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PHYSICAL EDUCATION AND SPORT

OPTIMIZING THE PSYCHOMOTOR SPEED SKILL-THROUGH THE PHYSICAL EDUCATION CLASS USING MOVEMENT GAMES AT THE AGE OF 10

Enescu George Alexandru Platini[1], Frățilă Ion[2], Cojocaru Monica Virginia[3]

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Abstract

Early school age is a very important stage in the formation of pupils from all points of view: psychomotor, emotional, cognitive.
According to the specialized literature of our field, the age of 6-10 years is the most favorable for the optimization of motor skills.
In the physical education class, movement games are the most eagerly awaited activities by students. They contribute directly to the development of psychomotor skills, the education of personality traits and the shaping of moral values.
This study is a fact-finding one and its main objective is to monitor and optimize the psychomotor speed skill.

Keywords: *motor skills, speed, physical education, games, young age.*

1. Introduction

Speed is the ability to perform motor acts and actions with the whole body or parts of it, in the shortest possible time, therefore with maximum accessible rapidity, depending on the existing conditions (Gh. Cârstea 1993-1997).

At the age of 10, movement games play a very important role as well.

The game generally „reflects the reality of life, but in the same time it subordinates life to some of its laws. It aims to change the surrounding reality, but it is obliged to prepare man for a creative life, to present himself as an important source of formation of human culture" (Balint Gh., (2009).

In the physical education class, movement games are the most expected activities by students. They contribute directly to the development of psychomotor skills, the education of personality traits and the shaping of moral values.

Research hypothesis: The use of action systems in the form of movement games according to individual characteristics in the physical education class will help to improve the parameters of speed psychomotor skill.

2. Material and method

In order to achieve the proposed objectives, we used the test as a research method.

For our research we applied the test "Shuttle 5 x 5 m" (present in the National Assessment System) both before and after the completion of the learning unit with topics in psychomotor speed skills.

We mention that the study was carried out at the level of the 4th grade A (10 boys and 10 girls) at the age of 10 from the Aletheea Secondary School, Sector 1, Bucharest.

The 20 students in our research are 10 years old, are medically fit and participate in physical education classes constantly on Mondays and Wednesdays for 50 minutes.

The test was applied twice before, as well as also after 4 weeks in both classes and the best repeat was taken into account.

The proposed program took place over 4 weeks (September 13, 2021-October 11, 2021).

In this paper we used the psycho-pedagogical ascertaining experiment, which aims to compare the data obtained by students of 4th grade A based on 2 variables:

Independent variable (Iv) represented by the proposed, differentiated program that takes place at the level of thematic links using motion games.

The dependent variable (Dv) refers to psychomotor skills: reaction speed, execution speed, repetition speed.

For the data analysis, processing and interpretation we used the computerized graphic method

SHUTTLE TEST 5 X 5 meters (test provided in the National Assessment System for primary education)

Tested skill:

Reaction, execution and repetition **speed**

Means required to perform the test:

- outdoor field or sports hall;
- track or floor with a smooth non-slip surface;
- two observers;
- a timer;

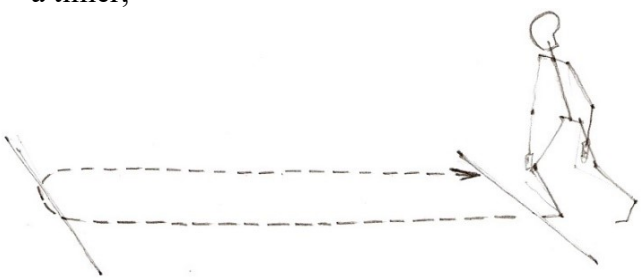

Figure 1 *Shuttle test diagram 5x5m*

Test description:

On the track there are two parallel lines at a distance of 5 meters, one of them being the starting line and the other being the finish line. The two observers will be placed to each of the two lines. The timer is held by the one close to the finish line.

The subject is in the top starting position, behind the starting line. At the signal, he runs at full speed to the second drawn line, touches the ground behind him with both feet, returns at the same speed to the starting point and, without stopping, resumes the route. He has to run 5 times that distance, which means 25 meters.

The timer is started by the observer when the subject's hind leg leaves.

On the last route, the observer placed close to the finish line stops the timer when the subject has completely crossed the finish line.

The aim is for the subject to cover the distance as quickly as possible.

The assessment (scoring)

The assistant records the best time obtained in the two tests.

Table no.1 *Scoring scale for speed class 1* (According to the National Evaluation System)

EVALUATED SKILL	**EVALUATING INSTRUMENTS**	**4th grade A**					
SPEED	Shuttle 5x5	Boys			Girls		
		S	B	FB	sS	B	FFB
		6.2	6.1	6.00	6.6	6.5	6.4

3. Results and Discussions

After the initial testing on September 13, 2021, the 2 classes have the following values:

Table no.2 *Initial results of the 5 x 5 m Shuttle test*

4th grade A			
No.	Pupil's first and last name Boys	Speed 5X5m **I**	Score
1	A.N	6.4	FB
2	A.M	6.4	FB
3	B.A	6.4	FB
4	C.R	6.4	FB
5	C.I	6.35	FB
6	L.A	6.37	FB
7	N.L	6.32	FB
8	N.F	6.39	FB
9	O.S	6.40	FB
10	P.C	6.39	FB

11.	O.A	5.50	FB
12.	U.D	5.95	FB
13.	E.D	6.00	FB
14.	R.A	5.45	FB
15.	EA	5.99	FB
16.	A.I	5.85	FB
17.	V.D	5.61	FB
18.	R.M	6.00	FB
19.	M.T	6.00	FB
20.	M.G	5.69	FB

Table no. 3 *Interpretation of initial results*

At the level of 4th grade A, AVERAGE is 121.86 s	Standard deviation 6.093 s

Below we present the exercise program proposed for the level of 4th grade A which took place between September 13, 2021 - October 11, 2021 at the level of learning units with topics in psychomotor skills.

Table no. 4 *The program of games at the level of the thematic link 4*

Game description	**Timing**:	**Purposes:**	**Rules:**
1. Cops and thieves Two of the children have two cones in hand and chase the others (these are called "Cops"). The others, who are "thieves", must flee from them in order not to be touched. When a policeman touches a thief, the second one must freeze with his feet apart. In order to re-enter the game, another thief must pass between his legs. Every minute we will change the policemen so they will not get too tired. The policemen will try to catch as many thieves as possible, and the thieves will try to be	4-6 minutes	Development of spatial orientation, speed of movement, speed of reaction, attention and teamwork.	Touching is done softly on the back without bumps.

careful not to get caught and save as many frozen colleagues as possible.			
2. The traffic light Pupils move to the middle of the field or of the sports hall. The teacher has in his hand 3 cones of different colors: red, orange and green. When showing a color, students have different tasks to perform: -on green they run - on orange they run with an ankle play; - at the red color they sit in the squat position	2-4 minutes	Development of attention, speed reaction and spatial orientation.	It is necessary for students to follow the rules of the game.
3. Tig on the lines of the field Pupils run on the delimited lines of the field / sports hall. Lines can be white, red, or other colors. The game starts at the teacher's signal, those who are the chasers have a cone of the same color in their hand. They chase their colleagues on the lines. When they touch a colleague, the touched one becomes the chaser (receives the cone) and runs after the others.	3-6 minutes	Developing agility, speed of execution and speed of movement.	The touch is as natural as possible, without hitting. Those who become the chaser are not allowed to immediately touch those who have just been the chasers.

4. The fish net The students are divided into 2 teams: fish and net. Those in the net team take on orange T-shirts and hold their hands. At the teacher's signal, the net begins to run the fish. When a fish is touched it joins the net. It is played until the last student is touched and then the net is changed.	3-7 minutes	Developing teamwork, agility and movement speed	The touch is as natural as possible, without hitting.

Final results: From October 11, 2021

Table no.5 *Final results of the 5 x 5 m Shuttle test*

4th grade A			
No.	Pupil's first and last name Boys	Speed 5X5m **I**	Score
1	A.N	6.38	FB
2	A.M	6.33	FB
3	B.A	6.39	FB
4	C.R	6.37	FB
5	C.I	6.31	FB
6	L.A	6.30	FB
7	N.L	6.30	FB
8	N.F	6.33	FB
9	O.S	6.35	FB
10	P.C	6.35	FB
11.	O.A	5.45	FB
12.	U.D	5.80	FB
13.	E.D	5.89	FB
14.	R.A	5.30	FB
15.	E.A	5.84	FB
16.	A.I	5.70	FB
17.	V.D	5.55	FB
18.	R.M	5.96	FB
19.	M.T	5.95	FB
20.	M.G	5.60	FB

Table no.6 *Interpretation of final results*

At the level of class IV A AVERAGE is 120.45 s	Standard deviation 6.0225 s
Difference between averages 1.41 s	Standard deviation 0.71 s

Table no.6 shows the final results and progress rates at the level of class IV-A progress rate 1.4 1%

4. Conclusions:

Following the final results obtained (from table no. 5) and the interpretation of the data, we notice that the use of motion games contributed to the improvement of the results of all participants.

The proposed 4-week program helped to optimize the parameters of psychomotor speed skill in the lower limbs at the age of 10 years.

There is a progress of 1.41% for the 4th grade A.

Therefore, the use of drive systems in the form of motion games has helped to improve the parameters of psychomotor speed skill, which leads to the validation of the research hypothesis.

Bibliography

1. Balint Gh., (2009), Jocurile dinamice - o alternativă pentru optimizarea lecției de educație fizică cu teme din fotbal în învățământul gimnazial (*Dynamic games - an alternative for optimizing the physical education lesson with football topics in secondary education*), Pim Publishing House, Iași, p.19.
2. Dragnea A., Bota A., Stănescu M., Teodorescu S., Tudor, V., Şerbănoiu S., (2006), Educație fizică și sport - teorie și didactică - (*Physical education and sports - Theory and teaching* -), Ed. Fest, București.
3. Epuran M., (2005), Metodologia cercetării activităților corporale (*Methodology for researching body activities)*, Ed. Fest, București.
4. Gagea A., (2010), Tratat de cercetare științifică în educație fizică și sport (*Scientific research treatise in physical education and sports),* Ed.Discobolul, București.
5. Niculescu M., (2003), Metodologia cercetării științifice în educație fizică și sport (*Scientific research methodology in physical education and sports)*, Ed. Bren, București.
6. Raţă Gl., Raţă B., (2006), Aptitudinile în activitatea motrică *(Skills in motor activity*), Editura Edusoft, Bacău.

7. Tudor V., (2005), Măsurare și evaluare în educație fizică și sport (*Measurement and evaluation in physical education and sports)*, Ed. Alpha, București.
8. Șchiopu U.,Verza E., Psihologia vârstelor (*Psychology of ages),* Editura Didactică și Pedagogică, R.A, București;

ASPECTS RELATING TO THE ONLINE PHYSICAL EDUCATION

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Abstract

In the context of the current situation where sports classes are carried out from home, the role of the teacher is to find those exercises that can be adapted to the small space at home, but also the lack of sports materials (cones, balls, circles, etc.). The aim of the study is to find the most effective exercises that can be performed at home, in a small space, with improvised materials, for the conduct of the physical education lesson during the Covid-19 pandemic. It is assumed that the use of improvised objects that we have in the house can lead to the conduct of a fun and attractive online physical education lesson. A number of improvised objects were used to perform online classes: socks, toilet rolls, sheets of paper, plastic bottles filled with water, balloons, pens, broom tails. The exercises used were mainly aimed at developing motor skills. The executors worked with pleasure, the exercises being considered fun and easy to perform. The teacher's biggest problem, however, remains the fact that not all students can be seen when practicing, so that they can be corrected.

Key words: *physical education, online, drills*

1. Introduction

Online schooling is a challenge for both teachers and students. If for other subjects the meeting on the Zoom platform does not raise special problems, for the physical education teacher it is a challenge to find those ways to capture the attention of the participants in the courses and also to respond to the requirements of the curriculum (https://adevarul.ro/locale/slatina/cum-loc-orele-educatie-fizica-online-mi-a-fost-greu-adaptez-lectie-practica-baza-exersarea-1_5eb2c8025163ec427182989c/index.html).

Unlike other subjects in the school curriculum, for physical education there is no textbook, so teachers must turn to all the creativity they can show. For teachers it was hard to adapt a practical lesson in which the basis is practice.

For some teachers it was difficult to use online platforms. Another problem faced by the teachers was the lack of space and necessary materials, given that the teacher has to demonstrate the exercise in front of their own webcam, in their own home, and the students are also going to do it in front of the cameras from their own gadget in their home.

If unlike the classes in other subjects, where the student sits on a chair and writes at a table, so it is static, in physical education classes, the student must move and for this he needs space, and the teacher must simultaneously watch dozens of small squares on a monitor to see what and how the students perform the required exercises. The biggest problem, however, remains that the teacher cannot observe the students practicing, so he cannot correct them.

In the context of the current situation where sports classes are performed from home, the teacher's role is to find those exercises that can be adapted to the small space at home, but also to the lack of sports materials (cones, balls, circles, etc.).

2. Material and method

The aim of the study is to find the most effective exercises that can be performed at home, in a small space, with improvised materials, for the conduct of the physical education lesson during the Covid-19 pandemic.

The hypothesis of the study. It is assumed that the use of improvised objects that we have in the house can lead to the conduct of a fun and attractive online physical education lesson.

In conducting the lesson, the teacher must use the following means (Ungureanu A., 2013):

- Stating the exercise, explaining, demonstrating the technique, describing the exercise;
- Execution by the students of the exercises.

By stating the exercise, the teacher names exactly, correctly, the exercise, the test, the technical procedure proposed for learning.

The explanation (Feflea I., 2012, p. 28) is the rational, logical argumentation of a motor action, of the component parts, of their succession as well as of the influences on the organism. It becomes prevalent in secondary and high school cycles.

The demonstration is the most efficient method of intuitive instruction and involves presenting in front of the students the execution of various motor acts (Cârstea Gh., 1997, p.130).

To demonstrate in physical education means to present to students the concrete execution of the motor action to be appropriated.

In physical education and sport, it is used (Feflea I., 2012, p. 33):

- demonstration: performed by the teacher is also called "directly" or by a subject in the group, it being called a "mediated" demonstration;
- demonstration with objects;
- demonstration with substitutes (drawings, photographs, mannequins, videos, etc.);
- the combined demonstration: each of the forms presented above does not appear in "pure" form but includes some of the others.

3. Results and Discussions

For online classes, a series of improvised objects can be used: socks, toilet paper rolls, small pillows, plastic bottles filled with water, balloons, pens, broomsticks.

In physical education lessons held at home, in the living room, the following exercises can be performed:

a. With pens:

- From standing on two close legs, holding 5 pens in one hand, the bending of the trunk is performed and a pen is placed on the ground with the free hand. It then lifts each pen individually;
- From sitting on one leg, the same exercise as above. It is executed with both one leg and the other. It is aimed at maintaining balance throughout the exercise, the student is not allowed to put the other leg down until he finishes putting on the floor and then lifting all the pens.
- The same exercise, but with the placement of the pens as far away as possible and then their recovery.

b. Toilet paper rolls:

- From standing, passing the paper from one hand to the other through the front and back, to the right of the hips, then to the face-neck;
- From standing in one leg, passing the paper under the raised leg. It runs out of sitting on each leg.
- From facial lying down, the paper held with one hand, the passage of the paper on the back from one hand to another followed by its passage over the head;
- Jumping front-to-back, left right over rolls of toilet paper put on the ground. You can perform jumping on two legs or on one leg;
- From the pushup, 4 rolls placed on one side, one roll moves to the other side, without stopping. It executes the movement of the rollers on both sides;
- In a space where 3 steps can be performed, 4 rolls of toilet paper are placed at one end. By running, the toilet roller are moved from one side to the other, one by one (the commute);
- 4 rolls of toilet paper in front of the student, the rollers are moved (one by one) from front to back from standing, then with bounce by turning.

c. With socks tucked into each other:

- Socks held with a hand, pushing them forward into the wall/door;
- Throwing them with one hand up and catching with two;
- Throwing from one hand to the other over the head;
- Throwing up and forward at 1 m;
- Throwing in the makeshift basket from a box (basketball). The box sits on the ground, then on a chair, then on an object above;
- Makeshift goal from a box, shot at the gate, with socks as a ball (football);
- Driving socks among plastic bottles (as milestones);
- The sock held under the chin/ between the knees/ between the soles, walking or jumping and letting the socks fall into a box placed at 2-3 m;
- Throwing at the target in the door/wall

d. Small pillows:

- Throwing two hands forward-up and letting it fall in front of the student;
- Throwing two hands from the chest into the wall/door;

- Pillow on the floor in front of the pupil, bending the trunk and grabbing the pillow, lifting it through the front above the head and letting it fall to the back;
- The swaying of the pillow from one side to the other. Pillow placed on one side, lifting it to the opposite side.

e. broomstick (stick):

- from standing with the legs apart at the level of the shoulders, the stick of heads grabbed, raising and lowering it in front of the body;ditto bending the side torso with the arms up or the stick held at the nape of the neck;
- from standing with the legs apart at the level of the shoulders, raising and lowering the stick from the nape of the neck, from the chest;
- from standing with the legs apart at the level of the shoulders, raising the stick with one hand to the side, laterally – up;
- from standing with the legs apart at the level of the shoulders, the stick held by the middle, the left-right twisting of the arm with the stick;
- from standing with the legs apart at the level of the shoulders, the stick held by the ends, in the back, the swing of the stick through the back left-up, right-up.

f. balloons:

- hitting the balloon with one hand so as not to let it fall on the ground. pass to the volleyball in the wall;
- bottom service at the volleyball;
- hitting the balloon with one knee without letting it fall.

g. plastic bottles filled with water (as dumbbells):

- one bottle in each hand, raise and lower the arms forward, laterally;
- the alternating lifting with one arm forward;
- from standing or sitting, flexions of the forearm on the arm, simultaneously;
- from sitting on the chair, bent torso, raising and lowering of the arms to the side;
- from sitting on the chair, flexions and extensions above the head alternately.

Of course, others can be added to these exercises, everything depends on the imagination and interest of each teacher. Of great help, in the case of lessons held online is the possibility of watching videos on physical education topics that are found in abundance on the Internet.

4. Conclusions

1. The exercises used are mainly aimed at developing motor qualities.
2. Performers can work with pleasure, the exercises are considered fun and easy to perform.
3. What unfortunately the Internet cannot do, is to allow the teacher to follow the students closely. The teacher's biggest problem remains that not all students can be seen when practicing, so they cannot be corrected.

Bibliography

1. Cârstea Gh., (1997), *Educația fizică Teoria și bazele metodicii,* Ed. Universității Ecologice București.
2. Feflea I., (2012), *Tehnici specifice de predare* - curs, Oradea http://www.fefsoradea.ro/PDF/curs/Feflea/curs_tehnici_specifice.pdf.
3. Ungureanu A., (2013), *Teoria educației fizice și sportului,* Ed. Bren, București.
4. https://adevarul.ro/locale/slatina/cum-loc-orele-educatie-fizica-online-mi-a-fost-greu-adaptez-lectie-practica-baza-exersarea-1_5eb2c8025163ec427182989c/index.html

CONTRIBUTIONS REGARDING THE INTRODUCTION OF PHYSIOTHERAPEUTICS MEANS INTO THE ONLINE PHYSICAL EDUCATION LESSON

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Abstract

Physical Education Curricula today offer students the opportunity to be not only physically active, but also the opportunity to learn skills and behaviours that lead to the maintenance of physical activity for a lifetime. Articular gymnastics is a systematization of physical exercises, oriented according to the main axes and motion plans of the moving joints, taken as motor units. Static exercise further develops bone strength, joint stability and isometric muscle strength, while dynamic exercises especially develop the physical qualities of movement: strength and endurance, speed and coordination. The aim of this paper is to introduce physiotherapy exercises to relax the spine in online physical education classes in universities. In the physical education lessons carried out at the Christian University "Dimitrie Cantemir" from Bucharest were introduced physiotherapy exercises, students managed to feel a relaxation of the spine, and as such, the pains due to prolonged sitting on the chair have diminished or even disappeared. Some exercises from the Williams program, exercises with cane were used. The exercises used were intended to tone the muscles of the back, in order to obtain a correct position of the spine, but also in order to relieve pain and stabilize the spine in the long term.

Key words: *exercises, physical therapy, spine*

1. Introduction

Physical education has a formative character, aiming at preparing subjects for life and focusing on harmonious physical development, the development of basic motor qualities necessary in everyday existence, on the ability to transfer motor skills acquired in the lesson in everyday life, as well as on the development of personality traits (Scarlat E., Scarlat M.B., 2002).

Physical education contributes to the transmission of knowledge about the human body, physical exercise, exercise hygiene, movement biomechanics, regulations of sports branches, etc. (Ungureanu A., 2013).

Physical education in education also has to do with recuperative activities. It concerns a preventive aspect – in particular – and of a corrective type (up to a certain level of deficient physical attitudes) (Dragnea A. et al., 2006, p. 109).

Physical education curricula offer pupils and students the opportunity to be not only physically active, but also the opportunity to learn skills and behaviours that lead to the maintenance of physical activity for a lifetime.

Joint gymnastics is a systematization of physical exercises, oriented according to the main axes and planes of movement of the moving joints, taken as

motor units. Static physical exercises develop more the strength of bones, the stability of joints and the isometric force of muscles, while dynamic exercises develop especially the physical qualities of movement: strength and resistance, speed and coordination (Mureșan E., 2006).

2. Material and method

The aim of this paper is to introduce physiotherapy exercises to relax the spine in online physical education classes in universities.

Hypothesis of the work. It is assumed that the application of physical therapy exercises from the Williams program in the physical education lesson can help relax the back muscles.

In the school year 2020-2021, a study was carried out on the students of the "Dimitrie Cantemir" Christian University of Bucharest, in the physical education classes carried out online. The exercises were applied to all first-year students from 5 faculties of the university, both from full-time and part-time courses. The application of these exercises was done in the second part of the lesson.

3. Results and Discussions

Back pain is a very common current problem, affecting about 8 out of 10 people (among pregnant women the percentage is about 50%) and the trend of this percentage being increasing.

These pains are aggravated by efforts, by carrying weights, by long standing or at the office, but they are relieved by resting horizontally.

Relaxation of the body is a relaxation, a calming of the body after physical exertion beyond the normal range.

Global relaxation can be achieved if the subject is placed in a quiet room, which does not disturb his attention orientation towards the actions to be performed (Albu C-tin, Armbruster T.L., Albu M., 2012, p. 86).

This condition being ensured, the subject may adopt one of the following positions:

- supine decubitus on the ground or on the bed, with arms outstretched beside the body, calves stretched or flexed;
- facial decubitus, arms outstretched above the head;
- on one side, the knees stretched or bent to the chest;
- quadruped.

The spine has an important static and dynamic role, as a fixed support of the segments of the upper half of the body and as a mobile axis of the head and neck.

The dynamic function of the spine depends on its mobility: the movements of each intervertebral joint are very small, but in sum reach high amplitude, especially in the cervical and lumbar region (Moțet D., 2011, p. 52).

The Willliams program is one of the physical therapist programs used in the pathology of the lumbar spine. The Williams program is referred to in the literature as Williams lumbar flexions or Williams exercises. The program was proposed by Dr. Paul Williams. He published in 1937 the program for patients with back

corneal pain, following the clinical observation that most patients had the pains due to disorders in the vertebral discs.

From the multitude of exercises in the Willliams Program I have chosen only those that can be performed by those who do not have a particular condition, but I tried to use the exercises only to relax the back in general.

The exercises performed throughout the lessons with the students were:

a. From the dorsal decubitus:
- plantar and dorsal flexion of the ankles; alternating lifting of one outstretched leg at 90°;
- raising a knee to the chest simultaneously with the bending of the trunk to a knee, palms at the nape of the neck;
- raising a knee to the chest, simultaneously with the bending of the trunk and with the hands comprise the knee;
- the same exercise, but performed with both knees;
- with the leg stretched out and raised to 90°, turns of the heel to the right, then to the left;
- runs with both legs; arms stretched above the head, ankles in flexion, hold the position;
- knees bent with the soles on the ground, the distance and approach of the knees are carried out;
- lowering the knees bent to the left and right, with the arms to the side, the palms on the ground, and the head moves in the opposite direction to the knees; alternate movements are executed;
- raising the pelvis with bent knees, soles on the ground;
- with both knees to the chest, rotations of the knees to the left and to the right;
- bicycle with palms under the buttocks.

b. On one side:
- The body stretched out, the head on the forearm, alternately bends one knee at a time to the chest;
- knees bent, their distance and proximity;
- with the knee on the mattress bent the other stretched out, flexion of the outer leg with the pulling of the forehead to the knee, coordinated with the arm beside the hip, then stretching the leg;
- bringing the leg stretched laterally (abduction) simultaneously with raising the arm from the same side, stretched out (the other leg on the mattress is slightly flexed) then changing the side;
- the outstretched body, the arm opposite the working limb is supported by the ground, raising the lower limb stretched to the side; runs with both limbs;
- from the same position, ducting the lower limb stretched forward; runs from both the left and the right.

c. Quadrupedal (four paws):

- diagonals – opposite leg arm, stretching one leg back with an opposite arm stretched forward;
- alternatively, raising one knee between the arms at the same time as bringing the head to that knee;
- raising the back with the head between the arms, followed by its extension and bringing the head to the back;
- leaving the seat on the heel, palms stretched out on the ground, maintaining the position, then returning to the quadruped;
- leaving the seat on the heel, palms stretched out on the ground, moving the palms side by side, to the left and to the right.

d. Facial decubitus, arms stretched above the head:
- Simultaneous lifting of one arm and opposite leg, maintaining position.

e. Exercises with a broomstick (cane):
- The stick held by the ends, in front of the body, raising and lowering of the arms to the forward-up;
- with the cane at the back, raising and lowering of the arms;
- from standing with the arms stretched up, extending the arms and maintaining the position;
- pendulum the arms to the right then to the left until the stick reaches vertically, executed both in front of the body and in the back.

Exercises performed in physical education classes can be continued at home, every time the student spends a lot of time in the chair and not only.

4. Conclusions

As a result of the study carried out on the students, the following conclusions were reached:

1. In the physical education lessons carried out at the "Dimitrie Cantemir" Christian University of Bucharest, physical therapy exercises were introduced, the students managing to feel a relaxation of the spine and, as such, the pains due to prolonged sitting on the chair were diminished or even disappeared.
2. Some exercises from the Williams program were used, as well as exercises with a cane (it was replaced by a broomstick).
3. The exercises used had the role of toning the back muscles, in order to obtain a correct position of the spine, but also in order to calm the pains and stabilize the spine in the long term.
4. It is advisable for students not to sit for a long time at the work table, until fatigue would cause them to take an incorrect position, but to take breaks in which to perform a few physical exercises or lie on the bed.

Bibliography

1. Albu C-tin, Armbruster T.L., Albu M., (2012), *Kinetoterapie: metodologia poziţionării şi mobilizării pacientului*, Editura Polirom, Iaşi.

2. Dragnea A. și colab., (2006), *Educație fizică și sport – teorie și practică,* Ed. FEST, București.
3. Moțet D., (2011), *Kinetoterapia în beneficiul copilului (Corectarea deficiențelor fizice la copii),* Ed. SemnE, București.
4. Mureșan E., (2006), *Corectarea deficiențelor fizice*, Ed. Fundației "România de Mâine", București.
5. Scarlat E., Scarlat M.B., (2002), *Educația fizică și sport*, Edit. Didactică și Pedagogică, București.
6. Ungureanu A., (2013), *Teoria educației fizice și sportului,* Ed. Bren, București.

IMPROVING THE BEHAVIORAL DEVELOPMENT OF PRESCHOOL CHILDREN OF 5-6 YEARS OLD

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Abstract

The paper aims to improve the behavioral development of preschool children aged 5 to 6 years. The study involved 20 children of this age, corresponding to level II, senior group of the kindergarten with normal program within the "Maica Domnului" Middle School in Bucharest. The study was organized during 2020-2021 school year, from September 2020 to February 2021. The essential pedagogical tools for the achievement of the individualization of education and learning offered the possibility to identify both skills and difficulties of each child. In this sense, the form for assessing the individual progress of the child was applied at the beginning of the 2020-2021 school year. The evaluation focused on 5 fields: physical development, health and personal hygiene; socio-emotional development; development of language, communication and premises of reading and writing; cognitive development and development of world knowledge, capacities and attitudes in learning. Depending on the results obtained for each development field, a plan with improvement measures was proposed. The results of the study highlight the level of the behavioral development indicators in preschool children of 5-6 years old. The analysis of the indicators shows the individual development of each child and the group development as well regarding the behavioral qualifiers reached, in progress and which require support. Therefore, this evaluation and the results of each evaluated indicator do not represent a hierarchy and/or an individual diagnosis, but important information for guiding the practices of the educators / parents related to the optimal development of children in this age period.

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

1. Introduction

Early education was acknowledged as a systematic activity, carried out in specialized institutions, such as kindergartens, and known as preschool education/learning. To be aware of the somatic and functional particularities of the preschoolers is an absolutely necessary condition for the proper development of the instructional-educational activities in the preschool institutions (Dascal, 2018).

Preschool age is a time when significant changes in the child's emotional life take place. Thus, the emotions and feelings of the preschoolers accompany all their manifestations, either games, songs, educational activities or the fulfillment of the tasks received from the grown-ups (Istrate & Andrei, 2018).

The national Curriculum for early education intends to make a updating and restructuration required by the necessary correlation with the provisions and

recommendations included in the documents promoted at European level (CPET, 2019).

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

2. Material and method

The paper intends to improve the behavioral development of the preschoolers aged 5-6 years. The study involved the participation of 20 children of this age, representing the level II, senior group of the half-day kindergarten within the "Maica Domnului" Middle School of Bucharest. The study was conducted in the 2020-2021 school year, over a period of 6 months (September 2020 – February 2021).

The traditional methods of knowledge and assessment of the children were used, mainly the method of observation.

The essential pedagogical tools to achieve the individualization of education and learning offered the opportunity to identify both the skills and the difficulties of each child. In this sense, at the beginning of the 2020-2021 school year it was applied the form for the assessment of child's individual progress. The assessment monitored 5 fields: physical development, health and personal hygiene; socio-emotional development; development of language, communication and premises of reading and writing; cognitive development and knowledge of the world; skills and attitudes in learning. For each area of development, there were awarded: 5 points - A (behavior achieved), 3 points - D (behavior in development) and 1 point - Ns (behavior that requires support).

On the basis of the results obtained for each area of development, a plan with improvement measures was created.

3. Results and Discussions

Results of the assessment of the physical development, health and personal hygiene in the preschoolers aged 5-6 years in terms of behavioral indicators (BI): BI 1 - the child climbs and descends the stairs, not alternating the legs and without support; BI2 - he/she makes puzzles of 3, 4, 6 pieces and can highlight; BI 3 - he/she demonstrates oculomotor coordination in construction games, in puzzles making, in inserting objects on a sewing thread etc.; BI 4- the child can identify the things that can be eaten and the others that cannot be eaten; BI 5- the child is interested in going to toilet and can use it regularly; BI 6 - he/she tells the adult when someone hits him or does something bad to him/her; BI 7 – Another particular behavior of the child. The average values are 35.7% (A), 52.9% (D) and 11.4% (Ns) (table no.1, fig. 1).

Table 1 *Physical development, health and personal hygiene* (n = 20)

LIA	Behavior ind. 1		Behavior ind. 2		Behavior ind. 3		Behavior ind.4		Behavior ind.5		Behavior ind. 6		Behavior ind. 7	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Ns (1 point)					10	50					6	30		
D (3 points)	11	55	11	55	10	50	11	55	13	65	7	35	11	55
A (5 points)	9	45	9	45			9	45	7	35	7	35	9	45

Notes: LIA – level of indicator achievement; n – number of children; Behavior Ind. – Behavioral indicators; A (achieved behavior), D (behavior in development), Ns (behavior that requires support)

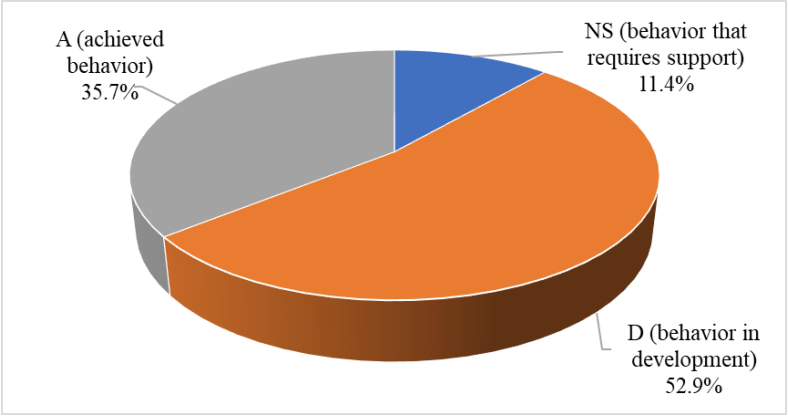

Fig. 1. *Physical development, health and personal hygiene*

Implemented improvement plan:

- Carrying out group/individual activities for body scheme awareness;
- Various activities for space orientation;
- Games for coordinating the movements according to rhythm, cadence, pause, sound signals;
- Games/exercises for practicing gross motor skills, fine motor skills and also sensory-motor development will be included in different stages of the day;
- Regularly organization of physical activities: running, dance, games or even sports;
- Knowing the beneficial or harmful role of some foods for human body;
- Verification and consolidation of personal safety practices.

