects.

5. Spinal examination revealed vicious attitudes of kyphotic type and dorsal kyphosis of degree I / II 30% of cases, and dorsal scoliosis with right convexity in 30% of cases.

6. In rhythmic gymnastics there were recorded lumbar lordosis in 60% of cases.

7. The subjects practicing performance table tennis were shown to be predisposed to faulty spine posture and vicious attitude of the left shoulder.

8. 70% of cases showed normal thorax, 30% of the athletes had asthenic thorax. Also, there were recorded rickets sequelae in 50% of the athletes studied.

9. Pelvic examination revealed normal values in all athletes.

10. Examination of upper and lower limbs showed no deviation from the normal values in terms of symmetry and proportions.

11. Spinal examination revealed: spine axes in 10% of cases, scoliosis degree I / II in 20% of cases, kyphosis in 10% of cases, kypholordosis in 10% of cases, spine rectitude in 10% of cases, kyphoscoliosis in 20% of cases and lordosis in 20% of cases.

12. We consider that these posture disorders are due to asymmetric application in the right side of the body

(scoliosis), and insufficient development of paravertebral muscle groups.

13. It is highly recommendable that sports coaches should adapt specific training programs to meet compensatory physical exercises to counter the distorting postural effort.

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14. The treatment of the recorded physical deficiencies include: respiratory gymnastics, paravertebral muscle toning exercises, scapulae designed exercises.

15. Considering the unpleasant and even dangerous effects of smoking, we recommend that athletes avoid this harmful addictive habit.

Step by step to the future with “Zoli Box” for normalizing the orto-kinetic function

Pasztai Zoltan

University of Oradea.

Abstract: Aims The study evaluated the efficient use of the physical therapy, for normalizing the stato-kinetic function: the efficiency of the prophylaxis and the treatment through movement; assuring the muscular agonist-antagonist balance of the stato-kinetic function. **Methods.** The study has been performed on 5 groups children (n=76), selected lots, that were examined and tested for this research, were made of children and pupils of 6-10 years. During the research we applied different programmes using the modern approaches of physical therapy, hydro-stretching, respiratory techniques, specific methods for increasing the functional parameters. **Results** The comparisons between the groups in relations to diagnoses >following index p-p: significant level of $p < 0,002$, the value $t = -1,63$ The correlations in relation to the comparison to the entire experimental groups have an average of the minimal values of -3,51 mV with a standard deviation of 0,723, a maximum of 3,47 mV with a standard deviation of 0,760, the variable p-p has an average of 6,99 mV with a standard deviation of 1,48 and a median of -0,014 with a standard deviation of 0,008. **Conclusions** The muscular force of the quadriceps shows an increase to all experimental groups which is confirmed by the left/right knee mobility test, the combined box test, and EMG registrations for left and right limbs. As a consequence the studied aspects can be dealt with in a future research, (modul and model Bernstein and the functional comportament development)

Key words: stato-kinetic function, muscular stretching technique, functional parameters, proportionality indexes

Introduction

Neuromotric development - psychomotor development, regulating, correcting the stato-kinetic functions of children happen once in a life time, between the age of 0-12.

The main goal of the postural control in human beings is to maintain a stabile antigravitational position with the protection of the mobile weight center on the support surface of different sizes and distances from the weight centre.

There were a lot studies regarding the very existence of the strategy of head stabilization in space. The head plays an essential role in the:

- *geocentric* process (orientation on the vertical)[1];
- *egocentric* process (head orientation in regards to body);
- *exocentric* process (orientation towards an object from the environment).

A difficult problem to explain (within the automatic postural responses that take place until the neuromotric maturization and gait can be obtained as “a final product”) is the appearance of an activity of muscle shortage and stiffness within the muscles that are not active in the moment of recovery from a disequilibrium – a sort of agonist-antagonist disequilibrium. This can be observed in the medical checkups of the first months of life (see Figure 1.1).

Material and Methods

Hypothesis

Applying the physical therapeutic methods, especially the Proprioceptive Neuromuscular Facilitation techniques, the stretching techniques, is beneficial to obtaining the statokinetic function and the independent gait as a “final product”, as well as the ability to run for children of 6-9 with dysfunctions in the locomotor system or other disabilities.

