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Scientific works on various topics of physical culture, the physical education of various groups of people, and the training of professionals have been assembled in this digest. A description is given of methods and means of training, specifics of athletic training, and the adaptation of the bodies of individuals of various ages to the process of physical training, the suitability of which is enhanced by pedagogical, psychological, methodological and biological experiments.

The periodical is a scientific professional publication of Ukraine in which it is possible to publish the results of theses for obtaining the academic degree of doctor or candidate of science connected with the specialties «Pedagogical sciences» (see the list of scientific professional publications approved by the Ministry of Education and Science of Ukraine, May 12, 2015, № 528) and «Physical education and sports» (see the list of scientific professional publications approved by the Ministry of Education and Science of Ukraine, July 13, 2015, № 747).

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ФІЗИЧНЕ ВИХОВАННЯ, СПОРТ І КУЛЬТУРА ЗДОРОВ'Я У СУЧАСНОМУ СУСПІЛЬСТВІ

Збірник наукових праць
Східноєвропейського національного університету імені Лесі Українки
№ 2 (42)

Луцьк
Східноєвропейський національний університет
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Рекомендовано до друку вченою радою Східноєвропейського національного університету імені Лесі Українки (протокол № 6 від 29.05.2018 р.)

Ф 50 **Фізичне** виховання, спорт і культура здоров'я у сучасному суспільстві : зб. наук. праць Східноєвроп. нац. ун-ту ім. Лесі Українки / уклад. А. В. Цьось, С. Я. Індика. – Луцьк : Східноєвроп. нац. ун-т ім. Лесі Українки, 2018. − № 2(42). – 166 с.

У збірнику наукових праць подано окремі положення розвитку фізичної культури, фізичного виховання різних груп населення, підготовки фахівців для галузі. Охарактеризовано методи, засоби тренування, особливості підготовки спортсменів, адаптації організму людей різного віку в процесі фізичного виховання, адекватність яких підкріплюється педагогічними, психологічними та медично-біологічними експериментами.

Журнал є науковим фаховим виданням України, у якому можуть публікуватися результати дисертаційних робіт на здобуття наукових ступенів доктора і кандидата наук за напрямами «Педагогічні науки» (дивитися перелік наукових фахових видань, затверджений наказом Міністерства освіти і науки України від 12 травня 2015 р. № 528) та «Фізичне виховання і спорт» (дивитися перелік наукових фахових видань, затверджений наказом Міністерства освіти і науки України від 13 липня 2015 р. № 747).

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Historical, Philosophical, Legal and Staff Problems of Physical Culture and Sports

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SYSTEM OF PHYSICAL EDUCATION IN SCHOOLS OF THE CZECH REPUBLIC AT THE PRESENT STAGE

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Abstracts

The Czech Republic has a long tradition in cresting a national system of physical education and sport. As well as the original system of Sokol gymnastics, which in second half of the nineteenth century gained wide popularity not only in European countries, which were located in the geographical location near the Czech Republic, as well as in Russia, France, UK, USA and other countries of the world. ***Objectives of the Study.*** Determine the modern system of physical education of schoolchildren in the Czech Republic. ***Research Results.***The system of physical education Czech schools consists of two complementary units: the educational process of physical education, which involves three lessons per week and extracurricular sports and mass work, which is conducted optionally for all students. Physical education programs include: basic gymnastics; sport games; dance exercises; swimming, skating (in winter), a dispute if the school has conditions for conducting these classes. The Ministry of Education, Youth and Sports issues basic physical education programs for students of all types of schools. ***Conclusions.*** In Czech schools, starting from the 90s of the twentieth century, innovative concepts are widely implemented: «School of Health» and «Sport for All». They are aimed at active struggle against negative phenomena in society: alcoholism, drug addiction, tobacco smoke, as well as work on the establishment of preventive measure against civilian diseases that have become a pandemic in last 30 years in Europe and other continents of the Word.The state program «Sport for All» provides for the widespread use of sports not only among schoolchildren, their parents, youth and other age groups of the Czech population, mass creation in active recreation of the whole society, as well as selection and preparation of reserve for the national team of sport teams of the country. The modern system of physical education of pupils in the Czech Republic is aimed at strengthening the health, improving physical development and motor education of children and young people by increasing the hours for physical education and sport activities in extra time, organizing regular sporting activities and sports complementation with the help of sports clubs, the creation of sports classes in schools for capable students, which the future is a reserve of qualified athletes in various sports disciplines.

Key word: physical education, system, sport, students, school.

Едуард Вільчковський, Володимир Пасічник. Організація та зміст фізичного виховання в чеських школах. Чехія має давні традиції у створенні національної системи фізичного виховання й спорту, а також оригінальну систему сокольської гімнастики, яка отримала в другій половині XIX ст. широку популярність не тільки в європейських країнах, що розміщувалися поблизу Чехії, а й також у Росії, Франції, Великобританії, США та інших державах світу. ***Завдання дослідження*** – проаналізувати сучасну систему фізичного виховання школярів у Чехії. ***Результати дослідження.*** Система фізичного виховання в чеських школах складається з двох взаємодоповнювальних блоків: навчальний процес із фізичного виховання, який передбачає три уроки щотижня та позакласну спортивно-масову роботу, що проводиться факультативно для всіх

бажаючих учнів. Програми з фізичного виховання включають основну гімнастику; спортивні ігри; танцювальні вправи; плавання, лижі, ковзани (взимку), якщо школа має умови для проведення цих занять. Міністерство освіти, молоді і спорту видає базові програми з фізичної культури для учнів усіх типів шкіл. ***Висновки.*** У чеських школах, починаючи з 90-х років XX ст., широко реалізовуються новаторські концепції: «Школа здоров'я» й «Спорт для всіх». Вони спрямовані на активну боротьбу з негативними явищами в суспільстві (алкоголізмом, наркоманією, тютюнопалінням), а також на роботу зі створення профілактичних заходів проти цивілізаційних захворювань, які стали пандемією за останні 30 років у Європі та інших континентах світу. Державна програма «Спорт для всіх» передбачає поширення занять спортом не лише серед учнів шкіл, але і серед їхніх батьків та інших вікових груп чеського населення, створення масовості в активному відпочинку всього суспільства, а також селекції та підготовці резерву для збірних спортивних команд країни. Сучасна система фізичного виховання школярів у Чеській Республіці спрямована на зміцнення здоров'я, покращення фізичного розвитку та рухової підготовленості дітей і молоді збільшенняя годин на уроки фізичного виховання, поширення масовості занять фізкультурою та спортом у позаурочний час, організації регулярних спортивних занять і змагань за допомогою спортивних клубів, створення в школах спортивних класів для здібних учнів.

Ключові слова: фізичне виховання, система, спорт, учні, школа.

Эдуард Вильчковский, Владимир Пасечник. Система физического воспитания в школах Чешской Республики на современном этапе. Чехия имеет давние традиции в создании национальной системы физического воспитания и спорта, а также оригинальную систему сокольской гимнастики, которая стала во второй половине XX в. популярна не только в европейских странах, которые соответственно размещались вблизи Чехии, но также и во России, Франции, Великобритании, США и других стран мира. ***Задача исследования*** – проанализировать современную систему физического воспитания в чешских школах. ***Результаты исследования.*** Система физического воспитания в чешских школах состоит из двух взаимодополняющих блоков: учебный процесс физического воспитания предусматривает три урока в неделю а также внеклассную спортивно-массовую роботу, которая проводиться факультативно для всех желающих учеников. Программы по физическому воспитанию включают основную гимнастику, спортивные игры; плавание, лыжи, коньки (зимой, если школа имеет соответствующие условия для проведения этих занятий). Министерство образования, молодёжи и спорта издает базовые программы с физического воспитания для учеников всех типов школ. ***Выводы.*** В чешских школах, начиная, с 90-х годов XX в., реализуются новаторские концепции «Школа здоровья», «Спорт для всех». Они направлены на активную борьбу с негативными явлениями в обществе (алкоголизмом, наркоманией, курением), а также на профилактические работы против цивилизационных заболеваний, которые стали пандемией в последние 30 лет в Европе и на других континентах земного шара. Государственная программа «Спорт для всех» предусматривает не только широкое распространение занятий спортом среди учеников школ, но и среди их родителей и других возрастных групп чешского населения, создание массовости в активном отдыхе всего общества, а также селекции и подготовке резервов для сборных команд страны. Современная система физического воспитания учеников в Чешской Республике направлена на укрепление здоровья и улучшение двигательной подготовки детей и молодежи путем увеличения занятий по физической культуре и спорту во внеурочное время, организацию регулярных спортивных соревнований при участии спортивных клубов, создание в школах спортивных классов для способной молодежи.

Ключевые слова: физическое воспитание, система, спорт, учащиеся, школа.

Introduction. The Czech Republic has ancient traditions in creating a national system of physical education and sports, and the original system of Sokol gymnastics, that gained a wide popularity not only in European countries, which were located near the Czech Republic, but also in Russia, France, the United Kingdom, the United States, and other countries of the world in the second half of the 19th century.

The aim of the study – is to analyse the modern physical education system of the Czech Republic's secondary school students.

Research methods. Observation of literary sources, documentary and archival materials, theoretical analysis and synthesis of the obtained data.

Research results. After the Velvet Revolution, the Czech Republic government has taken urgent measures in the field of school education, and educational institutions were de-ideologized and liberalized, the 6–8 year old gymnasia were opened, as well as private and church schools and the term of secondary education increased to 13 years of study.

The modern system of Czech school education has the following structure. At the age of three, a child enters a pre-school institution (About 85 % of all children from 3 to 6 years attend kindergartens). From the age of six, the child goes to the primary school, which is obligatory and free for all children and the studying process lasts for 9 years: five years for the first degree, and four years for the second one. Also a student can finish the second degree of studying in a gymnasium, entering it after the end of grade 5 or 7 (respectively, the second degree is the first four years of the eight-year gymnasium, or the first two years of the six-year one. You can also enter the gymnasium finishing the second degree in the primary school.

After 9 years of compulsory education in the elementary school, pupils study at a gymnasium for another 4 years and finish it at the age of 19. These years are not the part of compulsory secondary education. All students entering a high school take part in the competition, because they intend to study in higher educational institutions in the future.

Education in the gymnasium ends with the examinations on the certificate of maturity (in Czech – maturita). These exams provide two compulsory subjects: Czech language and literature, foreign language, and two other subjects to choose from. It should be noted that each gymnasium has its own educational profile: humanitarian, natural and mathematical. Successful passing of the exams provides students with the opportunity to enter universities. For the Czech Republic, typically is that more than 80 % of school leavers continue their studies in a vocational schools and colleges.

9th grade pupils have to lodge an application by March,1 with the indication of the educational institution they want to study at. The duration of studying in vocational schools is between 2 and 4 years. In those institutions where the duration of training is 4 years, the graduate also receives a state certificate (after passing maturity) and as in the gymnasium, they have the right to enter higher education institutions (mainly polytechnic institutions).

There are approximately 3 % of private schools in the Czech Republic. They are financed by parents and sponsors, but public education bodies compensate a part of the costs.

The school year in all types of schools begins on September,1 and lasts 196 days. Students study at the schools 5 days a week. Marks are displayed on a five-point grading scale. Current marks are putting in the process of learning in the classroom, and the final results at the end of each semester and the academic year.

In order to enter a higher educational institution a competition of certificates is held. However, some higher education institutions have special prelims, for instance in the following academies: music, physical education, art, theater, etc.

The vast majority of teachers working in schools have higher education (a master's degree). However, in the Czech Republic there is the following tradition. The school director concludes a labor agreement with each teacher for each year from September,1 to June,30. This condition is confirmed annually, if there are no claims to the teaching work. Therefore, a significant part of schools do not pay salaries to teachers for 2 summer months (in July and August). They get an unemployment reward in this period. They do this to save school money for future salaries and insurance of the teachers.

The Ministry of Education, Youth and Sports of the Czech Republic is responsible for implementing the general policy of school education in the country. Also it develops the concepts of a strategy of improving school and higher education and represents it to the Government every 4 years to approve the plan for the further development of educational systems.

The main functional tasks of the Ministry of Education, Youth and Sports include:

1. Concerns related to the current state and the concept of further modernization of the school and higher education system.

2. The definition of the content of education, the approval of study programs on various subjects, accreditation of programs for schools, vocational schools and higher educational establishments.

3. The responsibility for the policy of educational system financing in the country, for the preparation of the annual budget and making a decision on its allotment.

4. The responsibility for the educational activities of all types of educational institutions.

5. The responsibility for the preparation and improvement of the skills of various subjects teachers.

In the Czech Republic, there are 14 regions with broad autonomy and each of them has established the education bodies responsible for school education in each of them. Every 4 years they work out a

strategy for the further development of education for children and youth (pre-school institutions and schools).

In 2005, the Basic School Education Standard has been approved by the Ministry of Education, Youth and Sports and started functioning from the 2007–2008 school year. In its structure, it consists of the general purpose and main objectives of school education; the contents of the knowledge, skills and abilities that students must learn at the each stage of their education. On its basis, each teacher creates his subject program. The technology of the compilation of author's programs is taught to students in every pedagogical institution of higher education.

The Basic School Education Standard defines 9 major neoteric directions and each of them consists of one or more topics; the interdisciplinary content of studying; additional education topics and key competences of the graduate of each stage of school education.

The main directions of the education content are : language and communication, mathematics and its applications, information technologies, people and their world, people and society, people and nature, culture and art, people and health, people and the world of work. The interdisciplinary content consists of social and personal education, education in a democratic society, education aimed at thinking in a European global context, multicultural education, environmental science, and the science of media (mass media).

In the 80s and 90s of the 20th century, the number of so-called civilizational diseases significantly increased in the country, and their spread was closely linked to the ecological state of the environment, as well as to the unhealthy lifestyle of a large part of society. According to medical research data, the majority of the population of Czechoslovakia was characterized in a such way : malnutrition (high intake of sugar and energy food), high levels of stress, the systematic use of alcoholic beverages (especially strong beer), tobacco use, low mobility (hypokinesia), and others.