The assessment of the „Socio-emotional development" area of the preschoolers aged 5-6 highlights, regarding the BI: BI 1 – the child interacts positively and plays with the grown-ups; BI 2 - he/she plays next to other child; BI 3 – he/she follows the group routines (e.g. behavior when having a meal); BI 4 – tells his/her name and age, if asked; BI 5 – recognizes simple emotions (fear, joy, sadness); BI 6 – Other particular behavior of the child. The average values are 33.3% (A), 51% (D) and 15% (Ns) (Table 2, Fig. 2).

Table 2 *Socio-emotional development* (n = 20)

LIA	Behavior ind. 1		Behavior ind. 2		Behavior ind. 3		Behavior ind. 4		Behavior ind. 5		Behavior ind. 6	
	n	%	n	%	n	%	n	%	n	%	n	%
Ns (1 point)	1	5			11	55					6	30
D (3 points)	10	50	12	60	9	45	11	55	13	65	7	35
A (5 points)	9	45	8	40			9	45	7	35	7	35

Notes: LIA – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Ind. – Behavioral indicators; A (achieved behavior), D (behavior in development), Ns (behavior that requires support)

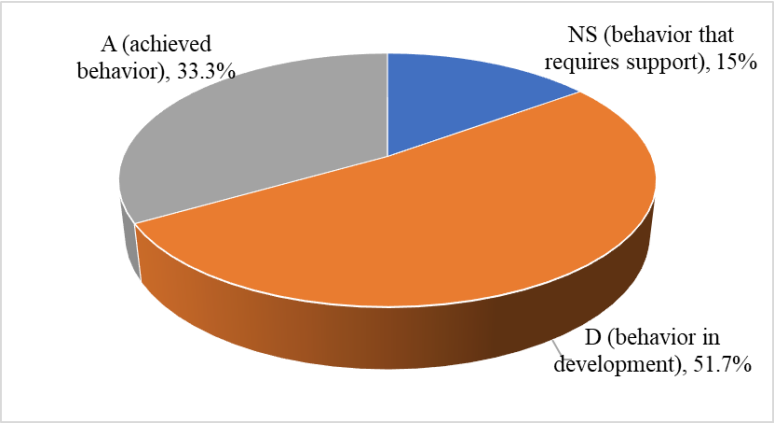

Fig. 2. *Socio-emotional development*

Improvement measures plan

- It will be checked if the preschoolers understand and follow the instructions of the adults concerning the appropriate behavior in various situations;
- The child says his/her family name, first name, age and address;
- Initiation/participation in activities/games with children of similar age;
- Children will be encouraged to show confidence in their personal developing skills;
- Stimulation of children in assuming age-specific responsibilities;
- Promoting the self-image in different emotional situations;
- Recognizing and expressing emotions produced by literary texts and musical pieces.

Results of the assessment of the „ Development of language, communication and premises of reading and writing" area in preschoolers aged 5-6 years in terms of BI: BI 1 – he/she acts appropriately on commands that include verbs (come, open/close etc.); BI 2 – the child formulates simple or developed sentences formed of 3, 4 words; BI 3 - „Reads" his/her favorite book to an adult or to himself/herself; BI 4 – the child describes what he or she drew/wrote or represented; BI 5 - Other particular behavior of the child. The average values: 35% (A), 56% (D) and 9% (Ns) (Table 3 and Figure 3).

Table 3 *Development of language, communication and premises of reading and writing (n = 20)*

LIA	Behavior ind.1		Behavior ind.2		Behavior ind.3		Behavior ind.4		Behavior ind.5	
	n	%	n	%	n	%	n	%	n	%
Ns (1 point)					9	45				
D (3 points)	11	55	11	55	11	55	11	55	12	60
A (5 points)	9	45	9	45			9	45	8	40

Notes: LIA – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Ind. – Behavioral indicators; A (achieved behavior), D (behavior in development), Ns (behavior that requires support)

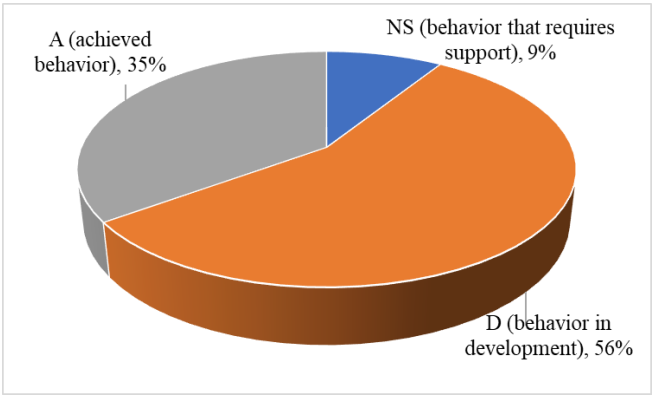

Fig. 3. *Development of language, communication and premises of reading and writing*

Implemented improvement plan:

- Use of correctly formulated sentences to communicate needs, ideas, actions or feelings during the daily activities;
- Stimulating the correct expression in speech: agreement in gender, number, person and time;
- Progressive extension of the active vocabulary by specific activities/games;
- Phonetic differentiation: words, syllables, sounds;
- Identification of written messages in the family environment or in the group room through attention and spatial orientation games;
- The children will be accustomed to discover various books and atlases according to their own interest or to the theme of the week/day;
- Practicing the skills of writing graphic elements, orientation in the page from left to right and from top to bottom.

Results of the assessment of „ Cognitive development and knowledge of the world" field in the preschoolers aged 5-6 as for behavioral indicators: BI 1- the child finds out and describes the similarity or difference between two objects of the same type (one ball is bigger than another, my skirt is the same as Maria's skirt etc.), BI 2 – the child uses the trial-and-error learning to solve problems ; BI 3 – he/she counts 1-3/5 items; BI 4- identifies the round shape/circle; BI 5 – expresses

the state of weather in relation to known phenomena ("Sun", "It snows", "It rains" etc.); BI 6 - Other particular behavior of the child. The average of the field indicators: 31.7% (A) 56.6%(D) and 11.7% (Ns) (Table 4 and Fig. 4).

Table 4 *Cognitive development and knowledge of the world* (n=20)

LIA	Behavior ind.1		Behavior ind.2		Behavior ind.3		Behavior ind.4		Behavior ind.5		Behavior ind.6	
	n	%	n	%	n	%	n	%	n	%	n	%
Ns (1 point)					8	40					6	30
D (3 points)	12	60	12	60	12	60	11	55	14	40	7	35
A (5 points)	8	40	8	40			9	45	6	30	7	35

Notes: LIA – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Ind. – Behavioral indicators; A (achieved behavior), D (behavior in development), Ns (behavior that requires support)

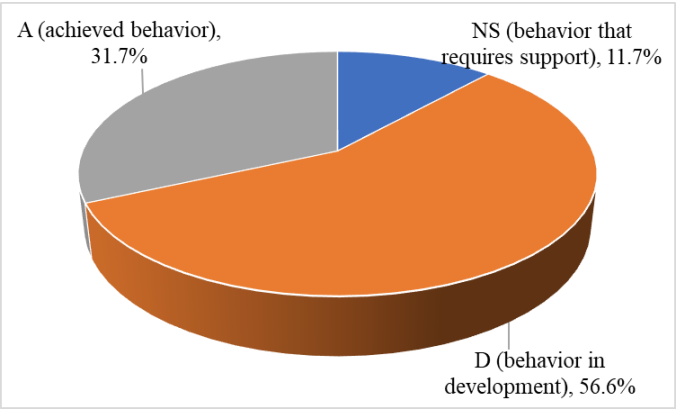

Fig. 4. *Cognitive development and knowledge of the world*

Implemented improvement plan:

- Use of manipulative mathematical toys, objects, games with numbers, coins in age-specific activities;
- To group objects that meet two criteria at the same time, in various games;
- Organization of activities that involve elementary mathematical representations: numbers, numerical representations, operations, concepts of space, geometrical shapes, understanding the given models;
- Identifying and naming the shapes of the objects in nature through spontaneous exercises;
- Carrying out games/activities through which it is possible to observe, describe and discuss about domestic/wild animals, natural phenomena, beings etc.
- Exercises helping to realize the sound – letter correspondence;
- Write the name correctly, according to a given pattern.

The results of the assessment of the „ Skills and attitudes in learning" area in the preschoolers aged 5-6 years regarding the BI: BI 1 – the child asks questions about

new people and unknown objects; BI 2 – he/she chooses an activity among several ones and carries out it for a short period of time (at least 5 minutes); BI 3 – the child tries, several times, a difficult tasks for a short period of time (to build a tower in 3-5 minutes); BI 4 – he/she pretends to be something or someone and uses his/her imagination while playing ; BI 5 - Other particular behavior of the child. The average is 34% (A), 56 (D) and 10% (Ns) (Table 5 and Fig. 5).

Table 5 *Skills and attitudes in learning* (n = 20)

LIA	Behavior ind.1		Behavior ind.2		Behavior ind.3		Behavior ind.4		Behavior ind.5	
	n	%	n	%	n	%	n	%	n	%
Ns (1 point)					10	50				
D (3 points)	11	55	11	55	10	50	11	55	13	65
A (5 points)	9	45	9	45			9	45	7	35

Notes: LIA – level of indicator achievement; I – initial; F – final; n- number of children; Behavior Ind. – Behavioral indicators; A (achieved behavior), D (behavior in development), Ns (behavior that requires support)

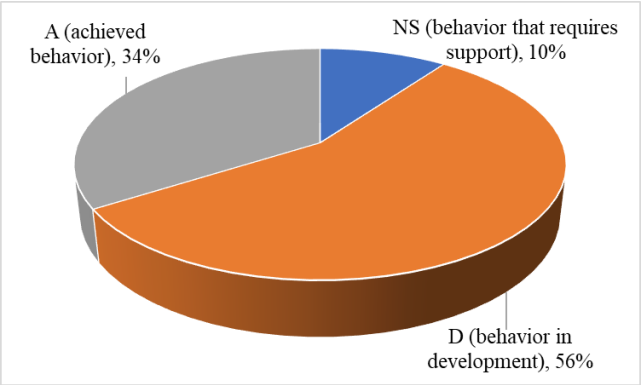

Fig. 5. *Skills and attitudes in learning*

Implemented improvement plan:

- Encouragement of the expression of satisfaction in discovering and discussing new information;
- Formulation of questions on the surrounding changes in certain situations;
- Suggesting the children to make a plan of an activity and putting it into practice;
- Performing a task and returning to it at different intervals of time and moments of playing;
- Stimulation of creativity by various activities (plastic, musical, practical ones);
- Initiation of the child-child, child-adult relationship through routines and specific transitions.

4. Conclusions

The results of the study highlight the level of the behavioral development indicators in preschool children. The analysis of the indicators listed in the individual progress sheet shows the following values: 33.9% of the children have a behavior already achieved; 54.5% of the children have a developing behavior; 11.6% are children with a behavior that needs support. Therefore, in this evaluation, each indicator analyzed does not represent a hierarchy and/or an individual diagnosis, but valuable information for the orientation of the practices of educators/parents related to the optimal development of children during this period.

Bibliography

1. Boncu, Ş., Dafinoiu, I. (2014) Psihologie socială şi clinică, Editura Polirom.
2. Cemortan, S. (2009). Aspecte metodologice de pregătire a copiilor pentru şcoală prin formarea competenţelor elementare de învăţare şi a atitudinilor. Studia Universitatis Moldaviae (Seria Ştiinţe ale Educaţiei), 5(25), p.47-49.
3. Cemortan, S. (2012). Formarea premiselor citirii şi scrierii în scopul socializării copiilor de vârstă timpurie. Studia Universitatis Moldaviae (Seria Ştiinţe ale Educaţiei), 9(59), p. 77-84.
4. Clichici, V. (2017). Metode de evaluare a performanţelor copiilor în domeniul „Dezvoltarea cognitivă şi cunoaşterea lumii" în educaţia timpurie. Evaluarea în sistemul educațional: deziderate actuale 2017. Conferința "Evaluarea în sistemul educațional: deziderate actuale", Chișinău, Moldova, 9-10 noiembrie 2017, p. 134-137.
5. Curriculum pentru Educaţia Timpurie – 2019 (CPET). MEN. Anexa la Ordinul Ministrului Educației Naționale nr. 4.694/2.08.2019.
6. Dascal A. (2018). *Repere teoretico-metodologice în pregătirea copilului pentru şcoală la domeniul „Dezvoltarea fizică, a sănătăţii şi igienei personale"*. Curriculumul şcolar 2018. Conferința "Curriculumul școlar", Chișinău, Moldova, 7-8 decembrie 2018, p. 223-227.
7. Dascal, A. (2017). Particularităţile specifice copiilor de 3-7 ani în cadrul domeniului „Dezvoltarea fizică, sănătatea și igiena personală". Managementul educaţional: realizări şi perspective de dezvoltare, Ediția 1, 2017. Conferința "Managementul educaţional: realizări şi perspective de dezvoltare", Bălți, Moldova, 27 aprilie 2017, p. 272-276.
8. Istrate, A., Andrei, M. (2018). Dezvoltarea socio-emoţională a copiilor preşcolari. Grădinița cu program prelungit nr. 28, Ploiești. Grupa mare Îngeraşii.

SPORT PERFORMANCE

CURRENT CONTROL OF FUNCTIONAL STATE OF ELITE WRESTLERS

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Plenary presentation

Concept

The modern stage in the development of elite sports is characterized, by the development of technologies that stimulate the athlete's working capacity. But we can see the ignoring of accumulated experience of sports science in the system of training of elite athletes.

Passion for pharmacological manipulations in elite sports has led to the need to introduce prohibited (doping) drugs, which is accompanied by a risk to the health and life of the athlete and leads to unfair competition.

There is a need to return to the origins of the system of scientific and methodological support of athletes on the basis of modern information technologies (fig. 1).

Fig. 1

Aim. Development of the structure of current control over the functional state of elite wrestlers in the training process.

Kinds of control for functional states of elite athletes

- operation;
- current;
- stages.

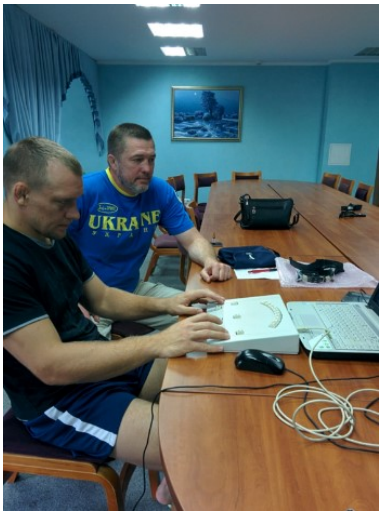


Fig. 2

But we believe that current control is more important for received information about states of athletes (fig. 2).

Tasks of scientific support of wrestling teams (fig. 3):

- Psychophysiological diagnostics;
- Estimates of state of autonomics systems;
- Psychology correction;
- Technical preparation;
- Correction of training programs.

Fig. 3

The psychophysiological characteristics of athletes are reflected:

- states of sensory perception (afferent component of physical activity);
- mechanisms of analyses and information processing (analytic component of physical activity);
- psychomotor realizing (efferent motor component of physical activity).



Neurodynamics

- balance of nervous process;
- estimation of latent period of visual-motor reaction;
- determination of functional mobility of nervous process;
- methods of determining the endurance (strength) of nervous system.

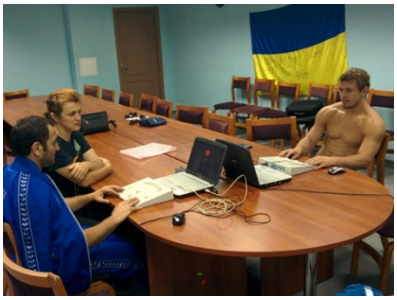
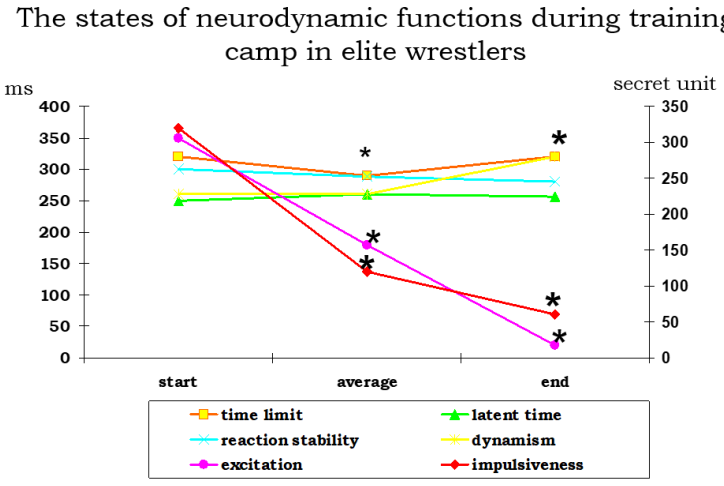



Fig. 4



The visual motor reactions in wrestlers during competition activity (n=34)

Visual motor reactions	Wrestlers who fulfilled throw	Wrestlers who not fulfilled throw
Simple visual motor reactions, ms	259,2±37,7	292,6±34,3*
Complex visual motor reactions, ms	354,3±28,9	396,7±32,6*

* - P < 0,04

The study of heart rate variability of athletes

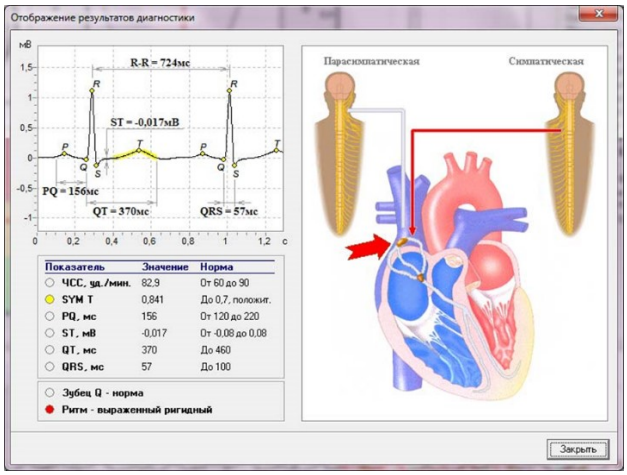
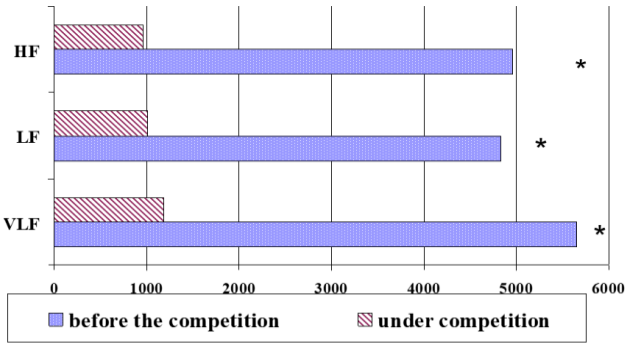


Fig. 5

Spectral values of heart rhythm variability of elite wrestlers during competition



* - p < 0,05

Using the midlands and lowlands

Fig. 6. Olympic base "Zaroslyak"

It is situated at an altitude of 1330 meters above sea level and is the highest object of sports and recreational infrastructure of Ukraine

Mountain training

- The adaptation to mountain training characterized of simultaneous activation of the sympathetic and parasympathetic tone of the autonomic nervous system.
- Critical to the process of adaptation is fourth and eighth day of stay in a midland.
- The adaptation effect of midlands manifested on 30-35 day after a three-week stay in mountain.

Brain asymmetry

One of the fundamental, genetically determined, patterns which influence to efficacy of competition activity is the functional asymmetry of the brain hemispheres.

«Color & Word Test» (J.R.Stroop, 1935) Test is based on differences in the visual and logic perception of color (opposed to the real color and its name).

Зелёный Красный Синий Жёлтый Зелёный
Красный Синий Жёлтый Зелёный Красный
Красный Синий Синий Зелёный Жёлтый
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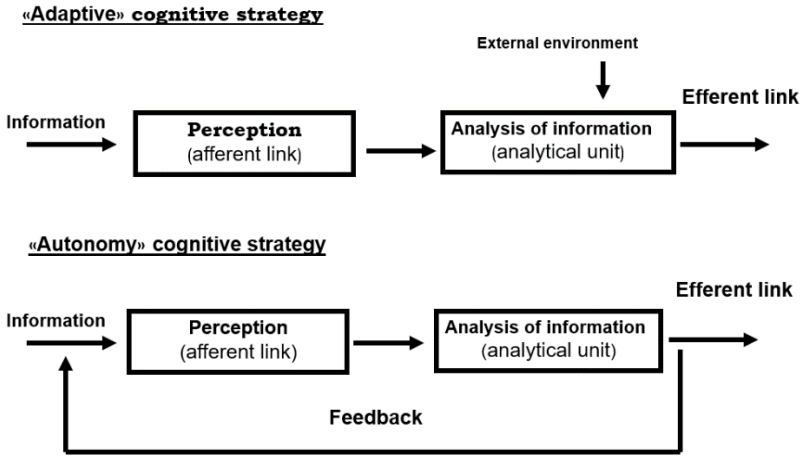
Красный Синий Жёлтый Зелёный Красный

Two strategies of perception and information processing in wrestlers



Signs of «adaptive» cognitive strategy

1. Functional asymmetry of brain.
2. Mostly dominance of right brain hemisphere.
3. The dependence of the perception and processing of information from the environment.
4. The tendency to improvise.
5. Emotional mobility.

Zan Beleniuk, *World Champion 2015, silver medal of XXXI Olympic Games, category 85 kg*

Signs of «autonomy» cognitive strategy

1. Functional symmetry.
2. The stereotype of the implementation of technical movements.
3. Autonomy from the external environment in the perception and processing of information.
4. Emotional stability.



Valery Andreicev, bronze medalist of the World Championship (2014), bronze medalist of the European Games (2015), silver medalist of the XXX Olympic Games in London (2012)

Experience

The use of experience of work of scientific group of National Teams of Ukraine on Olympic kinds of Wrestling give the possibilities application of methodology current control of psychophysiological state for correction of training process with individual characteristics of elite wrestlers.

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Thank you for your attention !

CONTENT OF WOMEN'S ARTISTIC GYMNASTICS TRAINING AT THE BEGINNING OF COVID-19 SPREADING PERIOD

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Abstract

This paper is intended to highlight the content of women's artistic gymnastics training sessions in isolation conditions at home at the beginning of COVID-19 period of spread. When the training sessions were forbidden in the gyms, initially both at the level of the Ministry of Education and the management of school sports clubs, there were no recommendations and methodological suggestions for the organization and carrying out of the preparation. That is why a study was organized within "Dinamo" School Sports Club of Bucharest, with the participation of 6 gymnasts aged from 6 to 15. The study was conducted throughout a period of 3 months (April – June 2021). We tried to use the available computerized programs and means in order to ensure the continuity of the training. At first, the coordinating teacher created a group on WhatsApp with all the gymnasts in training, through which the informative and organizational contact was maintained. The training sessions were carried out by means of Zoom platform, with a total duration of 180 minutes, with 40-minute sequences, from Monday to Friday (for all athletes) and on Saturday – the 3 performance gymnasts. The structure of the training sessions was meant to respect the specific of the gym training, without the work on apparatus; the content of the training means was adapted to the conditions and circumstances of the home, without endangering the gymnasts. The training level and the age of the gymnasts were also taken into account in order to dose the effort. The results of the study highlight the monitoring of the content of the training means regarding the differentiated number of reps, the duration of exercises and their diversification from one training session to another. Various complexes and circuits of strength and mobility exercises were used to increase the level of physical training. In addition to the basic training, the independent training no 2 was used, in which the gymnasts performed the mobility program, using the split and the bridge as test exercises. Besides the work tasks related to the training, different games of memory, attention or even general culture were used to avoid the monotony. The presentation of the content and structure of gymnastics training in isolation at home at the beginning of COVID-19 spreading period revealed the continuity of training and the diversification of both training means and social and psycho-behavioral means.

Keywords: *training, COVID-19, gymnastics, preparation, social and psycho-behavioral development*

1. Introduction

The pandemic caused by COVID 19 virus creates an unprecedented situation of global lockdown and changes the training and competitive activity at all levels of participation and in all sports, including artistic gymnastics (de Oliveira Neto et al., 2020; Dunton & Wang, 2020; Areiza-Padilla et al., 2021). The preventive measures, meant to reduce the risk of infection, involve social distancing and closing down commercial activities in order to avoid social gatherings. Elite sport is also severely affected: ongoing championships have been suspended and major international events have been postponed (Sarto et al., 2020). To avoid the possible negative effects of the lack of proper training, the coaches looked for home training alternatives (Mackinnon, 2020; Bobo-Arce et al., 2021).

When the training sessions were forbidden in the gyms of Romania, the Ministry of Education and the management of the School Sports Clubs did not make recommendations and methodological suggestions for the organization and carrying out of the training activity. To ensure the continuity of the preparation, the solution of on-line activities carrying out was found (Hammami et al., 2022).

The adaptation of different methods and means of training was made taking into account the specifics of the artistic gymnastics. The aim was also to monitor the effort parameters and the somatic indicators of the athletes (Potop, 2015; Potop & Manolachi, 2020; Patel et al., 2022). (Sarto et al., 2020).

2. Material and method

The aim of this paper is to show the content of women's artistic gymnastics training sessions in lockdown at home conditions at the beginning of COVID-19 spreading period.

To this effect a study was conducted in "Dinamo" School Sports Club of Bucharest, involving the participation of 16 gymnasts aged 6 – 15 years. The study was carried out during a period of 3 months (March – May 2020). For the organization and carrying out of the training sessions in these pandemic conditions, the coordinating teacher created a group on WhatsApp.

During the weekly cycle, two workouts took place daily for all the gymnasts of the study (Monday to Friday). On Saturday the training sessions were intended for the elite athletes only. The training session no. 1 (with a total duration of 180 min and sequences of 40 min) was carried through Zoom platform. Session no. 2 was performed independently, respecting the program established for the development of joints mobility (each gymnast sent photos with the respective exercises to the group).

3. Results and Discussions

A number of 50 basic training sessions were monitored during this study, from March to May 2020, using the direct observation through Zoom program (fig. 1).

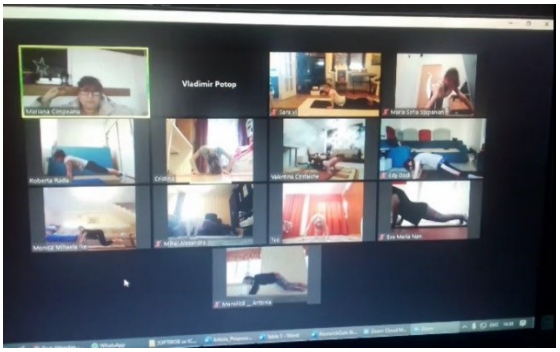

Fig.1. *Zoom program for the gymnastics training carrying out*

Table no. 1. *Monitoring the program of physical training no. 1*

No.	Means/ muscle groups / effort management		Initial	Final
1	Abdominal strength, 5 exercises – 10x	Set I (sec)	52	48
		Set II (sec)	54	50
		Set III (sec)	55	52
2	Back strength, 5 exercises – 10x	Set I (sec)	76	74
		Set II (sec)	80	77
		Set III (sec)	78	75
3	Strength of lower limbs, 2 exercises – 25x	Set I (sec)	53	51
		Set II (sec)	57	55
		Set III (sec)	55	52
4	Arms strength (push-ups), 3 exercises – 10-15x, 10 sec hold	Set I (sec)	80	78
		Set II (sec)	75	72
		Set III (sec)	72	70
5	Legs strength (squats), 5 exercises – 10x, Pause 60 – 90 sec	Set I (sec)	95	80
		Set II (sec)	75	74
		Set III (sec)	82	77
	mean		69.27	65.67
	SD		13.6	12.4
	t- parametric Test		4.21	
	P value		0.0008	

Table no. 1 shows the results of the monitoring of the physical training program no. 1 in the initial and final testing. The table highlights the means, muscle groups and effort management for 5 body areas (abdominal strength, back strength, lower limbs strength, arms strength and legs strength). The monitoring entailed also the recording of the effort duration (executions) of each exercise. The results of the study highlight an average of 69.27 sec for the execution of an exercise in initial testing and 65.67 sec in final testing, with significant differences between tests at $p<0.001$. These differences are due to the learning of the training program and the body adaptation to the effort exerted.

Table no. 2. *Monitoring the program of physical training no. 2*

Means / effort management		Initial	Final
1) High knee running (5 min), pause of 2 min		+	+
2) Arms, 5 exercises (raise the arm and opposite leg, hold 5 sec – 10x, knee push-ups - 5x, one hand push-up -= 5x, pushing up into a bridge – 10x, pause 30 sec.	Set I (sec)	136	130
	Set II (sec)	160	136
	Set III (sec)	115	120
3) Legs: squat hold 5 sec – 10x; sitting position with bent knees, hold– 30 sec	Set I (sec)	100	94
	Set II (sec)	126	105
	Set III (sec)	115	110
mean		125.3	115.8
SD		20.8	15.8

The results of the monitoring of the physical training program no. 2 in the initial and final testing are listed in table no. 2. The means, muscle groups and effort management were highlighted for 3 body areas (running on the spot 5 min; farms strength; legs strength). The monitoring included also the recording of effort duration (executions) in each exercise. The results of the study point out an average of 125.3 sec for the execution of a training exercise in initial testing and 115.8 sec in final testing. The differences between tests show a decrease of 10 sec approximately, resulted from the increase of the specific resistance to the effort exerted during the workouts.

a) b)

Fig. 2. *Training session no. 2 – back bridge (a) split (b)*

Figure 2 shows the acrobatic elements of mobility *back bridge* (a) and *split* (b) performed during the training session no. 2.

The training was monitored by direct observation by the teacher in charge with the content coordination of the means used during each training session. The training was structured according to the specifics of the training in a gym, without working on apparatus. The content of the means of training was adapted depending on home conditions and arrangements, without endangering the gymnast (Trucharte & Grande, 2021). Effort management was made by optimizing the number of repetitions in conformity with the level of training and the age of the

gymnasts. The level of physical training was monitored by using different complexes and circuits of strength and mobility exercises (split and back bridge). In addition to the specific tasks related to the training, various games of memory, attention or even general culture were used for avoiding the monotony. The ability to monitor the training is essential for the process of quantifying the training periodization plans. Till the present moment, no method has succeeded to be successful in monitoring the training session during several types of exercises (Foster et al., 2001).

4. Conclusions

The results of the study prove the assimilation of the training program, the avoidance of the training monotony, the body adaptation and the increase of the specific resistance to the effort exerted.

The description of the content and structure of gymnastics training in home lockdown conditions at the beginning of COVID-19 spreading period highlighted the continuity of training and the diversification of the training means, social means and psycho-behavioral means as well.

Bibliography

1. Areiza-Padilla, J. A., Galindo-Becerra, T., & Del Río, M. C. (2021). *Social Networks and E-Loyalty: A New Means of Sports Training during COVID-19 Quarantines.* Journal of Theoretical and Applied Electronic Commerce Research, 16(7), 2808-2823.
2. Bobo-Arce, M., Sierra-Palmeiro, E., Fernández-Villarino, M. A., & Fink, H. (2021). *Training in rhythmic gymnastics during the pandemic*. Frontiers in Psychology, 12.
3. de Oliveira Neto, L., de Oliveira Tavares, V. D., Schuch, F. B., & Lima, K. C. (2020). *Coronavirus pandemic (SARS-COV-2): pre-exercise screening questionnaire (PESQ) for telepresential exercise*. Frontiers in public health, 8, 146.
4. Dunton, G. F., Do, B., & Wang, S. D. (2020). *Early effects of the COVID-19 pandemic on physical activity and sedentary behavior in children living in the US*. BMC public health, 20(1), 1-13.
5. Foster C, Florhaug JA, Franklin J, et al. (2001). *A new approach to monitoring exercise training.* J Strength Cond Res.15(1):109-115.
6. Hammami, A., Harrabi, B., Mohr, M., & Krustrup, P. (2022). *Physical activity and coronavirus disease 2019 (COVID-19): specific recommendations for home-based physical training*. Managing Sport and Leisure, 27(1-2), 26-31.
7. Mackinnon, A. (2020). *COVid-19 impact on a state sporting organisation*. Sport Health, 37(4), 48-49.
8. Patel, T. S., McGregor, A., Cumming, S. P., Williams, K., & Williams, S. (2022). *Return to competitive gymnastics training in the UK following the first COVID-19 national lockdown*. Scandinavian journal of medicine & science in

sports, 32(1), 191-201.
9. Potop, V. (2015). *Bases of Macro-methods for Sports Exercises Learning (material from Women's Artistic Gymnastics).* Monograph, Kiev: Education Literature Center, 30-32.
10. Potop, V., & Manolachi, V. (2020). *The Scientific Impact of Applied Biomechanics Research in Artistic Gymnastics.* Revista Romaneasca pentru Educatie Multidimensionala, 12(3), 213-218.
11. Sarto, F., Impellizzeri, F. M., Spörri, J., Porcelli, S., Olmo, J., Requena, B., ... & Franchi, M. V. (2020). *Impact of potential physiological changes due to COVID-19 home confinement on athlete health protection in elite sports: a call for awareness in sports programming*. Sports medicine, 50(8), 1417-1419.
12. Trucharte, P., & Grande, I. (2021). *Analysis and comparison of training load between two groups of women's artistic gymnasts related to the perception of effort and the rating of the perceived effort session*. Science of Gymnastics Journal, 13(1), 19-145.