Tasks

The kinetic treatment and using the stretching techniques on the spiral dynamic [1,2], and model , modul Bernstein concept, helps the child and motivate our preoccupations to take into consideration each of the function, until the development or maturization is over (age 12).

The evolution of the function underlines the sequences and the alternatives of the stability and mobility, of the symmetry and asymmetry, as well as *the independence of the stato-kinetic function, obtaining as a final result the independent gait and running. We can notice the following phases of the motor control: prefiguration, discovery, specialization.*

The strategy of the central axis, in my opinion [1], has to go through the following stages in regards to the motor control of the segmental area and of elaborated and controlled movements.

These stages are:

1. The strategy of head and neck control;
2. The strategy of movement and control of scapular-humeral belt and upper limbs;
3. The strategy of recovery and control of dorsal –lumbar spine;

4. The strategy of lumbar-sacral-buttock area within the spine-pelvis-hip connection;
5. The strategy of lower limbs (knee and ankle);
6. The strategy of the trunk and basin for standing up from quadruped position, from

- kneeling to orthostatic and obtaining the orthostatic unipodal control ;
7. The gait with all its implications and forms (with and without aiding devices).

Figure 1.1 Examining the muscular tone in children [1]

Age	Baling	Extensibility of the popliteus angle	Extensibility of the adductors angles
New born	absent	90°	30°
2-4 months	minimal	100°	60°-
4-6 months	medium	120°- 130°	90°- 100°-
8-10 months	almost normal	140°-160°	120°-
12 months	normal	180°	140°-

The voluntary movement is taking place according to a preexistent program of the registered engrams. The voluntary contribution has an initiation role, a sustaining or stopping the functional “torrent”. The motric activity of the children in the experiment (figure 1.2) is interesting in regard to electromyographic registrations and their interpretation in histograms, (Figure 1, 2, 3, 4).

The physical therapy is based on the neuromuscular physiology of engrams that are formed on the principle of repetition – as a base of obtaining the movements, postures or coordinate positions, and finally the global stato-kinetic function , posture , the gait and running as “final product”.

If physical therapy is based on the idea of maintaining unaltered the physiological conditions of NMAK apparatus, it is obvious that the any type of dysfunctions will be the premise for the therapeutic kinesiology and functional recovery.

The necessary conditions for accomplishing the training therapeutic program, the therapeutic movement directed towards the precise, direct and conscious control in the studied groups were, (Figure 1.2.):

- understanding the directions and the capacity to cooperate dependent of age, IQ;
- establishing a quiet setting in the room so that the patient could concentrate;
- positioning the patient so that he/she is relaxed in the most areas (if not complete) of the muscular groups, eliminating the increasing of the general muscular tone;
- integrating the sensorial segment (sensitive feedback) in order to receive the

correct motor performance, i.e. intact proprioception and teleception;

➤ absence of pain so that the patient can perceive very clearly the articular movement as being provoked by the muscular contraction;

➤ range of motion in joints with approximate 20° – 30° greater than the arch of motion that causes pain, if not the inhibition through fear of pain produces;

➤ freedom of movement, because the appreciation of the movement sensation in rapport to the muscular contraction represents the first important steps in creating the motor engrams;

➤ educating the active inhibition of the patient, which is the base of acquiring the motor engrams with selective excitation and inhibition;

➤ sequential progression of the motor activity towards scull-caudal direction, from slow, easy, isolated movements to more complex ones with an increasing effort, speed and force;

No matter the condition of the locomotor apparatus, the goals of the recovery program are based on recreating and maintaining the fundamental myo-arto-kinetic parameters for a life without pain, mobility, force, resistance, coordination, elasticity, flexibility with the purpose of raising the quality of patient’s life [1,2].

During the unipodal support the muscular chains [1] remain the same as in the bipodal orthostatic, the only difference is that the entire weight is transferred to the muscular chains of the lower limb that supports the weight.