At that time, the Czech Republic was ranked as the first in Europe due to the number of the cardiovascular system diseases, as well as a significant number of respiratory diseases, especially among people living in a large industrial agglomerations. Also, a medical statistics indicate the increase level of cancer diseases among the population. The most common cases are lung cancer, gastrointestinal tract cancer and breast cancer in women. Due to the negative changes in the lifestyle of children and youth they face body posture defects, flatulence and obesity.

Therefore, the most effective way that can correct a negative situation with the spread of civilized diseases is to increase a motor activity, which should be a compulsory component of every person healthy lifestyle, regardless of the age.

Thus, we can assume that the system of physical education of the younger generations, which existed in Czechoslovakia, was not effective. This system, basically, as in most post-socialist countries, was aimed at training athletes who would have been successful at the international competitions and the Olympic Games and mass physical culture and recreational sport were in a second place. For the past government of the country the main goal was to win prizes in gymnastics, athletics, hockey and other sports. Also, they had to clearly show the superiority of a socialist society over capitalism in sport.

Only 5 % of the Czech population (mostly children and students) were systematically engaged in physical education and sport (at least 3 classes per week) in 1990. It can be stated that the country failed to effectively influence on the level of society's physical activity. Recommendations in this regard provided by the state and public organizations did not work on improving the physical activity of children and adults.

Czech scientists have shown that under the influence of systematic and long-term motor activity, not only the state of human health is improving , but also its physical and mental work, based on the medical-biological, psychological and pedagogical research that were carried out at the end of the 20th century. These changes have a positive effect on dietary habits, psychophysical state, emotional and social aspects of the individual.

The negative situation that happened with the health level in the country required urgent changes associated with the modernization of the system of physical education for both children and youth, the growth of physical education and sport in the form of regular sports training and active participation in recreation classes.It should be noted that the Czech scientists and experts in physical education and sports have developed a number of innovative concepts for improving the health of students and young people,

and they have been introduced it not only in their schools, but in other European countries too (Slovakia, Poland, Bulgaria, etc.). One of them is the creation of a «School of Health». So what is the main difference between this school and the ordinary one?

These schools provide proper hygienic conditions, organize nutrition for students, and control the range of school buffets,form the positive conditions for mass extracurricular activities,various forms of valeological education are used, taking into account the age of pupils, etc.

In the «School of Health», teachers of all subjects must implement the health-improving tasks into the educational process. The director of the school appoints a tutor, who coordinates the activities of the entire teaching staff in solving health issues and these functions are entrusted to a teacher of physical education or biology. The general health education program for all students is approved by the pedagogical council at the beginning of the school year.

This program includes certain thematic blocks aimed at preventing illness and improving the health of schoolchildren. For example, the block «Prevention and control of tobacco, drugs and alcohol use», «Prevention of overweight and obesity among schoolchildren», «Motor activity of pupils during extra-time hours», «Providing first medical care in a case of injuries and accidents», «Formation of the correct posture»,» Student's social and personal hygiene «, etc.

Certainly, each teacher has his own capabilities in implementing this program. However, during the training lessons, all teachers should pay attention to the correct posture of children, conduct gymnastics not only in the junior classes, but in the senior ones too. To follow the proper hygienic conditions of the classroom (lighting, especially in winter, ventilation of the class, etc.) as well as to be an example of a healthy lifestyle for students.

Doctors who present lectures or medical conversations are invited to report useful information for students in this area. Also, the pedagogical school team tries to actively collaborate with the parents, because it is impossible to solve issues related to improving the youth health without the help of the family. Therefore, at parental meetings, issues related to the prevention of unprofitable habits, proper nutrition, motor recreation for children and young people are also considered as well as bringing them an important pedagogical postulate that they are an example in the upbringing of their children.

The second concept, the practical implementation of which was aimed at improving the state of health and physical fitness too, was «Sport for All». It envisaged the increasing level of the mass of sport among children and youth not only through systematic training in different sports sections, but also through the use of various recreational forms of sports disciplines : various kinds of tourism (foot, water, ski, bicycle, etc.), sports games, fitness, sports dances, etc.

Let's consider the specifics of the physical education system of children and youth in the Czech Republic. The use of physical culture means begins with a pre-school institution. Children participate in various forms of physical education: morning gymnastics, tempering procedures, mobile games, independent exercise of physical exercises, games during outdoor walks and so on. The preparation of the pre-school children for school studying involves not only their intellectual and mental development, but their physical, motor development and good health too.

In order to modernize the physical education system in secondary schools, an appropriate strategy was developed, which included the following provisions:

1. Use actively the positive foreign experience of physical education of pupils at schools in different countries of Europe and all around the world.
2. Cooperate with post-socialist countries that have had the similar physical education systems for pupils and achieved some successes in their improvement.
3. Do not repeat the mistakes of pupils' physical education at secondary schools of other European countries.
4. Develop positive national traditions of physical culture and sports, as in the Czech Republic.
5. Distribute and develop international cooperation in the field of school physical education.
6. Look for effective ways of improvement the motivation of children and youth for systematic physical education and sport exercises.
7. Try to create modern physical education systems, which will stimulate the improvement of motor activity of pupils in the free period of study.

The system of physical education in Czech schools consists of two complementary units: the educational process of physical education, which involves three lessons per week and extra-curricular sports-mass work, conducted selectively for all students.

Programs of physical culture in primary schools include basic gymnastics; moving elements of sports games; dancing exercises; swimming, skis, skates (in winter), if the school has conditions for conducting these activities.

In the secondary schools of the first education degree, this program material is complemented by elements of acrobatics, gymnastics and athletics.

In educational programs for students of gymnasiums also increase the amount of sports games (basketball, handball, football, volleyball, hockey). Traditionally until the 80's of the twentieth century more attention was paid to gymnastics (students were trained to perform exercises on gymnastic devices) in Czech schools. However, these classes did not give them proper positive emotions in comparison with the lessons on which sports games were offered. This become a specific feature of most European schools, in which, over the past 20–30 years, teachers have adopted the widespread use of the sports-interactive method in athletics lessons, ski training etc.

Ministry of Education, Youth and Sports announces basic physical education programs for pupils of all types of schools. An important aspect is the inclusion of state standards in this field of education (the main requirements for this subject, the specific years of pupils studying). This is a certain criteria for pupils self-control and the possibility of more accurate pedagogical control over the level of their knowledge, skills and abilities.

However, the teacher, taking into account the specifications of his school (sports base, climatic and geographical conditions of the region, pupils interests, teacher's personal specialization, etc.) can produce 30 % of individual material or create individual programs that take into account the educational standards of the Physical education. This provision had positive effect on the increasing interest of pupils of all age groups to the lessons of this discipline. According to the survey of pupils of the first and second grades, 82 % of respondents note that they enjoy PE lessons and physical education is interesting for them and useful for health.

Secondary school pupils have 3–4 hours of outdoors lessons with elements of tourism twice during the school year. The main aim of such lessons is to develop pupils' skills and abilities, as well as to give basic knowledge of the organization of tourist trips. It is necessary for young people to know how to organize independent recreational walks and various types of tourist trips.

It should also be noted that in most Czech schools there are good conditions for physical education lessons. Czech Republic also produces a variety of sports equipment, clothing and footwear for educational, sectional and recreational activities in physical education and sports.

The program «Sport for Everyone» has a significant influence on the distribution of recreational activities among children and youth. In the realization of its tasks involved public organizations, sports associations, city authorities and schools are involved. One of the objectives of this program is to create better conditions for physical education and sports by developing sports infrastructure in different regions of the country (stadiums, swimming pools, sports grounds, etc.). Active propaganda of knowledge about a healthy lifestyle and active physical recreation in press, radio and television has also a great importance.

Among the public sports organizations that carry out active sports and mass work with pupils of the Czech school are the Association of Sports Clubs, as well as the Sokol Sports Organization, which has over 1000 clubs throughout the country. The main goal of the clubs is the popularization of physical education and sports among pupils, promotion of a healthy lifestyle, health care, physical development, motor training of children and youth, formation of a stable motivation to a systematic physical education and sports in various sports sections, independent recreational activities, tourism activities, etc.

Sports clubs improve pupils' organizing abilities in conducting various kinds of competitions, sports judging, conducting physical exercises and games with pupils of primary school, dynamic breaks between lessons, gymnastics before the beginning of lessons, hiking trips, etc.

In extracurricular sports-mass work with students, which is conducted by clubs, school competitions for children and youth, sports games tournaments and matches (football, volleyball, handball, hockey, etc.) are very popular. Sports competitions of young sportsmen of different levels (primacy

of the region, city, country) are conducted under the guidance of the Czech Association of Physical Education.

Significant sporting work is carried out by sport clubs during the winter, spring and summer holidays. At this time, students visit the sports and recreation camps, tourist hikes (hiking, water and bicycles sports, skiing, etc.), as well as the active rest – various forms of motor activity: active and sports games, excursions, hiking, swimming lessons, etc.

For over 50 years the programs for students with physical and mental disabilities are made in the Czech Republic. They are designed for special and general schools, in which there are students of special medical groups. Classes with them are held in extra-curricular time in schools or health facilities where there are specialists in these diseases.

The Czech system of physical education makes it possible to develop the student's sports abilities. Beginning with younger children, sports talented children who are revealed on the basis of motor tests, are invited to take classes in sports sections under the guidance of physical education teachers or trainers. In order to have regular sports, some work is done with parents, who should bring their children to these classes and provide favorable home conditions (food meals, rest, etc.). Sports sections are also created in all gymnasiums. They work 3–4 times per week.

Starting from the 5th form there are sports classes in schools with good sports base, which include children with sport skills. These classes are accepted by students who have fulfilled the requirements of the test and have positive findings of in-depth medical examination, as well as agreement from parents. sports classes have fewer students (no more than 20). This makes it possible to implement an individual approach to children.

Students of sports classes mainly specialize in such sports: athletics, gymnastics, football, ice hockey, swimming, skiing. Pupils of the 5th grade, except general subjects, are engaged in sports for 8 hours, and starting from the 6th form, for 12 hours each week.

Thus, together with the depoliticization of the education system after 1989 in the Czech Republic, there have been radical changes in the ideology of education and the content of the didactic process in secondary schools. The system of physical education for schoolchildren and the further development of the mass of children's and youth sports have constant support from the Czech government, local organs, social sports organizations and clubs.

Conclusions. In the Czech schools, starting from the 90s of the twentieth century, innovative concepts are widely implemented: «School of Health» and «Sport for All» They are aimed at active struggle against negative phenomena in society: alcoholism, drug and tobacco addiction, as well as work on the establishment of preventive measures against civilizational diseases that have become a pandemic in Europe and other continents of the world over the past 30 years.The State Program «Sport for All» provides for widespread sports not only among schoolchildren, their parents, young people and others Czech-term groups, create mass active rest of society, but also for the selection and preparation of reserve for modular sports team.

Modern system of physical education of pupils in the Czech Republic aimed at the health promotion, improvement of physical development and motor training of children, young people by increasing hours for physical education classes, increasing the mass of physical education and sports activities in extra-time, organizing regular sports lessons and competitions with the help of sports clubs, creating sports classes in schools for capable pupils, who are a reserve of qualified athletes of various sports disciplines in the future.

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INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON PHYSICAL AND MENTAL HUMAN HEALTH

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Abstracts

In modern conditions, the interrelation between human health and information technologies, violations of the somatic and mental health of the population, stipulated by information and psychoemotional loads, continue to remain actual issues. The goal is to define the peculiarities of using information technologies in everyday life and to study their influence on the physical and mental health of a person. On December 31, 2017, 4,15 billion people in the world are connected to the Internet. In Ukraine, 52,5 % of people are Internet users. This is 3,5 % of the total number of users in Europe. 96 % of children use the Internet and it has become a natural part of their life. The computer is not only entertainment, but also a means of communication, self-expression and personal development. The Internet attracts modern children and young people in a variety of communication, the alleviation of information hunger, the search for new forms of self-expression, anonymity and virtual freedom, a sense of community and belonging to the group. Children learn new digital technologies and learn to navigate freely in the information space. Children can not really evaluate the level of reliability and security of information contained in the Internet space. Over the past six months, the world has increased the Internet coverage by 7 %. According to statistics, more than a third of users in Ukraine are under the age of 29 years. More than 60 % of children and teenagers communicate daily in the Internet chats. Preference for the virtual world of reality has a negative impact on the psyche and health of a child and can worsen not only the vision, posture and sleep, but also cause anxiety, irritability, social maladjustment and dependent behavior. There is a rise in the high level of anxiety, rigidity and extravagance for Internet users. Only 24 % of adults check which sites their child visits. 11 % of parents are aware of such online threats as 'adult' content, gambling, online violence, cybercrime. 79 % of children are confident that they are sufficiently aware of the risks in the Internet network. There are five main types of the Internet addiction: computer addiction, compulsive navigation in the network, information congestion, cyber sexual addiction and cyber communicative addiction. In Ukraine, the cyber communicative addiction is common. So, according to the research, the first place in attendance is occupied by social networks – 27 % (in general among young people), girls have a higher indicator (29,8 %) than boys (23,9 %).

Key words: information technologies, information environment, Internet addiction, Internet users, physical and mental human health.