STUDY ON LEARNING TO PASS THE BALL WITH THE FOOT IN FOOTBALL PLAYERS AGED 8-10

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Abstract

The purpose of this paper is to highlight the learning of ball passing with the foot in the case of the football players aged 8-10. The subjects of the study were the members of boys' football team of the school, namely 12 students of 8 to 10 years old. Within the team, the students were assigned on the following playing positions: 2 goal keepers, 4 defenders, 4 midfielders and 2 forwards. The study was conducted from November 2019 to February 2020. The technical elements for ball passing were monitored during two competitions: the first one included 4 matches and the second one - 5 matches. Thus, along the two competitions, the kicking of the ball with the inside of the foot, with the full lace, with the tows and from the vault were recorded and analyzed, both in the first and the second half. The assessment was based on the number of successful and unsuccessful attempts. A series of exercises to learn the technical elements of ball passing were implemented with the help of the teacher who trained the boys' football team of the school. The use of adapted and attractive exercises for the football players aged 8-10 influenced their technical – tactical level and helped them, in most of cases, to reach the upper stages of the competitions. The correct use of the training means for the 8-10 years old football players contributed to the efficient learning of the technical elements necessary for passing the ball.

Key words: *football, learning, means, ball passing, competitions*

1. Introduction

In the game of football, the technique represents the totality of the motor skills specific to football (technical procedures) developed according to the laws of higher nervous activity and biomechanics, based on the physical abilities of the players, in order to efficiently and timely solve the tactical situations in attack and defense (Beetz, Kirchlechner, & Lames, 2005). The technique of the football game consists of: *technical elements*, which are motor general forms specific to the football game with or without ball, and *technical procedures* – concrete ways in which the technical elements are made (Ciolcă, 2006, 2009; Grigore, 2011, 2018; Schollhorn et al., 2006).

The technique of the ball game includes the following technical elements: taking possession of the ball, keeping the ball and passing the ball (kicking the ball, hitting the ball with the head and throwing the ball from the touchline(Ciolcă, 2013; Grigore, 2018; Jakab, Kis, & Vic, 2009).

The role of the Physical Education teacher is to find the most attractive and appropriate methods and means by which the technical elements of passing the ball are learned best. The advantage of the Physical Education teacher is that he can use

all the material resources of the school such as: the gym or the football field inside the school, equipment (cones, stairs, fences), transport to different competitions. Thus, all the methods and means used must be effective on all levels (technical, tactical and physical as well) and appropriate for the competitive matches (Balint, 2007; 2008; Umar, Doewes, & Agustiyanto, 2019).

2. Material and method

The purpose of this paper is to highlight the learning of ball passing with the foot in the case of the football players aged 8-10.

Hypothesis of the paper

We believe that the correct use of the main methods and means in the training of the football players aged 8-10 will contribute to the learning of the technical elements related to ball passing.

The subjects of the study were 12 students aged 8 - 10 years old, members of boys' football team of the "Nicolae Titulescu" school. The students were assigned on the following playing positions in this team: 2 goal keepers, 4 defenders, 4 midfielders and 2 forwards. Only 3 of these students are registered in football clubs and have competitive experience, representing a plus for the team.

The research was conducted from November 15, 2019 to February 5, 2020. In this regard, two football competitions between middle schools were organized in this period, on various fields and surfaces like the gym, synthetic field and normal field. The training sessions took place in the gym of the "Nicolae Titulescu" school. The training was monitored by video recording during workouts and official matches as well. A series of exercises for learning the technical elements needed to pass the ball were implemented with the help of the Physical Education teacher in charge with the boys' football team of the school.

The technical elements for passing the ball were recorded in two competitions (C); 4 matches were played in C1 and 5 matches in C2. Thus, during these competitions, these technical elements were analyzed both in the first half and the second half, taking into account the successful (R) and unsuccessful (N) shots.

3. Results and Discussions

The results of the analysis regarding the technical elements used when kicking the ball in two competitions are shown in table no. 1.

Concerning the ball kicking on home-field, it was noticed – in terms of total successful executions - an average of 52.25 kicks in C1, with an increase of 13 kicks in C2; as for the total unsuccessful executions (N), there was an average of 40 kicks in C1 and a decrease by 6 kicks in C2.

Regarding the ball kicking in the opponent field, in the case of the successful executions R there is an average of 57 kicks in C1 and an increase by 17.5 kicks in C2; in the case of the total unsuccessful executions N, the average is 41.25 kicks in C1 and a decrease by 2.25 kicks in C2.

Table 1. *Results of kicking the ball during two competitions* (n=12)

Technical procedures	Competi-tions	First half				Second half				Total			
		Own field side		Opponent field side		Own field side		Opponent field		Own field side		Opponent field	
		R	N	R	N	R	N	R	N	R	N	R	N
With inside of the foot	C1	53	39	50	34	52	32	55	32	105	71	105	66
	C2	72	30	74	32	76	25	71	33	148	55	145	65
With full laces	C1	32	31	36	26	31	24	45	29	63	55	81	55
	C2	26	22	42	23	32	24	63	32	58	46	105	55
With the toes	C1	14	11	13	11	11	8	12	14	25	19	25	25
	C2	12	9	14	8	17	9	21	16	29	18	35	24
Volley shots	C1	9	7	8	7	7	8	9	12	16	15	17	19
	C2	14	9	6	9	12	8	7	3	26	17	13	12

The passing of the ball, the driving and the taking over of the ball are very important procedures in football. The element that helps a team to maintain possession and to increase the chances of victory is the pass. If a team has possession, it does not mean that it will win for sure, but in most of the cases it will get positive results. The players with superior and developed technique will be able to supplement to a great extent the physical training, will have to run much less than their opponents and will keep their power and energy for the important moments of the matches.

The results of the analysis of the technical elements used when heading the ball during two competitions are shown in table no. 2.

Table 2. *Results of ball heading in two competitions* (n=12)

Technical procedures	Competi-tions	First half				Second half				Total			
		Own field side		Opponent field		Own field side		Opponent field		Own field side		Opponent field	
		R	N	R	N	R	N	R	N	R	N	R	N
Ball heading on the spot	C1	11	7	8	9	14	11	9	7	25	18	17	16
	C2	17	11	14	8	17	13	14	10	34	24	28	18
Ball heading from running	C1	7	5	5	5	11	6	7	5	18	11	12	10
	C2	12	7	13	9	7	5	8	6	19	12	21	15

Referring to the ball heading in the own field side, it is noticed that the total successful executions (R) have an average of 21.5 hits in C1 with an increase by 5 hits in C2; as for the total unsuccessful executions (N), there is an average of 14.5 hits in C1 and an increase by 3.5 hits in C2.

Concerning the ball heading in the opponent field, the total executions R have an average of 14.5 hits in C1 with an increase by 10 hits in C2; in terms of total executions N, there is an average of 13 hits in C1 with an increase of 3.5 hits in C2.

The ball heading is an element used also in attack to score goals, for certain deviations and passes for the attacking midfielders, but it can be also used for defense, when the ball is rejected or when the ball is passed to the goalkeeper.

The results of the technical elements analysis related to the ball passing from the touchline in two competitions are listed in table no. 3.

Table 3. *Passing the ball from touchline in two competitions* (n=12)

Competi-tions	First half				Second half				Total			
	Own field		Opponent field		Own field		Opponent field		Own field		Opponent field	
	R	N	R	N	R	N	R	N	R	N	R	N
C1	17	13	18	11	19	10	14	9	36	23	32	20
C2	15	10	16	11	16	9	17	8	31	19	33	19

Regarding the ball passing from the touchline into the own field side, one can notice total successful executions R of 36 in C1, with a decrease of 5 executions in C2 and a total number of unsuccessful executions N of 23 in C1, with a decrease of 4 executions in C2.

Regarding the ball passing from the touchline into the opponent field side, there are 32 total successful executions R in C1 and an increase by 1 execution in C2; there are 20 unsuccessful executions N in C1 and a decrease by 1 execution in C2.

The throwing-in of the ball from the touchline is a way to possibly surprise the opponent; certain technical-tactical schemes and some situations practiced during the training sessions can be used to bear fruit in the competitive matches.

In fact, all these elements contribute to increase the spectacularity of this sport which is brought more to people's attention. It is common knowledge that any sport (especially the football) is meant to delight the audience by its beauty.

The little footballers must be taught to play for the team and not for themselves; the most important is the goal of the team. If there are individualistic players in the team, the chances of the team decrease considerably; unpleasant discussions and quarrels may also occur (González-Víllora, García-López, & Contreras-Jordán, 2015).

That is why the Physical Education teacher must manage the atmosphere within the team, attract the students to training sessions with exercises that are actually useful for fully achieving the goals of the team. But all this requires seriousness from the part of the little footballers, a high technical level and team spirit. All these elements bring consistency in the game, speed, possession and, last but not least, good results.

4. Conclusions

The use of adapted and attractive exercises for the football players of 8-10 years old increased their technical – tactical level and helped them, in most of cases, to reach the upper stages of the competitions.

The teacher is the key and the decisive element that will make the little footballers to be focused on training sessions and competitions. Through his way of communicating, the teacher will bring the football players closer together, helping each other as in a family.

The correct use of the main methods and means in the training of the football players aged 8 – 10 contributed to the efficient learning of the technical elements necessary for passing the ball.

Bibliography

1. Balint, G. (2007). *Metodica predării fotbalului în gimnaziu*. Pim.
2. Balint, G. (2008). *Baze teoretice şi mijloace de acţionare pentru pregătirea fizică specifică a jucătorilor de fotbal*. Pim.
3. Beetz, M., Kirchlechner, B., & Lames, M. (2005). *Computerized real-time analysis of football games.* IEEE pervasive computing, 4(3), 33-39.
4. Ciolcă, S. M. (2006). *Tehnica şi tactica jocului de fotbal: curs de bază*. Editura Fundaţiei" România de Mâine.
5. Ciolcă, S. M. (2009). Fotbalul la copii: 6-10 ani: metodica pregătirii. Editura Didactică şi Pedagogică.
6. Ciolcă S., (2013). *Fotbal. Fundamente teoretice şi metodice*, București, Editura UNEFS.
7. González-Víllora, S., García-López, L. M., & Contreras-Jordán, O. R. (2015). *Decision making and skill development in youth football players*. Revista Internacional de Medicina y Ciencias de la Actividad Fisica y del Deporte, 15(59).
8. Grigore G., (2011). *Fotbal. Strategia formativă a jucătorului*, București, Editura Printech.
9. Grigore G., (2018). *Metodica predării jocului de fotbal*. Note de Curs, București, UNEFS.
10. Jakab Z., Kis J., Vic H., (2009). *Futsal ghidul antrenorului*, Odorheiu-Secuiesc, Editura S.C. Tipographic S.R.L. - Miercurea Ciuc.
11. Schollhorn, W. I., Beckmann, H., Michelbrink, M., Sechelmann, M., Trockel, M., & Davids, K. (2006). *Does noise provide a basis for the unification of motor learning theories?.* International journal of sport psychology, 37(2/3), 186.
12. Umar, F., Doewes, R. I., & Agustiyanto, A. (2019). *The effectiveness of football learning model based on assure design in JPOK FKIP UNS students*. Journal of Education, Health and Sport, 9(4), 23-41.

CONTENT OF THE COMBINATION OF THE TRAINING MEANS IN WEIGHTLIFTING WORKOUTS

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Abstract

This paper intends to present the content of the preparation means combination in the weightlifting training at junior level. For this purpose, a study of case was organized with one 12-year-old athlete, weight 55 kg, height 160 cm, competition category 55 kg, sports performances: 1st place at the National Junior Championships: 50 kg in clean and jerk style and 45 kg in snatch style. The research monitored the combination content of the preparation means during a weekly micro-cycle of training. Based on the direct observation during the training sessions, there were recorded the means of the technical training in snatch style and in clean and jerk style also; these means were combined with specific exercises of physical training. The method of weight gradual lifting and the combination of specific exercises for strength, dip squats and pull exercises were used in the workouts for technical preparation in snatch style. The technical training for the clean and jerk style used also the gradual method and the combination of power executions by snatch pulls and barbell behind neck squats (back squats). The results of the training content highlight the relation of the combination of means in accordance with the weight and the number of reps in each technical style executed..

Key words: *snatch style, clean and jerk style, technical training, specific physical training, micro-cycle*

1. Introduction

The content of sports training in performance weightlifting has become increasingly complex. The physical exercises differentiated according their specificity and accessibility are considered to be elements of content. The preparation organization depending on the main objective of the training stage ensures the optimal dynamics of the loads and the combination of different training means, methods and recovery activities (Ulăreanu, Potop & Urichianu, 2011).

The practical tools for the training of the weightlifters are represented by the means of training. At the present moment, the training means have diversified and become more complex at the same time (aiming at training, recovery and competition) (Potop, Toma-Urichianu, & Ulăreanu, 2010; Ulăreanu & Potop, 2011).

The specific means have an increasing importance in the training of the elite weightlifters. Thus, they have a low presence in the first microcycles, then they are

more and more often repeated, becoming numerous in the middle of the pre-competitive stage. During the competition period, the specific means are diminished, leaving the main place to the competitive means. It must be understood that they do not disappear from the lessons, but they no longer hold the main place (Ulăreanu, Potop, & Jurat, 2014; Liușnea, Gheorghiu, & Dorgan, 2016).

The role of the technical training in weightlifting is conditioned by the general physical training level; it is in a close relationship with the psychological, tactical and theoretical training (Dimofte, 2016).

The microstructure plans must be drawn up taking into consideration the consequences of each lesson in terms of fatigue, recovery duration and particularities. We believe that the training lessons are mainly determined by the general objectives and characteristics of the preparation periods and mesocycles. The duration and intensity of each exercise, the number of repetitions, the length and content of the pauses are always variable, depending on the lesson tasks and the exercise intended purpose (Ulăreanu, & Potop, 2010; Khurramovich, 2022).

In the modern sense of training, the volume during the weekly cycle is the decisive element for effort assessment because the volume is the basic unit in the current planning of weightlifters' preparation. The considerable increase in workload during the recent years entailed the increase of the number of exercises used for weightlifters' training (Haff et al., 2008; Suarez et al., 2019).

2. Material and methods

The aim of the paper is to present the content of the preparation means combination in the weightlifting training at junior III group level.

With this aim in view, a case study was conducted with a 12-year-old athlete, weight 55 kg, height160 cm, competition class 55 kg. Sports performances: the first place in the National Championships for juniors III, with 50 kg in clean and jerk style and 45 kg in snatch style.

The research focused on the content of the training means combination within a weekly microcycle of training.

Based on the direct observation in training sessions, the means of technical training for the *Clean and Jerk* lift and the *Snatch* lift were recorded; these means were combined with exercises of specific physical training.

The workouts for technical training in Snatch lift used the method of gradual weight lifting and the combination of the strength specific exercises: barbell front squats; clean and jerk pulls.

For the technical training in Clean and Jerk lift, the gradual method was also used, as well as the combination of the strength exercises: snatch pulls and barbell back squats.

3. Results and Discussions

The results of the training content highlight the relation of the combination of the training means consistent with weight and reps number in each technical procedure.

Table 1. *Share of the strength and technique means within the training microcycles in weightlifting workouts at junior III level*

Means	Percentage (%)			No. of reps		
	MiC 1	MiC 2	MiC 3	MiC 1	MiC 2	MiC 3
Technique	30	60	60	116	292	295
Strength	70	40	40	284	195	197
Total	100	100	100	400	487	492

Table 2. *Dynamics of the training volume within the training microcycles in weightlifting workouts at junior III level*

Days of the week	Percentage (%)			No. of reps		
	MiC 1	MiC 2	MiC 3	MiC 1	MiC 2	MiC 3
Monday	18	17.7	17.7	72	86	87
Tuesday	16.4	16.6	17.3	66	81	85
Wednesday	18	17.7	17.7	72	86	87
Thursday	16.4	16.6	17.3	66	81	85
Friday	18	17	16.8	72	83	83
Saturday	13.2	14.4	13.2	52	70	65
mean	16.67	16.67	16.67	66.67	81.17	82
SD	1.87	1.22	1.73	7.76	5.91	8.46
Sum	100	100	100	400	487	492

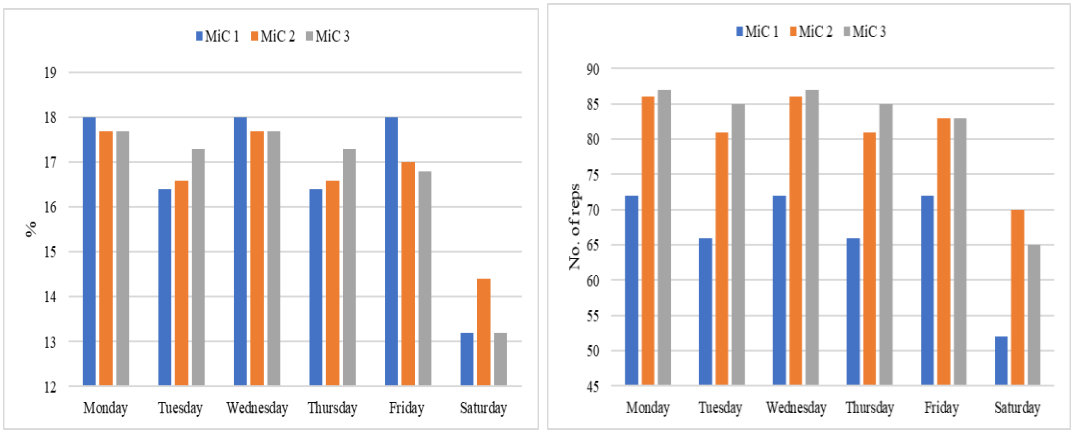

Fig. 1. *Share of the training volume within the preparation*

Table no. 1 shows the results of the share of the strength and technique means within the training microcycles (MiC1, MiC2 and MiC3).

Table no. 2 presents the dynamics of the training volume in weightlifting at junior III level

Table no. 3. *Content of strength and technique means in MiC 1 - juniors*

Means	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Technical snatch (2 min pause)	85% - 4x2 90%- 2x1, 2x 95% - 2x1		85% -4x2 90% -2x1, 2x 95% -2x1.		85% -4x2 90% -2x1, 2x 95% -2x1.	
Technical Clean and Jerk (2 min pause)		85% -(2+1); 2x(1+2); 90% - 2x(1+2); (1+1); 95% - 2x(1+1)		85%- (2+1); 2x(1+2); 90%-2x(1+2); (1+1); 95%-2x(1+1)		
Snatch without lunge (2' pause)		80% 6x2		80% -5x2.		90%-6x3
Back squats (2 min pause)	85% 3x3, 90% 3x3, 95% 3x3,		90% -4x3. 95% 2x3, 2x2.		90%- 4x3. 95%- 2x3, 2x2.	90%-3x3 95%-3x2
Front squats (2 min pause)		85% - 3x, 2x2 90% - 3x, 3x2		85% 2x3, 2x. 90%-3x2.		
Snatch pulls (2 min pause)	90%- 3x3, 95% - 2x, 3x, 2x.		90% - 4x3 95%- 2x, 3x, 2x.		90%-4x3. 95%-2x2, 3x.	
Clean & Jerk pulls (2min pause)		90% - 3x3, 4x2		90%-3x3, 4x2.		90%-4x3 100%-3x2
Bending (2 min pause)	95% - 4x3		95% - 5x3		95% -5x3	

Table 4. *Content of strength and technique means in MiC 2 - juniors*

Means	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Snatch without lunge (2 min pause)	85% -3x3, 2x 90% -4x2	85% -3x3. 90% 3x, 2x2	85% -3x3, 2x 90% -4x2	85% -3x3. 90% -3x, 2x2		
Clean & Jerk without lunge(2 min pause)	90%6x (2+2)		90%- 6x(2+2)			80% 2x(2+2)
Technical snatch (2 min pause)					85%- 2x3,2x2 90% -4x2.	
Technical Clean & Jerk (2 min pause)					85%- 4x(2+2); 90%- 4x(1+2);	
High pull without lunge(2min pause)		85% -3x(2+2); 90%- 3x(1+2)		85% -3x(2+2); 90%-3x (1+2);		
Back squats (2 min pause)	80% -2x4, 3x 85% -2x3, 2x 90% -2x2		80%-2x4, 3x 85% -2x3, 2x 90% -2x2		85% -3x3 90% -3x2 95% -2x2	90% -4x4 95% -2x3,2x2
Front squats (2 min pause)		85% 4x, 2x3 90% -3x3 95% -2x2		85% 4x, 2x3 90% -3x3 95 % -2x2		
Snatch pulls (2 min pause)	90%-2x4, 3x 95%- 3x3		90%- 2x4, 3x 95% -3x3.			
Clean &Jerk pulls (2 min pause)		90%- 3x4. 95%- 4x, 2x3		90% 3x4. 95% -4x, 2x3	90% -4x3. 95% -3x2	90% 2x4,2x3. 95% -2x3,2x2
DEVELOPMENT (min)	60	60	60	60	60	60

Table 5. *Content of strength and technique means in MiC 3 - junior weightlifters*

Means	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Power snatch (2 min pause)	85% -3x3, 2x 90% -4x2	80% 6x3	85% -3x3, 2x 90% -4x2	80 % 6x3		
Power Clean &Jerk (2 min pause)	80% (2+2) 6		80% (2+2) 6			
Pushed Clean &Jerk (2 min pause)		80% (2+2) 3 85% (1+2) 3		80% (2+2) 3 85% (1+2) 3		
Technical snatch (2 min pause)					85% -3x3 90% -3x, 2x 95% 2x2	
Technical Clean and Jerk (2 min pause)					85% (2+2) 3 90% (2+2) 2 95% (1+1) 2	
Snatch without lunge (2 min pause)						80% 3x3, 3x2
Back squat (2 min pause)	90% 2x4, 2x3 95% 3x2, 3x		90% -2x4, 2x3 95 % -3x2, 3x		90% -2x4, 2x3 95% -3x2, 3x	90% -4x4 95% -3x3
Chest squat (2 min pause)		90% 4x, 3x3 95% -2x3, 2x2		90% 4x, 3x3 95% 2x3, 2x2		
Snatch pulls (2 min pause)	90% -2x4, 3x 95% -3x3		90% -2x4, 3x 95% -3x3			
Clean & Jerk pulls (2 min pause)		90% 3x4 95% 2x4, 3x		90% 3x4 95% 2x4, 3x		90% -4x3 95% -4x2
Bending (2 min pause)					90% -6x3	
DEVELOPMENT (min)	60	60	60	60	60	60

Table no. 3 shows the content of the strength and technique means throughout the MiC 1 in junior weightlifters. Regarding the relationship of the training means, 30% were assigned to technique and 70% to strength. The following technique means were used: technical snatch; technical clean and jerk; snatch without lunge, with pauses of 2 minutes between means. The strength means were: back squats, front squats, snatch pulls, clean and jerk pulls and bending (2 min pause). The effort proportioning was made at an intensity of 80-95%, with a total number of reps of 400: 116 reps in technical means and 284 reps in strength means. There were used 1 and 3 reps/mean of training.

Table no. 4 presents the content of the strength and technique means in MiC 2 in the case of the junior weightlifters. In terms of training means relation, 60% were assigned to technique and 40% to strength. A number of 5 technical means were used: snatch without lunge, clean and jerk without lunge, technical snatch, technical clean and jerk and pull without lunge, with pauses of 2 minutes between these means. Four means were used for strength: back squats, front squats, snatch

pulls and clean & jerk pulls (2 minute pauses) and 60 minutes for development. The proportioning of the effort was made at an intensity from 80 to 95%, with a total of 487 reps: 292 reps at technical means and 195 reps at strength means. There were used 2 and 4 reps/mean of training.

The content of the technique and strength means in MiC 3 is shown in table no. 5. The relationship of the training means highlights that 60% were distributed to technique and 40% to strength. A number of 6 means were used for technique: power snatch, power clean and jerk, snatch pull, technical snatch, technical clean and jerk and snatch without lunge, with a pause of 2 minutes. Five means were used for strength: back squats, front squats, snatch pulls, clean and jerk pulls and bending (pause of 2 min) and also 60 minutes of development. The effort was proportioned at an intensity of 80-95%, with a total number of 492 reps: 295 reps in technical means, 197 reps in strength means and a number of 2 and 4 reps/training mean.

Following the detailed analysis of the periodization of strength training, which is specific to the elite weightlifters, it was found out that it is necessary to establish the relation between workout, rest and sequential ordering of exercises (Ulăreanu, & Vlad, 2014).

The weekly general workload is the most important indicator of the effort in weightlifting; any coach can immediately realize if the effort is increased when he finds out the 3 parameters that characterize the stress level of the respective training sessions (Ulăreanu, & Potop, 2017).

Concerning the scientific arguments, researchers draw some conclusions related to the exercises order in weightlifters' training sessions, namely: 36.6% strength-velocity exercises (snatch without lunge) at the beginning of the training session; 15.5% classic exercises of snatch; 8.4% snatch from hanging or from boxes; 9.8% high pull without lunge, 1.4% classic clean and jerk; in 60% of the cases, the training lessons are ended with squats (with barbell behind neck or barbell at the chest) and bench press (Ulăreanu, & Vlad, 2014; Suchomel, Comfort, & Stone, 2015).

The order of the exercises must be done in such a way that one exercise is performed twice in a weekly cycle, otherwise the efficiency will be minimal. The efficiency of the exercises is directly proportional to the number of repetitions during a weekly cycle (Ulăreanu, & Vlad, 2014):

-the higher the number of repetitions of the respective exercise, the higher the efficiency;

-the number of repetitions in one set has a special importance in the proportioning of the effort and the increase of the strength indicators;

-for the strength-velocity training, specific to the exercises used by the weightlifters, one set must include 1-3 repetitions;

-in the case of pure strength training, it is recommended to make 6 repetitions; for the endurance strength training – more than 12 repetitions.

Particular attention is paid to the periodization model of Verchosanschi,

which characterizes the strength-velocity training: namely, after repeating these exercises at high intensities with the same means, barriers could occur. In order to remove them, the strength-velocity training must be alternated with technical training. From the periodization models it results clearly the need for periods of training, but the dynamics of effort and the means and methods used must follow a path, finally determining the increase of the performance capacity (Ulăreanu, & Vlad, 2014).

4. Conclusions

The results of the training content highlight the relation of the combination of means according to the weight and the number of reps in each technical style performed.

It was noticed the increase of the share of technical means between 16% - 42% and the decrease of the strength means by 13% in the training of the junior III weightlifters.

The content of the technique and strength means within training and the dynamics of the training volume during the preparation microcycles were presented, showing the increase of the number of technical training means and the alternation of the muscle groups.

Bibliography

1. Dimofte, C. (2016). Pregătirea tehnică a sportivilor halterofili la etapa incipientă. Teza de doctorat în științe pedagagogice, USEFS: Chișinău.
2. Haff, G. G., Jackson, J. R., Kawamori, N., Carlock, J. M., Hartman, M. J., Kilgore, J. L., ... & Stone, M. H. (2008). Force-time curve characteristics and hormonal alterations during an eleven-week training period in elite women weightlifters. The Journal of Strength & Conditioning Research, 22(2), 433-446.
3. Khurramovich, K. F. (2022). Methodology of weightlifting with athletes. Web of Scientist: International Scientific Research Journal, 3(4), 1228-1233.
4. Liuşnea, C. Ş., Gheorghiu, A., & Dorgan, V. (2016). Rolul mijloacelor din fitness în realizarea obiectivelor de dezvoltare fizică la adolescenţi. In Sport. Olimpism. Sănătate (pp. 442-447).
5. Potop, V., Toma-Urichianu, S., & Ulăreanu, M. V. (2010). Conţinutul mijloacelor specifice de pregătire la halterofilii de performanţă. Palestrica of the Third Millennium Civilization & Sport, 11(3), 211-215.
6. Suarez, D. G., Mizuguchi, S., Hornsby, W. G., Cunanan, A. J., Marsh, D. J., & Stone, M. H. (2019). Phase-specific changes in rate of force development and muscle morphology throughout a block periodized training cycle in weightlifters. Sports, 7(6), 129.
7. Ulăreanu, M. V., & Potop, V. (2010). Comparative analysis of the reps number within two training macro-cycles of the weightlifting Olympic team. Citius Altius Fortius, 29(4), 86.

8. Ulăreanu, M. V., & Vlad, N. (2014). Antrenamentul de bază în haltere de performanţă. București: Printech.
9. Ulăreanu, M. V., Potop, V. (2011). Relationship of volume, intensity and specific means during competitive period in performance weightlifting. Discobolul, 81-86.
10. Ulăreanu, M. V., Potop, V., & Jurat, V. (2014). Influența mijloacelor specifice asupra dinamicii formei sportive în pregătirea halterofililor de performanţă. Ştiinţa Culturii Fizice, 1(17), 23-30.
11. Ulăreanu, M. V., Potop, V., & Urichianu, S. T. (2011). Analiza mijloacelor specifice de antrenament şi parametrilor efortului, în perioada mezociclului competiţional la haltere seniori. Palestrica of the Third Millennium Civilization & Sport, 12(2).
12. Suchomel, T. J., Comfort, P., & Stone, M. H. (2015). Weightlifting pulling derivatives: Rationale for implementation and application. Sports Medicine, 45(6), 823-839.
13. Ulăreanu, M. V., Potop, V. (2017). Synchronization of biomechanical indicators of clean and jerk style key elements in performance weightlifting. Journal of Physical Education and Sport, 17, 2350-2355.

KINETOTHERAPY

SHOULDER RECOVERY WITH REVERSE PROSTHESIS

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Abstract

Shoulder arthroplasty is a surgical procedure that has become increasingly important in the treatment of proximal humerus fractures, given their severity and osteosynthesis difficulties.
In principle, the method is indicated in fractures with 4 parts, with 3 parts and fractures - dislocations in the elderly, fractures with splitting of the humeral head and severe fractures with the impression of the humeral head.
Shoulder arthroplasty compared to hip or knee arthroplasty is more difficult to perform, due to the anatomical and functional features of the region (bone and ligament components do not provide stability, muscle groups mainly provide functionality) and the objectives to be achieved by the surgical act (painlessness, stability, mobility, functionality).
The shoulder is a complex joint that requires the placement of an endoprosthesis much less often than large joints. Although proximal humerus fractures are common, they are often severe enough to warrant such treatment, and the complications that may occur require the method to be used with caution. Before indicating the use of a shoulder stent, the quality of the bone and adjacent tissues must be considered.

Key words: *arthroplasty, means of physical therapy, recovery program, prosthesis.*

1. Introduction

The shoulder has the greatest mobility, but this is dependent on joint stability, the suppleness of the capsule and pericapsular tissues and an intact neuromuscular complex. Under physiological conditions, the stability of the glenohumeral joint is mostly provided by the joint capsule and the rotator cuff muscle sleeve. These structures, structurally and functionally disrupted in arthroplasty-indicated patients, must initially be restored or replaced during arthroplasty surgery. The shoulder complex has a particular functional role in these ADL activities (personal hygiene, sleep).

In treatment options the accuracy of diagnosis and correct classification of proximal humerus fractures are absolutely necessary. For correct assessment, Neer's classification of the 4-part system (humeral head, humeral diaphysis, greater and lesser tuberosity) is most commonly used.

The objectives of the intervention can be systematized in relation to the main objectives of the endoprosthesis application, namely:
a. pain - will decrease more or less, as its dominant source was articular (omarthrosis) or periarticular (scapulohumeral periarthritis associated with that suffering);
b. stability and mobility - the amplitude of movement of the shoulder improves significantly, it becoming functional, while maintaining or, as appropriate, restoring its stability;

c. restoration of the periarticular soft parts - the surgical act will preserve the periarticular musculotendinous elements, and if pre-existing lesions are found, they will be remedied in the same operative session, basic element for regaining an amplitude of movement as close as possible to the physiological one;
d. regaining functional status.
Contraindications for shoulder prosthesis:
 the infectious process located at the level of the articular and periarticular structures of the shoulder;
 complete paralysis of the deltoid muscle and / or rotator cuff;
 cervical radiculopathies, with complex manifestations (especially muscle strength deficit for the deltoid muscle and spinal muscles with electromyographic expression);
 lack of patient compliance.