An important role is played by the middle psoas-iliac-buttock muscle. Through its position, this muscle forms on the anterior area of the coxo-femur joint an authentic muscular strap that pushes the femur head backwards and thus becomes an anterior-intern stabilization until the middle buttock muscle is in a triangle position, with the angle facing the inside, forming a lateral muscular strap that pushes the lateral area of the great trochanter. The femur head pushes the cotil and becomes a lateral stabilization for the hip.

The dysfunction of the abductor muscles and especially of the middle buttock muscle triggers inevitably the basin disequilibrium. When the support is made on the affected limb (monoplegia, left hemiparesis etc.) the basin falls on the dysfunctional side, which means that the clinic sign is present, i.e. Trendelenburg sign.

The muscles that are responsible for the basin equilibrium belong to the pelvitrohanter group (middle buttock muscle, small buttock muscle, pyramidal muscle) and from pelvicrural group (tensor fascia-lata m., right anterior m, tailor m.), the result of their action is the muscular force equilibrated in unipodalism.

The anterior-posterior and lateral oscillations of the body that are necessary to maintain equilibrium in standing on one foot are greater than in standing on both feet, producing important modifications of pressure on the

coxo-femural articulation and on the bone segments of the knee. The two functions are inseparable and interconditioned, because any posture is maintained or is changed through movement, and any movement starts with a correct, harmonious, and coordinate posture. Their reciprocal interconditioning is perfect for the ontohereditary evolution of the posture and human locomotion. Their separation is made only from a didactic point of view, with the purpose of a better systematization and representation of the data for the students during their study and practice.

The analyses can be easily made, and every lesson might include specific tools of measurement that allow data analyses. We can use the following: *peak to peak, maximum, minimum, slope, standard, deviation, frequency, BPM, delta time, mean, area and integral.*

There are available configurations like: ultimate, advanced, basic, core. Utilizing the device is the best method to study human or animal physiology, to experiment with it. Each BLS system contains a high performance unit of data acquisition, electrodes and transmitters.

The experiment content - Initial investigations

Figure 1.2. Distribution of the experimental group according to peri and post natal conditions – diagnosis [1]

		Frequency	Percent
LOT A	Clinic healthy	24	31,6
LOT E	Neuromotor CP	15	19,7
LOT C	Hearing dysfunctions	12	15,8
LOT B	Mental retardation	9	11,8
LOT D	Sight dysfunctions (amblyopic)	16	21,1
	Total	76	100,0

The conclusions during the initial tests taken during the physical education classes and the movement or recreative therapy have showed the following major features: dysfunctions of postural and muscular equilibrium, uncontrolled orthostatic, unipodalism and locomotion. Some other features are:

- dysfunctions in regulating the muscular force of the lower limbs;
- difficulty to voluntarily accomplish to relax the muscular chains, muscular groups and the movement itself;
- precision of the movement is lower;
- difficulties of the voluntary muscle control;
- when the movement is executed in the absence of the eye control (experimental group D) there is the tendency to execute the movements like “in the mirror”;
- relaxation time is very much diminished, i.e. the active and passive time of action during a physical exercise (Ergosim and Biopac system testing / investigation) is very different.

Results of the Biopac System investigation

The following figures 1,2,3,4, [1] are just a few examples of the total number of registrations:

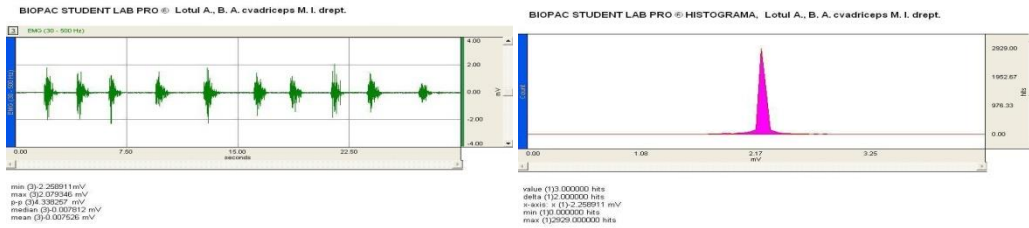


Fig . 1 Exemple of EMG and histogram of A group

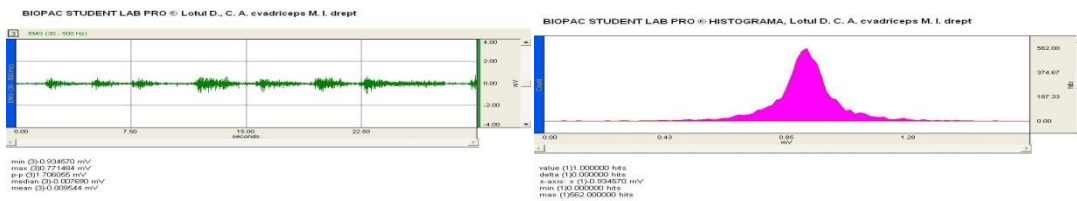


Fig . 2 Exemple of EMG and histogram of D group

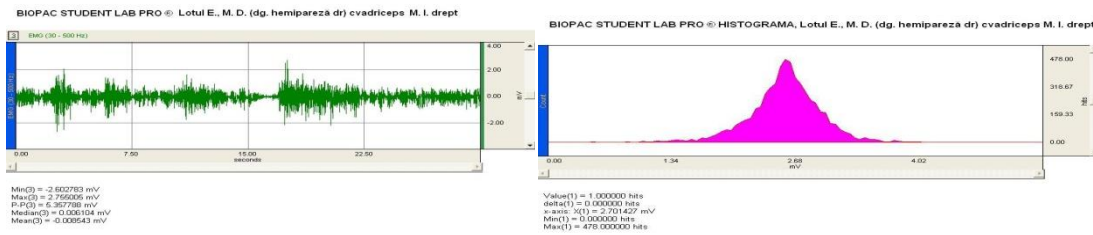


Fig . 3 Exemple of EMG and histogram of hemiparetic E group

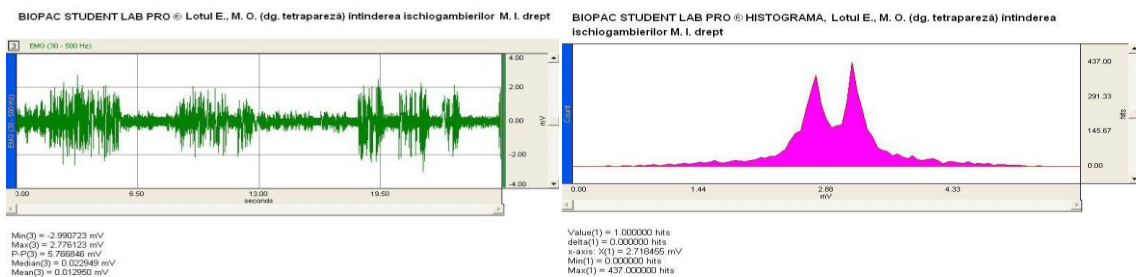
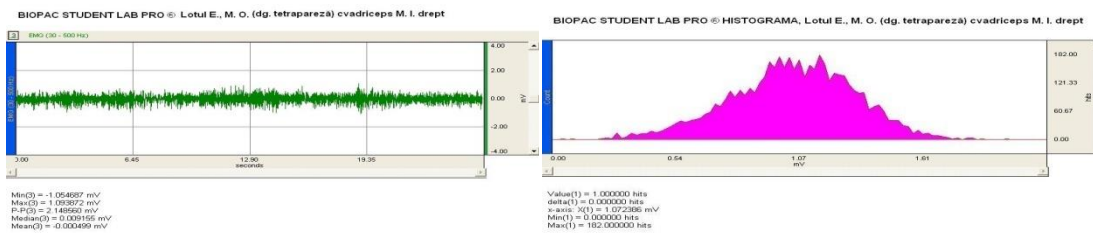


Fig . 4 Exemple of EMG and histogram of quadriplegic E group

The discussion regarding the electromyographic values of the right lower limb of the extensor quadriceps muscle is as follows:

The correlations regarding the comparisons of the entire experimental group has an average of the minimal values of -1,62 mV, a maximum of 1,62 mV, variable p-p has an average of 3,25 mV and a median of -0,017mV.