Оксана Шинкарук, Євгеній Імас, Лоліта Денисова, Віктор Костюкевич. Вплив інформаційно-комунікаційних технологій на фізичне та психічне здоров'я людини. У сучасних умовах актуальними питаннями продовжують залишатися взаємозв'язок здоров'я людини та інформаційних технологій, порушення соматичного й психічного здоров'я населення, зумовлені інформаційними та психоемоційними навантаженнями. ***Мета статті*** – визначити особливості використання інформаційно-комунікативних технологій у повсякденному житті й досліджувати їх вплив на фізичне та психічне здоров'я людини. Станом на 31 грудня 2017 р. 4,15 млрд людей у світі підключені до мережі Інтернет. В Україні 52,5 % осіб є користувачами мережі Інтернет. Це становить 3,5 % від загальної кількості користувачів у Європі. 96 % дітей користуються Інтернетом, який став для них природною частиною життя. Комп'ютер є не лише розвагою, але й засобом спілкування, самовираження та розвитку особистості. Сучасних дітей і молодь Інтернет приваблює різноманітним спілкуванням, угамуванням інформаційного голоду, пошуком нових форм самовираження, анонімністю й віртуальною свободою, почуттям спільності та приналежності до групи. Вони засвоюють нові цифрові технології й учаться вільно орієнтуватися в інформаційному просторі. Діти не можуть реально оцінювати рівень достовірності та безпеки інформації, що міститься в Інтернет-просторі. За останні півроку у світі збільшилося покриття Інтернетом на 7 %. За даними статистики, понад третина користувачів в Україні мають вік до 29 років. Більше 60 % дітей і підлітків щодня спілкуються в Інтернет-чатах. Надання переваги віртуальному світу чинить негативний вплив на психіку й здоров'я дитини та може погіршити не лише зір, поставу й сон, але й викликати тривожність, дратівливість, соціальну дезадаптованість і залежну поведінку. Відзначено підвищення високого рівня тривожності, ригідності та екстравертності в інтернет-користувачів. Лише 24 % до-

рослих перевіряють, які сайти відвідує їхня дитина. 11 % батьків знають про такі онлайн-загрози, як «дорослий» контент, азартні ігри, онлайн-насилля, кіберзлочинність. 79 % дітей упевнені в тому, що вони достатньо обізнані щодо ризиків в Інтернет- мережі. Розглянуто п'ять основних видів інтернет-залежності: комп'ютерна залежність, компульсивна навігація в мережі, перевантаженість інформацією, кіберсексуальна й кіберкомунікативна залежності. В Україні поширена саме друга (кіберкомунікативна) залежність. Так, згідно з проведеними дослідженнями, перше місце за відвідуваністю займають саме соціальні мережі (27 % у цілому серед молоді), у дівчат показник вищий (29,8 %), порівняно з хлопцями (23,9 %).

Ключові слова: інформаційні технології, інформаційне середовище, інтернет-залежність, користувачі Інтернету, фізичне, психічне здоров'я людини.

Оксана Шинкарук, Евгений Имас, Лолита Денисова, Виктор Костюкевич. Влияние информационно-коммуникативных технологий на физическое и психическое здоровье человека. В современных условиях актуальными вопросами продолжают оставаться взаимосвязь здоровья человека и информационных технологий, нарушение соматического и психического здоровья населения, обусловленное информационными и психоэмоциональными нагрузками. ***Цель статьи*** – определить особенности использования информационно-коммуникативных технологий в повседневной жизни и исследовать их влияние на физическое и психическое здоровье человека. На 31 декабря 2017 г. 4,15 млрд чел. в мире подключены к сети Интернет. В Украине 52,5 % лиц являются пользователями сети Интернет. Это составляет 3,5 % от общего количества пользователей в Европе. 96 % детей пользуются Интернетом и он стал для них естественной частью жизни. Компьютер является не только развлечением, но и средством общения, самовыражения и развития личности. Современных детей и молодежь Интернет привлекает разнообразным общением, утолением информационного голода, поиском новых форм самовыражения, анонимностью и виртуальной свободой, чувством общности и принадлежности к группе. Дети усваивают новые цифровые технологии и учатся свободно ориентироваться в информационном пространстве. Дети не могут реально оценивать уровень достоверности и безопасности информации, содержащейся в Интернет-пространстве. За последние полгода в мире увеличилось покрытие Интернетом на 7 %. По данным статистики, более трети пользователей в Украине в возрасте до 29 лет. Более 60 % детей и подростков ежедневно общаются в Интернет-чатах. Предпочтение виртуального мира реальности оказывает негативное влияние на психику и здоровье ребенка и может ухудшить не только зрение, осанку и сон, но и вызвать тревожность, раздражительность, социальную дезадаптивность и зависимое поведение. Отмечается повышение высокого уровня тревожности, ригидности и екстравертиности в интернет-пользователей. Только 24 % взрослых проверяют, какие сайты посещает их ребенок. 11 % родителей знают о таких онлайн-угрозах, как «взрослый» контент, азартные игры, онлайн-насилие, киберпреступность. 79 % детей уверены в том, что они достаточно осведомлены о рисках в Интернет-сети. Рассмотрены пять основных видов интернет-зависимости: компьютерная зависимость, компульсивная навигация в сети, перегруженность информацией, киберсексуальная зависимость, киберкоммуникативная зависимость. В Украине распространена именно киберкоммуникативная зависимость. Так, по проведенным исследованиям, первое место по посещаемости занимают именно социальные сети – 27 % (в целом среди молодежи), у девушек показатель выше (29,8 %), по сравнению с молодыми людьми (23,9 %).

Ключевые слова: информационные технологии, информационная среда, интернет-зависимость, пользователи Интернета, физическое, психическое здоровье человека.

Introduction. The Law of Ukraine «On Main Fundamentals of Information Society Development in Ukraine for 2007-2015 period» dated from 09.01.2007 № 537-V claims the endeavor to build up a socially oriented, open for everybody, aimed at development information society in which everyone could create and store information and knowledge, have an equal access to them, use and share them in order to give every person an opportunity to fully realize his potential promoting both social and personal development as well as raising living standards one of the principal priorities of Ukraine [4; 11].

Information communication technologies (ICT) are the basis of information society, a significant component of information resources usage in all the fields of social activities. Under modern conditions, the issue of the adverse effect of ICT on somatic and mental health of the population, primarily children and young people, caused by informational, psychic and emotional loads remains a topical one [13]. Nowadays, scientists and experts face the challenge to immediately establish a healthy information lifestyle both in social and natural environment [2; 7]. It has become of crucial importance to follow the rules of information hygiene which the experts consider a separate branch of science that studies the regularities of information impact on forming, functioning, mental, physical and social well-being of a person and a society directed at developing measures to put information environment on a sound footing.

Present society activities are fully intervened with information relationships which are based on modern information technologies. Thus, public and political activity digs deeper into interactive television application, allows viewers to react to linkmen's questions, to take part in queries and voting. In its turn, pedagogical information science that deals with the issues of working out and implementing education concept of people who are to live in information society is also actively developing. The objectives of education computerization include both universal (the development of intellectual abilities, humanization and availability of education) and specific ones such as computer competence, education information support (knowledge data bases), individual education approach based on modern computer teaching technologies. Innovative information technologies will promote the change of the educational paradigm, enhance and develop personal skills [7; 13].

Computerization issue, the impact of information communication technologies on human health is one of the crucial subjects of the present. Although the use of ICTs facilitates our life, at the same time it causes addiction – a pathological dependence on it. By immersing into the virtual world a person becomes detached from reality, stops showing interests in what is going on around him in the real world. Young people and teenagers are extremely vulnerable in this respect as they are underdeveloped personalities and can be easily exposed to the adverse effect of the environment. ICTs influence all the biological characteristics of a human body, in the first place, his physical and mental health [12].

The objective is to define the peculiarities of using information technologies in everyday life and to study their influence on the physical and mental health of a person.

Material and research methods: analysis and synthesis, generalization and systematization, observance, interview, statistics techniques.

Research findings and discussions. In order to define the influence of information technologies on human health, the preliminary attention was given to the latest research works on expanding ICTs in Ukraine and the world conducted by the scientists. There have been analyzed the results of the research carried out by the Ericsson's company laboratory «ConsumerLab» on the advantages of using information technologies. 500 respondents from Kyiv, Lviv and Donetsk (aged 15–69) took part in the poll. The sample was representative and reflected the opinion of 3,4 million people including all walks of life. It has been proved that 33 % of the interviewed persons were «innovator-users» in 2011 in Ukraine [5; 15]. They easily put on trial new services, products and devices as well as actively use telecommunication services. This category of users has much in common with the European and US users of such a kind. They have a significant influence on ICT market development accelerating the introduction of new services, gadgets and technologies [5; 15]. During the investigation period, 63 % of the respondents in different cities and towns of Ukraine who do not use the Internet pointed out that it was of no need for them. That makes the striving and probability of the Internet access application, both fixed and mobile, by these people of a very low level in the nearest future [5].

The results of Ericsson's research have shown that more than half of the population (59 %) in the Ukrainian cities have access to high-speed Internet, that is, its use is like in other developed markets in Europe (Germany – 61 %, Italy – 52 %) [5; 15]. According to the research, 68 % of Internet users in the cities of Ukraine chat in the social networks weekly (United Kingdom – 63 %, USA – 62 %), while 28 % use Skype or similar IP-telephony services for communication at least once a week (United Kingdom – 20 %, US – 19 %) [5; 15]. Thus, Ukraine is ahead of the US and many European countries by the intensity of using social networks and IP-telephony (Fig. 1).

More than 2/3 of respondents in Ukraine use the mobile Internet every day, and more than 90 % – every week (fig. 2). The research by Ericsson Consumer Lab has clearly shown that the frequency of TV viewing on demand – that is, short online video clips, TV shows and films, as well as downloaded content – is increasing due to the influence of young people's habits in Ukraine [5].

According to the study, the reasons for using the mobile Internet are: Internet access (45 %), ease of use (26 %) and mobility outside the home (26 %). The same factors are fundamental for people who do not have the mobile Internet today, but are going to use it in the nearest future. According to «Ericsson Consumer Lab», 65 % of people aged 15–24 watch short video clips on the Internet at home, and about 60 % watch downloaded movies and TV shows at least once a week [5; 15].

According to the Internet World Stats [16], as of December 31, 2017, 4.15 billion people in the world are connected to the Internet and actively use ICT (Table 1, Figure 3).

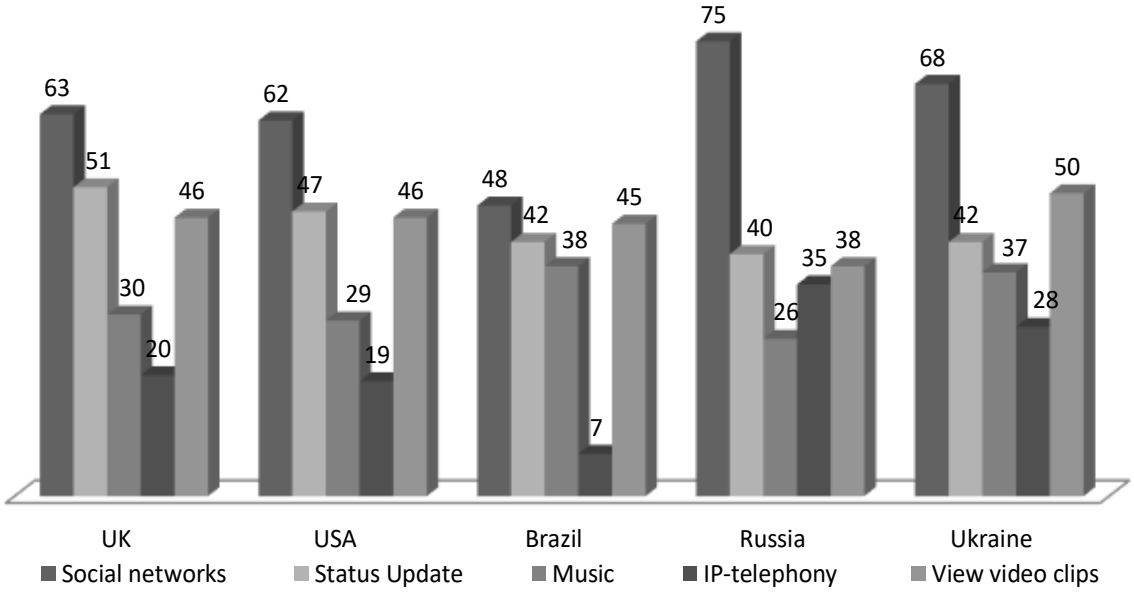

Fig. 1. *Use of Internet services in the world*

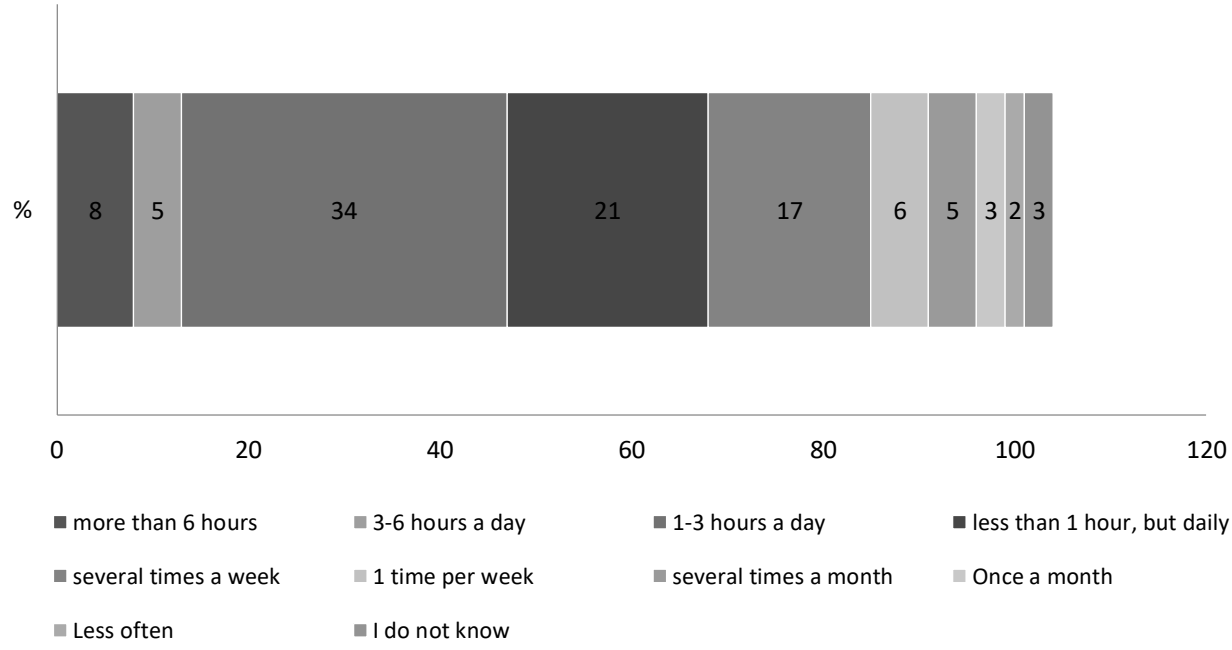

Fig. 2. *Use of mobile Internet by users of mobile communication in Ukraine*

This number is increasing with every coming day. The information world is embracing all the segments of the population.