2.Material and methods

The method of observation. Through which I followed:
- correct application of the recovery program;
- the attitude of the subject during the recovery program.
Anamnesis. I found out general data about the case
- biographical data;
- data on the type and conditions in which they carry out their professional activity.
- The role and tasks that the subject has in the professional activity
Case study. To demonstrate by applying a specific and early recovery program the recovery level of the subject.

Diagnostic methods are:

Inspection - is the first stage of the patient's clinical examination, in which great attention is paid to increases in the volume of the segment, the diseased joint, the presence of exudate in the joint, bruises that may occur after trauma. The shoulder is inspected from the front, back and profile. The morphological aspect of the shoulders is examined comparatively and the presence of joint and periarticular swellings, a local redness, muscle contractions or atrophies and the existence of analgesic attitudes are noted.

Palpation - aims to examine the affected region and compare it with the similar one of the healthy segments. Palpation may show a difference in temperature, local sensitivity, the presence of pain on palpation, swelling of the tissue, bone relief of the joint, ligaments, tendons, etc. Systematic palpation of the anatomical landmarks of the shoulder allows the detection of important signs and symptoms and a precise topographic analgesic diagnosis.

Mobility changes - various shoulder conditions cause changes in both passive and active mobility.

Goniometry - measuring the amplitude of movements in the shoulder joint.

The scapulohumeral joint is a spherical joint, with an almost flat articular surface of the scapular glenoid and a large sphere of the articular surface of the humeral head.

In this joint the greatest amplitude of movements is performed: flexion, extension, adduction, abduction, internal and external rotation.

Research hypothesis: The socio-professional activity of an individual with shoulder trauma would be endangered if not intervened quickly by applying a recovery treatment to obtain a faster return of the patient to professional capacity and self-service.

This is especially important because any delay in the application of treatment can lead to worsening of the conditions suffered in the shoulder.

The purpose of the research is to verify the stated hypothesis, by testing the efficiency of the recovery program.

3. Result

The study took place in the physiotherapy room of the Clinic of the National Institute for Recovery of Physical Medicine and Balneoclimatology, in Bucharest, on a patient with shoulder hemiarthroplasty.

Patient I.M., as a result of slipping on the stairs, suffered a trauma to her right shoulder. The mechanism of trauma was indirectly by falling on the hand. The trauma resulted in a fracture of the proximal extremity of the right humerus, according to the radiograph made on the same day, receiving the diagnosis of proximal 1/3 fracture of the right humerus Neer 4. looking for a shoulder prosthesis. As a result of the fracture of the proximal humerus, avascular necrosis occurred as a consequence of the interruption of the blood supply to the humeral head. Following this clinically and radiologically confirmed diagnosis, hemiarthroplasty of the right shoulder with inverted prosthesis is decided.

Postoperatively, the general and local evolution is favorable, the patient is feverish, the wound is healing.

The postoperative recommendations were:

- maintains immobilization for a month and a half, active movements at the level of the hand, active and passive movements at the level of the elbow at 2 weeks postoperatively, local ice when needed, returns to control and removed wires on 01.02.2018.

Postoperative immobilization was performed in Desault orthosis, including sleep, for 6 weeks. After suppression of immobilization, patient M.I. he was hospitalized in the Clinic of the National Institute for Recovery of Physical Medicine and Balneoclimatology where he began a functional rehabilitation program through massage, physiotherapy and physiotherapy.

Following the initial evaluation, the patient had reduced mobility due to shoulder stiffness, muscle strength deficit for deltoid -2.

Functional examination in daily activities - joint function is assessed with figures from 0 to 4: 0 - impossible, 1 - with help, 2 - difficult, 3 - medium

compromise, 4 - normal. The appreciation of the function is determined by getting the patient to do some activities such as: dressing, washing, eating, taking the hand in the pocket, combing, pushing, usual work, sports. The patient M.I initially had the joint function appreciated with 1.

The kinetic recovery program applied in shoulder diseases included 3 phases with the following objectives:

Phase 1- anatomical recovery.

Objectives:

 combating pain;
 inflammation control;
 combating vascular-trophic disorders.
 joint rest - immobilization of the shoulder in the orthosis;
 maintaining the functionality of the unaffected segments;
 analgesic, anti-inflammatory medication as directed by the doctor.

Phase 2 - functional recovery of the shoulder.

Objectives:

 fighting pain and controlling inflammation;
 readaptation to movement of the articular structures of the shoulder;
 recovery of muscle strength in the infraspinatus, supraspinatus and subscapularis muscles;
 improving the joint stability of the shoulder;
 regaining joint mobility in the shoulder.

Phase 3 - the period of reintegration into activity

Objectives:

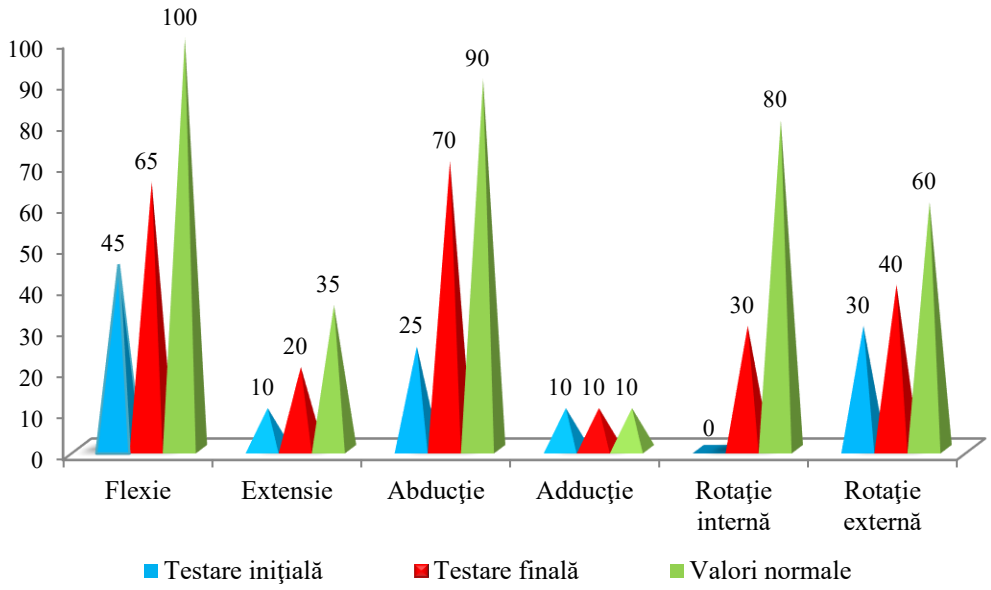
 improving muscle endurance;
 increase the execution speed;
 coordination, control, balance and stretching.

Following the application of the recovery program, a final test was performed, and with the results obtained at the initial test, they were tabulated and represented graphically, as follows:

Tabulation of data obtained from initial and final testing:

Joint balance	Initial testing	Final testing	Normal values
Flexion	45^0	65^0	100^0
Extension	10^0	20^0	35^0
Abduction	25^0	70^0	90^0
Adduction	10^0	10^0	10^0
Internal rotation	0^0	30^0	80^0
External rotation	30^0	40^0	50^0-60^0

Graphical representation of the joint balance



Following the application of the recovery program and studying the joint balance following the data obtained at the two tests, as well as their graphical representation, the following are found:

 flexion movement - improves by 20 degrees at the final test compared to the initial one;

 extension movement - improves by 10 degrees at the final test compared to the initial one;

 abduction - improves by 45 degrees at the final test compared to the initial one;

 the adduction movement was in normal parameters;

 internal rotation - if at the initial test the patient could not perform this movement, the value being 0, at the final test the patient registered an amplitude of movement of 30 degrees;

 external rotation - and this movement registers a 10 degree improvement in the final test.

Applying the recovery program, the objectives set in all three phases of recovery were met as follows: in the first phase of recovery, following the administration of analgesics prescribed by the doctor, pain and inflammation were combated, this is also due to immobilization of the left shoulder. Desault orthosis, but also due to the stretching program applied, as well as the complex of exercises with a low degree of difficulty because in this phase the patient could not perform all the specific movements of the shoulder joint;

The second phase of recovery continued with the recovery program in which the work was performed at the limit of pain, the joint structure regained its mobility, the patient being able to perform flexion, extension, abduction, adduction and internal rotation with greater amplitude, the muscular strength of the

infraspinatus, supraspinatus and subscapularis muscles improved, the joint stability improved, as well as the joint mobility;

In the third phase, based on the increase in muscular endurance, the speed of execution of the applied exercises was increased, based on good coordination and balance, which is why the patient resumed her daily activity, but continues her recovery program, because as sees in the graphical representation the specific movements of the shoulder have not yet reached normal values, and the recovery program provides for the maintenance of muscle tone and amplitude of movements.

4. Conclusions

The kinetic treatment was applied on average for a period of 9 weeks, and after analyzing the results, the following conclusions related to the studied case were highlighted:

 the flexion movement and the extension movement improved by 55 and 15 degrees respectively, at the end of the program these movements specific to the shoulder joint reaching approximately normal values;

 the abduction movement registers an increase of the movement amplitude of 65 degrees, the adduction movement being from the beginning of the program in the normal parameters;

 the internal rotation was the movement that the patient could not perform at all at the beginning of the recovery program, the amplitude of this movement increasing to 40 degrees after the application of the recovery program, and the external rotation increased by 10 degrees being in the parameters normal;

 the force of the rotator cuff muscles represented by the four muscles that form the complex of the rotator cuff muscles of the shoulder (infraspinatus, supraspinatus, subscapularis and small round) increased, reason for which the humeral head is fixed in the glenoid cavity;

 the objectives of the recovery program have been met.

General conclusions:

The upper limb prostheses have the role of replacing a series of lost functions, in accordance with a series of individual features related to the person's life prospects, the remaining functional conditions, the patient's health.

Fractures of the proximal extremity of the humerus affect the portion between the scapulohumeral joint line and the upper edge of the insertion of the pectoralis major. They occur more frequently in the elderly, due to the architecture of the bone at this level and especially osteoporosis, more pronounced in women. The mechanism of production is less often direct (by falling on the shoulder or by a blow), but more frequently by the indirect mechanism by falling on the hand, elbow or brutal torsion of the arm.

Shoulder arthroplasty compared to hip or knee arthroplasty is more difficult to perform due to the anatomical and functional features of the region as well as the objectives to be achieved by surgery.

Shoulder hemiarthroplasty is especially indicated in humeral neck fractures, in old capital lesions, avascular necrosis of the humeral head, 4-part fractures.

Postoperative recovery of the prosthetic shoulder is difficult and long-lasting, the end result of which depends on the degree of understanding and cooperation of the patient.

Postoperative recovery is especially important because the stability and mobility of the endoprosthesis shoulder depend on both the correct implantation of the prosthesis and the structural and functional condition of the periarticular muscles, primarily the deltoid and rotator cuff, other soft peri / intraarticular structures, bone in the shoulder complex.

The exercises within the kinetic program are chosen with much discernment, taking into account the benefits of the accessory elements (cane, pulley, towel, elastic bands, rubber cords).

he operated patient must be familiar with the recommendations needed for home recovery prior to discharge.

Orthosis of the shoulder, practically of the upper limb, is necessary to maintain the abduction-antepulsion position and slight external rotation (functional position of the shoulder).

The patient with the inverted shoulder prosthesis recovered faster due to the occupational therapy (having a house in the country and dealing with gardening).

Recommendations: occupational therapy, continuing to practice exercises at home.

Following these conclusions, we can say that the study hypothesis was confirmed, the patient resuming his daily activity, recommending him to continue toning the muscles, avoiding for a long time the daily activities that lead to high stress on the shoulder joint.

Bibliography

1. Baciu, Clement, (1974), Medical Gymnastics Programs, Stadion Publishing House, Bucharest.
2. Baciu, Clement, (1981) Pre- and post-operative physiotherapy, Sport-Turism Publishing House, Bucharest.
3. Fazakas, I. Gherman, E., (1973), Course of osteoarticular traumatology, Cluj.
4. Krausz, L., krausz, L., T., (2004) Physiokinetotherapy - on pathophysiological basis, Iuliu Haieganu University Medical Publishing House, Cluj-Napoca.
5. Kiss Iaroslav, (1999), Physio-kinetotherapy and medical recovery, Medical Publishing House, Bucharest.
6. Niculescu, Ghe., Voinea, A. and Zaharia, C., (1985), Elements of orthopedic surgery, Editura Militara, Bucharest.

9. Panait, Ghe., (2002), Practical traumatology orthopedics, Publistar Publishing House, Bucharest.
10. Pasztai, Z. (2001), Kinesiotherapy in functional recovery of the musculoskeletal system, University of Oradea Publishing House.
11. Petrescu, P., (1985), Traumatology and functional recovery in athletes, Facla Publishing House, Timişoara.
12. Sbenghe, Teodor, (1981), Medical recovery of post-traumatic sequelae of limbs, Medical Publishing House, Bucharest.
13. Sbenghe, Teodor, (1987), Medical, prophylactic, therapeutic and recovery kinetology Medical Publishing House, Bucharest.
14. Zaharia, Corneliu, (1994), Elements of pathology of the musculoskeletal system, Paideia Publishing House, Bucharest.

THE CONTRIBUTION OF EMCOPAD DOCTOR TECH DEVICES IN PAIN THERAPY

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Plenary presentation

EMCOPAD devices Doctor Tech (Electro-Magnetic-COherent-Polarised pad Devices) or PEM-Electromagnetic Patches - are high frequency passive resonant devices for activating acupuncture points or electrodermal areas. There are small electronic devices, which operate without their own source of electricity, in the frequency range 1-300 MHz. They were designed by an interdisciplinary group made up of researchers and practitioners and obtained the Gold Medal at the 2015 Geneva International Exhibition of Inventions. They are used externally and correspond to the 1 st class of medical devices (according to Directive 93/42 / EEC). Warning. Use by children and pregnant women is exclusively with the consent of the doctor. PEM is defined according to the invention PCT-WO2018 / 037379

PEM-Electromagnetic patches are high frequency passive resonant devices for activating acupuncture points or electrodermal areas. There are small electronic devices, which operate without their own source of electricity, in the frequency range 1-300 MHz. They were designed by an interdisciplinary group made up of researchers and practitioners and obtained the gold medal at the 2015 Geneva International Exhibition of Inventions. They are used externally and correspond to the 1st class of medical devices (according to Directive 93/42 / EEC). Warning. Use by children and pregnant women is exclusively with the consent of the doctor. PEM is defined according to the invention PCT-WO2018 / 037379.

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(54) Title: RESONANT DEVICE, APPARATUS AND METHOD FOR THE HIGH FREQUENCY ELECTROMAGNETIC STIMULATION OF THE ACUPUNCUTURE POINTS AND OTHER ELECTRO-DERMAL ACTIVE ZONES

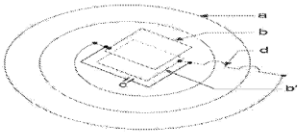
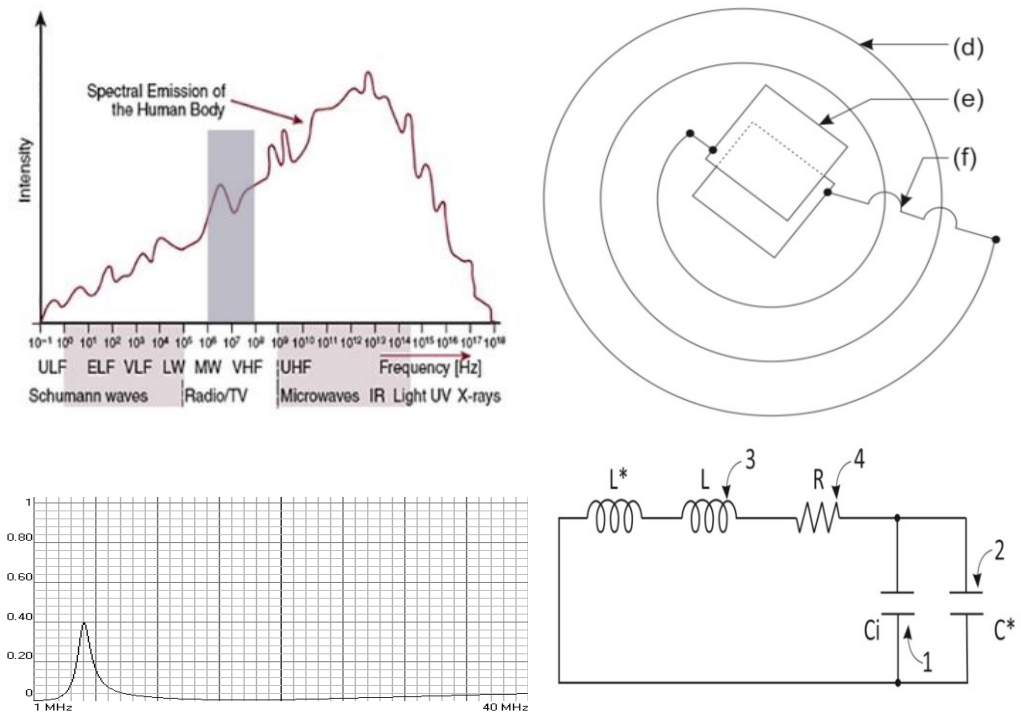


Fig. 1.B

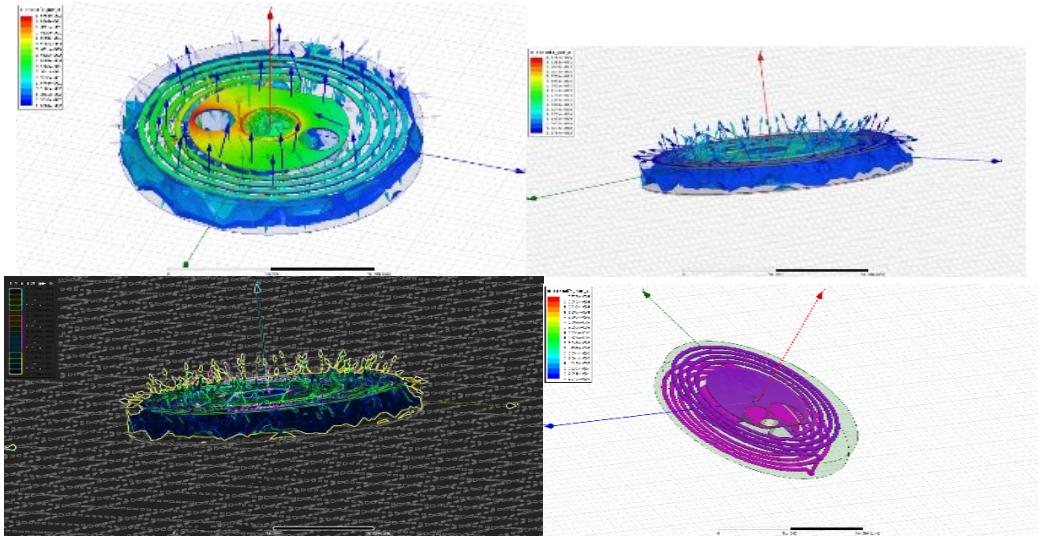
(57) Abstract: This invention describes a device and apparatus made of a set of passive resonant devices, used for the high frequency electromagnetic stimulation of the acupuncture points and meridians, or the electrodermal active zones, located outside of the acupuncture points, without an external energy source, with the purpose of changing a physiological state, or for the treatment of a given pathological condition, by obtaining local effects of stimulation or inhibition, or systemic effects, that can be utilised in the medical therapy. The passive resonant electromagnetic device is built from standard electronic components placed on one or more surface boards, having the geometric shape of a circle, or regular polygons, calibrated such to insure unique resonant frequencies, or multiple, in the range of 0.5 to 300 MHz. The method per the invention, consists of placing a set of such passive electronic devices, having an interactive field mostly variable magnetic, in certain locations known from the acupuncture therapies, both as position as well as effect and interaction. Such devices are effective for the bio energetic balancing (stimulation-dispersion) of the body. Being under the influence of the magnetic field and the electromagnetic radiation generated by the organism, the device will ensure the bioenergetic transfer useful for the body's rebalance.

WO 2018/037379 A1

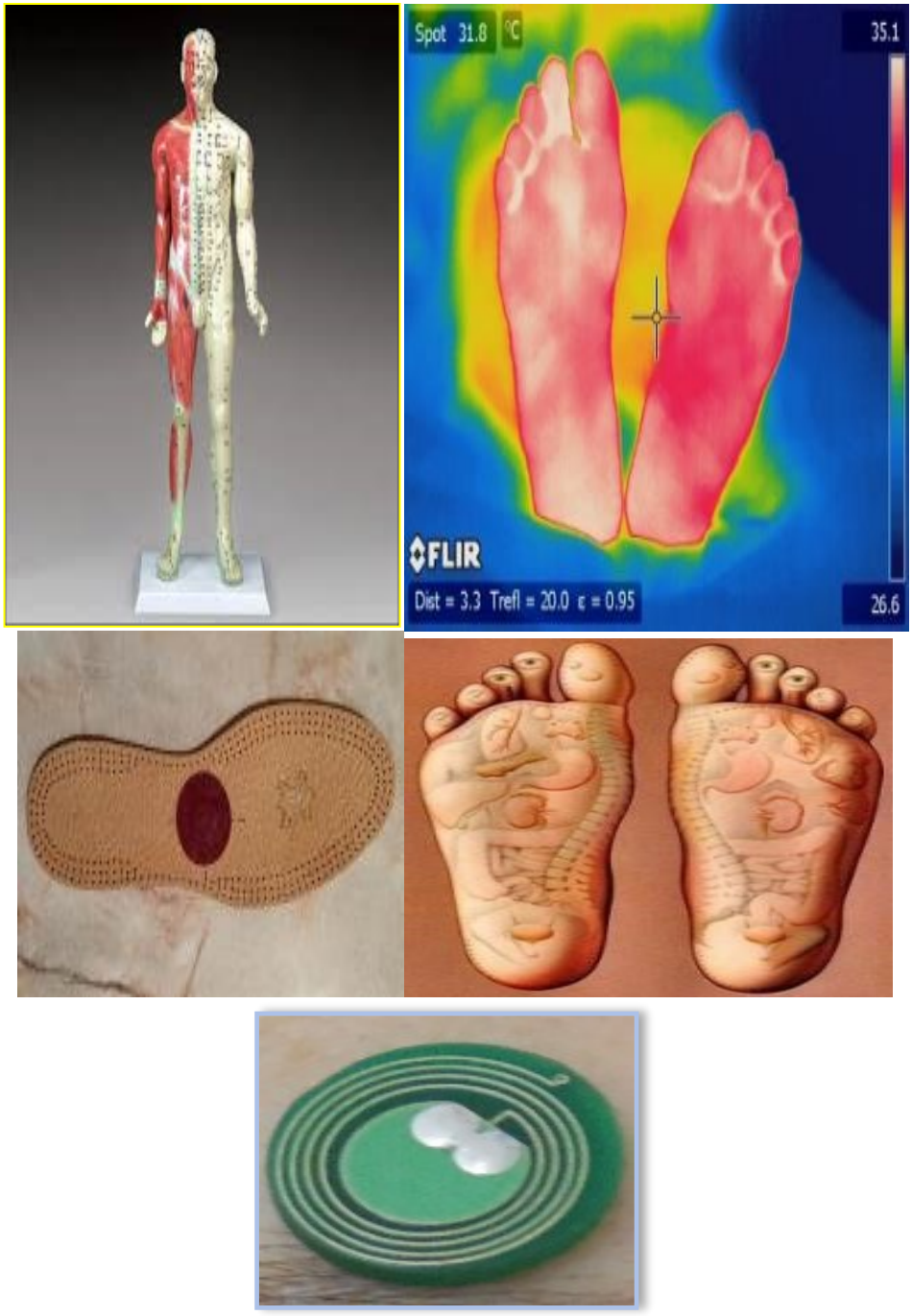
Invention PCT-WO2018 / 037379
EMCOPAD Doctor Tech-How does the passive electromagnetic patch work?



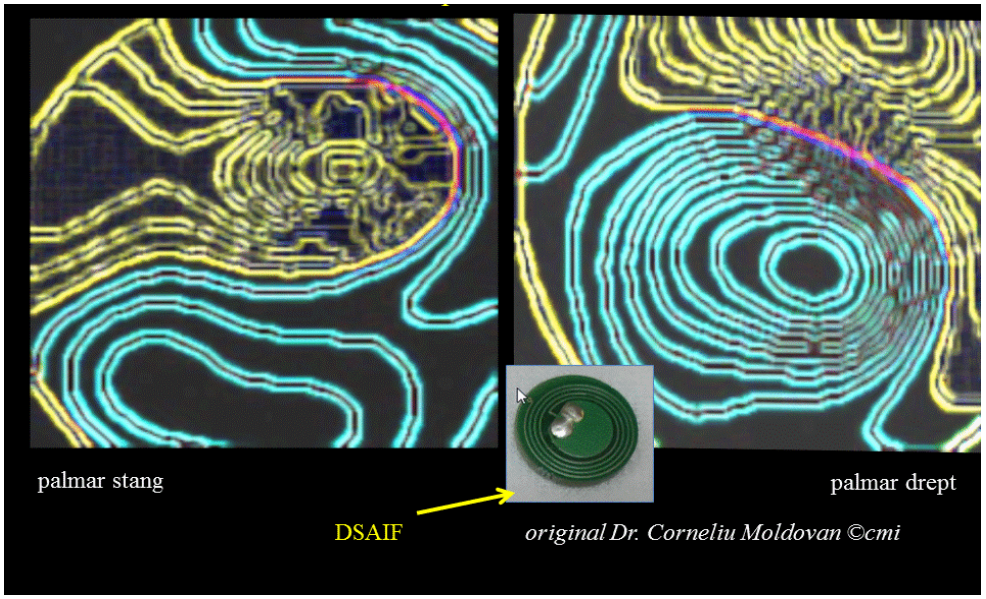
EMCOPAD Doctor Tech-How does the passive electromagnetic patch work?



EMCOPAD Doctor Tech-Location of passive electromagnetic patches

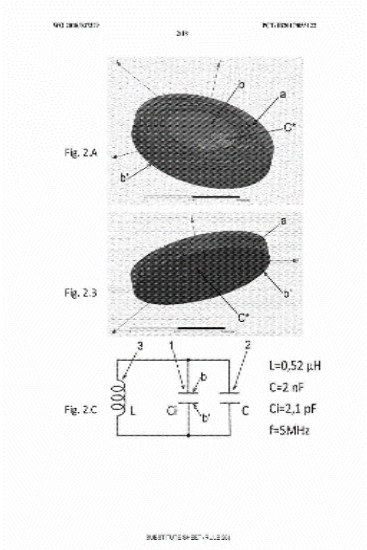


EMCOPADS/PEM are high frequency passive devices for activating acupuncture points
Palmar distribution of magnetic field in a male subject ,45 years old, before and after placement of a EMCOPAD Doctor Tech/DSAIF device



EMCOPADS DOCTOR TECH ARE HIGH FREQUENCY PASSIVE DEVICES

Original EMCOPADS Doctor Tech /PEM devices called also Bio-Chips are built according to **PCT - WO2018/037379** were used.
PEM are activated by the energy imbalance manifested by a high electrical potential from the acupuncture points above which they are located.
The devices begin to act when they are placed on the acupuncture points in imbalance and cease to function when the energy balance is achieved. If they remain on the body, they will resume their action when another imbalance occurs.



ADVANTAGES OF USING PASSIVE DEVICES - 1

The advantage of field interaction allows for the approximate positioning of the devices on the body, depending on the position of the acupuncture point.
The devices do not require maintenance, are not consumed and have an indefinite duration of use for normal use.
The operation of the devices does not require batteries, accumulators or charging of electricity from the network.
The use of the devices does not oblige the expenditures with consumables, the simple placement above the points being sufficient.

Fig. 10.A

Fig. 10.B

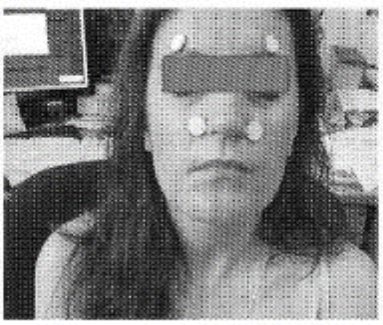


Fig. 10.C

The advantage of field interaction allows a direct proportionality between the size of the imbalance and the magnitude of the response of the EMCOPAD/PEM device.
EMCOPAD/PEM is the only bio-feed-back device, which permanently modifies its interaction with the human body depending on the body's reaction.
These features allow users without a medical qualification to use simple EMCOPAD/PEM devices to improve their own health, only by placing the devices on the body, in painful or recommended places…

ECP works by increasing the coherence of the system, multiple resonances and cooperative effects between the devices applied at the skin level. The original method and the devices presented have multiple and safe medical applications, no energy consumption and no harmful or harmful effects.

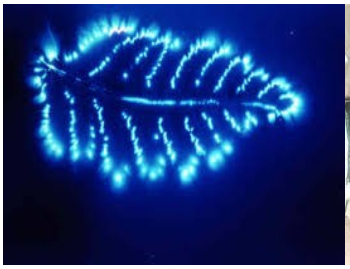
3 EXPERIMENTS - 3 CASES - 3 PRODUCTS

The authors conducted three experiments and corresponding sets of measurements, with EMCOPAD/PEM passive devices with different frequencies, located in different places.
In the first experiment the EMCOPAD/PEM devices were placed on the neck of the subject.
In the second experiment, the EMCOPAD/PEM devices were applied to the lobe of each ear, both outwards and inwards.
In the third experiment, the PEM devices were fastened to the edges, oriented to the sole of the foot and placed in the shoes.
The parameters were measured: emotional pressure, energy, symmetry, general energy balance and alignment of energy centers. Measurements were performed with a BioWell measuring device built on the Kirlian effect.

KIRLIAN EFFECT - (EK), DISCOVERED IN 1939 BY THE KIRLIAN FAMILY

EK consists of recording the image of an object exposed in a high voltage and high frequency electric field. In these images, the photographed object (recorded) is surrounded by a polychrome hall.

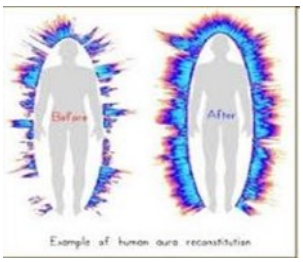
This technique is also known as: electrography, electrophotography, corona effect.
EK is used in the processes of investigation and knowledge of living matter. Organic structures have dynamic images, with colors specific to the physiological state.
Dr. Dumitru Constantin - Dulcan believes that EK highlights the biocamp.