The correlations made between the experimental in relation to their diagnoses have the **following minimal values:** Hearing dysfunctions ↔ amblyopic with the value $t = -2,36$ and a significant level of $p < 0,003$, Hearing dysfunctions ↔ healthy children with the value $t = 1,76$ and a significant level of $p < 0,005$, Amblyopic ↔ healthy children with the value $t = 3,86$ and a significant level of $p < 0,001$.

The correlations between the experimental groups in relation to their diagnoses have the **following maximal values:** Hearing dysfunctions ↔ amblyopic with the value $t = 2,46$ and a significant level of $p < 0,002$, Hearing dysfunctions ↔ healthy children with the value $t = 1,32$ and a significant level of $p < 0,001$, Amblyopic ↔ healthy children with $t = 3,63$ and a significant level of $p < 0,001$.

The correlations between the experimental groups in relation to their diagnoses have the **following index p-p:** Hearing dysfunctions ↔ amblyopic children with the value $t = 2,46$ and a significant level of $p < 0,002$, Hearing dysfunctions ↔ healthy children with the value $t = -1,63$ and a significant level of $p < 0,011$, Amblyopic ↔ healthy children with the value $t = -3,97$ and a significant level of $p < 0,001$.

The correlations between the experimental groups in relation to their diagnoses has the **following median index** (the tendency of the central values): Hearing dysfunctions ↔ amblyopic children with the value $t = -0,113$ and a mediocre significant level of $p < 0,005$, Hearing dysfunctions ↔ healthy children with the value $t = -0,973$ and a mediocre significant level of $p < 0,38$, Amblyopic ↔ healthy children with the value $t = -0,89$ and a significant level of $p < 0,38$.

The correlations between the experimental groups in relation to their diagnoses have the **following media index:** Hearing dysfunctions ↔ amblyopic with the value $t = 0,295$ and a mediocre significant level of $p < 0,05$, Hearing dysfunctions ↔ healthy children with the value $t = 1,40$ and a mediocre significant level of $p < 0,17$ Amblyopic ↔ healthy children with the value $t = 1,228$ and a significant level of $p < 0,23$.

The discussion regarding the electromyographic of the left lower limb of the extensor quadriceps muscle is as follows:

The correlations in relation to the comparison to the entire experimental groups have an average of the **minimal values** of -3,51 mV with a **standard deviation** of 0,723, a maxim of 3,47 mV with a standard deviation of 0,760, the variable p-p has an average of 6,99 mV with a standard deviation of 1,48 and a median of -0,014 with a standard deviation of 0,008.

The comparisons between the groups in relations to diagnoses have the minim, maxim, p-p, median and average values as follows:

Minimum values; Hearing dysfunctions ↔ amblyopic children with the value $t = 0,48$ and a mediocre level of significance of $p > 0,63$, Hearing dysfunctions ↔ healthy children with the value $t = 1,92$ and a limit level of significance of $p < 0,05$, Amblyopic ↔ healthy children with the value $t = 2,5$ and a reasonable mediocre level of significance of $p < 0,02$. **Maxim values:** Hearing dysfunctions ↔ Amblyopic with the value $t = 0,576$ and a mediocre level of significance of $p < 0,05$, Hearing dysfunctions ↔ healthy children with the value $t = -1,92$ and a mediocre level of significance of $p < 0,066$, Amblyopic ↔ healthy children with the value $t = -3,97$ and a very good level of significance of $p < 0,001$.

Median values: Hearing dysfunctions ↔ Amblyopic with the value $t = -2,82$ and a mediocre level of significance of $p < 0,011$, Hearing dysfunctions ↔ healthy children with the value $t = 0,749$ and a mediocre level of significance of $p < 0,05$, Amblyopic ↔ healthy children with the value $t = 0,777$ and a mediocre level of significance of $p < 0,05$. Average values: Hearing dysfunctions ↔ Amblyopic with the value $t = -1,225$ and a mediocre level of significance of $p > 0,22$, Hearing dysfunctions ↔ healthy children with the value $t = 0,09$ and a mediocre level of significance of $p < 0,05$, Amblyopic ↔ healthy children with the value $t = 0,049$ and a lower level of significance of $p > 0,9$.