Below is a list of TOP-20 Internet users states, most of them are the Asian countries (Table 2).

According to the Internet World Stats, on June 30, 2017 in Ukraine, 52.5 % of the people are Internet users (23 million). This represents 3.5 % of the total number of users in Europe [16].

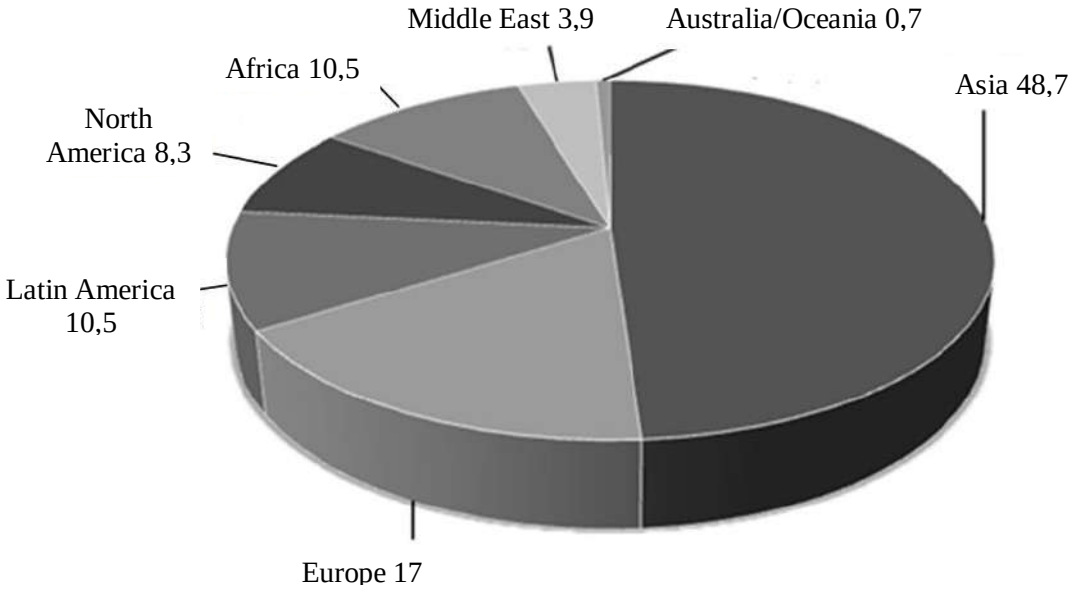

Fig. 3. *Statistics of Internet users in the world according to Internet World Stats as of December 31, 2014 [16]*

Table 1

The number of Internet users in different parts of the world and the world population as of 2018

The regions of the world	World Population (as of 2018)	World population %	Internet users (as of December 31, 2017)	Internet users %
Africa	1,287,914,329	16.9 %	453,329,534	10.9 %
Asia	4,207,588,157	55.1 %	2,023,630,194	48.7 %
Europe	827,650,849	10.8 %	704,833,752	17.0 %
Latin America	652,047,996	8.5 %	437,001,277	10.5 %
Middle east	254,438,981	3.3 %	164,037,259	3.9 %
North America	363,844,662	4.8 %	345,660,847	8.3 %
Australia / Oceania	41,273,454	0.6 %	28,439,277	0.7 %
Total in the world	7,634,758,428	100.0 %	4,156,932,140	100.0 %

According to statistics, 96 % of children and teenagers use the Internet (Table 3).

There are many possibilities of using information and communication technologies – from self-development of computer programs, creation of web pages in the Internet, distance learning to immersion in the world of the best museum collections, libraries. But the usage of ICT in one direction or another has a different effect on the psychics of people and, first of all, children and adolescents. On the Internet, children and teens look for the necessary information for classes, download music and movies, look through the mail, and communicate with other Internet users. Internet technologies have become a natural component of the

lives of children and modern youth. Computer is not only an entertainment but also a means of communication, self-expression and personal development (Fig. 4).

Table 2

TOP-20 countries of the Internet and world population (according to Internet World Stats, [16] processed)

№	Country	World population (as of 2018)	World population (as of 2000)	Internet users (as of 31 December, 2000)	Internet users (as of December 31, 2000)	Internet growth, %
1	China	1,415,045,928	1,283,198,970	772,000,000	22,500,000	3,331 %
2	India	1,354,051,854	1,053,050,912	462,124,989	5,000,000	9,142 %
3	USA	326,766,748	281,982,778	312,322,257	95,354,000	227 %
4	Brazil	210,867,954	175,287,587	149,057,635	5,000,000	2,881 %
5	Indonesia	266,794,980	211,540,429	143,260,000	2,000,000	7,063 %
6	Japan	127,185,332	127,533,934	118,626,672	47,080,000	152 %
7	Russia	143,964,709	146,396,514	109,552,842	3,100,000	3,434 %
8	Nigeria	195,875,237	122,352,009	98,391,456	200,000	49,095 %
9	Mexico	130,759,074	101,719,673	85,000,000	2,712,400	3,033 %
10	Bangladesh	166,368,149	131,581,243	80,483,000	100,000	80,383 %
11	Germany	82,293,457	81,487,757	79,127,551	24,000,000	229 %
12	Philippines	106,512,074	77,991,569	67,000,000	2,000,000	3,250 %
13	Vietnam	96,491,146	80,285,562	64,000,000	200,000	31,900 %
14	United Kingdom	66,573,504	58,950,848	63,061,419	15,400,000	309 %
15	France	65,233,271	59,608,201	60,421,689	8,500,000	610 %
16	Thailand	69,183,173	62,958,021	57,000,000	2,300,000	2,378 %
17	Iran	82,011,735	66,131,854	56,700,000	250,000	22,580 %
18	Turkey	81,916,871	63,240,121	56,000,000	2,000,000	2,700 %
19	Italy	59,290,969	57,293,721	54,798,299	13,200,000	315 %
20	Egypt	99,375,741	69,905,988	48,211,493	450,000	10,613 %
Countries TOP 20		5,146,561,906	4,312,497,691	2,937,139,302	251,346,400	1,068 %
The rest in the world		2,488,196,522	1,832,509,298	1,219,792,838	109,639,092	1,012 %
Total in the world		7,634,758,428	6,145,006,989	4,156,932,140	360,985,492	1,051 %

Table 3

The activity of using the Internet with children and teens,%

Age	Every day	3 times a week	1 time a week
10–11 ages	10 %	75 %	15 %
12–13 ages	22 %	67 %	11 %
14–15 ages	34 %	54 %	12 %
16–17 ages	65 %	24 %	11 %

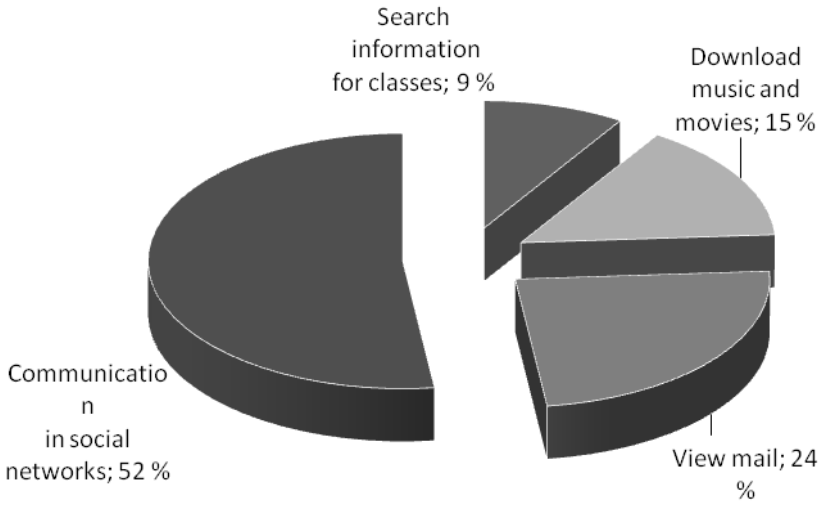

Fig. 4. *Distribution of children and adolescents aged 10–17 in the Internet by the directions of activity %*

Individual exploration of the information environment allows to expand the range of child's interests and contributes to his further education, develops quick-wittedness, teaches to an independent tasks solving. Educational, developing and entertaining Internet resources are aimed at children of all ages. Thanks to them children acquire the basics of writing and counting, learn to draw and model, get used to working independently and get the idea of the surrounding world in the form of entertainment. The tasks of developing programs and games include the improvement of memory, attention, thinking, logic, observation, training of reaction speed, etc. There are many games that at the same time have teaching and educational basis and are capable to evoke interest of school-age children in economics, sociology, history, literature.

The World Wide Web also meets the needs of adolescents in leadership. Children who are good at using the computer and the Internet more adequately evaluate their abilities and capabilities, they are more purposeful and clever [1].

The Internet attracts modern children and youth due to diverse communication, the search for new forms of expression, anonymity and virtual freedom, a sense of community and belonging to the group. Children get familiar with new digital technologies and learn to freely orientate in the information environment. They show increased interest in everything new, and are the most exposed to the external environment [8].

It should be noted that children can not actually assess the level of reliability and security of information in the Internet. At present, more than 60% of children and teenagers communicate daily in the Internet chats. Three out of four children working online are ready to share private information about themselves and their families in the exchange for goods and services. And every fifth child annually becomes the target of malicious users. The availability of Internet resources for minors dictates increased requirements for quality, reliability and security of the informational content in the network [6].

Despite the general rules of the network etiquette, the limits of permissiveness in the Internet space are still quite wide. Violations of social adaptation and insufficient attention from the parents' side make the virtual world the most desirable for children and young people. Giving preferences to the virtual world before the real world has a negative effect on the psychics and health of a child and can worsen not only the

eyesight, posture and sleep, but also cause anxiety, irritability, social maladjustment and dependent behavior.

Only 24 % of adults check the sites visited by their child. Moreover, 87 % of parents believe that they should teach children the rules of the safe Internet usage. Only 11 % of parents are aware of such online threats as «adult» content, gambling, online violence, cybercrime. The researchers of the Institute of Sociology of the National Academy of Sciences of Ukraine have identified serious threats which Ukrainian children can face online. 76 % of parents have no idea what websites their children visit [1; 6]. Parents feel quite easy watching uncontrolled visits of their children in the Internet (Figure 5).

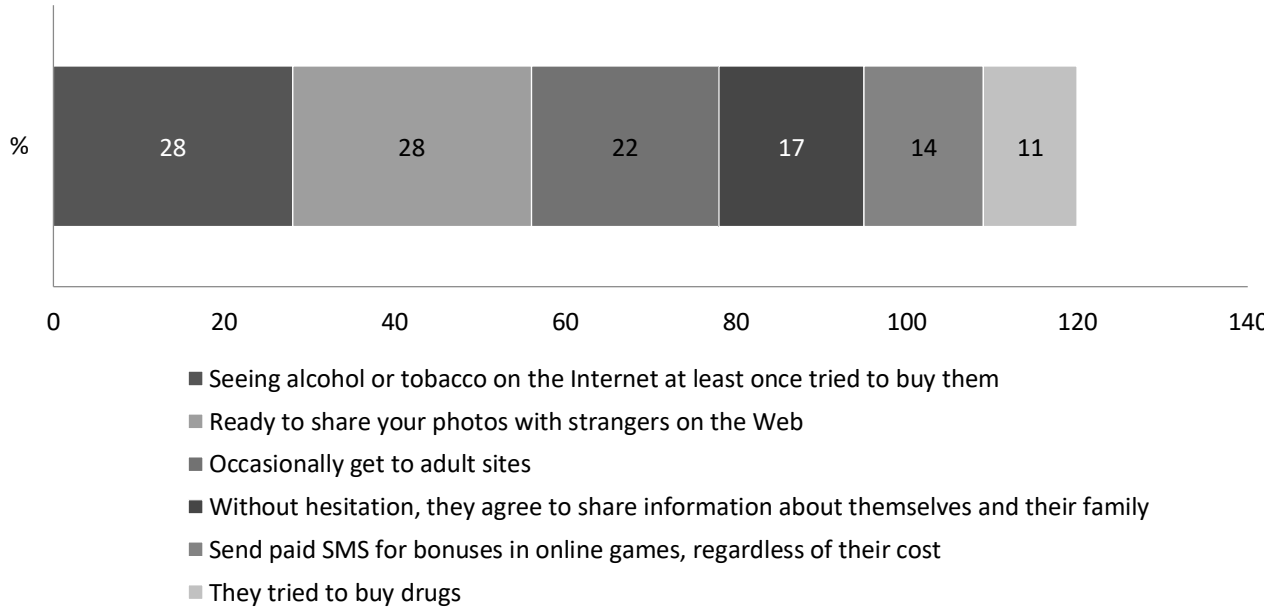

Fig. 5. *The risks and dangers of using the Internet by children and adolescents*

It should also be noted that 79 % of children are convinced that they are sufficiently aware of the risks in the Internet and 67 % reported and informed about the rules of the work in the network. The main informants, according to children, are parents (59 %), friends (37 %), and in the last place – teachers (33 %). Analyzing the results of this research, we can state the insufficient level of informing of the Ukrainian population about the rules of safe work in the Internet. Scientists note the most common threats for children and young people at the present stage of development of information technologies are: computer dependence, the difference between real «I» and its Internet image, access to unwanted content (adult content), Internet fraud, infecting a computer with malware, online violence, etc. [2; 6; 12] (Fig. 6).