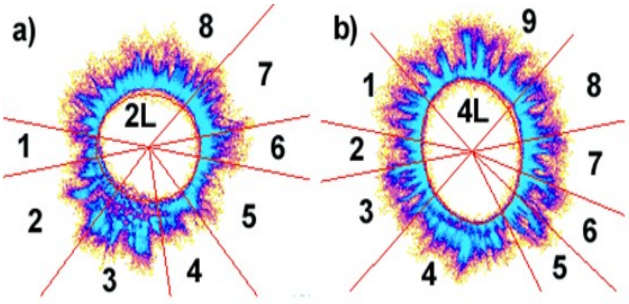


DEVICES AND METHODS OF MEASUREMENT USED - BIOWELL

Prof. Korotkov - visualization of the aura of the human energy body through the GDV technique - Gas Discharge Visualization, based on the Kirlian effect. Another name of the method is: "Electrophotonic capture"
The system allows video recording or real-time photography of biological or material energy fields.
The correlations between various sectors located on the fingers and internal organs are the basis software programs that recompose the field around a figure representing the human body, generating a series of numerical parameters

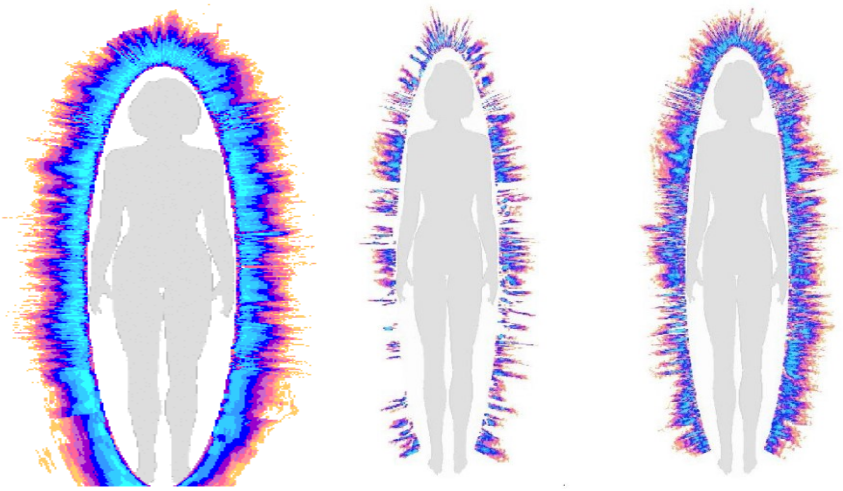


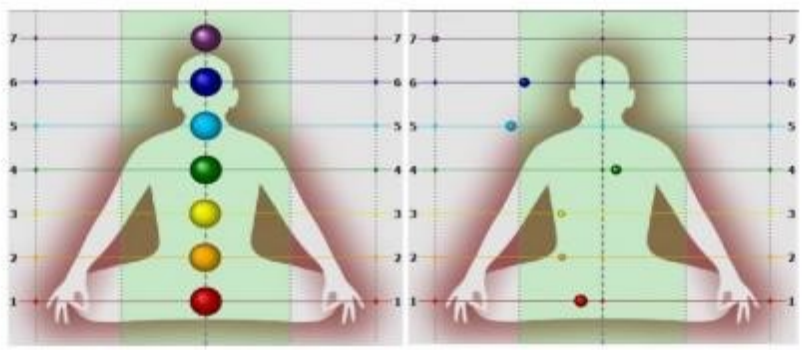



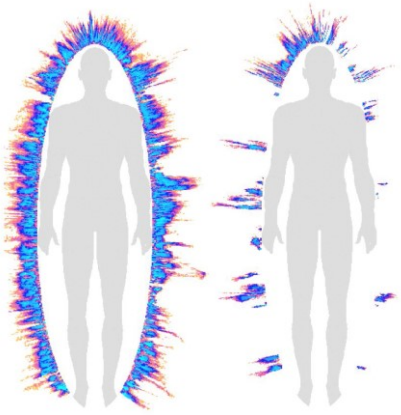
The energy field→ Psychological level→ Physical level

Ideal Parameters of the Energy Body according to Prof. Korotkov - examples



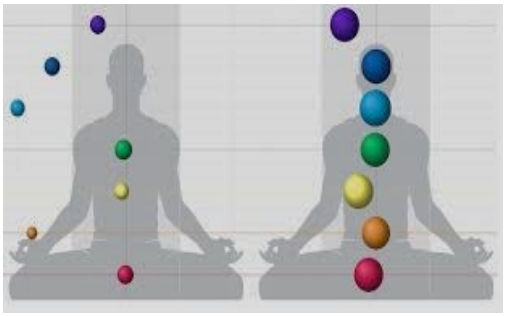


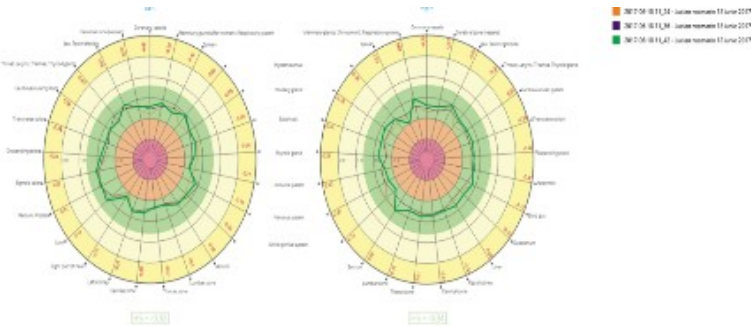
On the left / right side -ideal position for chakra energy centers
Right field and chakras that can meet during measurements



Normal / depleted and stressed human biofield
The field of a conductor, measured before and after a symphony [5] prof Korotkov
BIOFOTONIC ANALYSIS - PROGRAMS

The correlations between the electron-photon discharges at the finger level and the projection of certain organs / areas according to the Chinese and Ayurvedic medicine systems allow the evaluation of the functionality of the main energy centers (chakras), the acupuncture meridians and the organs themselves.
Another program provides information on the level of anxiety (stress), the general energy of the body, and the energy imbalances between the left / right side and the energy imbalances of the organs…





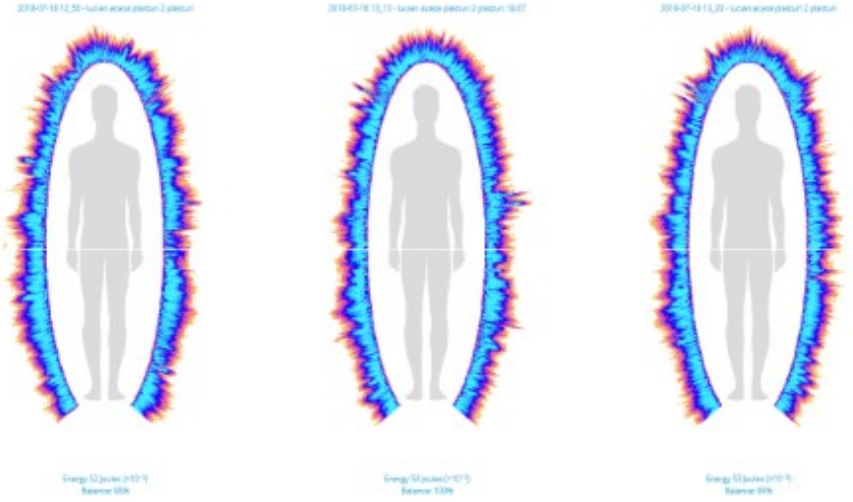
1-TRAVEL PILLOW WITH ENERGY REBALANCING EFFECT
RESULTS OF MEASURES CASE 1

LOCATION ON THE NECK

Acupuncture points in the cervical area come into contact with the devices fixed to

the travel pillow and if they are unbalanced, then they produce the activation of electronic device EMCOPAD/PEM.
An interaction similar to an acupuncture treatment occurs locally (but without the unpleasant effects of the needle sting), whose effect is an energy rebalancing and an improvement of the general state by increasing the tone and decreasing the level of stress, visible in measurements 2 and 3 of photo above.
In the photo above left are presented the positions and size of the energy centers in three successive measurements, the first one being the control one, before the cushioning of the pillow with the chip devices, and the second and the third one at 10 and 20 minutes from its application. It is observed in improving the alignment and opening of these centers (chackre in the Ayrvedic tradition) which shows the beneficial effect of the application of biochips
The photo above shows the synoptic diagram of the comparison of the main energy parameters of the three measurements highlighted by the Biowell device: (from top to bottom)
- the level of anxiety (stress) decreases following the application of biochips,
- the energy level increases after the application of biochips
- the general balance on organs and systems increases - the diagram below
-The right-left balance is slightly fluctuating
Lowering anxiety level, increasing energy and increasing balance shows the efficiency and beneficial effect of using the device equipped with boichips.

RESULTS OF MEASURES CASE 1 – LOCATION ON THE NECK



The conclusion of these measurements is that the energy parameters of the body have better values after a time of 10 minutes after application, during the second measurement. Energy balance reaches 99.98%

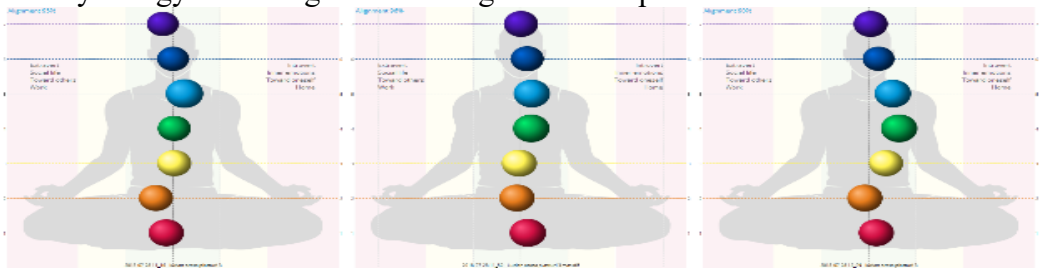
INTERPRETATION OF THE RESULTS OF THE MEASURES-CASE 1 - LOCATION ON THE NECK

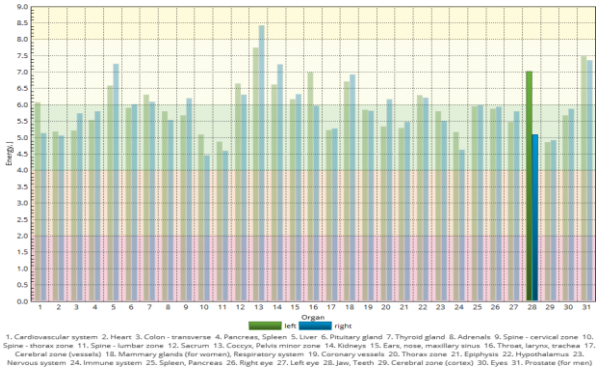
The position of the 7 energy centers (chakras) is also VERY GOOD after 10 minutes after applying the chips on the neck. And the levels of organ imbalance are very good after 20 minutes after application.

The conclusion of these measurements is that the energy parameters of the body have better values after a time of 10 minutes after application, leaving practically

only one imbalance in the throat area laryngeal - a result that we consider sufficiently conclusive.

These preliminary conclusions led to the idea of a new product - Travel pillow, which reduces the discomfort generated by long-distance transport - car, train or plane by energy balancing and reducing emotional pressure.



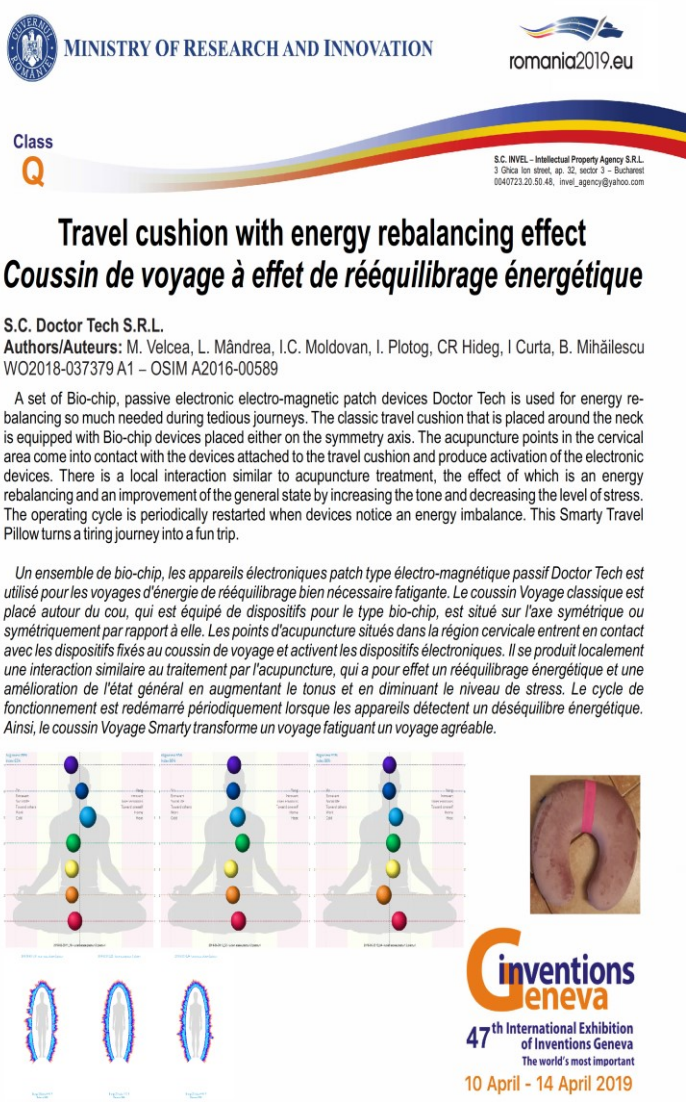


1 -Festival of Premiere in Geneva

Mr.Jean-Luc Vincent - President of the Geneva International Inventions Salon and Mrs Camelia Marinescu - Head of the Romanian Delegation, offers the medal of salon to the inventor Marian Velcea

CASE 1 - TRAVEL PILLOW-CERVICAL BELT _ SPECIFICATION AND INTERNATIONAL APPRECIATIONS

The product was exhibited at the Geneva International Inventions Show 2019 and was included in the competition in the M-Medical class, where it enjoyed the appreciation of the International Jury, which awarded him the Gold Medal. A special award was given by the Taiwan Invention Association, through its President Tsung-Tai Chen. The travel pillow lessens the discomfort generated by long distance transport, regardless of the vehicle used - coach, train or plane.

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SPECIALAWARD

Certificate of Achievement

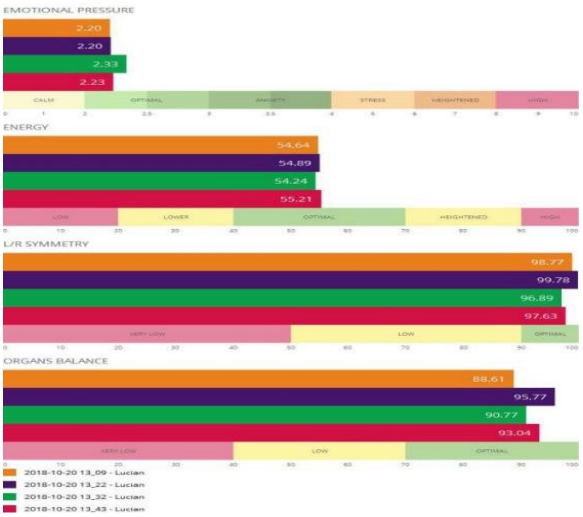
Presented in recognition of an invention with potential to significantly enhance home living

Invention: Travel cushion with energy rebalancing effect

CASE 2 RESULTS OF MEASURES -EMCOPAD - PEM LOCATION ON EAR LOBE

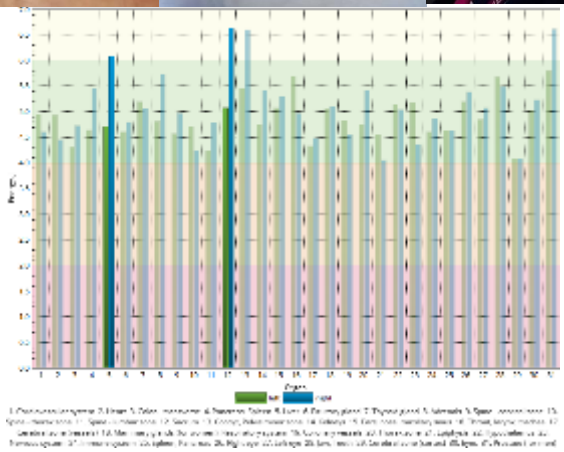
Three sets of measurements were made. The results regarding the stress, energy, symmetry and balance of the organs are presented in the figure below for a set of measurements.

The main effect is to increase the internal balance
(of internal organs).



CASE 2 - EMCOPAD / PEM LOCATION ON EAR LOBE MEASUREMENT

RESULTS



The results regarding the position of the energy centers and the energy balance on the body systems are presented in the figures above. The bio-chips act slower, the first results appearing on the third measurement - after about 20 minutes.
The main effect is to increase the internal balance (of the internal organs).

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Inventor: Marian VELCEA/ Ion Cornel MOLDOVAN/ Ioan PLOTOG/ Catalin Robertino HIDEG/ Ioan CURTA/ Etelka ANEBTAWI/ Benjamin AVIDAN

Invention: MEDICAL EARRINGS FOR ENERGY REBALANCING

Tsung-Tai Chen
President
Taiwan Invention Association

MINISTRY OF RESEARCH AND INNOVATION

ROMÂNIA

MEDICAL EARRINGS FOR ENERGY REBALANCING

Authors: Marian VELCEA, Ion Cornel MOLDOVAN, Ioan PLOTOG, Cătălin Robertino HIDEG, Ioan CURTA, Etelka ANEBTAWI, Benjamin AVIDAN
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PCT Patent Pending WO 2018-A1

The invention relates to an ear-like medical device built to interact with acupuncture points located on the ear lobe and controlling the health of the eyes.

The device contains electromagnetic patches (PEMs) characterized by specific frequencies that are fixed above the active electrodermal points on the earlobe by means of screws or clips; the device acts as an intelligent acupuncture needle: their activation is ordered by their own biorhythm by the user's body. The device does not require a source of electrical power, being fed from the local electric field.

The measurements show the decrease of the stress level, the left-right energetic balancing, the increase of the energy of eyes and the increase of the energy of the internal organs, with the consequence of the improvement of the general immunity.

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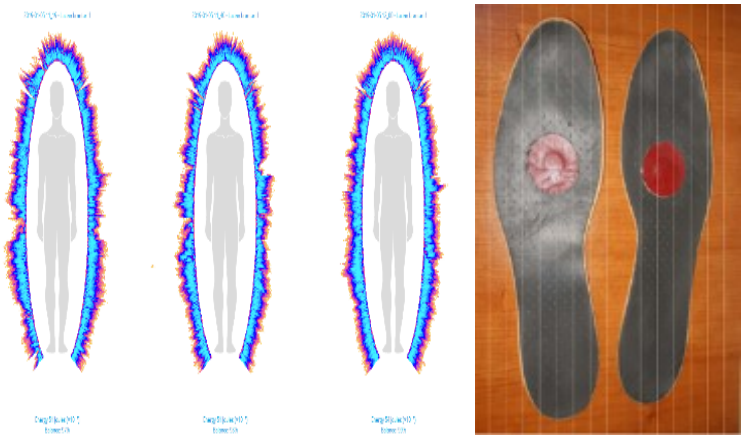
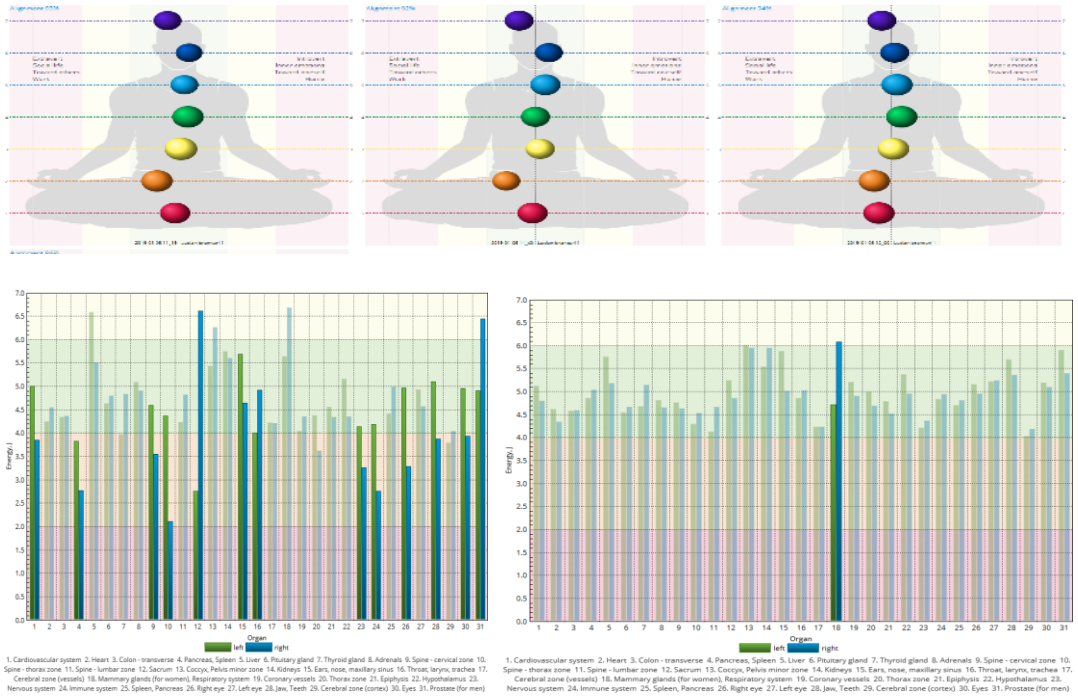
CASE 3 - RESULTS OF MEASURES AFTER EMCOPAD / PEM LOCATION ON SHOES



There were three sessions / sets of measurements, in three different days, at a distance of about one week. The results regarding the stress, energy, symmetry and balance of the organs are presented in the figure below for a set of measurements. The main effect is to reduce anxiety (stress), maintaining an optimal level of energy and a good energy balance.

CASE 3 - RESULTS OF THE MEASURES - LOCATION OF EMCOPAD / PEM ON INSOLES - INSIDE THE SHOES, SLIDES, SANDALS



In the case of placing PEM on the edges we could find the most favorable effect on

the third measurement, performed 40 minutes after application. We can observe the position of almost rectilinear energy centers and the energy balance of the internal organs significantly improved compared to the initial control measurement.

Conclusions

In another experiment, it was concluded that the energy parameters of the body have better values after the driver drove for 3 hours from the application of the braces, during which a route of 110 km was traveled.
Given the problem of stress in general - not just that of the steering wheel and its derivatives, especially the diminution of attention, we consider that these experiments are more than promising, opening new directions in the use of PEMs.

Precautions

In the case of the devices fitted in the shoe, the authors recommend that the use of these passive devices be made for a limited period of time, up to 8 hours, during which time it has been tested by the authors and in which the observed effects are beneficial.
For the devices mounted in the earrings, on the inside of the ear flag, the beneficial effects could be observed during a whole day, 12-13 hours, the subject having a high tone throughout the period (high energy and low anxiety level).


DIPLÔME

Inventions Geneva

SALON INTERNATIONAL DES INVENTIONS GENÈVE

Après examen, le Jury International a décidé

de remettre à: Marian VELCEA, Cornel MOLDOVAN, Ioan PLOTOG & Bogdan MIHAILESCU

pour l'invention: Ensemble de dispositifs passifs de résonance pour la stimulation de méridiens et de points d'acupuncture

MÉDAILLE D'OR GOLD MEDAL GOLDMEDAILLE

Genève, le 17 avril 2015


UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA

sub egida MINISTERULUI EDUCAȚIEI ȘI CERCETĂRII ȘTIINȚIFICE și ACADEMIEI DE ȘTIINȚE TEHNICE DIN ROMÂNIA, FILIALA CLUJ

SALONUL INTERNAȚIONAL DE INVENTICĂ

PRO INVENT, Ediția a XIII-a, 2015, Cluj-Napoca, România

DIPLOMA

DE EXCELENȚĂ ȘI MEDALIA DE AUR

Se acordă MARIAN VELCEA, CORNEL MOLDOVAN, IOAN PLOTOG, BOGDAN MIHAILESCU

ASOCIAȚIA JUȘTIN CAPRĂ

Pentru DISPOZITIV REZONANT, APARAT ȘI METODĂ PENTRU STIMULAREA ELECTROMAGNETICĂ DE ÎNALTĂ FRECVENȚĂ A PUNCTELOR DE ACUPUNCTURĂ ȘI A ALTOR ZONE ELECTRODERMICE ACTIVE

PREȘEDINTELE SALONULUI, Prof. dr. ing. AUREL VLAICU, Rector al Universității Tehnice din Cluj-Napoca

PREȘEDINTELE JURIULUI, Prof. dr. ing. RADU MUNTEANU

PAIN- FRIEND OR ENEMY?

Pain is the most common symptom of the disease.
Pain indicates that something destructive is happening in the body. Pain is an alarm signal triggered by the body, which informs us that a dysfunction occurs inside the body; thus the body informs the brain with what is happening in the body, so that it can take urgent measures.
Pain alarm indicates the risk of losing psychophysical integrity in order to maintain or restore it.
Many diseases can be identified by locating the pain and its quality.
In acute illness, the pain is plausible, but in chronic illness it cannot be defined.
The International Association for the Study of Pain (IASP) considers that this is "an unpleasant sensory and emotional experience, given by a current or potential tissue injury, or described in terms of such an impairment.

PAIN- FRIEND OR ENEMY?
CLASSIFICATION AND MEASUREMENT OF PAIN

Many ways to classify pain are known, but we consider the following classification viable:

NOCICEPTIVE PAIN is the response to injuries to the body and protective function. Examples include somatic pain: osteoarthritis, joint pain, sports injuries, low back pain and pain after surgery.

INFLAMMATORY PAIN. The frequency of this pain is high and felt when there is damage to the soft musculoskeletal tissues of the body.

Inflammatory pain is localized, being annoying. It is most commonly found in the scapulohumeral joint, coxo-femoral joint, knee joint, posterior trunk and hands.

NEUROPATHIC PAIN - is generated in most cases by trauma, or a dysfunction of the somato-sensory nervous system. Its symptoms are defined as a burning pain, tingling and atrocious. It occurs within days or weeks of injury.

PAIN MEASUREMENT. In our experiment we were able to set the pain intensity of patients on a scale of 1 to 10, ie 1-zero pain, 10-maximum intensity.

PAIN THERAPY WITH EMCOPAD DOCTOR TECH DEVICES [1]

Our experiment was performed on a number of 30 patients, 21 women and 9 men.

Patients presented with trigeminal neuralgia, occipital neuralgia, cervical neuralgia (Arnold neuralgia), cervico-brachial neuralgia, postherpetic neuralgia, herniated disc C3-C4, C4-C5, L4-L5, lumbago, headache, migraines, toothache, post bone fractures, post hip and knee surgery.

PAIN THERAPY WITH EMCOPAD DOCTOR TECH DEVICES [2]

On this study group of 30 patients we performed an experiment based on the application of EM-CO-PAD Doctor Tech (PEM) devices.

The age of the subjects ranged from 30 to 72 years, with an average of 51 years.

The experiment was performed between January 2018 and February 2021, in the IQ Integrative Medicine Clinic in Bucharest.

The actuation programs by applying the EM-CO-PAD Doctor Tech devices were applied according to a special plan adapted to age and diagnosis (acute or chronic pain),

after which the obtained results were analyzed.

PAIN THERAPY TECHNIQUE FOR APPLYING EMCOPAD DOCTOR TECH DEVICES IN PAIN THERAPY [3]

We applied the EMCOPAD Dr Tech devices on the 30 patients, according to the following protocol:

EMCOPAD Doctor Tech devices were applied on the analgesic acupuncture points specific to each diagnosis,

For 5 hours daily,

Over a period of 10 days, in acute pain and

For a period of 20 to 30 days in case of chronic pain - trigeminal neuralgia, etc.

PRINCIPLES OF TREATMENT IN PAIN THERAPY WITH EMCOPAD DOCTOR TECH (DRT) DEVICES [4]

Balancing the energy fields in the meridians;
Elimination of obstruction from the meridian;
Regulation of IQ circulation in the meridians.

PRESENTATION AND DISCUSSION OF THE RESULTS OF APPLICATION OF EMCOPAD DRT DEVICES IN PAIN THERAPY

The results of applying EMCOPAD Doctor Tech devices were tested in the case of pain in patients with acute pain at the end of the 10 days of treatment, and in the case of patients with chronic pain, at the end of the 20-30 days of treatment.

All 30 subjects told us that the painful outbursts were reduced to a value between 1 and 2 and even zero, so until the absence of pain.

All patients were cooperative and reported that in addition to reducing and eliminating pain, their anxiety was reduced and even disappeared.

CONCLUSIONS REGARDING THE PAIN THERAPY EXPERIMENT WITH EMCOPAD DRT

Following the experiment performed by applying EMCOPAD Doctor Tech devices on the 30 patients, those who had a high pain threshold between values of 8 and 10, after applying for 10, 20 and 30 days 5 hours a day of devices,

All patients reported a reduction in pain-to-pain threshold values between 1 and 2 and even zero.

We believe that this method of applying EMCOPAD Doctor Tech devices, which has been extensively tested,

It has proven effective in reducing pain in a short time in patients with acute and chronic forms of pain.

KEY MESSAGES ABOUT PAIN THERAPY WITH EMCOPAD /PEM DOCTOR TECH DEVICES

EMCOPAD Doctor Tech devices will be applied from the first painful signals, on

the painful points and on their symmetrical points;

By applying EMCOPAD Dr Tech devices, patients reported the disappearance of pain after 10 days in case of acute pain and after 20-30 days in case of chronic pain, giving up analgesic medication and analgesic patches;

The application protocol of EMCOPAD Doctor Tech devices must be applied by specialists in specialized institutions;

After applying EMCOPAD Doctor Tech devices, patients can perform socio-professional activities without restrictions;

The devices can be applied to athletes, then can continue without pain daily training or competitions…

GENERAL CONCLUSION REGARDING PAIN THERAPY WITH EMCOPAD DRT DEVICES

The entire interdisciplinary team considers that

The application technique of EMCOPAD Doctor Tech devices is a technique for reducing and even eliminating pain - it has been scientifically and clinically proven - and

We propose it as an innovative technique in pain therapy along with kinetic treatment in post-traumatic patients.

The favorable effects obtained by stimulating acupuncture points and meridians with unconventional methods, in this case by EMCOPAD Doctor Tech (PEM) devices seem to be due to additional activation mechanisms that do not occur in the case of conventional acupuncture stimulation: the production of excited states in molecules. , dissipation of coherent photon energy; secondary photon emission; electron production; amplification of electron transfer; generation of thermal microcurrents; generation of paired solitons (Davidov particles, informational particles); production of Oxygen Singlet (monoatomic oxygen); ionization / modification of electret behavior / increase of cutaneous electrogenesis / generation of dermo-epidermal potentials; activation of the mechanism: WINDOWING / OCCLUSION of the acupuncture. The results obtained can be interpreted in the context of bio-electric and thermal homeostasis and can be correlated with bio-energy phenomena related to acupuncture meridians and their integrative role between external and internal environment, in exchange for information / energy and mass in living structures.

The obtained results can be correlated with the acupuncture scheme used, the stimulation of acupuncture points, the individual receptivity to therapy, the action of high frequency electromagnetic fields (MHz) and extremely low, harmless intensity on the energetic-informational structures of the body. in the organic macro-system, by placing ordered "patterns", which increase the coherence of the system and activate molecular polarization / depolarization mechanisms.

The authors consider that, partially, the obtained results can be explained by the synchronization of excitations / deexcitations of acupuncture points, produced by the organic and electromagnetic activation of the original ECP devices, which generate subsequent biological effects, with activation of control mechanisms, entropy decrease and intervention mechanisms. homeostatic properties of the body.

Bibliography

1. Resonant device, apparatus and method for the high frecquency electomagnetic

stimulation of the accupunctures points and other electro-dermal actives zones-PCT-WO2018/037379

2. Coussin de voyage a effet de reequilibrage energetique (Travel cushion with energy rebalancing effect). GOLD MEDAL, Geneve, le 12 avril 2019, SPECIAL AWARD, Taiwan Invention Association, International Exhibition of Inventions, Geneva, 12 May 2019, DIPLOMA DE MERIT a Ministerului Cercetării și Inovării (MERIT DIPLOMA of the Research and Innovation Ministry), 10-14 aprilie 2019, MEDALIE DE AUR (GOLD MEDAL) la Salonul International de Invenții și Inovații Traian Vuia, Timișoara (International Innovation Salon Traian Vuia), 14 iunie 2019.

3. Biocip set-trusă de prim ajutor în călătorie (Biocip kit set for first help during travel), MEDALIE DE AUR (GOLD MEDAL) la Salonul International de Invenții și Inovații Traian Vuia, Timișoara (International Innovation Salon Traian Vuia), 14 iunie 2019, Diplomă de excelență și medalie din Republica Moldova (Excellence diploma and medal from Republic of Moldova), Salonul International de Invenții și Inovații Traian Vuia, Timișoara (International Innovation Salon Traian Vuia), 14 iunie 2019.

4. Bratară medicală cu efect de re-echilibrare energetică (Medical bracelet with energy rebalancing effect), MEDALIE DE AUR (GOLD MEDAL) la Salonul International de Invenții și Inovații Traian Vuia, Timișoara (International Innovation Salon Traian Vuia), 14 iunie 2019.

5. Korotkov, K. G. Human Energy Field, Study with GDV Bio-Electronography, BACKBONE PUBLISHING Co., USA, 2002, ISBN 096443119X.

6. Yakovleva, E., Korotkov, K. G. Electro-Photonic Analysis in Medicine, GDV Bio-electro-graph Research, 2013, ISBN 978-1481932981.

7. Rizzo-Roberts N.R., Shealy N., Tiller W. Are there electrical devices that can measure the body's energy state change to an acupuncture treatment. In: Korotkov K, editor, Measuring Energy Fields, Fair Lawn : Backbone Publishing, 2004:31-39.

8. Korotkov K. G., Energy Fields Electro Photonic Analysis in Humans and Nature. 2nd Edition, Create Space Independent Publishing Platform, April 21, 2014.