A special comparison was made between the children with neuromotor dysfunctions who have the muscular groups are spastic, an inappropriate voluntary muscular control and the children from the other experimental groups.

The discussion regarding the electromyographic values of the right lower limb of the extensor quadriceps muscle is as follows:

Minimal value: Neuromotor ↔ Hearing dysfunctions with the value $t = -2,12$ and an acceptable level of significance of $p < 0,052$,

Neuromotor ↔ Amblyopic with the value $t = -3,64$ și un grad de semnificație bună de $p < 0,003$, Neuromotor children ↔ healthy children with the value $t = 0,97$ and a low level of significance of $p > 0,34$.

Maximal value: Neuromotor children ↔ Hearing dysfunctions with the value $t = 1,78$ and an acceptable level of significance of $p < 0,009$, Neuromotor children ↔ Amblyopic with the value $t = 3,5$ and a good level of significance of $p < 0,004$, Neuromotor children ↔ healthy children with the value $t = 0,97$ and a low level of significance of $p > 0,377$. The value p - p : Neuromotor children ↔ Hearing dysfunctions with the value $t = 1,985$ and a good level of significance of $p < 0,005$; Neuromotor children ↔ Amblyopic children with the value $t = 3,6$ and a good level of significance of $p < 0,004$, Neuromotor children ↔ healthy children with the value $t = 0,98$ and a low level of significance of $p > 0,333$.

Median value: Neuromotor children ↔ Hearing dysfunctions with the value $t = 2,47$ and a good level of significance of $p < 0,002$, Neuromotor children ↔ Amblyopic with the value $t = 2,60$ and a good level of significance of $p < 0,0023$, Neuromotor children ↔ healthy children with the value $t = 0,76$ and an acceptable level of significance of $p < 0,47$. Average value: Neuromotor children ↔ Hearing dysfunctions with the value $t = 0,80$ and an acceptable level of significance of $p < 0,434$; Neuromotor children ↔ Amblyopic with the value $t = 0,756$ and an acceptable level of significance of $p < 0,465$, Neuromotor children ↔ healthy children with the value $t = 1,21$ and an acceptable level of significance of $p < 0,241$.

Conclusions:

1. Comparing the results of the initial tests (Ti) with the results of the final tests (Tf) between the experimental group and intra groups (76 patients) we can notice the following;
2. The increase of the neuromotor performance regarding the motor control and obtaining the final product of neuromotor maturation, the gait in Lot D and Lot E (neuromotor);
3. The muscular angles and values have increased in all experimental groups, the muscular force increased especially in lot D (Amblyopic) and C (Hearing dysfunctions);

4. Fighting the major dysfunctions for all experimental groups, especially the lots D, C and even E (neuromotor); independent gait with a better energetic consume especially in lot D (Amblyopic) and slower with a higher energetic consume in lot E (neuromotor); ameliorating the symptoms regarding the spastic muscles, reducing the effects especially at children with hemiparesis in lot E (neuromotor);

5. In some cases we obtained an independent running especially in the lot C (Hearing dysfunctions) and D (Amblyopic).

6. The muscular force of the quadriceps shows an increase to all experimental groups which is confirmed by the left/right knee mobility test, the combined box test, and EMG registrations for left and right limbs.

7. Our research offers a lot of practical data and the experiment has an applicative value that can be used as scientific material (using the system *Biopac*, physiological tests and somatometrics) for practicing motion therapy, using the most effective kinetic means, NFP techniques, muscular stretching in 6-9 children, with dysfunctions of the neuro-mio-artro-kinetic apparatus and other dysfunctions in obtaining the independent and correct locomotion and running, for a better quality of life.

8. We could not deal with all the problems related to stretching technique and other forms of assessment or tests (more actual and modern).