Recently, a lot of attention has been paid to this problem abroad.

With the appearance of new technologies, there are new kinds of addiction. American scientist Kimberley Yang distinguishes between five main types of internet-addiction [14]:

1) computer addiction: obsessive passion for the work on the computer (programming, games etc.);

2) net compulsions: compulsive search of the information in the remote data-base;

3) information overload: pathological inclination for the internet mediated gambling, online auctions, web purchasing;

4) cybersexual addiction: dependence on cybersex, in other words, on the porno site sessions, discussing sexual topics in chat rooms or private groups «for adults»;

5) cyber-relational addiction: dependence on communication in the social networks, online forums, chat rooms, group games and teleconferences, that can lead to the substitution of real family members and friends for virtual ones.

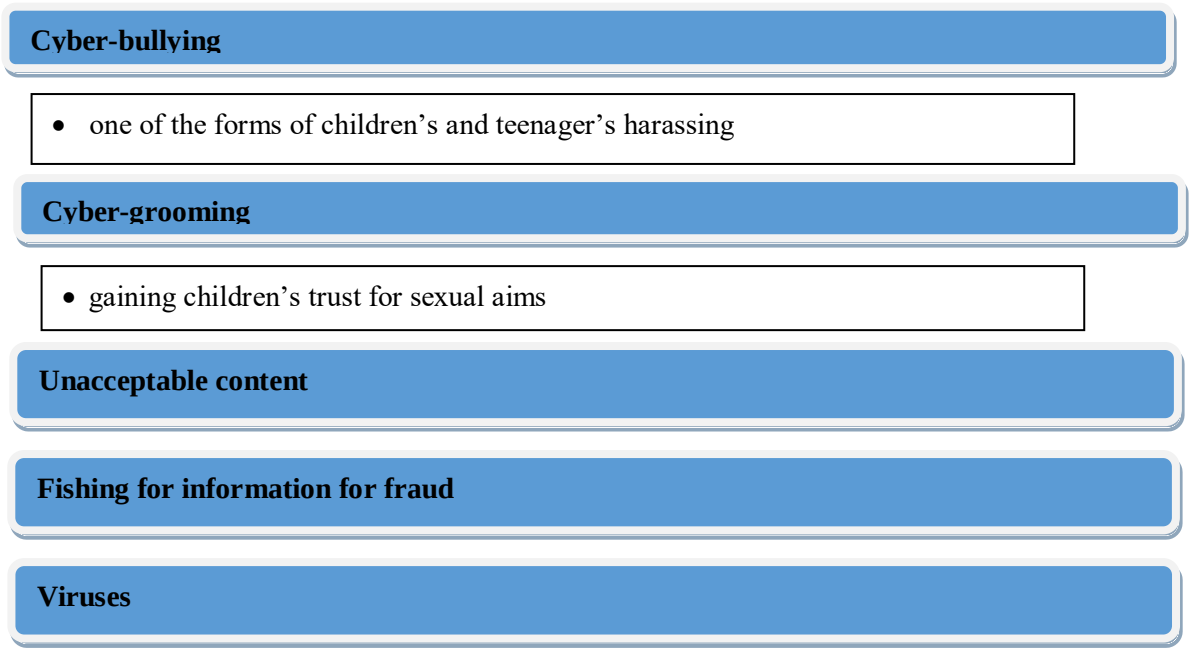

Fig. 6. *Sorts of risks and dangers of using the Internet by children and teenagers*

The world community pays special attention to the issues of children's security, who belong to the most vulnerable category of Internet users. International organizations, state governments, different structures create and support programs, aimed at teaching the competent and safe use of the Internet by children.

Protecting children and young people from negative informational influences is one of the state areas of the Ukrainian state policy in education. The subject of the state policy in the field of the protection of public morality is the creation of the necessary conditions that promote the implementation of the right to information space which is free from materials threatening physical and intellectual development or the moral and psychological state of children and young people [6].

Within the past six months, Internet-connection has increased by 7%. According to statistics, more than a third of users are Ukrainians under the age of 29.

According to the findings of the Ukrainian Institute for Social Research named after Oleksandr Yaremenko with the support of the UNICEF Representative Office in Ukraine and the European Monitoring Center for Drugs and Drug Addiction (EMCDDA) within the framework of the international project ESPAD pursued in 33 countries of Europe, there is a gradual but stable decrease in smoking and drinking in Ukraine among teenagers and young people aged 15-17 [6]. On the one hand, it is a positive tendency; on the other hand, the actualization of more modern types of dependencies, such as Internet addiction, the use of PAS (psychoactive substances – psychotropic agents, drugs), gambling, etc., is observed.

Internet addiction is developing most widely and has a lot of components starting from addiction to social networks up to cybernetic ludomania, which appears in the obsessive capture of video and computer games. Today, scientists [1] highlight the following valid and measurable indicators of the Internet addiction:

- amount of time spent on the Internet;
- ways of spending free time;
- quantity / quality of sleep, its violation because of the network using;
- manifestation of aggression, irritability when it's impossible to use the Internet;
- deterioration of working / educational indicators in connection with the use of the network [1].

Considering that today the Internet is an essential part of the life of a modern person, one needs to be able to form the necessary balance between virtual and real life, which will enable each person to realize himself as a many-sided person in the entire ensemble of human relationships without harm to health.

According to Balakireva O. M. [6] 9.9 % of respondents found a strong Internet addiction, and for 81 % it is a moderate Internet addiction, based on such indicators as the amount of time spent on the Internet, motives for spending time on the Internet, the attitude towards social networks, computer games, Internet

surfing. Nowadays every third young man spends more than four hours on the Internet on a working day. It should be noted that with girls all rates are higher than with boys [6].

Table 4

Typology of Internet-addiction

№ пп	Factor	Criterion	Type of Internet-addiction
1	The amount of time that is spent daily on the net with non-working / non-teaching goals	more than 10 hours daily	absolute
		from 6 to 10 hours daily	strong
		less than 3 hours daily	soft
			deficiency
2	Motives of spending time on the Internet	a way to fight boredom, rest, online games	absolute
			strong
		mainly for the purpose of self-education, search of work, educational information and news	soft
			deficiency
3	Maximum period of time during which the user comfortably gets along without going to the Internet	less than a few hours	absolute
		from few hours to one day	strong
		from a week to a month	soft
		from a few months to an infinitely long time	deficiency
4	The main type of information that comes from the Internet	entertaining, communicative	absolute
			strong
		labour, educational information and news	soft
			deficiency
5	The amount of time everyday spent by the user with friends without using the Internet	less than an hour in a week	absolute
			strong
		from 4 to 7 hours in a week	soft
		7 hours and more in a week	deficiency
6	Main ways to spend free time	exceptionally in the Internet	absolute
			strong
		different types of leisure activities, not connected with Internet	soft
			deficiency

The cybercommunicative addiction is widespread in Ukraine. Thus, according to research, social networks are the first place to visit – 27 % on the whole among young people. The highest rate is 29.8 % for girls, for boys it is lower – 23.9 % [6].

It should also be mentioned that girls are more active in online communication, while boys use computer games more. In our opinion, this division of interests is associated with behavior patterns that are developed in a child by the society from a young age (lego, construction kits are for boys, dolls are for girls, excessive demonstration of emotionality is acceptable for girls, and boys should be more reserved). Therefore, eventually a girl usually shows herself in a communicative interaction, and a boy evinces through a specific action, in this case, an online action in the game. The lack of connection between the need to stay online and the age of the interviewed young people is also a characteristic feature.

Excessive stay in the virtual world separates a person from the real world, leads to a constantly high level of anxiety, emotional alienation, difficulties with concentration of attention (Fig. 7).

Dipping in the network can cause sleep violations and disturbance of nutrition. American psychiatrist Ivan Goldberg admitted it in 1995 and assured that overusing of the Internet caused depression, stress, aggression [3]. Children who sit for a long time in front of the computer don't want to move. They complain about a pain in their legs. That's true, because a sedentary lifestyle means insignificant physical activity which evokes infraction in function of muscles as well as vessels [2; 8]. The lifestyle of the modern youth can be called sedentary and it is becoming habitual, necessary, comfortable despite the negative influence on health. Pupils and students have been sitting in front of computers for 9,5 hours (in the academic institutions, preparing for lessons, chatting or playing computer games) which can cause the addiction to hypokinesis.

Nowadays it is known that children's and teenager's addiction to the virtual space is a reason for delay of social and emotional development. As the consequence of such an influence we will get a society which won't cooperate, discuss, see the world from the other people's perspective.

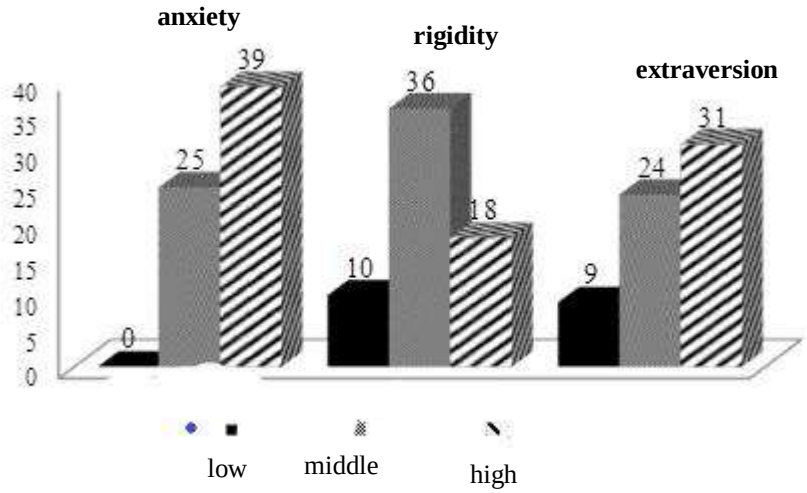

Fig.7. *The level of anxiety, rigidity and extraversion of Internet users*

In order to forecast the further trends of this addiction it will be enough to study the experience of the countries which are much better than Ukraine in informational and technological sphere. For example, Polihaeva D. pointed out that in Japan after the technological progress such problem as «hikikomori» had emerged [10] (literally means «staying alone», «heavy social self-isolation»). This Japanese notion denotes people who refuse from social life and in most cases strive for the highest level of social isolation and loneliness for different personal and social reasons. Mainly, these are 15-years old boys from rich families who skip classes and sit in front of the computer screen for months and years avoiding contacts with the outside world. At the beginning of the career Japanese psychiatrist was shocked by the number of young Japanese people who have such a lifestyle. There are more than a million of them in Japan where the population is 127 million [10].

Special attention should be granted to a new kind of Japanese Internet cafes which have existed for approximately 10 years and have become more popular since the previous century [9]. They can be compared with dormitories with small rooms which have common space, bathrooms, washing rooms and an automatic machine with free drinks. Prices which are low for the Japanese are the main attraction for customers and citizens [9; 10]. According to the data presented by the Ministry of Health, Labour and Welfare of Japan 60 900 people stayed for a night in the Internet cafes regularly and at the same time 5 400 people were living there because they didn't have their own houses [10]. The market is rapidly growing and developing, so only in Tokyo there are more than 10 permanent inhabitants of these cafes, their number has doubled over 3 year's period.

There is no information about Internet psychosis in Ukraine. Most cases are hidden cases of addiction. For example, in the Netherlands there are 10 000 junkies and 40 000 internet-addicted persons. There is one junkie in every four internet-addicted ones. If such a proportion was in Ukraine it would be dangerous [6].

In modern society it is necessary to follow some rules of informational hygiene and sparing our own time, to have analysis and research skills to get the necessary information for solving some tasks.

Conclusions and prospects for further research. All kinds of addiction are a symptom that a society is becoming technogenic and informational. Information impact which causes computer and Internet addiction constitutes the biggest danger for mental health.

The results of the conducted research have testified that in Ukraine the information and communication technologies including various Internet services are widely used. The problem of the Internet addiction is becoming more and more urgent both in our country and abroad. The number of the Internet addicted is increasing because of the present conditions and spreading information and communication technologies as well as the Internet development.

The scholars warn about the danger of the Internet for population, especially for children and youth, and necessity to focus on following the standards of information hygiene which can protect from the negative influence of information and communication technologies on a person and provide physical and mental health care.

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THE CONTENTS OF THE FITNESS PROGRAM OF THE FORCE ORIENTATION DEPENDING ON THE INDIVIDUAL FEATURES OF THE STUDENTS BODY STRUCTURE

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Abstracts

The Relevance of the Research. Despite the myriad of innovations in the system of physical education in higher education, in practice the existing physical education programs are somewhat outdated and full of sports, which are poorly popular among students, oriented towards professional or military- applied and physical training, delivery of control standards that require a certain level of physical training, rather than focusing on the correction of the physical condition of youth and the identification and elimination of the disadvantages of the existing system of physical education, taking into account the interest and motivating students. Interesting is the fact that the number of hours for this training is not provided for by the program, and most of the higher educational institutions in our country deviate from the classical system of physical education. Therefore, in our opinion, it is expedient to use sports, taking into account, in the first place, the interest and motivation of youth, which will provide a high level of moral satisfaction from occupations.