9. Beverly Rubyk, Measurement of the Human Biofield and Other Energetic Instruments**,** Chapter 20 of *Energetics and Spirituality* by Lyn Freeman

STUDY ON THE EVALUATION AND RECOVERY OF THE POST-TRAUMATIC KNEE WITH ACL RUPTURE AND MENISCUS INJURY

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[2]*Chiajna Medical Center, Ilfov, Romania*
[3]*"Carol Davila" Central Military Hospital, Bucharest, Romania*

Abstract

This paper was meant to present the evaluation and recovery of the post-traumatic knee with anterior cruciate ligament (ACL) rupture and meniscus injury in order to improve the rehabilitation process by reducing the recovery time and increasing its efficiency. Therefore, the purpose was to create a clinical-functional evaluation model, to select an optimal therapeutic program based on kinesiotherapy and to establish the contribution of the kinesiology exercises applied early and correctly for the recovery of this type of pathology. During the research, a 23-year-old male patient was selected. The patient was submitted to arthroscopic surgery for a rupture of the anterior cruciate ligament (ACL) and an injury of the internal meniscus (right knee). The surgery was performed in the "Foișor" Clinical Hospital of Orthopedics, Traumatology and Osteoarticular Tuberculosis in Bucharest. The patient also presented postsurgical intense right gonalgia, with walking functional difficulties. The recovery program was preceded by relaxation techniques and a program of respiratory gymnastics which were used throughout the session. The McConell-type elastic restraint allowed the kinesiology program to recover knee function. At the beginning of the kinesiotherapy treatment, the patient had the following local changes: moderate pain (value 5) in the knee and swelling of the joint on somatoscopic examination. These disorders have improved after the complex kinesiotherapy recovery treatment (cryoscopy, joint mobilizations, massage), orthotics (wearing of plantar supports) and physiotherapy. The complete physical examination showed that the Q angle exceeded the normal values, because of the retraction of the affected knee - positive Ober test and presence of the flat foot; the accentuated pronation of the foot had negative repercussions on the biomechanics of the knee, favoring the installation of the painful syndrome. The early application of the kinesiotherapy treatment for recovering the knee with ACL rupture and meniscus injury led to good results in the functional restoration of the affected area in a relatively short time. The dysfunctional sequela of the knee was solved by the means selected and applied according to the methodology presented in the recovery programs. Thus the patient gained the necessary strength to ensure the static and dynamic balance of the body and had the possibility to resume his socio-professional life and sports activity.

Key words: *knee joint, clinical-functional evaluation, therapeutic program, complex kinesiotherapy treatment*

1. Introduction

The ACL rupture and meniscus injuries can cause significant functional sequelae. Performing a systematic and methodical medical examination is of particular importance for diagnosis (Tarcau, E., Lozinca, I., & Porumb, A. (2014). The Kabat method and proprioceptive neuromuscular facilitation (PNF) techniques in ACL rupture and meniscus injury should be combined to ensure synchronized

and efficient treatment (Boca, I. C., & Dan, M. 2014; Pásztai, Z., & Ciobanu, D. I. 2012).

Clinical data from the specialized literature addressing this issue in terms of family medical history can detect a lesion that is often more specific to men, especially athletes (Cazacu, M., Lungoci, C., Oniu, T., Fabian, O., & Mihailov, A. 2000).

The combined use of all available modern methods of assessment and recovery offers the advantage of providing a multiple result as close as possible to the actual health of the patient, making also possible the adaptation of the therapeutic means in order to improve this health state (Lefter, V., & Cibu, O. A. (2010).

The kinesiotherapy for the rehabilitation of the ACL and meniscus injuries is the most important part in the medical recovery program and aims, through physical exercises, at: restoring the impaired functions, increasing the functional level, achieving compensatory mechanisms in situations of functional readaptation (Baciu, C. 1999; Diaconu, A. 2009; Roşulescu, E. 2009).

2. Material and methods

The purpose of the paper was to contribute to the improvement of the recovery process in order to reduce the recovery time and to increase its efficiency.

The research involved the participation of a 23-year-old male patient who was submitted to arthroscopic surgery for a rupture of the anterior cruciate ligament (ACL) and an injury of the internal meniscus (right knee) in the "Foișor" Clinical Hospital of Orthopedics, Traumatology and Osteoarticular Tuberculosis of Bucharest. The patient had suffered a sports accident about two months ago; he presented postsurgical intense right gonalgia, with walking functional difficulties. The patient received recovery services. The patient's personal data were collected from the examination registers and observation sheets kept in the archives of the hospital.

The following methods were used during this research:

a) Method of theoretical documentation, regarding the effects of the physical exercises on the body, the ways of their application for therapeutic and recovery purposes as well as the different characteristics of the patients submitted to the research;

b) Method of survey, using the anamnestic interview with the aim of obtaining data referring to the personal and hereditary collateral history, working conditions and lifestyle of the patient;

c) Method of observation: it was one of the main methods of direct investigation of the reality, representing the starting point in obtaining factual and concrete materials for the basis of the analysis;

d) Methods of measurement (exploration and evaluation): inspection, palpation, functional balance (discomfort in daily activity: putting on shoes, walking, climbing or descending stairs, bending the knee), assessment of other

aspects (intensity of the pain felt by the patient during palpation of the knee, daily activities and movement).

Clinical-functional evaluation model: etiopathogenic, clinical, paraclinical and functional.

Criteria of inclusion:

- persistent mechanical pain of the affected knee;
- presence of inflammatory signs;
- presence of other knee injuries;
- absence of other previous kinesiology rehabilitation programs for the dysfunctional status in ACL rupture and meniscus injury.

Kinesiotherapy program for the immobilization stage

Objectives:

- ensuring venous and lymphatic drainage (avoiding edema);
- maintaining muscle tone on the healthy limb; as for the affected limb, the muscle tone at knee will be increased;
- maintaining a good functionality of the entire body.

Means: To ensure the venous and lymphatic drainage there were used: sloping positions (above the horizontal) and Buerger vascular gymnastics; (diaphragmatic) abdominal respiratory gymnastics.

The following techniques were used to maintain the muscle tone of the healthy limb: gymnastics for activation of the major functions (digestive, circulatory and respiratory ones); active mobilizations with resistance for all free joints; active mobilizations with resistance for the upper limbs and the large dorsal muscle (*latissimus dorsi*) for assisted walking.

3. Results and Discussions

The patient was submitted to arthroscopic surgery for an ACL rupture and an injury of the internal meniscus (right knee). The McConell-type elastic restraint allowed to carry out the kinesiology program meant to recover the knee functions. At the beginning of the kinesiotherapy treatment, the patient had the following local changes: moderate pain (value 5) in the knee; joint swelling; on somatoscopic examination, the presence of the knee in flexion was revealed. These disorders have improved after a complex kinesiotherapeutic recovery treatment (cryoscopy, joints mobilization, massage), orthotics (wearing plantar supports) and physiotherapy as well.

*General dynamics of patient's progress***.** After the individual treatment programs, periodic tests and observations, the following matters were noticed:

- From the point of view of toning the hypotonic muscle groups, there was an improvement in muscle strength;
- In the case of the muscles necessary for knee movements, the evolution was consistent with the one of other muscles in slightly lower limits;
- Mobility and function of the knee were normalized; the abnormalities were significantly improved;

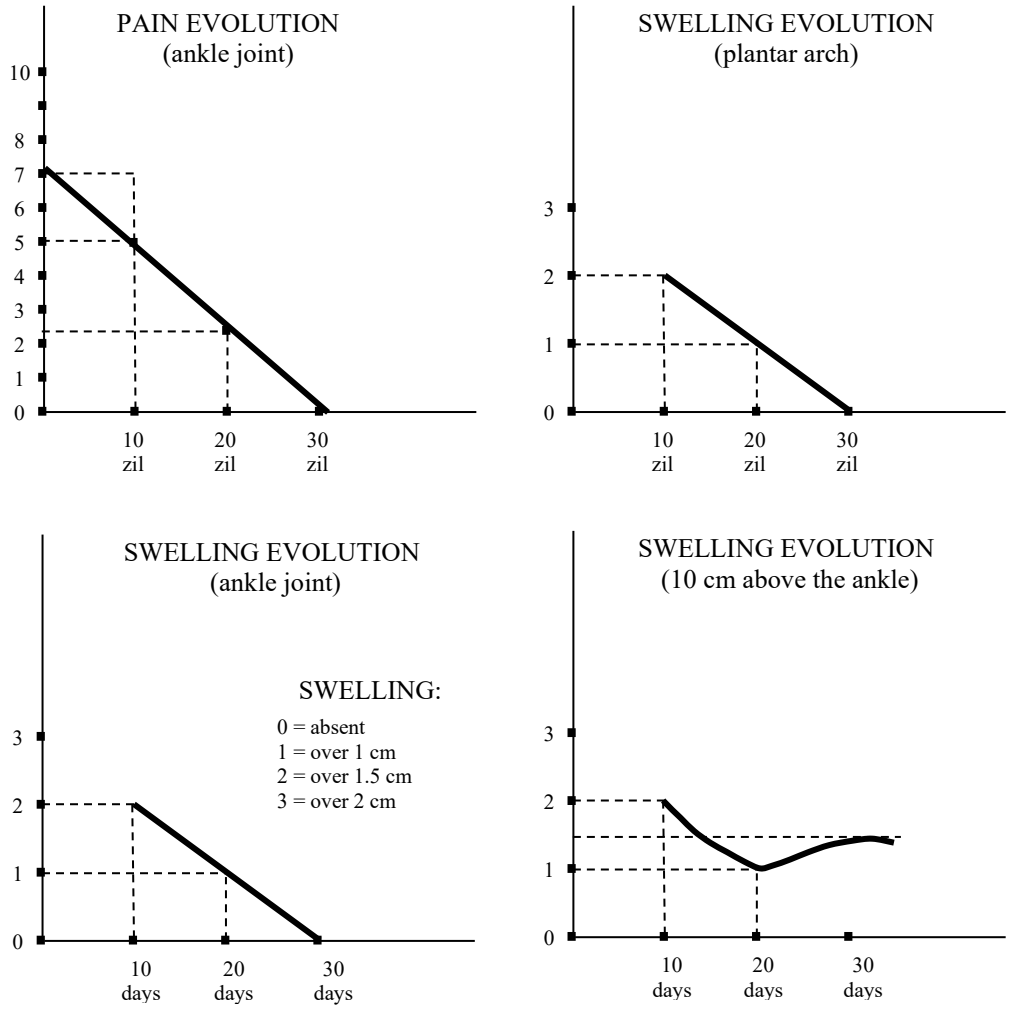
- A good evaluation of the myo-arthro-kinetic dysfunctionality leads to the selection of the best means for obtaining the recovery and socio-professional reintegration of the studied patient;
- The patient actively participated in the treatment development, continuing to practice the established recovery programs at home. Thus he was able to finally achieve a recovery as close as possible to the normal values of the knee function and implicitly of the lower limb;
- Aiming at the post-traumatic re-education of mobility and muscle strength as key objectives, it was possible to find out that the studied patient recovered in a proportion of 85 – 100 %;
- The kinesiotherapeutic means used throughout the recovery program must be selected depending on the objectives of the treatment stage and the patient's response to their application;
- The treatment sessions must have a permanent character of re-education of the functions diminished by the meniscus rupture and must ensure the patient's integration as complete as possible.
- The swelling at the knee had value 2.

The designed recovery programs contributed to:

• decrease in pain values;
• accelerating the resorption of the inflammatory processes;
• restoring muscle strength and endurance;
• restoring motor control and ability of the affected knee.

The procedures and methods included in the recovery program are listed below:

• cryotherapy, used after mobilizations and during day time for its analgesic and anti-inflammatory effects;
• electrotherapy to combat edema and pain;
• Cyriax technique to reduce the painful spots;
• exercises with normal resistance applied for increasing the muscle strength; these exercises are easily accepted by the patient because they can be used taking into account the limit of pain;
• the extrinsic toning exercises were performed slowly, with minimal resistance.



Graph 1 – Evaluation of the patient

The return to the socio-professional activity of the patient with meniscus rupture must be made when:

- there is an amplitude of the movement of 85 – 100 %;
- the muscle strength restoration has the value of 4 – 5, namely 85 – 100 %;
- the re-adaptation to normal movements will be maximum.

Regarding *the actual re-education exercises,* there were active mobilizations representing syntheses of several analytical movements. In the extreme sector of the respective movement amplitude, the contraction could be maintained for 2-3 seconds, avoiding the muscle cramps. The combinations of various analytical movements made possible a variety of re-educative exercises. Starting from the first sessions of recovery after meniscus rupture, the patient felt a diminution of the pain and an increased endurance in performing activities.

By the end of the recovery treatment, the condition of the patient had improved. The pain decreased. The patient complained of mild pains depending on temperature or when the affected lower limb was overstrained.

The mobility of the injured lower limb increased so that:

- at the end of the treatment the flexion was 180^0
- internal rotation 70^0
- external rotation -75^0
- adduction -165^0
- extension -45^0

The stability and stress of the lower limb increased so that at the end of the program the patient was able to have control over his movements. The recovery treatment was made daily throughout the hospitalization period, with recommendation to continue after the discharge.

The functional deficit was solved by means of mobilization.

The evolution of the mobility in the knee joint, according to the final testing, was proven by the increase of the low values, which reached the value 5. The patient's disturbed static and dynamic balance because of the knee pain at the beginning of the treatment made impossible the correct and normal walking. Towards the end of the treatment, the ability to move was restored, enabling the social and family reintegration of the patient.

The effects of the massage were circulatory activation, trophicity, contracture, sedation.

Orthopedic hygiene:

The following recommendations were made to the patient:

-to avoid walking on rough terrain;

-to avoid limping (through mental control of the gait);

-to avoid orthostatism and prolonged walking;

-to use a walking stick when moving on longer distances.

4. Conclusions

The early application of the kinesiotherapy treatment for recovery with ACL rupture and meniscus injury had good results regarding the functional restoration of the affected area in a relatively short time.

The dysfunctional sequela of the knee was solved according to the methodology detailed in the recovery programs. Thus the patient recovered the necessary strength for ensuring the static and dynamic balance of the body and had the possibility to resume his socio-professional life and sports activity.

The post-traumatic recovery after ACL rupture and meniscus injuries involves the contribution of a medical team that examines the patient in relation to the clinical-functional evaluation model mentioned above and draws up an appropriate rehabilitation program.

The conclusions drawn after this research demonstrate that the kinesiotherapy is a physical treatment method that cannot be replaced by other means of recovery and occupies the central place in the restoration of the lost function in a patient with meniscus rupture.

Bibliography

1. Baciu, C. 1999. *Kinetoterapie pre şi post operatorie*, Editura Didactică şi Pedagogică, Bucureşti.
2. Boca, I. C., & Dan, M. (2014). *Proprioceptive neuromuscular facilitation in physical therapy* (Facilitarea neuromusculară proprioceptivă în kinetoterapie). Studia Universitatis" Vasile Goldiş". Seria Educaţie Fizică şi Kinetoterapie, 3(1), 57.
3. Cazacu, M., Lungoci, C., Oniu, T., Fabian, O., & Mihailov, A. (2000). *Hereditary Non-Polyposis Colorectal Cancer Between Dogma and Reality*. Romanian Journal of Gastroenterology, 9(3).
4. Diaconu, A. 2009. *Kinetoterapie*, Editura Polirom, Bucureşti
5. Lefter, V. & Cibu, O. A. (2010). *The approach of the kinetic program for hips with applied endo-prosthesis in the" Lacu-Sărat Brăila" Recovery Center* (2006-2009). Citius Altius Fortius, 28(3), 16.
6. Pásztai, Z., & Ciobanu, D. I. (2012). *Study regarding the training of posttraumatic knee's" four facet's muscles"* (Studiu despre antrenarea" musculaturii celor patru faţete" ale genunchiului posttraumatic). Studia Universitatis " Vasile Goldiş". Seria Educaţie Fizică şi Kinetoterapie, 1(1), 25.
7. Roşulescu, E. (2009). *Kinetoterapia în recuperarea afecţiunilor reumatologice*. Universitaria.
8. Tarcau, E., Lozinca, I. & Porumb, A. (2014). *Study regarding the evaluation of subjects with meniscus lesions* (Studiu privind evaluarea pacienţilor cu leziune de menisc). Studia Universitatis" Vasile Goldiş". Seria Educaţie Fizică şi Kinetoterapie, 3(2), 113.

NEW APPROACHES IN SLOWING DOWN THE EVOLUTION OF ALZHEIMER'S DISEASE - THE USE OF PHYSICAL EXERCISE

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Abstract

The present paper aims at reviewing and analyzing the literature on both the therapeutic approach of Alzheimer's disease and the use of exercise in the prophylaxis and the slowing down of the disease. The review is limited to prospective observational and intervention studies. In describing the state of knowledge in the field, we focused on the incidence of the disease, the evolutionary stages and means of diagnosis, the factors of progression and on current therapeutic approaches, with particular emphasis on the use of exercise. The way to search for bibliographic sources was online on a common engine - Google Scholar. The study allowed me to identify the main directions of research in the field addressed, but also to outline personal views on the use of table tennis as a prevention and rehabilitation program for people suffering or at risk of developing Alzheimer's and dementia, because by practicing this type of sport, five different sections of their brain are simultaneously activated.

Keywords: *Alzheimer's disease, dementia, exercise, table tennis, elderly.*

I. Introduction

Dementia is a syndrome in which there is impairment of memory, behavior, thinking and the ability to perform daily activities. Although dementia mainly affects the elderly, it is not a normal part of aging and it is one of the major causes of disability and dependency among the elderly around the world. Its impact is very high, both for patients and their caregivers, families and society in general from a physical, psychological, social and economic point of view. Alzheimer's disease is the most common form of dementia and can contribute to 60-70% of the total cases of dementia.

Dr. Stanescu, A., (2015), states that "Alzheimer's disease is a progressive neurogenerative disorder characterized by the destruction of nerve cells, consisting of a long asymptomatic stage - in which the patient shows no signs of memory and thinking being affected (over 10-15 years), followed by the clinical stage (another 8-10 years) with specific manifestations in the cognitive area (memory loss, impaired reasoning, behavioral disorders, etc.)" [1].

The prevalence of Alzheimer's disease (AD) has increased progressively over the last 100 years and recent estimates indicate an alarming increase in the incidence for the coming years.

Nestor et al states that "at the moment, dementia affects approximately 47 million people worldwide. There are almost 10 million new cases each year, with a prognosis of 135 million people affected in 2050" [2].

Alzheimer Europe estimates that the top ten countries that are most affected by Alzheimer's include (in the correct order of the highest rate): Finland, the United States, Canada, Iceland, Sweden, Switzerland, Norway, Denmark, the Netherlands and Belgium. The countries with the lowest rates of damage are India, Cambodia, Georgia and Singapore. The number of people with dementia in Romania in 2012 was 270,304. This represents 1.26% of the total population of 21,387,517. The number of people with dementia as a percentage of the population is slightly lower than the EU average of 1.55%.

Table 1. *The statistics of the non-governmental organization Alzheimer Europe on the estimation of Alzheimer's cases in Romania by age groups [3].*

Age group	**Men with dementia**	**Women with dementia**	**Total**
30-59	7.459	4.252	11,711
60-64	1.145	6.095	7.241
65-69	7.216	7.184	14.401
70-74	11,215	19.206	30.421
75-79	19,986	34.356	54,342
80-84	23.960	47,881	71,841
85-89	14.542	41,079	55.621
90-94	4.415	17.304	21.719
Over 95 years	546	2.463	3.009

II. Purpose and objectives

Systematic review of data from the literature in order to summarize the most relevant and latest information about Alzheimer's disease;

Identification of correlations / applicability between the studied aspects and the use of physical exercise in the prophylaxis and treatment of Alzheimer's disease.

Research objectives:

O1. Description of the main diagnostic methods in Alzheimer's disease;

O2. Presentation of the latest theories on disease treatment and structuring existing information in a synthetic form;

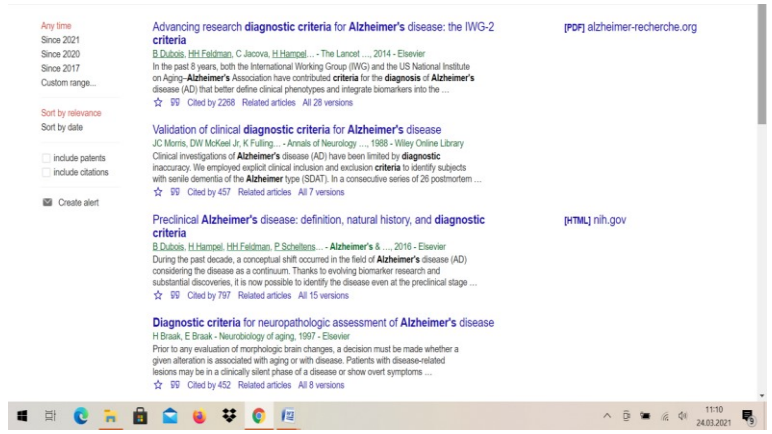
O3. Presentation of the latest theories on the use of exercise in the prophylaxis and treatment of Alzheimer's disease;

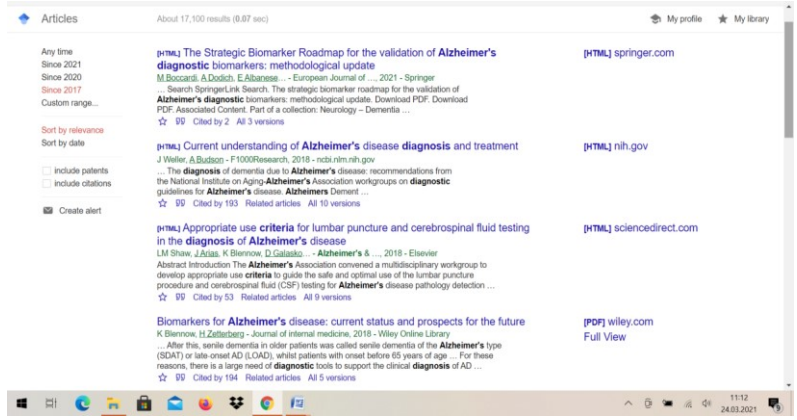
O4. Identifying directions for research/therapeutic approach to Alzheimer's disease by practicing table tennis.

III. Materials and method

The search / use of bibliographic sources was online on a common engine - Google Scholar using as keywords Alzheimer's disease, internships, diagnosis, therapeutic approaches, nutrition, physical exercise, table tennis. Refining the criteria was done by selecting recent articles, starting with 2017.

Google Scholar is available for free on the web (https://scholar.google.com/), and more than 20 million references for medical and rehabilitation literature come from here - biomedical databases, life science journals an online books.





Using the selection criteria, we identified a total of 1124 publications, of which 76% in the last ten years. Regarding the use of exercise in the treatment of Alzheimer's disease, we have registered only 119 publications, of which only 19 on the use of table tennis based on scientific evidence. In the elaboration of the paper we selected only the articles of meta-analysis type of the stated issue.

IV. Result

4.1. Staging and Diagnosis. General stages of Alzheimer's disease.

The typical progression of Alzheimer's disease is:

Stage	Average time frame
mild or early stage	2 to 4 years
moderate or middle stage	2 to 10 years
severe or late stage	1 to 3 years

In the clinic, the seven steps described by Dr. Barry Resiberg in the "Global Damage Scale" are frequently used. There is no universally agreed setting system, so healthcare providers can use the system they are most familiar with [4].
Stages of Alzheimer's disease according to Reisberg's classification:

- Stage 1: Normal Outward Behavior;
- Stage 2: Very Mild Changes;
- Stage 3: Mild Decline;
- Stage 4: Moderate Decline;
- Stage 5: Moderately Severe Decline;
- Stage 6: Severe Decline;
- Stage 7: Very Severe Decline.

Because Alzheimer's affects people in different ways, each person may experience symptoms - or may progress through the stages - differently.

Particular attention is paid to the diagnosis of the "preclinical" phase. The pathophysiological process of Alzheimer's disease (AD) is thought to begin many years before the diagnosis of AD dementia. This long "preclinical" phase of AD would provide a critical opportunity for therapeutic intervention; however, we must continually elucidate the link between the pathological cascade of AD and the onset of clinical symptoms.

The National Institute on Aging and the Alzheimer's Association have convened an international working group to analyze biomarkers, epidemiological and neuropsychological evidence and to develop recommendations to determine the factors that best predict the risk of progression from "normal" to mild cognitive impairment and AD dementia. In the last year we can describe the emergence of a new conceptual framework for Alzheimer's disease [5].

In his meta-analysis, Hort et al mentions the most used criteria for clinical diagnosis that included medical history, laboratory examinations, neurological and physical examination [6].

In recent decades, neuroimaging has gained a special place in the diagnosis of the group of diseases designated as AD. Structural imaging in the process of

diagnosing AD has two purposes: to exclude other diseases that can be treated surgically and to include specific findings for AD.

For the first CT and RMN it works just as well and most current guidelines agree that such an imaging procedure should be performed once on each patient. Functional neuroimaging [i.s., fluorodeoxyglucose (FDG-) PET and single photon emission computed tomography (SPECT)] may increase diagnostic confidence in assessing dementia [7].

Electroencephalography (EEG) can help differentiate between AD, subjective complaints, and psychiatric diagnosis. Genetic testing is also increasingly used, due to the updating of theories on the epidemiology of the disease.

Other investigations include studies on DNA damage and repair, autophagy, proteomic analysis, oxidative processes, ion channels and transduction, APP levels and intracellular calcium regulation. Blennow and Zetterberg identified and used the new Biomarkers for Alzheimer's disease. A number of non-nervous tissue specimens (mainly fibroblasts, platelets, olfactory and vascular epithelium) were investigated in AD. Strategic roadmap for Alzheimer's disease based on biomarkers.

Data from clinical research support an early diagnosis that amyloid-β (Aβ42), total tau (T-tau) and phosphorylated tau (P-tau) cerebrospinal fluid (CSF) biomarkers of Alzheimer's disease (CSF) [8].

The use of biomarker evidence to support (imaging, serum, and CSF) AD pathology has been included to help delineate AD from other forms of dementia, as well as in the diagnosis of MCI due to AD [9].

4.2. Therapeutic approaches:

Although Alzheimer's disease (AD) is the world's leading cause of dementia and the population of patients with AD continues to grow, no new therapies have been approved in more than a decade [10].

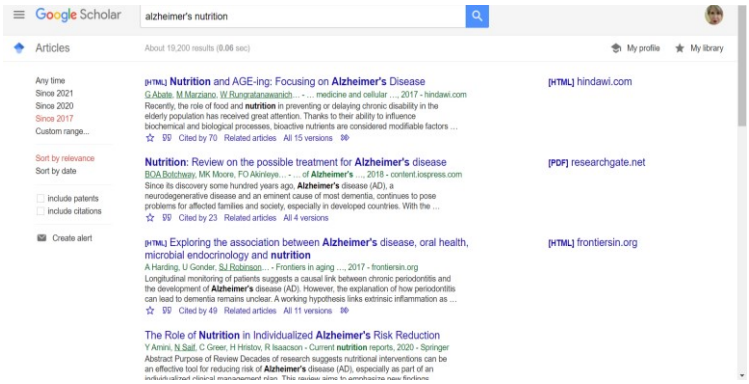
The therapies currently used are symptomatic treatments that have a certain effect on cognitive function. Therapies targeting β-amyloid (Aβ) have been the focus of efforts to develop a disease-modifying treatment for AD, but these approaches have failed to show any clinical benefit so far.

Beyond the "Aβ hypothesis", there are a number of newer approaches to treating AD with neuroinflammation, emerging as a very active area of research based on risk gene analysis.

Alzheimer's disease has no treatment currently available, but only symptomatic drugs [11].

In a recent search on one of the most important search engines on the Internet, we found that more than half of the topics related to dementia are dedicated to disease-specific nutrition.

This shows both its role in the patient's surveillance plan and especially the importance given to it especially by the family and the general mass of the population [12].



Moreover, the results of a study on the incidence of Alzheimer's disease in Romania conducted by Alzheimer's Europe show a relatively constant curve until 1994, followed by a doubling of the incidence with a continuous growth trend until now.

During this period, none of the known pathogens - medical, psychological or sociodemographic - underwent any significant transformation from a mathematical point of view. The only significant change for this population was access to industrialized and canned food and carbonated beverages from the Western world, immediately after the opening of the borders (1989).

Therefore, due to the high incidence of AD, we must look for food hygiene and we must accept the notion of ecologically caused disease [13].

Other authors draw attention to the role of oxidative stress that may be involved in many pathological, somatic and psychiatric conditions, including dementia.

The hypothesis of the involvement of oxidative stress in dementia is supported by many scientific data through biochemical, genetic and molecular studies. Thus, there are numerous reports of an increased level of markers for oxidative damage, changes in the specific activity of the antioxidant system, mutations in specific genes, mitochondrial disorders and also several connections between oxidative stress and amyloid plaques [14].

It appears that the use of antioxidant compounds may also play a role in reducing amyloid Aβ-induced toxicity. These substances include blueberries, flavonoids, polyphenols, resveratrol, Ginkgo biloba extract, epicatechin or melatonin. Although some studies report a reduction in the incidence and prevalence of dementia after supplementation with vitamins E and C, extensive meta-analytical investigations have not identified benefits for their recommendation in primary or secondary disease prevention [15].

Despite this evidence and clinical approaches in the use of antioxidant therapy in the treatment of dementia, studies have failed to demonstrate a clear benefit for antioxidant treatment in dementia. Therefore, further research is needed on antioxidant therapy in the very early stage of dementia [16].

Thereafter, intervention in the nutrition of the patient with dementia should be triggered if:

1. The patient's weight has decreased in the last 3-6 months;
2. Or if more than 2 criteria are met:

a. MNA score <17;

b. Plasma albumin level <35 g / L;

c. Decreased food intake for 3 consecutive days.

In his book "In Search of Memory - Fighting Alzheimer's Disease", Jebeli gives some general considerations resulting from the literature, but especially from medical practice:

- nutritional status should be assessed from the stage of diagnosis of dementia;
- nutritional assessment includes at least weighing and performing the assessment through Mini Nutritional Assessment (MNA), with the help of caregivers or family;
- the patient with dementia must be weighed at the consultation of the specialist;
- weight loss is a common complication of Alzheimer's dementia in about 40% of patients, regardless of the stage of the disease;
- malnutrition contributes to the alteration of the general state of health through the frequent appearance of complications (especially of infections by the decrease of immunity), but also to the impairment of the degree of independence. Rapid and appropriate intervention is required;
- in the geriatric population a loss of> 4% of body mass in a year is considered an independent factor for morbidity and mortality;
- weight loss can be of 2 types: a rapid loss in a few months or a moderate weight loss during the evolution of dementia;
- an anorexic or acetylcholinesterase inhibitor patient is required to initiate a nutritional program.

In this context, it is mandatory to understand the nutritional status from the diagnosis of the disease. Since 2001, there have been a number of epidemiological studies studying the association between cognition and nutrition (especially fatty acids, antioxidants such as vitamins C, A, E or polyphenols).

Both Alzheimer's dementia and vascular dementia that share, in principle, the same risk factors (vascular risk factors are common) should target some nutrition-related recommendations in primary prevention. The level of cognitive deficit correlates with nutritional status: the patient with mild cognitive impairment has a better MNA score than the patient diagnosed with dementia.

On the other hand, there are studies that highlight a directly proportional relationship between malnutrition and the rapid decrease in cognitive scores (a decrease in MMSE> 3 points in one year). At the same time, malnourished patients have a rapid worsening of the disease, but, paradoxically, have the best response to treatment with acetylcholinesterase inhibitors.

Other studies show that patients with Alzheimer's dementia have an increased level of biomarkers of oxidative stress, consequently nutritional intervention should increase the level of plasma antioxidants and decrease oxidative stress. In a prospective 6-year study of 3,700 participants in the Chicago Health and Age Project, increased fruit and vegetable consumption was associated with slowing cognitive decline after a correction for age, sex, race and education, cardiovascular conditions and risk factors present [17].

Increasing research on vitamin therapy, the role of curcumin and the Mediterranean diet shows that nutritional intervention has a great potential to positively influence the evolution of dementia [18].

4.3. The relationship between physical activity and Alzheimer's disease.

Cicero said that "Physical exercise is what helps the spirit and keeps the mind functioning." Although there is no unanimity, growing evidence supports the value of regular exercise to prevent Alzheimer's disease, as well as cognitive decline in affected patients.

People with MICI and early dementia may develop mobility problems that later affect their quality of life. Functional deficits can occur even in the early stages of progressive memory disease. Specifically, stiffness increases and gait decreases due to gait dysfunction. This process is enhanced by weight loss, sarcopenia, and progressive fragility, which are typical of dementia and greatly affect postural balance. Deterioration of the parietal cortex could also reflect visual-spatial dysfunction that can be recognized in the early clinical stages of AD. This impairment could be detected through hand-eye coordination exercises such as bowling, arrows and rocket sports [19].

Recently, the role of physical effort (especially aerobic) in improving cognition and its proper use in patients with dementia is being studied. The current literature includes several studies investigating the association between physical activity and the risk of Alzheimer's disease (AD).

Benefits of physical exertion in Alzheimer's patients:

- it increases cerebral blood flow;
- it slows down cerebral atrophy (especially in the parahippocampus and temporal cortex);
- it decreases the risk of falling and fracture
- regular exercise has been shown to be beneficial for traditional cardiovascular risk factors (eg, reduced vascular flow, diabetes) involved in the pathogenesis of Alzheimer's disease. Exercise also promotes neurogenesis by increasing exercise-induced metabolic factors (e.g., ketone bodies, lactate) and muscle-derived myokines (cathepsin-B, irisin), which in turn stimulate the production of

neurotrophins, such as neurotrophic factor. derived from the brain. Finally, regular exercise exerts anti-inflammatory effects and improves cerebral redox status, thus ameliorating the pathophysiological signs of Alzheimer's disease (eg, amyloid-β deposition). In short, exercise could offer many benefits through various pathways that, in turn, could help prevent the risk and progression of Alzheimer's disease. However, more evidence is needed, based on studies in human subjects [20].