9. As a consequence the studied aspects can be dealt with in a future research, (modul and model Bernstein and the functional comportament development).

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Some personality traits that entail the efficiency of sports manager behavior

Corneliu Novac

The University Of Craiova, Teaching Staff Training Department

Abstract: The current research tackles a particular aspect of psychosocial problem of efficient sports management: the extent to which psychological variables related to the personality of the leader may condition the efficiency and implicitly the performances of his managerial actions. By applying the NEO PI-R questionnaire to 10 sports managers in the district of Dolj, we have come to the conclusion that the most important psychological variables that influence the efficiency in management are: sociability, agreeability openness to new teaching experiences, analytical and emotional intelligence.

We have also tried emphasize the skills needed for a sports manager in his attempt to fulfill the requirements resulting from his status and to motivate his subordinates in achieving the goals of the organization, be it a team of students or a sporting institution/ organization.

Key words: *managerial efficiency, the BIG FIVE model, sociability, openness to creative ideas, agreeability, reliability, emotional intelligence.*

Introduction

1. Managerial efficiency – a multi-determined psychosocial variable

The term ‘management’ found its way into the field of sports activities due to the institutional personnel’s preoccupations to, on the one hand, bring to light all the organizational resources available and to increase the efficiency of the sports performances, on the other hand. In this regard, the actions undertaken by sports management are to increase the performances of the sporting organizations.

All the psychological researches agree on the complex multi-factorial features of success achievement in “the science and art of leadership in socio –human organizations”, as the field of management is synthetically defined [1,2,3,4,5,6]

Management is a science because its is based on synthesizing and generalizing the practical experience of leadership, on the formulation and application of principles and laws of leadership, on the implementation of the most efficient solutions to the problems of a socio –human organization.

Management is at the same time ‘the art’ of the leader in achieving objectives through the mobilization of efforts on the part of all the members in that particular organization. In other words, management is the art of working with four elements: ideas (the prospect, the objectives, syllabi, strategies); relations (organizational structures, relations between elements, actions, tasks, the authority/freedom balance, centralization/decentralization); people (training, motivation, release from authority, stimulation, evaluation); resources (specification, diversity, preoccupation, adaptation, functionality, integration, further training) [7]

In this respect, the success of any management activity in the field of sporting organizations presupposes taking into consideration in equal measure all the possible psycho-social implications which may determine the efficiency of the leader’s behavior, as well as those which make up the respective sporting institution. In other words, the psychological dimension of the personalities of those involved in the organizational relationships should provide the

starting point and the finishing line in achieving the success of leadership in the educational activity.

Psychology research indicates that success, especially in the sporting field, is conditioned by psychological components such as: general aptitudes and special psycho-pedagogical ones, the capacity of self-perception, the motivation for self-achievement, of social appreciation, psycho-social competence etc. [8]

2. Modern research on evaluating the structure and dynamics of personality within the framework of managerial requirements

The uniqueness of one’s personality and behavior represents a priority in the explanatory preoccupations of psychology. Recent psychological research in this direction indicates that the infinite variability defining the psychological specificity of the human way of being is determined by the simultaneous differentiation of the traits of personality, on several levels.

These psychological structures result from the impact of basic psychological and motivational tendencies, on the one hand, and from the psycho-social variables (parental or educators’ requirements, influences from the social cultural norms, from the entourage etc.) on the other. The structures in question account for the multitude of adaptive conducts of the subject or for the characteristic adaptations, as specialized terminology names them. These conducts are nothing but the phenotypical expression of basic psychological tendencies of an individual’s and of his/her personality features. As a subdivision of these specific adaptations there arises a person’s self image and simultaneously we witness the emergence of the cognitive, affective and behavioral infrastructure of the character structure of that person.

As shown by psycho-genetic research, the character is interiorized with respect to all the values transmitted by the socio-educational environment to the child as requirements to abide by. Once internalized, these values will influence the child’s behavior, the character being the highest ranking structure of relations and self-regulatory for personality. Concluding, character traits in leaders or subordinates may affect the organizational activity in a positive or in a negative way.