An effective mean of attracting students to systematic motor activity is the implementation of new, non-traditional physical exercises. Fitness is a great potential for physically improving of the students. ***The aim of the Research*** is to develop the content of the fitness programs of the force orientation depending on the individual features of the students body structure. ***The Results of the Work.*** It is established that the basis of fitness is the fitness program, which is characterized by a set of specially selected physical exercises aimed at a comprehensive or selective effects on body systems or parts of the body, depending on the morphological and functional individual abilities. The program should be clearly defined type (or direction) of motor activity or a combination of exercises, intensity of exercises, exercises duration, rest peculiarities, the number of classes a week, the rate of increase in load during the week or the month. Implementation of the power exercises provided for the use of different movements, not only with encumbrances, but also on special simulators and the own weight. ***Conclusions.*** For the students with an asthenic body structure the exercises power orientation to increase body weigh, circumference of the body, improvement of the indicators of muscle tone were recommended. Students of the giperstenic structure of the body performed exercises for reducing body mass, the circles of body parts and the fat component. Physical loads of the normostenic body type representatives directed at improving muscle tone, decreased growth rates of the body weight and reducing of the circumference of the pelvis.

Key words: students, fitness programs, strength, body structure.

Людмила Ващук, Василь Пантік. Зміст фітнес-програми силової спрямованості залежно від індивідуальних особливостей будови тіла студентів. ***Актуальність дослідження.*** Незважаючи на значну кількість новацій у системі фізичного виховання вищої школи, на практиці чинні програми з фізичного виховання дещо застарілі та наповнені видами спорту, які користуються низькою популярністю в студентської молоді, орієнтовані на професійно- або військово- прикладну й фізичну підготовку, складання контрольних

нормативів, які вимагають певного рівня фізичної підготовки, а не спрямовані на корекцію фізичного стану молоді та виявлення й усунення недоліків чинної системи фізичного виховання з урахуванням інтересу та мотивації студентської молоді. Цікавим є й той факт, що кількість годин для цієї підготовки не передбачено програмою, а більшість ВНЗ у нашій державі відходять від класичної системи фізичного виховання. Тому, на нашу думку, доцільне використання видів спорту з урахуванням, передусім, інтересу та мотивації молоді, які забезпечать високий рівень морального задоволення від занять.

Ефективним засобом залучення студентів до систематичної рухової активності є виконання нових, нетрадиційних фізичних вправ. Великі потенційні можливості для фізичного вдосконалення студентів має фітнес. ***Мета дослідження*** – розробити зміст фітнес-програм силової спрямованості залежно від індивідуальних особливостей будови тіла студентів. ***Результати роботи.*** Установлено, що в основі занять фітнесом лежить фітнес-програма, для якої характерна сукупність спеціально підібраних фізичних вправ, спрямованих на комплексну або вибіркову дію на системи організму чи окремі частини тіла залежно від морфофункціональних можливостей людини. У програмі потрібно чітко визначити вид (або спрямованість) рухової активності чи поєднання вправ, інтенсивність занять, тривалість вправ, характер відпочинку, кількість занять на тиждень, темпи збільшення навантаження протягом тижня або місяця. Виконання силових вправ передбачало використання різних рухів не лише з обтяженнями, але й на спеціальних тренажерах і власною вагою. ***Висновки.*** Для студентів астенічної будови тіла рекомендовано вправи силової спрямованості для збільшення маси тіла, окружностей частин тіла, покращення показників тонусу м'язів. Студенти гіперстенічної будови тіла виконували вправи на зниження маси тіла, зменшення окружностей частин, зменшення жирового компонента. Фізичні навантаження представникам нормостенічного типу статури спрямовували на поліпшення тонусу м'язів, зниження темпів приросту маси тіла та зменшення окружності таза.

Ключові слова: студенти, фітнес-програми, сила, будова тіла.

Людмила Ващук, Василий Пантик. Содержание фитнес-программы силовой направленности в зависимости от индивидуальных особенностей строения тела студентов. ***Актуальность исследования***. Несмотря на значительное количество новаций в системе физического воспитания высшей школы, на практике действующие программы по физическому воспитанию несколько устарели и наполненные видами спорта, которые пользуются низкой популярностью у студенческой молодежи, ориентированные на профессионально- или военно-прикладную и физическую подготовку, сдачу контрольных нормативов, которые требуют определенного уровня физической подготовки, а не направлены на коррекцию физического состояния молодежи, а не на выявление и устранение недостатков существующей системы физического воспитания с учетом интереса и мотивации студенческой молодежи. Интересен и тот факт, что количество часов для этой подготовки не предусмотрено программой, а большинство вузов в нашей стране отходят от классической системы физического воспитания. Поэтому, по нашему мнению, целесообразно использование видов спорта с учетом, в первую очередь, интереса и мотивации молодежи, которые обеспечат высокий уровень морального удовлетворения от занятий.

Эффективным средством привлечения студентов к систематической двигательной активности является выполнение новых, нетрадиционных физических упражнений. Большие потенциальные возможности для физического совершенствования студентов имеет фитнес. ***Цель исследования*** – разработать содержание фитнес- программы силовой направленности в зависимости от индивидуальных особенностей строения тела студентов. ***Результаты работы***. Установлено, что в основе занятий фитнесом лежит фитнес-программа, для которой характерна совокупность специально подобранных физических упражнений, направленных на комплексное или избирательное влияние на системы организма или отдельные части тела в зависимости в морфофункциональных возможностей человека. В программе необходимо определить вид (или направленность) двигательной активности или сочетание упражнений, интенсивность занятий, длительность упражнений, характер отдыха, количество занятий в неделю, темпы роста нагрузок в неделю или месяц. Выполнение силовых упражнений предусматривало использование различных движений не только с отягощениями, но и на специальных тренажерах и собственным весом. ***Выводы.*** Для студентов астенического строения тела рекомендованы упражнения силовой направленности для увеличения массы тела, окружностей частей тела, улучшение показателей тонуса мышц. Студенты гиперстенического телосложения выполняли упражнения для снижение массы тела, уменьшение окружностей частей, уменьшение жирового компонента. Физические нагрузки представителям нормостенического типа телосложения направляли на улучшение тонуса мышц, снижение темпов прироста массы тела и уменьшение окружности таза.

Ключевые слова: студенты, фитнес-программы, сила, строение тела.

Introduction. In educational institutions physical culture is aimed at mastering the basic knowledge, the formation of motor skills and abilities, the development of physical qualities and the health of students [2; 12]. In recent years, many studies have been conducted and devoted to the improvement of the content and methods of physical education of students [1; 3; 8; 13; 18; 20; 21; 22]. Covering various forms of motor activity, fitness satisfies the needs of different social and age groups in health activities due to the diversity of fitness programs, their availability and emotionality [4; 6; 7; 14; 19; 23]. The results of the studies allowed to state that the basis of fitness is the fitness program, which is characterized by a set of specially selected physical exercises, aimed at the complex or selective action on the organism or individual parts of the body, depending on the morphofunctional capabilities of a human. Scientists note that the optimal health effect doesn't give any physical activity, but only those that meet the individual features of the human body [5; 10: 11; 15; 16; 17]. So to boost the effectiveness of physical activity it is necessary to apply new directions and technologies based on morphofunctional features of youth and realize their motivation in a best way.

The purpose of the study is to develop the content of fitness programs of the strength orientation depending on the individual features of the students body structure.

Material and organization of research. To achieve the established goal the following research methods are used: theoretical (analysis of psycho-pedagogical literature, comparison and generalization of information), empirical (pedagogical observation, pedagogical experiment), statistic. In the process of scientific work data of pedagogical experiment was analyzed and summarized, basic requirements for fitness programs of strength orientation were formed, results of the study were tested. The experimental research base of the study was the Eastearn-European National University named after Lesya Ukrainka. Altogether 1160 students from 1–4 courses of full-time education of the main medical group (323 boys and 837 girls) participated in pedagogical research. We received the informed consent from all participants to participate in this experiment.

Research results. Health way of fitness is a balanced program of motor activity of an individual character, built on the basis of physical culture, recreation and sports interests of people of different sex and age. A set of specialized exercises of selective direction is used in health fitness in order to form proportional structure of the body, development of physical qualities and increase of functional abilities level of the body. The main feature of building classes of health fitness was in the sequential combination of the work of the strength character with various exercises of aerobic orientation, as well as stretching.

Considering age, state of health, level of physical development, motivation of students, fitness programs based on health-improving types of gymnastics were used. When developing the content of individual fitness programs for independent classes are divided into seven target blocks:

- preparatory (functional preparation of the body for physical activity);
- aerobic (increased ability of the cardiovascular and respiratory systems of the body);
- dance-choreographic (development of coordination qualities, formation of aesthetic and musical-rhythmic abilities);
- corrective (correction of the structure of the body by means of strength physical exercises);
- preventive (prevention of posture disorders and increased resistance of organism to a variety of diseases);
- general development (development of dexterity, flexibility, speed);
- relaxation (restoration after classes, removal of fatigue and relaxation).

The preparatory part is aimed at organizing students, activating their attention, preparation of an organism for physical loadings. The main place in the preparatory part is the functional preparation of the body to the motor activities. This will be achieved by implementing a complex of all-development exercises, where there is a shifting effect on the main muscle groups, gradual increase in physical activity.

The physical exercises used in the preparatory part are conventionally divided into two parts: the first one is connected with the activation of the body's systems (respiration, blood circulation, metabolic processes); the second - with the strengthening of the functional activities of those organs that will provide

motor activity in the following physical exercises. Therefore, the first part of the complex was relatively constant, as well the second one was selected for each lesson, based on its main tasks.

The aerobic part of fitness classes was made with all-developing gymnastics exercises, walking and running. Physical exercises performed with musical accompaniment without a pause of passive rest, stimulate the activity of cardiovascular and respiratory systems, contributed to the improvement of physical fitness.

In cyclic exercises, as a rule, a method with constant intensity were used. The load belonged to the intensity zone and was aimed at the development of overall endurance.

An important role in fitness programs was dance-choreographic block that included elements of choreography, classical, folk, modern dance, rhythmic gymnastics and other exercises for musical accompaniment. Depending on the choice of physical exercises and dosing loads, dance classes were mostly athletic, psycho-regulative or mixed nature. During physical exercises, body position often changes in space, there are various accelerations that are a training factor for vestibular apparatus.

Performing developmental exercises significantly affect the increase in the force of balance and mobility of the main nervous processes excitation and inhibition, which contributed to the improvement of the regulation of functions the body.

Intensive dancing is a great way of cardio-building and development coordination of movements. Dancing aerobics classes make it possible learn to move beautifully, dance, get rid of many complexes and feel confident and comfortable in any society.

To perform physical exercises on their own during the formation of the skills, attention was payed to the following points: they offered exercises for independent performance only after they were mastered in the class; to the consciousness of the students was brought to the attention that to achieve significant results, they can only provide long and persistent training; gradually, with the help of various stimulating techniques, transfered the students from the orientation towards the result to the orientation of the process of activity; they incited them to take care not only to achieve a specific goal, but also for a positive mood. To perform physical exercises independently with the aim of improving or developing physical qualities, the students were acquainted with the methods of controlling their actions and assessing the correctness of their implementation.

It was offered on a basis of comparison and analysis of their own muscle feelings, to determine the difference in the effectiveness of the impact of a particular physical exercise (when changing its variants implementation). For example, bending and extension of the hands in the emphasis lying with hands in different attempts, at different widths, with different positions of the brush, with hanging legs at different heights, with different angles of bending in the hip. Students were involved in the independent selection of exercises, definitions the optimal number of repetitions. Finding physical exercises was clearly defined their orientation, duration of performance and availability. Realization of physical exercises were directed at the development of physical qualities, strengthening of the basic muscle groups, formation of the correct posture.

For the development of physical qualities, a reusable method of training was used.

The effectiveness of this method was that aerobic and anaerobic levels of general and special endurance increased, monotony was eliminated during performing the exercises. Rest between exercises was mainly active with the use of breathing exercises. For the students who had a higher level of physical fitness, the interval method with loads relatively of high and low intensities was used. For repeated and interval training methods of performing exercises is characteristic re-serial method, at which are short recreation intervals between repetitions in the series alternated with longer ones between series.

This method was aimed at the development, mainly of power and speed-power qualities. The relaxation part of the class is characterized by a gradual decrease in the functional activity of the students body. The more significant were functional changes in the process of studies, to a greater extent that the final part must have a restorative orientation. For the final part of the sessions easily accessible exercises were selected: slow running walking, muscle relaxation exercises, dance compositions. The five main components of the fitness program were the type of training, the number of lessons per week, the intensity and the duration of

each lesson, the duration and nature of the rest, the expected result taking into account the formation of healthcare-saving competence.

Discussion. In order to solve tasks of correction of body structure, reduction or increase of mass and circles of body parts, fitness programs of strength direction are offered. The doing of strength exercises was provided by the use of different movements (bench, weights, breeding) not only with burdens (rod, weights, dumbbells), but also on special simulators and their own weight.

Complexes of physical exercises were made for the development of the main muscle groups in a view of the problem areas of the body (buttocks, thighs, belly). In the course of studies. the optimal sequence of power exercises was as follows: abdominal muscles, hip muscles, muscles of the back and arms. The list of recommended exercises includes the breathing exercises and exercises to maintain a static posture, where special attention is paid to correct posture. Corrective fitness programs, as a rule, have the following structure: cardio work (3–5 min); mobility of joints and ligaments, stretching (stretching exercises); cardiomotor (5–10 min) with gradual increase to 30 min. The encumbrances were selected so that two final repetitions were carried out with considerable effort. The first week of training is the preparation of muscles for the main load, of course, that you need to take exercises for all muscle groups. The average duration of this period is 20 minutes. The second week of training is a rushing lesson, which can last an average of 30–40 minutes.

The scientific research [9; 12] proved to be one of the most characteristic signs of physical development of a person is the structure of the body. Deviations of structural indicators body of optimal magnitude negatively affect both physical and mental status of youth. Therefore when developing a fitness program, you took into account the type of body structure (asthenic, gipeptenic, normosthenic). According to research results it was found that 22% of students have asthenic structure of the body, 19 hypertensives and 59 normosthenic

For the students of asthenic structure of the body, which is characterized by thinness, higher height than average, narrow shoulders, thin limbs, body mass deficiency the strength exercises to increase body weight, circles of the body parts (shoulder, chest, pelvis, thigh), the improvement of muscle tone rates were recommended. Fitness program for representatives of this group is intended to change the tone of the main muscle group. Students of the hypersthenic structure of the body mostly had a massive body, medium height, bulky shoulders, shortened limbs, excess of body weight. Therefore, the performing of physical exercises was aimed at reducing body weight, reducing the circles of body parts (shoulder, chest, abdomen, pelvis, thighs), reducing the fat component.