The beneficial effects could be explained by several mechanisms, including modulated production of neurotransmitters; increased neurotrophins, such as brain-derived neurotrophic factor; reduction of oxidative stress and inflammation; increased cerebral blood flow; regulation of the hypophalamic adrenal axis hypophalamic; and supporting neurogenesis and synaptogenesis. Physical activity can also improve cardiovascular risk factors, which can exaggerate NPs [21].

Recent studies indicate describe the effect of exercise on infrastructure. Thus, a systematic review of intervention studies conducted by Frederiksen et al in 2018, explains the effects of exercise on biomarkers of Alzheimer's disease [22].

Recent studies, coordinated by Carl Cotman of the University of California, have shown that repeated exercise stimulates the release of a neurotrophin called BDNF (brain-derived-neurotropic-factor) especially in the hippocampus, the molded plate of learning and memory processes, where it causes growth. the volume of neurons and the development of new synapses.

Permanent stimulation of BDNF discharge would slow the cognitive decline in patients who already have structural changes specific to Alzheimer's disease.

BDNF has such a big effect on neurons that pharmaceutical companies now see it as a good candidate to become a drug, causing some scientists to deliberately give it the rather funny nickname "brain fertilizer."

Accumulation of evidence indicates that exercise improves neuroplasticity and delays Alzheimer's disease by improving learning and memory, as well as attenuating neuron-degeneration known to support neuroplasticity. Moreover, exercise helps maintain a brain microenvironment that facilitates synaptic plasticity by improving Aβ clearance, one of the main culprits of AD pathogenesis [23].

Despite the relatively large number of articles on the role of physical exertion, the role of table tennis in the prophylaxis and slowdown of the evolutionary process in Alzheimer's disease has only recently begun to be discussed.

Table tennis is a sports game practiced at all ages and on all meridians, easy and accessible, which requires a high speed of reaction and execution, mental endurance and good physical training of those who want to improve. Table tennis is a sport that is based on dexterity, speed and sensory perceptions.

Playing table tennis is one of the most exciting activities for the brain and even older players can play table tennis recreationally. It is a competitive fast movement activity, which positively affects the level of physical fitness, improves sustained attention and the development of visual-spatial skills. Due to these characteristics and the accessibility of sport, research has shown that table tennis

can be used effectively as a prevention and rehabilitation program for people suffering from or at risk of developing Alzheimer's and dementia, as it simultaneously activates up to five sections. different parts of the human brain.

Research has shown that table tennis is beneficial for better hand-eye coordination, improved reflexes, balance and coordination, brain stimulation and the development of mental acuity, burning calories, and as a social outlet.

The improvement of the hand-eye coordination can be done by:

- the stimulation of the hippocampus;
- expanding long-term memory;
- delaying cognitive decline;
- improving motor skills.

Regular training can maintain mental capacity and prevent or delay senile dementia.

In the US, the Educational Foundation for Sports and the Arts (SAEF) is organizing a ping pong therapy program in Los Angeles for Alzheimer's patients. Older locals play once or twice a week, and the emphasis is on a low-impact game that stimulates concentration and improves motor function, while raising the player's mood.

The SAEF began the program in response to an extensive clinical trial in Japan dating back to 1997. It was shown that in a sample of 3,000 elderly players after just two minutes of play, the activity of the frontal lobe intensified. In the UK, nursing homes have set up ping pong clubs. Having these facilities on site allows residents to meet and socialize with each other while remaining active and healthy. Many residents have seen improvements in balance and hand-eye coordination skills" [24].

Research has shown that table tennis is "the number one brain game", with real cognitive benefits for those living with dementia. The Bounce Alzheimer's Therapy Foundation (BAT) is spreading the word and has created the world's first therapeutic table tennis table for use in hospitals, nursing homes and community centers [25].

In addition, table tennis is easy for the joints and rarely becomes traumatic, making it a perfect leisure activity for the elderly.

VI. Conclusions and further research directions

Previous research has shown that physical activity can slow down or prevent the functional decline associated with aging and improving health in the elderly. Physical activity can help maintain cognitive function and lower the risk of Alzheimer's.

Due to the complications associated with pharmacological treatment, the non-pharmacological treatment (such as physical activity) can be considered an additional complementary treatment option.

However, further studies are needed to focus on the relationship between Alzheimer's disease and table tennis.

As a personal approach we propose to:

- continue the bibliographic study to make a meta-analysis of the literature on the use of table tennis in the prevention and treatment of Alzheimer's disease;
- to identify and apply a series of measurements and tests to prove the benefits that table tennis produces in Alzheimer's disease on a study group of elderly people in whom Alzheimer's disease is in its infancy at the Home for the Elderly;
- to collaborate closely with the geriatrician, the neurologist and a nutritionist;
- to initiate, when the present pandemic context allows us, the practice of this sport on the selected group and follow the dynamic pursuit of the results.

Bibliography

1. Stănescu, A., Totul despre Alzheimer, Editura FarmaMedia, Târgu-Mureș, 2015.
2. Nestor, P. J., Scheltens, P., & Hodges, J. R. (2004). Advances in the early detection of Alzheimer's disease. Nature medicine, 10(7), S34-S41.
3.Alzheimer Europe,https://www.alzheimer-europe.org/Policy/Country-comparisons/2013The-prevalence-of-dementia-in Europe/Romania#:~:text=Alzheimer%20Europe%20estimates%20the%20number,the%20EU%20average%20of%201.55%25
4. Jason, W., Andrew, B., Current understanding of Alzheimer's disease diagnosis and treatment, Published online 2018 Jul 31. doi: 10.12688/f1000research.14506.1, [PMC free article].
5. George, P., Jesus, A., et al.: The Emergence of a New Conceptual Framework for Alzheimer's Disease, Journal of Alzheimer's Disease, vol. 62, no. 3, pp. 1059-1066, 2018.
6. Hort, J., O'Brien, J.T., Gainotti, G., Pirttila, T., Popescu, B. O., Rektorova, I., Sorbi, S., Scheltens, P., EFNS guidelines for the diagnosis and management of Alzheimer's disease, 1236-48. doi: 10.1111 / j.1468-1331 [PubMed].
7. Cummings, Jeffrey L., Tong, G., Ballard, C.,Treatment Combinations for Alzheimer's Disease: Current and Future Pharmacotherapy Options, MCID: PMC6398562, DOI: 10.3233 / JAD-180766.
8. Blennow, K., Zetterberg H., Biomarkers for Alzheimer's disease: current status and prospects for the future, https://doi.org/10.1111/joim.12816.
9. McKhann, G.M., Knopman, D.S., Chertkow, H., et al., The diagnosis of dementia due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement. 2011;7(3):263–9. 10.1016/j.jalz.2011.03.005 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
10. Albert, M.S., DeKosky, S.T., Dickson, D., et al., The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic

guidelines for Alzheimer's disease. Alzheimers Dement. 2011;7(3):270–9. 10.1016/j.jalz.2011.03.008 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
11. Sperling, R.A., Aisen, P.S., Beckett, L.A., et al., Toward defining the preclinical stages of Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement. 2011;7(3):280–92.
12. Min, C., Zhi-Yun, D., Xi, Z., Dong-Li, L., Ren-Ping, Z., Kun, Z.,Use of curcumin in diagnosis, prevention, and treatment of Alzheimer's disease, PMC5950688, DOI: 10.4103 / 1673-5374.230303.
13. Cornitu, G., Incidence and prevalence of Alzheimer's disease, http:doi.rog/10.1159/00031365
14. Padurariu, M., Ciobica, A., Lefter, R., et al.: The oxidative stress hypothesis in Alzheimer's disease, Psychiatria Danubina, 2013; Vol. 25, No. 4, pp 401-409.
15. Boothby, L.A., Doering, P.L., Vitamin C and vitamin E for Alzheimer's disease. Ann Pharmacother 2005; 39:2073-80.
16. Birks, J., Grimley Evans, J., There is no convincing evidence that Ginkgo biloba is efficacious for dementia and cognitive impairment, Cochrane Summaries 2009, https://doi.org/10.1002/14651858.CD003120.pub3.
17. Jebelli, J., În căutarea memoriei – Lupta cu boala Alzheimer, Editura Trei, București. 2018.
18. Botchway, O.A., Moore, M. K, Akinleye, F.O., et al., Select this result for bulk action CiteNutrition: Review on the Possible Treatment for Alzheimer's Disease, PMID: 29254101, DOI: 10.3233 / JAD-170874 [PubMed].
19. Verheij, S., Muilwijk, D., Pel, J. J., van der Cammen, T. J., Mattace-Raso, F. U., & van der Steen, J. (2012). Visuomotor impairment in early-stage Alzheimer's disease: changes in relative timing of eye and hand movements. Journal of Alzheimer's Disease, 30(1), 131-143.
20. Valenzuela, P. L., Castillo-Garcia, A., Morales, J. S., Villa, P., Hampel, H., Enzo, E., Lista, S., Lucia, A., Exercise benefits on Alzheimer's disease: State-of-the-science, PMID: 32561386 DOI: 10.1016 / j.arr.2020.101108, [PubMed].
21. Nicola, V., Marco, S., Cristina, B., Lee, S., Pinar, S., Role of physical activity in ameliorating neuropsychiatric symptoms in Alzheimer disease: A narrative review, PMID: 30156330 DOI: 10.1002 / gps.4962, [PubMed].
22. Frederiksen, K. S., Gjerum, L., Waldemar, G., Effects of Physical Exercise on Alzheimer's Disease Biomarkers: A Systematic Review of Intervention Studies, Journal of Alzheimer's Disease, vol. 61, no. 1, pp. 359-372, 2018.
23. Lin, T. W., Tsai, S.F., Kuo, Y. M., Physical Exercise Enhances Neuroplasticity and Delays Alzheimer's Disease, Journal: Brain Plasticity, vol. 4, no. 1, pp. 95-110, 2018.
24. Iain, B., https://www.t3-foundation.org.uk/why-ping-pong/.
25. Craigton-Chambers, I., Brain Games: How Table Tennis Can Slow Cognitive Decline with Bounce Alzheimer's Therapy.

TECHNICAL SOLUTIONS IN REVISION HIP ARTHROPLASTY WITH SECONDARY ACETABULAR BONE DEFECTS

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Key Words: *hip arthroplasty revision, bone allograft, acetabular bone defect*

1. Study objective

Primary total hip arthroplasty is one of the most successful surgical procedures. However, a significant percentage of patients require one or more hip prosthetic implant revisions.

2. Patients and methods

In Orthopaedics & Trauma Clinic of Central Universitary Emergency Military Hospital "Carol Davila" (CUEMH), Bucharest, our team managed between November 2014 and July 2016, 8 challenging cases of patients with acetabular bone defect secondary to total cemented or uncemented hip replacement. In all 8 cases the use of bone graft (allograft) from the National Bone and Tendon Bank from Colentina Hospital was necessary.

3. Results

Radiologically there was noted the evolution towards bone graft integration and there were no signs of septic complications, implant loosening or mechanical instability.

All patients were clinically assessed using Harris Hip Score preoperatively and postoperatively at six months and one year, and recorded a significant improvement of the score and quality of life.

Conclusions

Compliant patients who received assistance in rehabilitation in a specialized health center had better results.

The possibility of accessing allografts from the National Bone and Tendon Bank is priceless and represents a must in the development of the National Transplant Program in the Orthopaedics & Trauma Clinic of CUEMH. This development should increase the rate of harvesting femoral head grafts and also guide patients to supraspecialized clinics for hip arthroplasties revisions. An important aspect is the need of experience exchange between those who are committed to this specific surgical procedure.

Bibliography

1. Toro-Ibarguen, Ainhoa et al., (2014), "Analysis of the Results of Use of Bone Graft and Reconstruction Cages in a Group of Patients with Severe Acetabular Bone Defects." *Advances in Orthopedic Surgery* 2014.

2. Zhu, YH, KY Chiu, and WM Tang., (2001), "Review Article: Polyethylene wear and osteolysis in total hip arthroplasty." *Journal of orthopaedic surgery* 9.1: 91.
3. Paganias, Christos G et al., (2012),"Osseous integration in porous tantalum implants." *Indian journal of orthopaedics* 46.5: 505.
4. Martin, Christopher T et al., (2015), "Protrusio After Medial Acetabular Wall Breach in Total Hip Arthroplasty." *The Iowa orthopaedic journal* 35: 99.
5. Clinic cases from Orthopedics & Trauma Clinic, CUEMH

VARIA

THE SOCIO-PSYCHOLOGICAL PHENOMENON OF LEADERSHIP IN GYMNASTS WITH HEARING IMPAIRMENTS

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Abstract

The article deals with the topicality of the problem of manifestation and development of leadership qualities in gymnasts with auditory analyzer disorder. Theoretical analysis of leadership concept and its influence on the behaviour in everyday life was carried out, the basic characteristics of leadership skills were given and the role of a leader in a group or collective was indicated. The problem of socialization and physical adaptation of children with disabilities and their inclusion in modern society is presented. A research-pedagogical experiment aimed at clarification and identification of leadership qualities, as well as their relationship to the temperament and age was conducted. Hearing-impaired gymnasts, who train according to the developed methods of formation of coordination abilities on the basis of means and methods of athletic gymnastics took part in the experiment. Testing was carried out in the form of a questionnaire using the "Leader" method and Eisenk's test. In the course of the experiment, we have received reliable data on the current development of leadership qualities of the presented contingent of children. The authors conclude that in any team or group there will be leaders of various kinds. From the results of the experiment, we can conclude that leadership qualities are aptitudes which, depending on time and place, become abilities and accompany a person throughout his or her life.
The authors conclude that further research on leadership development in boys with hearing impairment is needed to investigate the impact of methods using gymnastics facilities and methods.

Keywords: *leadership qualities; temperament; age features; physical development; socialization; adaptive physical education; children with hearing impairment; gymnasts 7-9 years old; training; methodology; artistic gymnastics.*

1. Introduction

At the present stage of society development, there is a need to improve the quality of education, including special correctional education. Particular attention should be focused on creating conditions for full inclusion in the educational space and successful socialization of children with disabilities. One of the priority trends in solving problems of forming, preserving and strengthening children's health at the present stage of social development is to find new, more effective forms, means, methods and technologies of education and upbringing, and to introduce them into the practice of educational institutions, including special correctional institutions [1,2].

Hearing impairment has a biological basis. Hearing-impaired children have an abnormal structure of biological structures. As a consequence of this the

perception of the sound signals from the outside world is disturbed. This affects their psycho-emotional development.

Children of varying ages exhibit leadership skills that enable them to cope better with life's interactions. Some children show leadership ability as early as 4-6 years of age through relationships with peers, and they usually take on leading roles in games and contests.

Leadership is the ability to influence people to do certain tasks of their own free will.

In Russian social psychology the development of the problem of leadership has been quite complex and at times contradictory. The first works in this field were studies by S.O. Lozinsky, E.A. Arkin, A.S. Zaluzhnog P.L. Zdgorovsky and others. These works considered the issues of leadership, leadership mainly in children's groups and collectives, organized and spontaneous [3]. Research of leadership qualities in gymnasts with hearing impairment was not conducted, that testifies to scientific novelty of our work.

The formation of relationships between athletes in a sports group is influenced by the implementation of objective and subjective factors, as well as the role of socio-psychological conditions. One of such factors is the socio-psychological phenomenon of leadership. The conditions and possibilities of leadership qualities manifestation in a sports group seem particularly interesting to us.

In order to investigate special forms and methods of organizing physical education, training and competition for gymnasts with hearing impairment, which would increase social and occupational adaptation, including improvement of leadership qualities and, ultimately, help to integrate them into society, it is necessary to study the current leadership potential of these children [4,5].

In view of the above, we see great potential in studying the leadership qualities of gymnasts with hearing impairment to meet the challenges of adaptive physical education. In order to test the validity of our judgement, we carried out this study.

Thus, we have the task of finding out the current characteristics of leadership qualities in gymnasts with hearing impairment and their relationship with temperament [6]. The solution of this problem, theoretical and practical component of research will allow further to work out an effective method of development of leadership qualities at gymnasts with hearing impairment, which is an actual problem. The complex approach to the problem will make effective socialization and adaptation of children with disabilities in modern society [7,8].

2. Material and method

*Aim of the research***:** to find out the real possibility of leadership qualities in gymnasts with hearing impairment and to find out the relationship between leadership and temperament on the basis of testing.

Methods and organisation of the research. The experiment was conducted

in the form of testing, in an environment conducive to the participants, i.e. without exposure to any external factors [9].

Twenty-five boys aged 7-9 years old with hearing difficulties participated in the study. The study was conducted over a period of 2 weeks.

During the study the following techniques were used [10]:

1. Method "Leader" - determining the degree of expression of leadership qualities, consisting of 50 questions. The respondent was asked to choose and mark only one of the two answer options offered for each question. The key was used to determine the degree of leadership qualities: weak, medium, strong, or this person as a leader is inclined to dictate.

2. Eisenk's test - determining the type of temperament. In further analysis of the experimental data we assume that the type of temperament does not affect the formation of leadership qualities, but influences the behaviour and initiative style of the presented leader.

3. Results and discussion.

Based on an analysis of the age of the boys between the ages of 7 and 9, it can be concluded that this factor does not significantly affect the formation of leadership qualities.

The percentage is shown in Figure 1.

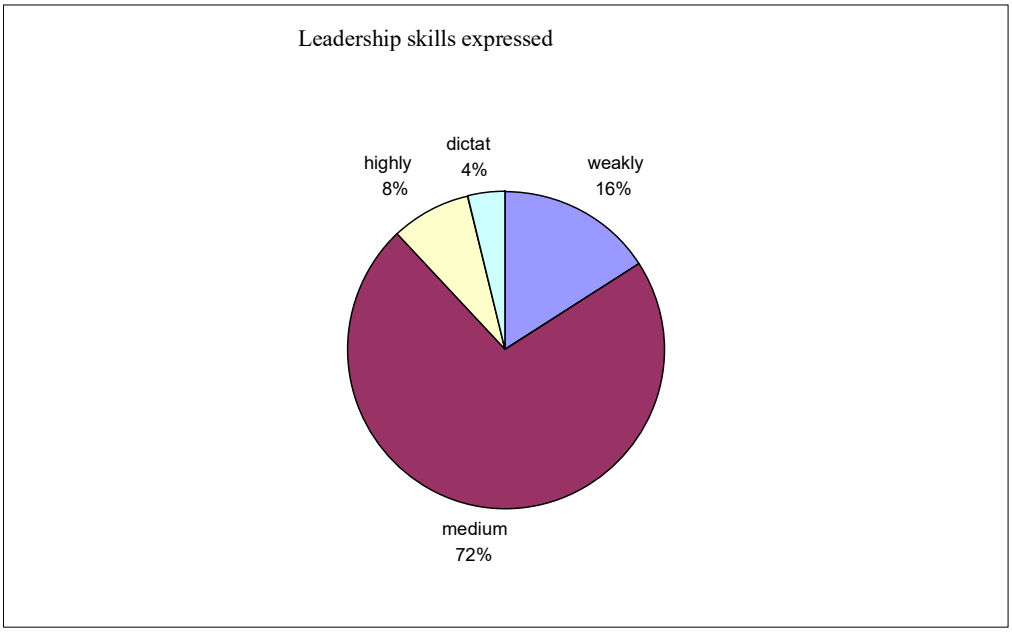

Figure 1 - Expression of leadership skills

In this team, 4 boys (16%) have leadership skills with a weak degree of intensity, 18 boys (72%) have medium intensity, 2 boys (8%) show strong leadership skills and only 1 boy (4%) has a tendency to dictate.

We can conclude that in any collective or group there will be leaders of

various kinds. And even if a person is at the head of a group, it is not a fact that he or she is characterized by the basic qualities of a leader. Most likely, these qualities will exist in him, but also he will show melancholic type of temperament and, therefore, as a leader, this person will be ineffective. The impact of temperament on leadership qualities should be analyzed in terms of individual style of performance [11]. Three areas of temperament are distinguished: general activity, motor features and emotionality properties [12].

General activity is determined by the intensity and volume of a person's interaction with the environment - physical and social. A person can be inert, passive, quiet, active, proactive, impetuous.

Motor spheres are particular expressions of general activity. This includes tempo, speed, rhythm, and the total number of movements.

Emotional as a manifestation of temperament - impressionability, sensitivity, impulsiveness, etc.

Each of the spheres is reflected in all types of temperament, thus they interact, and the result is a particular type, which is inherent in the individual throughout life. A person's temperament affects activity, vigour, sociability, restraint, slowness and quick-wittedness [13]. In a sports team, this will be particularly evident in competitions.

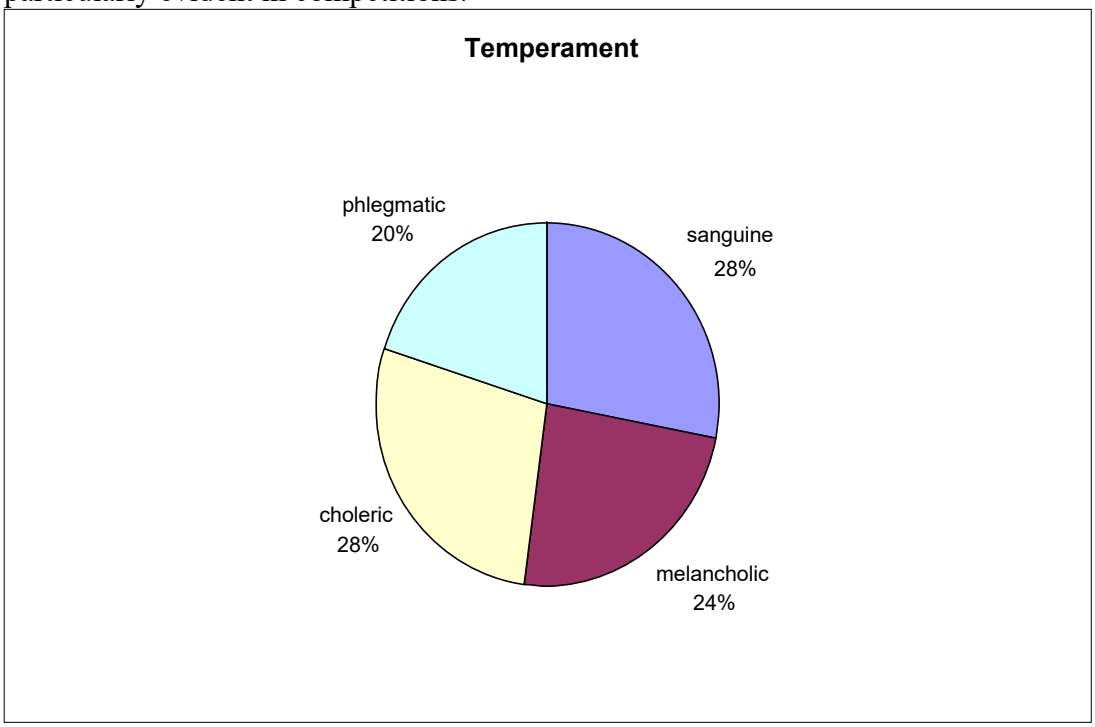

Figure 2 Temperament

Figure 2 shows that this sporting group comprises: 28% sanguine and choleric types, 24% melancholic type and 20% phlegmatic type of temperament.

Next we analyse the relationship between temperament type and leadership qualities.

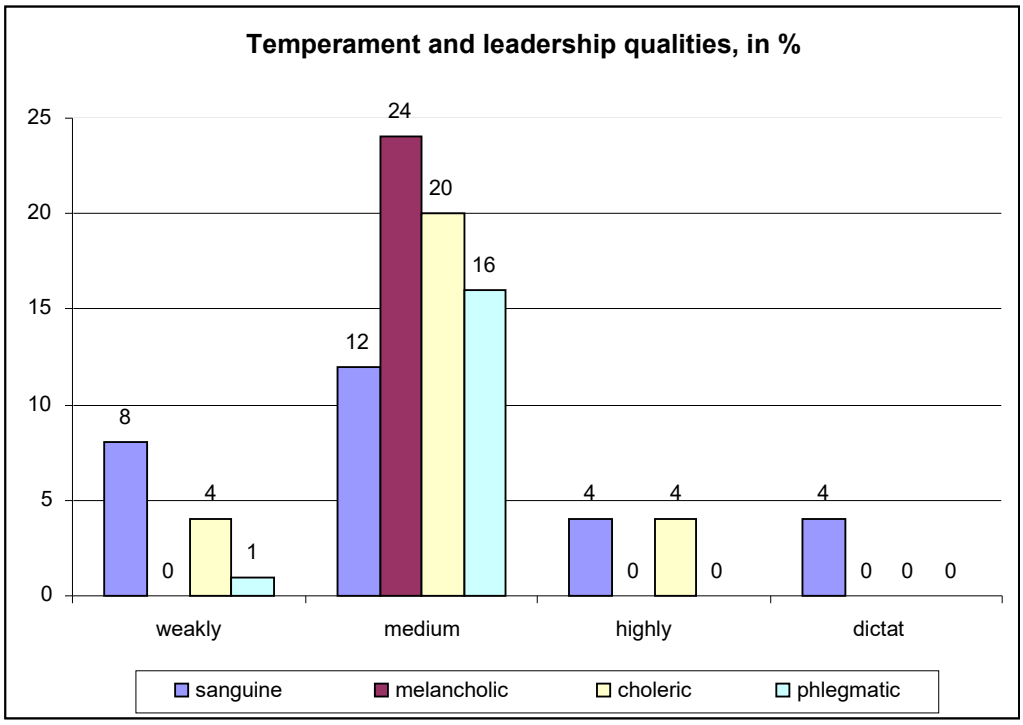

Figure 3 - Relationship between temperament and leadership skills

Figure 3 shows the relationship between temperament and leadership qualities. In the group presented, leadership qualities with a moderate degree of severity prevail in individuals with the melancholic type of temperament, followed by those with the choleric type and a moderate degree of severity [14,15]. It can be concluded that the struggle for leadership positions will occur between individuals with the choleric type of temperament, and boys with the melancholic type will recede into the background.

Conclusions and findings.

Leadership development remains a pressing issue that needs to be addressed quickly and successfully. Leadership qualities contribute to the formation and development of the whole person, and are also beneficial to the process of socialization and adaptation, which is particularly important for children with hearing impairments.

Through a review of the literature, we find that leadership skills are innate and can be developed throughout a person's life and formation and development under the influence of external and internal factors. It can also be a personality trait that expresses his or her effectiveness in successfully carrying out certain activities.

Based on this study, leadership qualities are the prerequisites that, depending on time and place, become abilities and accompany a person throughout life.

One of the important outcomes of leadership skills in boys with hearing impairment is an increase in their socialization and adaptation in modern society.

Further research into the development of leadership skills in boys with hearing impairment can be conducted to explore the impact of gymnastics training methods.

Bibliography:

1. Gorskaya, Inessa Yuryevna. Coordination training of athletes / I. Yu. Gorskaya, I.V. Averyanov, A.M. Kondakov; M-va sports Ros. Federation, Sib. state University culture and sport. – Omsk: Publishing house SibGUFK, 2015. – 219 p.
2. Hippenreiter, Yu. B., (2016), Introduction to General Psychology. – M.: "Chero", – 336 p.
3. Arsaliev Sh.M.-Kh. (Ed.) Pedagogy and Psychology: Trends and Prospects of Development // Collection of scientific papers based on the results of the international scientific and practical conference. No. 2. – Volgograd, 2015. – 263 p.
4. Novikov I.V., Novikov V.V., (2018), Features of the physical development of children with hearing impairment and the ways of its correction by means of gymnastics // PNiO. – No. 2 (32). – P. 113-116.
5. Zubanova, L.B., (2017), The essence of leadership and the possibility of forming its potential. // Pedagogical science and education. – No. 2. – P.53-57.
6. Krysko, V. G., (2017), Social psychology. – M.: VLADOS-PRESS Publishing House,– 448 p.
7. Makova, L.P., (2018), The education of tolerance in the educational process of the school as a way to overcome interpersonal conflicts of adolescents. // Questions of humanistic sciences. – No. 1. – P.209-212.
8. Manzheley, IV., (2015), Actualization of the pedagogical potential of the sports environment: dis. ... Dr. ped.science: 13.00.04. – Tyumen, – 441 p.
9. Zagvyazinsky, V. I., (2015), Methodology and methods of psychological and pedagogical research / V. I. Zagvyazinsky, R. M. Atakhanov. – M.: Academy. – 206 p.
10. Novikov, I.V., (2020), The development of leadership skills in training gymnasts with hearing impairments / I.V. Novikov // Theory and practice of physical education. No. (986) – P.13.
11. Paramonova M. Yu., (2018), Conceptual foundations of the physical education of preschool children in the works of E. A. Arkin and their significance at the present stage // New Studies. No2 (35).
12. Parafiyanovich TA, (2016), Socio-pedagogical and psychological support of the personal and professional development of students // Methodical manual for employees of the socio-pedagogical and psychological service. – Minsk: MGVRK, – 150 p.
13. Pleshakova E.Yu., (2017), Formation of leadership potential – St. Petersburg: St. Petersburg State University of Economics, – 105 p.

14. Rogov, E. S., (2017), Psychology of groups. – M .: Humanities. ed. VLADOS Center, – 430 p.
15. Spivak Vladimir Aleksandrovich, (2012), Leadership: competency-based approach and the concept of leader success factors // News of St. Petersburg State University of Economics, No3.

FEATURES OF THE ORGANIZATION OF PROFESSIONAL AND APPLIED PHYSICAL TRAINING OF STUDENTS OF THE MILITARY TRAINING CENTER

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Abstract
A detailed analysis of the organization of professional and applied physical training of students of the military training center in accordance with the requirements of their future professional activities – specialists in the maintenance and repair of armored vehicles. The shortcomings of the existing system of organizing physical training in the military training center are revealed, for example, the lack of a system for forming a stable habit of systematic physical exercise among students. The analysis of programs on the discipline "Physical Culture" showed that the content and organization of physical training does not fully contribute to the formation of their military-professional readiness. It is proposed to classify training tools according to the level of training tasks.

Key words: *military training center, students receiving additional education (military), professional and applied physical training, professional activity.*

1. Introduction

Solving the important task of training highly qualified reserve officers in military training centers in various civilian universities, the educational organization achieves the harmonious development of all the qualities of the student that determine his professional readiness to perform official duties in accordance with his purpose in the military accounting specialty. A significant role in the formation of the student's personality, his readiness for future activities in the military belongs to general military disciplines, including physical training [1, 2, 3].

For the effective implementation of the target setting in the training and education of students, the Department of Physical Education is obliged to correctly determine the tasks of each stage (course, semester) of the formation of a specialist, to find ways of rational use in the educational process of means, forms and active methods of training, allowing in specific conditions to ensure the intensification of the training process.

Military-professional training and education of students in military training centers, the formation of their professional readiness for activities in the military should be considered as a system, as a holistic process in which all means of pedagogical influence should interact so as to get a programmed result at the end of training.

2. Material and methods

The pedagogical experiment involved 64 students receiving additional education and studying at the military training center of the South Ural State University in the military accounting specialty "Operation and repair of basic armored vehicles". We analyzed the dynamics of the considered indicators of the level of physical fitness of students who entered the military training center from 2014 to 2017 and from 2015 to 2018. The summary of the analysis is presented in table 1.

Table 1. *Analysis of the level of physical fitness of students enrolled in the military training center of the South Ural State University*

Physical exercises (ed.)	Semester of study	(x±m)
2014-2017 year of study		
Pull-up on the crossbar, number of times	1	8,2±0,37
	2	8,4±0,38
	3	8,7±0,36
	4	8,5±0,38
	5	8,3±0,37
Running at 100 m, sec	1	14,2±0,14
	2	14,0±0,15
	3	14,0±0,17
	4	14,1±0,16
	5	14,3±0,18
Running at 1000 m, sec	1	236,9±1,86
	2	234,9±1,90
	3	231,1±1,86
	4	234,1±1,84
	5	236,9±1,91
2015-2018 year of study		
Pull-up on the crossbar, number of times	1	8,2±0,35
	2	8,5±0,40
	3	8,9±0,41
	4	8,4±0,38
	5	8,1±0,43
Running at 100 m, sec	1	14,1±0,13
	2	14,0±0,16
	3	13,7±0,15
	4	13,7±0,14
	5	14,3±0,14
Running at 1000 m, sec	1	233,2±1,86
	2	231,7±1,87
	3	227,4±1,84
	4	226,8±1,85
	5	235,7±1,87

So, analyzing the level of development of physical quality-strength, we state its increase until the third semester of training. Further by the end of the training, it falls to the level of the first semester of training, and for students of the 2014-2017 year of study, it worsens by 0.1 times in comparison with the result shown in the first semester.

A similar pattern is observed in the levels of development of physical quality – the speed and endurance of students of the military training center of the South Ural State University.