3. The methodology of research, concepts, objective, investigation approaches

On the basis of recent research in the field of personality psychology, the present research has sought the accomplishment of the following objectives:

- establishing a set of features relevant for the efficient behavior of a sports manager;
- setting into practice a valid model of evaluation for the respective features;
- establishing a profile for the successful manager in the sporting field based on the relation between the personality traits and the specific behavior generated by them.

Our investigative attempt has relied for theoretical support on the latest and most notorious personality explanatory theoretical concept i.e. the five dimension factorial model conceived by P.T. Costa and R.R. McCrae. [9,10,11,12]. In this respect, we restore a summary of the factors of the Big Five and their constituent traits:

- Openness to experience: (inventive/curious vs. consistent/cautious); appreciation for art, emotion, adventure, unusual ideas, curiosity, and variety of experience; openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety a person has; it is also described as the extent to which a person is imaginative or independent, and depicts a personal preference for a variety of activities over a strict routine;
- Conscientiousness: (efficient/organized vs. easy-going/careless); a tendency to be organized and dependable, show self-discipline, act dutifully, aim for achievement, and prefer planned rather than spontaneous behavior;
- Extraversion: (outgoing/energetic vs. solitary/reserved); energy, positive emotions, surgency, assertiveness, sociability and the tendency to seek stimulation in the company of others, and talkativeness;
- Agreeableness: (friendly/compassionate vs. analytical/detached); a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others; it is also a measure of one's trusting and helpful nature, and whether a person is generally well tempered or not;
- Neuroticism: (sensitive/nervous vs. secure/confident); the tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, and vulnerability; Neuroticism also refers to the degree of emotional stability and impulse control and is sometimes referred to by its low pole, "emotional stability".

The Big Five Model was defined by several independent sets of researchers that began by studying known personality traits and then factor-analyzing hundreds of measures of these traits (in self-report and questionnaire data, peer ratings, and objective measures from experimental settings) in order to find the underlying factors of personality [13]

From a methodological point of view, we have used the NEO-Personality Inventory-Revised Questionnaire

(idem) in order to identify the dominant personality traits, as they are configured in the structure of the personality of the successful manager.[14]

The subjects tested included 10 sports managers with acknowledged experience in the field of sports management, participating in a post-university training course.

4. Presentation and interpretation of research data

The data obtained as a result of using the NEO PI-R questionnaire have revealed the fact that following competences are of the utmost importance in management efficiency. They are tightly related to personality traits. The most important ones are listed below:

-Sociability: the most successful managers display considerable social skills, which is understandable since they spend most of their time in relationship with their subordinates;

-Openness to creative ideas: successful managers are usually open to new teaching experiences;

-Agreeability contributes to managerial success; good managers are generally cooperative and flexible, knowing how to rephrase a difficult situation in positive terms;

-Reliability is characteristic of a good manager in the sense that when asked to perform certain actions, the others need to know they can rely on him/her;

-Analytical intelligence is found in successful managers, helping them think strategically;

-Emotional intelligence makes successful managers be aware of their own qualities and defects, thus helping them create and maintain social relations.

The way in which these personality features are manifested in action proves very useful to managers in the sporting performance field.

5. Conclusions

An efficient management operates under the conditions of psycho-social relations within an organization, setting into value the psychological resources of the members in that organization, which is also valid in the sporting performance field. From here derives the idea that the manager of an sporting organization (be it a team of students or an educational institution) should take into consideration all the psychological and social implications of the management dynamics. In this regard, the sports manager should take into account all the invisible psycho-dynamic processes that influence the behavior of the members in that organization, the one-on-one relations that exist in the sub-groups and in the entire organization.

Also, the manager must identify the potential personality disorders of the subordinates and forward measures to counteract them. This type of measures refers to the acknowledgement of dysfunctional behavior.

By knowing these personality structures the manager will be able to identify to a greater extent the sense and significance of various behavioral motivations of subordinates in the organization. Thus the manager will have at his disposal a variety of measures for effective intervention in solving interpersonal conflicts as well

as for better understanding his/her own decisions thus ensuring the performances of the organization under his leadership.

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