Students of normosthenic type of structure of the body have relatively proportional structure of the body. Therefore, physical activity was aimed at improving the tone muscle, decreasing the body mass and decreasing pelvic circumference.

Due to the peculiarities of the physical conditions of the students belonging to different groups we have developed a dosage of strength loads in accordance with this.

Table 1

Dosage of loads for students of different body structure

Body structure	Load size (maximum number of repetitions), times	Number of repetitions, times	Duration of rest between sets, min	Tempo
Asthenic	8–12	5–6	1,5–3,0	Slow, medium
Hypersthenic	15–25	3–4	0,63–1,0	Fast
Normosthenic	8–12	4–5	1,0–2,0	Medium

To increase the muscular strength of the students of the first group it is recommended to perform athletic exercises in 5–6 approaches. Each exercise is repeated 8–12 times, duration of rest between series – 1,5–3,0min. Exercises are performed in slow and average pace (regime of muscle mass increase). The method of force development for representatives of the second group is somewhat different: the number of approaches is reduced to 3–4 times, and the number of repetitions increases by 15–25 times. Exercise is recommended to do with slow pace with breaks between 40–60 s approaches (dimming mode of fatty tissue).

Students of the third group are encouraged to perform exercises at 4–5 approaches with load magnitude 8–12 times and duration of rest 1.0–2.0 min. The pace of performance is average.

During the exercises, attention was focused on the correct breath. Breathing exercises were divided into static (not combined with movements limbs and trunk) and dynamic (when the breathing combines with different movements).

Both can be done from different starting positions (standing, sitting, lying down).

Conclusions and perspectives of further research. Effective means of attracting students to systematic motor activity is a performance of new, unconventional physical exercises. Great potential for physical improvement of students has fitness. A fitness program is at the heart of fitness, which is characterized by a collection of specially selected physical exercises aimed at a complex or selective action on the systems of the body or individual parts of the body depending on the morphofunctional human capabilities.

To solve tasks of body structure correction, reduction or increase of masses and body parts in the circumference fitness programs of the force direction are offered. Exercises involve the use of different movements not only with encumbrances, but also on special simulators and by their own weight.

For the students of asthenic structure of the body recommended force exercises to increase body weight, the circumference of body parts, improvement of muscle tone indicators. Students of hypersthenic structure of the body performed exercises to reduce body mass, to reduce the circles of the parts, reduce the fat component. Physical load on representatives of normostenic type were aimed at improving the muscle tone, reducing the body weight and a decrease in the pelvic circumference.

In further research it is advisable to focus the attention on the methodology of the development of individual fitness programs for the students of special medical groups.

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INTEGRATION OF MUSIC AND OUTDOOR GAMES IN CHILDREN AGED 3–7 YEARS

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Abstracts

The combination of music with human activity has a thousand-year history. For example, in ancient Greece, dance was considered the best factor in the formation of a harmonious body structure and the improvement of movements of children and yang people. However, the role of music in learning movements was assessed only subsequent historical periods. In contemporary literature on the theory and methodology of physical education, the use of music during mobile games with children of preschool and the relationships of musical art with physical culture is not disclosed enough. ***Objectives of the Study.*** Analyse the effectiveness of integrating the use of music in the process of running games witch children pf preschool. ***Results of Work.*** Properly selected mobile games actives influence the development of the body of preschoolers. The diverse movements and playful actions of children's during the game, with skillful guidance, positively affect the cardiovascular, respiratory and other systems of the body, stimulate appetite and promote a strong baby's sleep. Moving games satisfy the need of the growing body of the child in motion? Contribute to the enrichment of its motor experience. With the help of games in preschoolers. Various skills and abilities of the main movements (walking, running, jumping, equilibrium, etc.) are fixed and improved. A quick change of circumstances during the game teaches the child to use their movements in accordance with one or another situation. All of this positively the improvements of motor skills. Pedagogical experience and special scientific researches show that mobile games have a significant influence on the education of moral-volitional qualities in preschoolers. Their actions are subject to the rules of the game. The rules regulate behavior, promote the education of conscious discipline, teach to the responsible for specific actions, develop a sense of sociability. In collective games the child develops the notion of norms of civic behavior, organizational skills are developed, the desire for victory, strong, will, stability and endurance are raised. ***Conclusions.*** Moving games for music will be useful to children only when the development of the plot the game, its character and movements of the participants correspond to the content and nature of music and nature of music and the means of expression.

Key words: movement, game, physical education, child, music.

Анастасія Вільчковська. Застосування музики в ігровій діяльності дітей дошкільного віку. Поєднання музики з руховою діяльністю людини має тисячолітню історію. Наприклад, у стародавній Греції танець уважався найкращим чинником формування гармонійної тілобудови й удосконалення рухів дітей та молоді. Однак роль музики в навчанні рухів оцінена лише в наступні історичні періоди. У сучасній літературі з теорії та методики фізичного виховання застосування музики під час проведення рухливих ігор із дітьми дошкільного віку та взаємозв'язок музичного мистецтва з фізичною культурою розкрито недостатньо. ***Завдання роботи*** – проаналізувати ефективність інтеграції застосування музики в процесі проведення рухливих ігор із дітьми дошкільного віку. ***Результати роботи.*** Правильно підібрані рухливі ігри активно впливають на розвиток організму дошкільників. Різноманітні рухи та ігрові дії дітей під час гри при вмілому керівництві ними позитивно впливають на серцево-судину, дихальну й інші системи організму збуджують апетит і сприяють міцному сну дитини. Рухливі ігри задовольняють потребу ростучого організму дитини в русі, сприяють збагаченню її рухового досвіду. За допомогою ігор у дошкільнят закріплюються та вдосконалюються різноманітні вміння й навички з основних рухів (ходьби, бігу, стрибків, рівноваги тощо). Швидка зміна обставин під час гри привчає дитину користуватися своїми рухами відповідно до тієї або іншої ситуації. Усе це позитивно впливає на вдосконалення рухових навичок. Педагогічний досвід і спеціальні наукові дослідження показують, що рухливі ігри мають значний вплив на виховання морально-вольових якостей у дошкільників. Свої дії учасники гри підпорядковують її правилам. Правила регулюють поведінку, сприяють вихованню свідомої дисципліни, привчають відповідати за конкретні вчинки, розвивають почуття товариськості. У колективних іграх у дитини формується поняття про норми громадянської поведінки, виробляються організаційні навички, виховується прагнення до перемоги, сильна воля, стійкість, витримка. ***Висновки.*** Рухливі ігри під музику будуть корисними для дітей лише тоді, коли розвиток сюжету гри, її характер та рухи учасників

відповідають змісту й характеру музики та засобам її вираження. Для кожної гри важливо знайти відповідний музичний супровід. Не можна довільно змінювати темп музики, підганяючи його під рухи дітей тощо. Це порушує характер музики, негативно впливає на її правильне сприйняття дітьми дошкільного віку.

Ключові слова: рух, гра, фізичне виховання, дитина, музика.

Анастасия Вильчковская. Интеграция музыки и подвижных игр у детей в возрасте 3–7 лет. Объединение музыки с двигательной деятельностью человека имеет тысячелетнею историю. Например, в древней Греции танец считался лучшим фактором гармонического тела и совершенствования движений у детей и молодежи. Однако роль музыки в обучении движений была оценена только в последующих исторических периодах. В современной литературе с теории и методики физического воспитания применение музыки двигательных игр с детьми дошкольного возраста, а также взаимосвязь музыкального искусства с физической культурой раскрыто недостаточно. ***Задача исследования*** – проанализировать эффективность интеграции использования музыки в процессе проведения подвижных игр с детьми дошкольного возраста. ***Результаты исследования.*** Правильно подобранные подвижные игры активно влияют на развитие организма дошкольников. Разнообразные движения и игровые действия детей во время игры при умелом руководстве ими позитивно влияют на сердечно-сосудистую, дыхательную и другие системы организма, пробуждают аппетит и способствуют спокойному сну ребенка. Подвижные игры успокаивают потребности растущего организма детей в движении, способствуют расширению их двигательного опыта. Благодаря играм, у дошкольников укрепляются и совершенствуются разнообразные умения и навыки с основных движений (ходьба, бег, прыжки, равновесие и др.). Быстрая смена обстоятельств во время игры учит детей использовать свои движения соответственно к той или иной ситуации. Все это позитивно влияет на совершенствование двигательных навыков. Педагогический опыт и специальные исследования убеждают, что двигательные игры имеют существенное влияние на воспитание морально-волевых качеств у дошкольников. Свои действия участники игры подчиняют ее правилам. Правила регулируют поведение, способствуют воспитанию сознательной дисциплины, приучают ответственности за свои поступки, развивают чувство коллективизма. В коллективных играх у детей формируются понятия о гражданских нормах поведения, вырабатываются организационные навыки, воспитываются стремление к победе, сильная воля, стойкость, выдержка. ***Выводы.*** Подвижные игры под музыку будут полезными для детей только тогда, когда развитие сюжета игры, ее характер и движения соотвествуют содержанию и характеру музыки и средствам ее выражения. Для каждой игры важно найти соответствующее музыкальное сопровождение. Нельзя довольно менять ритм музыки, подгонять его во время движений детей, делать купии и др. Это нарушает характер музыки, негативно влияет на ее правильное восприятие детьми дошкольного возраста.

Ключевые слова: движение, игра, физическое воспитание, ребенок, музыка.

Introduction. The combination of music with human activity has a thousand year history. For example, in ancient Greece, the dance was considered to be the best factor in the formation of a harmonious body shape and the improvement of movements of children and youth. However, the role of music in learning movements was assessed only in following historical periods. This happened after the publication of the German scientist J. Guts Muths' works in the 18th century, in which he substantiated the expediency of musical accompaniment during the performance of gymnastic students (for general development) exercises. In the 50s of 20th century his followers A. Space and H. Lind developed their teacher's views on a wider use of musical accompaniment when children performed various physical exercises and while playing games with them.

The famous Swiss composer and teacher Emile Jaques-Dalcroze in the early 20th century scientifically substantiated and tested by many years of practice the popular in different countries of the world concept of integrating music and movements. He can be called the founder of rhythmic gymnastics, main goals of which is to form children's ability to listen and reproduce music in actions. An important aspect of the combination of music and motor activity is the interpretation of musical works in which motion is its reflection: the rhythm, dynamics of articulation, melodies, texture and form. The purpose of motor interpretation is the expression of the child's experiences that were caused by a musical work by means of emotional movements.

A talented American dancer Isadora Duncan played a significant role in the developing technology of mixing music and movements for comprehensive development of children. She presented an innovative modern dance for society that captured thousands of people with its dynamism, energy, peculiar beauty and ability of motive improvisation to music. She believed that it's necessary to develop the child physically first of all, while teaching choreography, to teach the children of relaxed and graceful movements, to let

them grow strong and smart, only then their bodies will become the instruments that can express personal emotional feelings by motive actions.

The English choreographer and educator R. Laban developed a system of expressive gymnastics in the 20's of 20th century, which quickly became popular in the countries of Western Europe. This system was directed on the integration of movements, music and rhythm. The means of physical expression that he had offered (basic movements, gymnastic and dance exercises, games, folk dances, etc.) are accessible and interesting for children. They provide an opportunity to significant increase of their interest in their implementation and to comprehensive influence on the development of physical qualities and improvement of preschoolers physical activity.

An innovative system of music-physical performances and methodology for its realization which was created by the German composer and educator C. Orff became widespread in different countries of the world in the 50s of the 20th century. It was offered to children of preschool and junior school age. This system took into account the psychological and physical characteristics of their body, in particular the high propensity for imitation and improvisation (in music and physical activity). A characteristic feature of C. Orff's technique is to limit those movements that children perform only by instruction or by a teacher's order. According to his opinion, the creative movement that the child performs on his or her own will and in accordance with personal readiness should have the advantage. Music is an important means of stimulating the movement of children and deepening motivation for their physical activity. It involves the child in personal physical activity with a partner or in a group in a creative way, and this is most specific for mobile games. C. Orff outlines several basic principles that teachers must rely on to integrate music and physical activity of children: comprehensive development, alternation of loading and rest, creativity, and gradual increase in the requirements for the implementation of children's movements.

Active games are one of the important means of physical education for preschool children. They contribute to the formation and improvement of vital movements, comprehensive physical development and strengthening of health of the child, the education of positive moral and volitional qualities. Analyzing the pedagogical value of the game S. Rusova believes that the game satisfies the best requirement of childhood in activity and in various movements. Thanks to the games the child's body becomes flexible, and it develops plasticity and coordination of movements, etc. Games are making the whole body healthy and it gains its strength.

The usage of music during mobile games with the children of preschool age and the connection of musical art with the physical culture is not discovered enough. in modern literature on theory and methodology of physical education

Therefore, **the purpose** of our study is to determine the role of music in the play activity of preschool children, in particular - during mobile games.

Research methods. Study of literary sources in pedagogy and psychology, pedagogical observations.

Research results. Properly selected mobile games actively influence the psychophysical development and strengthening of the preschoolers body. Different movements and playful actions of children during the game, with skillful guidance, positively affect the cardiovascular, respiratory and other systems of the body, stimulate appetite and promote a strong child's sleep.

Active games satisfy the need of the growing body of the child in motion, contribute to the enrichment of its physical experience. With the help of games the preschoolers form and improve various skills and abilities of the main movements (walking, running, jumping, equilibrium, etc.). A quick change of circumstances during the game teaches the child to use their movements in accordance with one or another situation. This positively affects the improvement of physical skills.