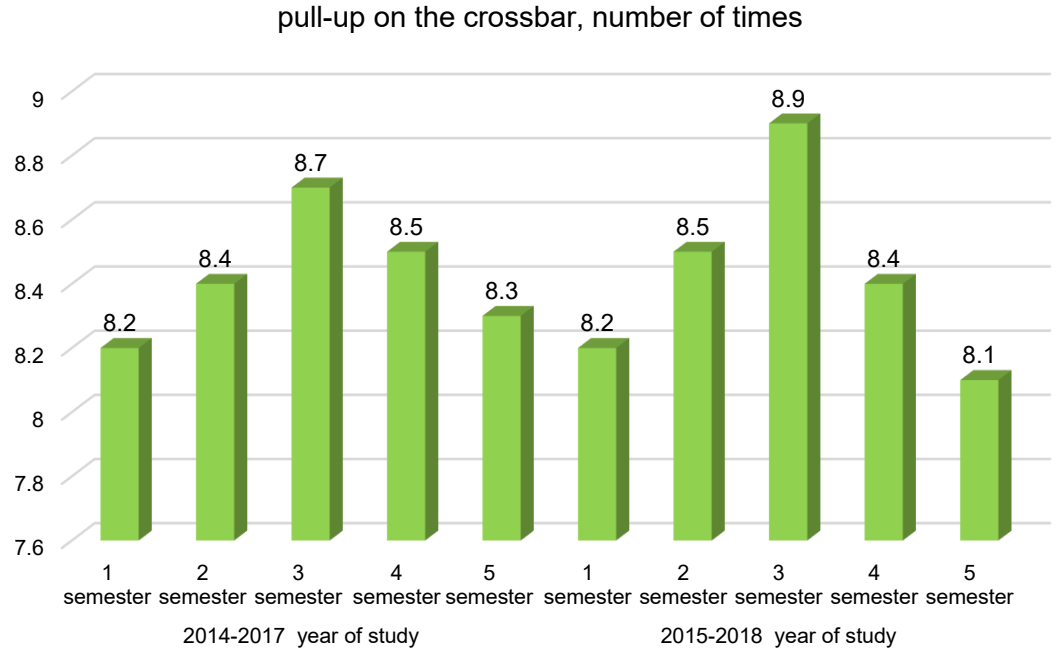

Figure 1. *Dynamics of the level of development of physical quality-strength, students by semesters of training of students of the military training center of the South Ural State University*

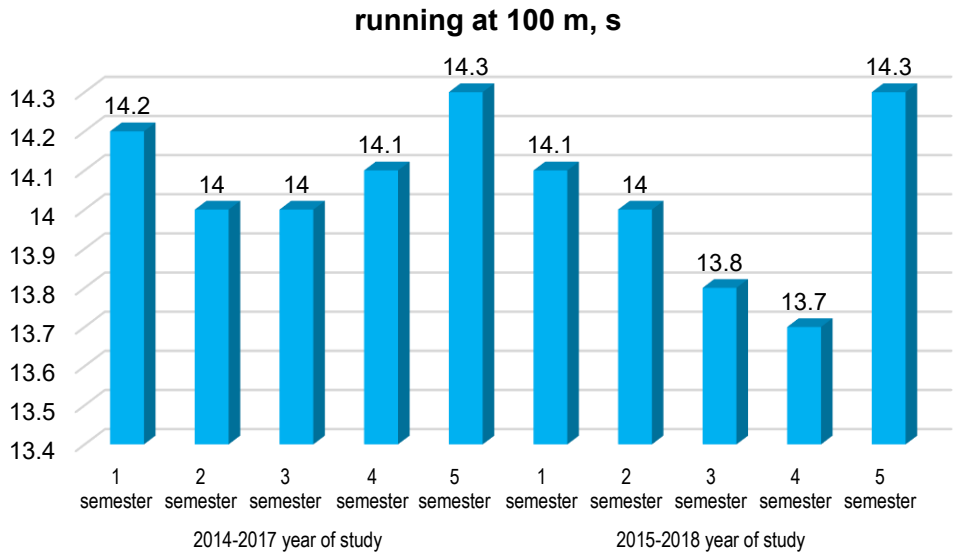

Figure 2. *Dynamics of the level of development of physical quality-speed, students by semesters of training of students of the military training center of the South Ural State University*

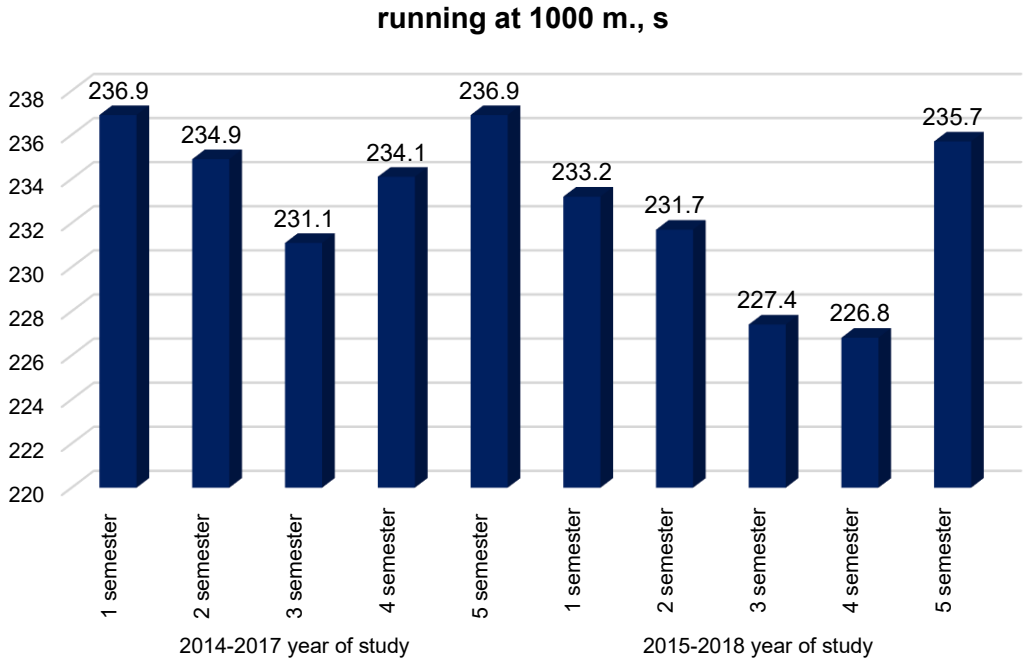

Figure 3. *Dynamics of the level of development of physical quality-speed, students by semesters of training of students of the military training center of the South Ural State University*

3. Results and discussion

As a result of generalization of the obtained experimental data, it can be concluded that the current program of the discipline "Physical Culture", due to the lack of topics of military-professional orientation, not only does not ensure the formation of students ' readiness to perform tasks in accordance with the received military accounting specialty, but also does not contribute to improving the level of physical fitness.

This conclusion requires a review of approaches to the physical training of students of the military training center of the South Ural State University.

Approaches to the development of a model of professional activity are presented in a number of scientific studies, which consider and justify the structure of professional and applied physical training of future military specialists. As a rule, to justify the model characteristics, physical qualities are tested in highly qualified specialists of a particular profession. The purposeful development of the physical qualities highlighted in this way largely depends on the competent selection of appropriate means that have the necessary training effect [10].

In general, the function of professional and applied physical training in the system of physical education, according to leading scientists, is to intensify the mode of operation of the human body in order to activate the process of its adaptation to the specific conditions of military service.

Currently, significant research work is being conducted on various issues of improving the process of physical improvement of students and military personnel. Researchers [4, 5] distinguish three main areas of research on improving the physical training of cadets of military training organizations. The first of them involves the scientific justification of the control actions on the organization of the training process. The second is the biological and pedagogical aspects of physical training in military educational institutions and at the faculties of military education. The third direction covers methodological and pedagogical issues of training in the process of physical education.

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It is reliably known that physical exercises lead to a number of positive changes in the body: the coordination of the actions of the processes of inhibition and excitation in the central nervous system is improved, the functioning of the cardiovascular system, blood supply to the brain, the biomechanics of external respiration is improved, the exchange of gases in the lungs increases, the energy supply of muscle activity [6].

Note [7] that the role of physical training is manifested not only in the formation of motor skills and the development of physical qualities of military personnel, but also in the following functions: educational, educational, biological development and improvement, health, preventive, recreation and recovery (recreational), entertainment. Moreover, in modern conditions, the possibilities of physical training in the formation of the officer's personality, his readiness for future activities in the troops have significantly expanded, and the tasks to be solved have become more complex.

The analysis of the program showed that it makes quite high demands on the theoretical, methodological and practical readiness of students in physical training. However, the content and organization of physical training at the stages of training of students of the military training center does not allow, in our opinion, to successfully implement the requirements of ensuring physical readiness and does not fully contribute to the formation of their military-professional readiness.

It should be noted that the existing system of organizing physical culture in military training centers has a number of such shortcomings that practically exclude it from among the most powerful means of ensuring professional readiness for activities in the military. These include:

- the absence of professional and applied topics in the content of the program;
- insufficient scientific validity of recommendations on the use of various means of physical training for the formation of professionally significant qualities in students of military training centers at the stages of their professional development;
- the lack of implementation of the principle of the complexity of physical culture, as well as the insufficient relationship of all forms of physical training with training in such disciplines as: "Tactical training", "The device of basic armored vehicles", "Fire training", "Operation of BTW", "Restoration of BTW", " Tactical and special training»;
- the lack of a clear program for methodological training of students, linked in content to the tasks of the stages of professional development and practical training;
- the lack of a system for forming a stable habit of systematic physical exercise among students;
- inefficiency of the verification and evaluation system.

Currently, in military training centers, there is an empirically established system of physical culture, aimed at solving mainly general tasks at all stages of professional development of students.

For the purposeful development of the qualities characteristic of the professional activity of students, we have developed a methodology based on the use of sets of exercises aimed at improving the professional training of students of the military training center of the South Ural State University by means used in physical education classes (shown in Table 2).

6.

Table 2. *Methods of developing special physical qualities and military-applied skills in students of the military training center of the South Ural State University*

The ratio of the time of performing exercises in running to practice on simulators	Tasks to be solved	Tools used in physical training classes	Load intensity
Stage I (1 semester)			
Exercises for the development of general endurance-66%, strength-34%	Improvement of aerobic mechanisms of energy supply. Formation of economical work of the heart. Preferential development of general endurance.	General development exercises. Running at a steady pace (up to 7-8 km). Swimming, marching on skis. Learning how to overcome individual elements of the obstacle course and hand-to-hand combat techniques.	40-50% of the maximum **(**Heart rate 135-155 beats / min)
Stage II (2nd semester)			
Exercises for the development of general endurance-60%, strength-40%	Improvement of aerobic mechanisms of energy supply. Better development of the vascular and capillary systems. Development of general endurance, strength.	Exercises for the development of strength. Running at a variable speed (up to 7-8 km). Swimming, marching on skis, exercises from the military-applied sections of physical training.	50-60% of the maximum (Heart rate 140-165 beats / min)
Stage III (3rd semester)			
Exercises for the development of	Improvement of anaerobic	Exercises on simulators, lifting	60-70% of the maximum

general endurance-40%, strength and strength endurance – 60%	mechanisms of energy supply. Develop overall endurance, strength, and strength endurance.	weights, performing lifting with a flip on the crossbar. Interval running (4-5 km). Exercises from the military-applied sections of physical training.	(Heart rate 150-175 beats / min)
Stage IV (4th, 5th semester)			
Exercises for the development of general endurance-50%, strength and strength endurance – 50%	Improvement of the mixed mechanism of energy supply, adaptation to physical activity at the tissue level. Development of general, power, speed endurance, and strength	Exercises from all sections of physical training for the development of strength. High-speed jogging and interval running (up to 5-6 km).	70-80% of the maximum (Heart rate 160-180 beats / min and above)

To perform the tasks of professional and applied physical training, a variety of generally accepted means of physical education and sports are used. One of the leading and most significant professional physical qualities is speed-power [9].

The main means of developing speed and strength qualities, according to the researchers, are exercises with high power of muscle contractions: a variety of jumps, throwing, throwing, etc. From this set of exercises, mainly those that are easier to adjust according to the speed of execution and the degree of weights are used. At the same time, the most effective methods for the development of speed and power qualities are the methods of maximum dynamic forces, as well as the "block" method.

No less important physical quality of professional and applied physical training is endurance. As the most effective means of developing general endurance, those physical exercises and complexes are used, the characteristic features of which are:

- active work of large parts of the musculoskeletal system;
- aerobic support for muscle work;
- significant duration of work;
- moderate, high, and variable work intensity.

The most common means of training general endurance in practice are long-term running, skiing, cycling, swimming, etc.

During the development of general endurance, a variety of strictly regulated exercise methods are used, which are supplemented by game and competitive methods, aerobic endurance and "circular training" methods.

For the education of such a professionally important physical quality as speed, use exercises that can be performed at maximum speed. They should be focused on:

- performing exercises at extreme speeds;
- the exercises should be mastered as much as possible by the students;
- the duration of the exercises should be such that by the end of the performance, the speed does not decrease due to fatigue.

In the education of speed, the leading method is usually the repeated method and the complex method.

Of great importance in professional and applied physical training is the development of absolute strength. For this purpose, we mainly use weight-bearing exercises performed in various modes of muscle work and isometric exercises. As a rule, the method of repeated maximum effort, repeated-serial and the method of dynamic effort are used to train absolute strength.

Equally important is the development of such a physical quality as flexibility. To develop flexibility, exercises with an increased range of motion are used. They are divided into two groups - active movements and passive movements. In the process of performing active movements, an increase in mobility in a joint is achieved by contracting the muscles. In the process of performing passive movements, external forces are used.

Due to the increasing requirements for the methodological culture of training sessions, when developing tools, it is necessary to identify their dosage, the regulation of alternation, the duration of rest pauses and a number of other signs, which is associated with the concept of a training session [8].

In our study, it was necessary to solve the problem of justifying training sessions that are similar in meaning to the concept of a training session.

This kind of approach to research work is due to the needs of standardization and algorithmization of the educational process, as the starting points of an effective pedagogical system.

However, before proceeding to the selection and research of specific exercises aimed at improving the physical qualities of students, it is advisable to focus on some methodological prerequisites of the approach to the justification of the means of professional and applied physical training.

Theoretical analysis allows us to incline to the opinion that in professional and applied physical training, the most acceptable methods do not require any special devices and are available for use in any conditions of the training process. In fact, this is the same as an exercise with a weight, but it does not differ in the local effect on different muscle groups, with the involvement of the entire body as a whole in the specific mode that is inherent in the upcoming professional activity.

The next step is to take into account the principle of dynamic correspondence, according to which the selected exercises should be as adequate as possible to all the parameters of real action, starting with the muscles.

In relation to students of military training centers, specific means should be speed-strength exercises, actual strength exercises, as well as various actions to overcome obstacles. The method of their implementation is most consistent with the circular one, which provides a versatile and powerful effect on the body of those involved.

Conclusions

Based on the above, it is advisable to summarize the means and methods of professional and applied physical training as follows:

in the modern scientific and methodological literature, the means and methods of developing physical qualities are developed in sufficient detail at a high scientific and methodological level, which allows us to limit ourselves to a simple set of the most effective ones;

it is necessary to justify all the means to the level of the so-called training tasks, which involve a strict dosage in the number of repetitions, series, clearly specified duration of work, rest pauses, etc. The latter is due to modern requirements for the methodological culture of teaching;

when developing specific materials for conducting classes, it is necessary to take into account the peculiarities of combining training tools in one training session. There are laws that exist in the theory and methodology of physical culture, which provide for the consistent introduction of exercises into the educational process, starting with the development of general endurance, then exercises for the development of explosive, absolute strength, speed of power endurance;

the means of professional and applied physical training should be characteristic of professional activity.

Bibliography

1. Abramenko A. A., (2002), Features of the service and combat activities of the consolidated police units of the Ministry of Internal Affairs of Russia in the counter-terrorist operation in the North Caucasus and clarification of the requirements for their physical fitness / / Actual problems of military professional education and physical training in the Armed Forces of the Russian Federation: Collection of scientific articles. – No. 2. - St. Petersburg: VIFK.

2. Antonova N. A., (2009), Socio-psychological factors of neuropsychiatric maladaptation of law enforcement officers: Dis. ... kand. crazy. Science: St. Petersburg, - 214 p.

3. Vasin V. N., (2002) Independent physical training with health-improving orientation of cadets of military educational institutions of financial and economic profile: Diss. ... candidate of pedagogical sciences. - St. Petersburg: VIFK, - 165 p.

4. Demyanenko Yu. K., Petrushevsky I. I., etc., (1977), Recommendations for the organization and conduct of experimental studies of the physical fitness of military personnel. - L.: VDKIFK, - 160 p.
5. Shchegolev V. A., Shevelev A.V., (2007), Experience in the use of physical culture and health systems for military-applied purposes//Physical culture and sports in professional training of specialists: Collection of scientific and methodological works/Edited by V. A. Shchegolev. - SPb.: SPb GPU, - p. 22-32.
6. Endaltsev B. V., (2008), Physical culture, health and human performance in extreme environmental conditions. Monograph. - St. Petersburg: MO RF, - 197 p.
7. Voititsky O. N., (1983), On the mechanisms of transferring physical training to professional training of university cadets / / Problema selektirovaniya candidates in higher military educational institutions. L., - p. 14-16
8. Volkova E. A., (2005), Anatomical-anthropological and psychophysiological features of men of mature age of military personnel of security agencies. - Dis ... cand. crazy. nauk. - M., - 195 p.
9. Shaikhetdinov R. G., (2016), Achievement by a graduate of the university of psychophysical readiness for professional activity / R. G. Shaikhetdinov, V. A. Gromov / / Theory and practice of physical culture, - No. 3. - pp. 26-28.
10. Cherepov, E. A., (2010), Implementation of the concept of sports education of students of the classical university / E. A. Cherepov, V. S. Leshukov, A. S. Aminov / / sb. mat. All-Russian scientific and practical conference "Physical activity of the younger generation and the adult population of Russia: involvement in physical culture and sports activities". - St. Petersburg: FSU SPbNIIFK, - p. 111-115.

OUTDOOR SPORTS

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Abstract

Modern technology, the virtual world, is taking up more and more space in our lives and, unfortunately, keeps us captive more and more in closed spaces, in front of computers, at work or at home. The so-called computer sports have nothing to do with real sports, and parents who are overly protective, more and more often save their children from the effort of physical education classes. The phenomenon of weight gain should not be neglected, the statistical data show that there are more and more young people and overweight adults, which is also an alarm signal for the young generation. Researchers in the field of sports psychology have a key role to play, not only in shaping specific concepts and methodologies, but also in bringing to society's attention Juvenal's famous saying: "Mens sana in corpore sano" (Junius Junevalis). Statistics show that the time spent in front of the computers increases as the child grows, and the time spent outdoors decreases as he gets older. But worryingly, during the holiday season, children end up spending up to 10 hours a day in front of the computer or the TV. For various reasons, children prefer to stay indoors at the expense of outdoor activities. Physical education plays a special role in the process of formation and development of the child's personality. The specialists in the psycho-pedagogical field recognize the formative valences in biological, motor, psychic and social plan of this discipline. Unfortunately, the low level of education in Romanian society, but also the financial difficulties often lead to the rejection or neglect of the need to practice daily physical exercises. Most of the time it is due to lack of time or financial difficulties.

Keywords: *sport, outdoor, physical education*

1. Introduction

In the current conception, the sports activity in the free time acquires two fundamental aspects: the practical utility and the fight against the fatigue, the indisputable pleasure of the physical exercises and the outdoor movement of the people. Useful exercise should be complemented by enjoyable outdoor recreation, leisure, sports and tourism, as well as more special activities such as fishing, hunting, cycling.

Playing sports is beneficial anyway, but when practiced outdoors, the benefits are many, both physically and mentally and even socially and intellectually. All fitness trainers agree that it is better to exercise outdoors and breathe the fresh air in nature, instead of the air in the gym, which is twice as polluted as the outside. In fact, several international studies have shown that outdoor sports are much healthier than indoor sports.

2.Material and method

The hypothesis of our research is the assumption that motor activities performed outdoors have more benefits compared to those performed indoors.

The research methodology included the following research methods: the analysis of the specialized literature, the generalization of the data, by using the working techniques, as follows: theoretical documentation and management of the elements on which the good development of the research depended.

3.Results and Discussions

The whole set of sports-recreational activities, organized for the purpose of fortification, compensation, relaxation and recreation, is nowadays an increasing extension. Organically integrated in the life of contemporary man, they are constant and major concerns for all factors involved in sports training, creating the right framework to ensure and maintain a rational balance in the development of the human being.

We consider that the practice of sports-recreational activities, regardless of the spaces in which they are performed (indoors or outdoors), creates many advantages:

- physical shape (an excellent physical condition and a more aesthetic body);
- positive mental attitudes (elimination of the loser complex and better self-knowledge);
- team spirit that can bring beneficial effects on the work environment;
- the sense of belonging, parallel to the team, contributes to a beneficial development of the activity;
- health (physical activities reduce absenteeism and improve general health);
- improves communication (sport is a stimulus of communication);
- stimulates community life (introduces norms and values of cooperation and cooperation for different target groups - for example: the elderly, women, etc.).

At the same time, according to British researchers, a comparison between two groups of adults who practiced outdoor sports and in the gym, respectively, shows that those who exercised in nature enjoyed more energy and more good mood, and some adults who have been exercising in nature have experienced a decrease in anxiety, depression, and stress.

Exercise is essential for good long-term health and good aging. In addition to keeping it in shape, it releases endorphins that make us happier and help us control stress, energy levels and sleep [1].

Training safety

We need to think about our safety before we start training. Given that we are going to make a consistent effort, it is recommended to follow a few simple steps.

A medical consultation is mandatory if there are any health problems or suspicions. Physical exertion may exacerbate them, so seek medical advice.

For more safety, you can call a personal trainer.

It is recommended to consume half a liter of water two hours before the start of the activity. This will ensure optimal hydration.

It is recommended to pay attention to the limits of the body and the signals it gives. If you get tired, it's a good idea to take a break.

It is advisable to use appropriate equipment, both in terms of clothing and footwear.

The right time for sports

Regardless of whether it is practiced indoors or outdoors, the sport is welcome both in the morning and in the evening, but provided that there is a break of at least two to three hours before bed, to avoid sleep disorders. However, outdoor sports can also be conditioned by the weather. For an asthmatic, for example, it will be difficult to do a demanding workout if the temperatures are low. In fact, even for those without ailments, but with some sensitivity to low temperatures, cold weather could cause problems. But we must not give up outdoor sports when the temperature outside drops. On the contrary, outdoor movement has a beneficial therapeutic effect on the psyche, but also on the figure.

When, how and how much we eat

Eating is recommended both before and after training, but at least one hour before training, because we must ensure our energy to sustain the effort. After training, we eat at least every hour and a half.

A hearty breakfast is the best way to be effective throughout the day, and the best choices for breakfast are whole grains, dried fruit, wholemeal bread, yogurt and natural juices of freshly squeezed fruits and vegetables. The basis of our diet should be plant-based foods, vegetables and fruits being a really healthy food, especially when we have a weight problem. The reason is the higher amount of sugars in the fruit and the higher the caloric value. To stay healthy, we should have five servings a day, one serving being considered about 80 grams of vegetables and fruits. Dairy products should not be lacking, as a source of protein, calcium and micronutrients. Eggs, fish and meat are also important.

Food is not just a source of pleasure, although it is probably for most of us. It is necessary to think about its nutritional value, the energy intake it brings to our body. But for most people, the real problem is not eating too many calories, but getting too few important nutrients, which makes their body constantly craving more food. We need to focus on foods with a high nutritional density and avoid low-calorie foods and preparations that carry a large amount of energy without being accompanied by important micronutrients. Instant coffee is an example of a suitable food, because it brings a significant amount of antioxidants and, at the same time, a reduced amount of energy.

To ensure a healthy lifestyle, cooking at home can be a solution to consider. Food bought and prepared at home offers the opportunity to pay more attention to

what we eat. However, it is very important to eat cooked food. Despite the lack of time that everyone complains about, home cooking is recommended for this very purpose. No matter how healthy a dish looks, restaurants use all sorts of tricks to make their food look healthy and attractive, and are often in excess of fat and sugar.

A fresh orange juice can supply us with energy before training, and a banana increases our potassium level, which is lost through perspiration. If we add a teaspoon of cinnamon, it will stabilize the blood sugar level and improve the functioning of the brain.

A dried fruit yogurt or a few almonds can also be an option in the morning, but in small quantities, because the oil they contain will make our body more difficult.

A glass of wine or a piece of chocolate from time to time is not the worst sin. We need balance in life. One day a week we can "cheat" because this will help us to maintain our discipline and general attitude. It also helps keep the metabolism stable. The famous 80:20 rule can also be helpful in maintaining a healthy lifestyle. This means that 80% must be healthy food, and the remaining 20% for our enjoyment. But it is also true that if we eat healthy and do not lose weight, it means that we do not exercise enough, and if we exercise and do not lose weight, it means that our diet is not adequate. A healthy diet is not one that deprives us of food, but one that makes us stronger.

How we feed ourselves when temperatures are lower

It is worth mentioning that when we do outdoor sports in cold weather we need a higher intake of carbohydrates in our diet, both before training and in the first half hour after the end of the exercise, to help the muscles to recover faster. Hydration is just as important. To do this, we can put water in a thermos at room temperature, so that it does not get too cold due to the cold.

The danger of catching a cold when we do outdoor sports in cold weather appears at the end of training and we are sweating, so it is advisable to set our route so that we stop when we get close to home or car.

It is very important to warm up before we start moving. When it is cold outside, the peripheral blood circulation has a lower flow than normal, which can lead to muscle aches.

The right equipment

For sports, there are special clothes and it is advisable to use them. They are made of materials that allow the skin to breathe but, at the same time, protect it from cold or heat. Contrary to popular belief, cotton shirts should be avoided in sports. This material absorbs perspiration and cools the skin very quickly. Also, to insulate the body from the outside temperature, we can opt for clothes made of technical and breathable materials, necessarily waterproof.

When it comes to running shoes, comfortable sports shoes with foam soles are recommended.

If the weather has cooled down and we continue to move out, it doesn't mean we have to go crazy. In fact, it is the biggest mistake. We need to dress in as thin layers as possible to allow perspiration to evaporate. We have to choose synthetic materials, specially created for athletes. Especially the first layer of clothing should be avoided to be made of cotton, because it retains moisture.

We can best realize that we have dressed too thick if it is a little cold. If we feel comfortable wearing clothes, it means that we can give up a layer of clothes.

The longer we plan a workout, the fewer layers of clothing we will wear. Unfortunately, we can't get rid of them along the way, so we better leave home properly equipped.

Sports equipment must be tight fitting clothes, not for aesthetic reasons, but to prevent air from cooling the moisture in the clothes caused by perspiration. Cold weather protection for the head and hands is also recommended, where the skin is exposed directly to wind and cold, with gloves, a hat and possibly a scarf. It is advisable to add a windproof and waterproof jacket to these.

Where we run and when

Although, in principle, we could run anywhere on the sidewalk, it is recommended to avoid crowded areas. Beyond the discomfort of running among pedestrians, the noises, horns of cars will not help us relax, moreover, it could stress us even more. Therefore, special running tracks are preferred, which are made of a material that protects the wrists, or in parks.

Once installed in the place where we want to move, we will start with a few minutes of warm-up: exercises for rotating the head, shoulders, arms, torso rotations, side bends and forwards, for warming the legs and rotating the ankles. The next 20-25 minutes can be intense training: sluggish walking downhill, running up and down stairs, running backwards, running with your knees to your chest, jumping knees, floating "on the wall", which can be replaced with a tree, if we're in the park. We can do rope jumping, dumbbell exercises, or dumbbell support floats. That's where we can bring these accessories.

It is imperative to drink plenty of water. Hydration begins half an hour before, and at intervals of 20 minutes drink about 200 ml of water. This will make us lose our sense of hunger, but also herbal teas can be used, or fruit juices.

Getting the body used to the heat when the outside temperatures are high is a process that can take up to two weeks. For that we have to practice a little. The body will begin to sweat, small amounts of electrolytes will be lost, and body temperature will drop, the pulse will slow down. We must not exaggerate the intensity of the exercises. A moderate pace will give the body the necessary respite to get used to and cope with extreme temperatures, otherwise it will not be able to self-regulate thermally. However, it is not recommended to practice training, if the temperatures are over 32 degrees Celsius and the humidity over 60 percent. [2]

Let's make time for movement

The 30 minutes of daily exercise are not a myth. They are necessary for a healthy life. But many times, our schedule is so busy that it seems like it is almost

impossible to give ourselves this respite for movement. But we must establish a list of priorities and understand that movement is not an optional component in our lives, but an absolutely necessary one.

Exercise can mean anything that is within our reach: walking, climbing stairs, gardening, physical work. The next step is to practice a sport, which means low or high intensity physical activity, which is the real chance to keep fit and prevent a number of medical conditions.

What are the benefits of outdoor sports?

Exercising outdoors brings a number of benefits to the body, both in terms of sleep quality and our mental health. So:

- We'll sleep better

Exercising outdoors improves sleep and good mood. After each training in the park, the body is invaded by positive energy and optimism, which will be reflected in our daily lives, in the relationship with colleagues, family, friends.

- Decreases stress and anxiety

Outdoor movement is a perfect way to get rid of stress, stress and fatigue and increase your self-esteem. We have to find a sport that we really enjoy and that we don't get bored of.

- Prevents chronic diseases

During outdoor training, sun exposure naturally stimulates the body to produce more than 80% of its daily requirement of vitamin D. It plays an important role in preventing fatigue, depression, protects the cardiovascular system and is a protective factor against cancer. As an adult, about 10-15 minutes of daily sun and chest exposure are enough for an optimal amount of vitamin D.

- Socialization

A number of sports offer the opportunity to socialize. Whether it's tennis, cycling, horseback riding, kangoo jumping or running in the park, if these activities are carried out in groups, the motivation increases and the results will be quickly visible. In addition, by participating in outdoor activities, we get to know and interact with people who share the same passion.

- Creativity, coordination skills, spatial orientation

At least for children, outdoor games help to develop imagination, creativity, coordination and orientation in space. Also, the child will better understand the environment, develop his senses and help him cope better in unfamiliar situations.

- Fun with the family

Outdoor sports are a great way to have fun with your family. It also improves communication, strengthens relationships with loved ones. When they are all family members, such a program results in increased trust and sincerity between them, as evidenced by numerous scientific researches.

- Prevents cardiovascular disease

Cardiovascular disease can be prevented with daily exercise and a healthy diet. A healthy heart with a lot of sports is maintained, practiced constantly, it can

prevent many health problems. For those who do not practice any sport, a few little tricks are recommended. Giving up the elevator and go up the stairs is one of them.

- Lowers cholesterol levels

It is well known that sports help us lose weight and keep us in good spirits. But sports also have other benefits, such as keeping cholesterol levels within normal limits, or lowering them when needed. Swimming or running exercises, performed within six months, have the effect of reducing cholesterol levels by up to 20%. Experts say that exercise can have results even 48 hours from the time it was done. Specifically, it is very good for your health if you do sports every two days.

A study of 539 young people with a large waist circumference and a higher risk of having cholesterol above normal limits found that those who changed their lifestyle by quitting smoking and playing sports had improved, visible health, but they also reshaped their body.

- Prevents breast and colon cancer

People who play different sports are healthier. The World Health Organization recommends exercising constantly for at least one hour each day because it has been found that in this way, diseases such as breast or colon cancer can be prevented. Changing lifestyle is also recommended in the treatment of cancer [2].

- Reduces depression

Regular physical exercise has the ability to reduce the risk of depression by up to 2%, according to recent studies, due to improved mental function and ability to concentrate. During training, the substances that are released in the brain help us to manage stress, thus reducing the risk of anxiety and depression. According to therapist Sally R. Connolly of the Couples Clinic of Louisville, Kentucky, "the physical and mental benefits of sports can lead to relief from the symptoms of anxiety and depression. Research shows that at least 30 minutes of physical exercise performed 3-5 days a week can be a significant improvement. "Moreover, some studies compare the benefits of physical activity with those of drug treatment, showing that the effects of movement are felt for a longer period of time.

4. Conclusions

Physical education and sport educate ambition, courage, emulation, distributive attention, determination, firmness, perseverance, calm, modesty, honesty, multiple traits of will and character, by developing a complex area of interests, needs and motivations. Intellectual qualities, physical qualities and moral qualities are outlined with maximum durability and efficiency in bodily activities.

Everywhere in civilized countries education remains dependent on the ancient ideal "Mens sana in corpore sano" (a healthy mind in a healthy body). Everyone has the right to a harmonious education that gives them both access to knowledge that will help them to know and understand the world in which we live,

to develop their potential and autonomous thinking, but also to practice movement and sports.

Bibliography

1. Angelescu C., Julea, D., (1997), Timpul liber, Bucureşti, Editura Economică, 1997.
2. Georgescu F. (1976), Cultura fizică - fenomen social, Ed. a II-a, București, Sport- turism.