Pedagogical experience and special scientific researches (O. Boginich, A. Volchinsky, N. Denisenko, N.Kit, O.Kurok, L.Svarkovskaya, etc.) show that mobile games have a significant influence on the education of moral-volitional qualities of preschoolers. They are making actions according to the rules of the game. The rules regulate the behavior of children, promote the education of conscious discipline, teach them to be responsible for specific actions, develop a sense of sociability. In collective games a child develops the notion of norms of civic behavior, organizational skills are developed, the desire for victory, strong will, stability, and endurance are brought up.

Famous teacher Peter Franzevich Lesgaft wrote that the task of physical education is to teach children «to treat their movements consciously.» He highly evaluated the importance of games, and emphasized in his works that during the game the unity of the physical and mental development of the child is realized. He

gave a special role to moving games with rules. Adherence to the rules brings up preschoolers honesty, determination, courage, culture of behavior in the team, ability to manage and regulate their movements, to show independence and initiative. Each game should have a certain goal, and the organization of the game must meet this goal, said P.F.Lesgaft. Physical actions during the game must correspond to the skills of children, and the game itself must cause a «feeling of pleasure»

Moving games effectively affect the mental development of the child, help to clarify the notion of the surrounding world, different phenomena of nature, broaden its outlook. By exercising various roles, immitating the actions of birds, animals, insects, children use in practice the acquired knowledge about life, behavior, ways of moving these animals, etc.

Games are widely used as a means of aesthetic education because children reflect the surrounding world through a gaming image, performing a role. The contents of many games include familiar verses or songs. This allows to deepen the aesthetic experiences of preschoolers. Clear and fast execution of movements, coordination of actions during the game, especially when they are done to music, form aesthetic feelings of children, teach them to notice the beauty of movements. Participation in the game is closely connected to the emotional feelings, including the aesthetic feelings of children on the one hand and under the guidance of the teacher is controlled by their conscious behavior on the other hand. So it is necessary to direct the game activities in such a way, that allowes the senior preschool children correctly evaluate it touching the aesthetic feelings [2].

The combination of movement and music is an interesting form for children, which provides the opportunity to realize the natural need of this age in physical activity. It is also an important factor in the development of their abilities and influences the formation of psychomotor system, positive moral qualities and aesthetics of movements. Acquisition of certain knowledge about music by means of movements stimulates the mental activity of the child, promotes the intensification of the process and the learning and understanding of musical notions that cease to be abstract to it because it is closely related to concrete movement, gesture and word [1].

The mobile game, which is conducted with musical accompaniment, causes more interest among children and passes much more lively. Music raises the mood of the child, requires to move more energetically to perform more precisely physical actions, in accordance with the nature and form of the musical work.

The use of music during mobile games is one of the active means of communicating the child with music. At the same time, the tasks of physical and musical education of preschoolers are solved simultaneously. When choosing music for the game, one must take into account the age of children, the peculiarities of their perception, the level of musical preparedness, as well as the anatomical and physiological capabilities of the motor apparatus. Each movement in the game has a peculiar character, so it is important to find suitable music accompaniment for it. For example, jogging, jumping in place or moving forward requires light, cheerful music; smooth movements with hands, slow walking - chilling, calm melody.

Musical works for walking and running in different pace and jumps are selected as bright, expressive, with a clear contrasting phrasing. You can not arbitrarily change the pace of music, tune it under the movements of children, supplement chords, make notes. This violates the nature of music, adversely affects its proper perception. In mobile games the main role is given to motor activity, and music should contribute to their performance. In games, the content of which are the main movements performed at an individual pace (jump in the mountain, climbing, throwing at the target), as well as in relay games – music is superfluous.

In all age groups of the kindergarten, due to music, the motor activity of children increases (the number of locomotions in walking, racing increases by 10–15 % on average). Thanks to the use of dynamic changes in music (power of sound), it is possible to develop the ability of children to manage their efforts during exercises. To the silent sounds (of piano) the body reacts with a weak motor impulse, and, conversely, loud sounds (of forte) cause strong impulses, they contribute to greater muscle tension and wide amplitude of motion.

A mobile game with musical accompaniment contributes to the formation of the correct posture of the body, coordination of movements and their improvement. Music gives the movements a special expressiveness, clarity, rhythmicity. Enjoying the music and feeling the beauty of his movements, the child emotionally enriches, experiences the rise, becomes cheerful. Music positively influences the feelings of preschoolers, mood, emotions, promotes confidence and determination in performing motor activities during

games, and also forms the artistic abilities of expressing the movements of internal feelings of music and emotional experiences.

Before starting the game, children are given a chance to listen to the musical composition to understand its meaning, to pay their attention to the nature of this musical work and to more vivid means of musical expressions that are reflected in the movements. For example, they say: «Listen, children, how is a taliped bear walking waddling and roaring in a low voice.» Music is slow, in a low tempo. Or: «Listen, children how bright, fast music is, in a high tempo. The sparrows are brightly jumping, piking grains, flying quickly from place to place. « All this makes the mobile game more attractive and effective, which contributes to the physical development and strengthening of the health of preschool children of all age groups.

Conclusions. The systematic use of music during mobile games (especially of the thematic character), promotes the rise of the emotional state, more dynamic performance of improvisational movements, helps to improve motor activity, positively affects the development of a sense of beauty, aesthetic, contributes to the integration of multi-language game movements and music.

Moving games to music will be useful for children only when the development of the theme of the game, its character and movements of the participants correspond to the content and nature of the music and the means of expression.

For each game it's important to find the appropriate musical accompaniment. You can not arbitrarily change the tempo of music, adjusting it to the movements of children, make notes, and so on. This violates the nature of music, negatively affects its proper perception by children of preschool age.

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AUTHOR'S PROGRAM OF PHYSICAL TRAINING OF CADETS OF MILITARY ACADEMY IN THE PERIOD OF PRIMARY TRAINING USING THE MEANS OF CROSSFIT

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Abstracts

In the paper are considered the actual problems of improving of physical fitness of cadets of Military academy in the period of initial training. The authors explore the possibilities of increasing the efficiency of the training process by using the system of non-specialized high-intensity training of the CrossFit. Performed analysis of modern scientific and literary sources suggests that the training system of the CrossFit positively influences the level of physical fitness of the cadets. The purpose of the article is to develop a program of improving the physical fitness of cadets of Military academy in the period of initial training with the use of means of CrossFit. The structure of the experimental author's program contains purpose, tasks of program, means, stages and their tasks, forms of training. The methodological approach to the development of the program of physical training of cadets is proposed, which combines generally accepted means of development of physical qualities (70 % of the total time of the class) and means of CrossFit (30 % of the total time of the class). It is established that the system of physical training of cadets which has developed in the state is ineffective. The system doesn't provide readiness for action and practical readiness of cadets to professional activity and further service and demands constant improvement. The obtained data can be used in the development of typical programs of fitness training of cadets, in the teaching of the theory and methodology of physical education for cadets of specialized higher education institutions.

Key words: physical training, cadet, CrossFit, program.

Іван Пилипчак, Орест Лойко. Авторська програма фізичної підготовки курсантів вищих військових навчальних закладів у період первинної підготовки з використанням засобів кросфіту. У роботі розглянуто актуальні проблеми вдосконалення фізичної підготовленості курсантів вищих військових навчальних закладів у період первинної підготовки. Досліджено можливості підвищення ефективності тренувального процесу використанням системи неспеціалізованої високоінтенсивної підготовки кросфіт. Проведений аналіз сучасних наукових і літературних джерел дає підставу стверджувати, що система підготовки кросфіт позитивно впливає на рівень фізичної підготовленості курсантів, підсилює їх мотивацію до фізкультурно-спортивної діяльності, сприяє оволодінню знаннями сучасних підходів до організації фізичної підготовки, навичками й уміннями самостійного тренування та ведення здорового способу життя. ***Мета статті*** – розробити програму вдосконалення фізичної підготовленості курсантів вищих військових навчальних закладів у період первинної підготовки із застосуванням засобів кросфіту. Структура експериментальної авторської програми містить мету, завдання програми, засоби, етапи та їх завдання, форми проведення тренувань. Запропоновано методологічний підхід до розробки програми фізичної підготовки курсантів, що поєднує в собі загальноприйняті засоби розвитку фізичних якостей (70 % від загального часу навчального заняття) і засоби кросфіту (30 % від загального часу навчального заняття). Отримані дані можуть бути використані в розробці типових програм із фізичної підготовки курсантів, у викладанні теорії й методики фізичного виховання для курсантів спеціалізованих вищих навчальних закладів освіти, а також військовослужбовців Збройних сил України. Установлено, що система фізичного виховання курсантів, яка склалася в державі, є малоефективною. Вона не забезпечує бойової та прикладної готовності курсантів до професійної діяльності й подальшої служби та потребує постійного вдосконалення. У перспективі передбачено експериментальну перевірку ефективності розробленої програми.

Ключові слова: фізична підготовка, курсант, кросфіт, програма.

Иван Пилипчак, Орест Лойко. Авторская программа физической подготовки курсантов высших военных учебных заведений в период начальной подготовки с использованием средств кроссфита. В работе рассматриваются актуальные проблемы совершенствования физической подготовленности курсантов ВУЗа в период начальной подготовки. Исследуются возможности повышения эффективности тренировочного процесса путем использования системы неспециализированной высокоинтенсивной подготовки кроссфит. Проведенный анализ современных научных и литературных источников дает основание утверждать, что система подготовки кроссфит положительно влияет на уровень физической подготовленности курсантов, усиливает их мотивацию к физкультурно-спортивной деятельности, способствует овладению знаниями современных

подходов к организации физической подготовки, навыкам и умениям самостоятельной тренировки и ведения здорового образа жизни. ***Цель статьи*** – разработать программу совершенствования физической подготовленности курсантов ВУЗа в период начальной подготовки с применением средств кроссфиту. Структура экспериментальной авторской программы содержит цели, задачи программы, средства, этапы и их задачи, формы проведения тренировок. Предлагается методологический подход к разработке программы физической подготовки курсантов, сочетающий в себе общепринятые средства развития физических качеств (70 % от общего времени учебного занятия) и средства кроссфита (30 % от общего времени учебного занятия). Полученные данные могут быть использованы в разработке типовых программ по физической подготовке курсантов, в преподавании теории и методики физического воспитания для курсантов специализированных высших учебных заведений, а также военнослужащих Вооруженных сил Украины. Установлено, что система физического воспитания курсантов, которая сложилась в государстве, является малоэффективной. Она не обеспечивает боевую и прикладную готовность курсантов к профессиональной деятельности и дальнейшей службе и требует постоянного совершенствования. В перспективе предполагается экспериментальная проверка эффективности разработанной программы.

Ключевые слова: физическая подготовка, курсант, кроссфит, программа.

Problem statement. Training of cadets for military professional activity is carried out within a certain educational system. The modern higher education strategy is based on such a development line, that is grounded on the basis of personality oriented pedagogical technologies and allowsto form a specialist who will be able not only to reproduce the accumulated potential of knowledge, skills and abilities, but also to go beyond normative activity. This strategy characterizes the tendency of strengthening the role of «human factor» in all types of activities, including the military sphere [2; 4].

The distinctive features of higher military institutionscadets' military professionaleducation are: constantly increasing amount of educational information in limited time periods; high nervous emotional pressure; overloading of the intellectual sphere; decreasing of motor activity [1; 9].

In recent years, the level of cadets'physical preparation at the initial-entry period has sharply decreased [3]. In our opinion, this problem is not enough examined by the scientists, likewise the ways of cadets' physical preparation improvement during the mentioned period are not considered. The achievement of a high level of physical preparationduring the initial-entry training is the basis for the development and formation of military applied skills and abilities, which are required for servicemen further service.

One of the most promising directions is to improve the system of cadets' physical education, as well as increasing the level of cadets' physical training and motor activity during the initial-entry period by means of CrossFit.

CrossFit exercises positively influence on theoverall improvement of motor abilities, harmonious physical development and health promotion. Life-long motor skills and abilities are formed during the course of studies. The special gained knowledge brings up moral and volitional qualities.

Examining scientific sources, which deal with CrossFitto solve the problems ofhigher military institutionscadets'physical education, it became clear that this issue has not yet been sufficiently discovered in the scientific literature.

Recent research and publications analysis. At present, numerous scientific researches were conducted, that were devoted to various problems of perfection of higher military institutionscadets' physical education. The following researches dealt with the peculiarities of the organization and methodology of physical education in the higher military institutions(Romanchuk S. V. 2013 [7], Roliuk O. V. 2017 [6], Shliamar I. L. 2015 [10]), increasing of physical preparation, hardening, development of cadets'physical qualities of higher military institutionsby means of weight-lifting sport (Prontnenko K. V. 2009 [5]).The above-mentioned scientific works consider, first of all, the question of physical education classes planning in the higher military institutions,the problems of physical trainingsystems and the competencies that depict the correspondence of cadets. At the same time, the works, which highlight up-to-datetechnologies to help to achieve these competencies, areinsufficient.

The aim of the study is to substantiate and develop the improving program for higher military institutionscadets' physical preparationduring the initial-entry training by means of CrossFit.

The tasks of the study. To develop theimproving program for higher military institutionscadets physical preparationduring the initial-entry training by means of CrossFit.

The methods of the study: scientific and methodological literatureanalysis, educational programs, pedagogical observation.

The organization of the study. Pedagogical observation was carried out on the basis of the National Army Academy during the 2016–2017 educationalyear. 43 cadets of the second year of study, specialty

«Management of the mechanized troops units actions», took part in the experiment. The age of participants was from 18 to 22 years, sports qualification – 30 % of participants had III grade and lower and all the others had no grade at all. All the participants agreed to participate in this experiment.

Study results. Higher military institutionscadets' physical training curricula are developed in accordance with educational qualification characteristics and educational professional programs for specialists'training. At the higher military institutions the ratio of time by type of training sessions to its total volume is determined by the department.

Physical training is organized and conducted in the form of training sessions, morning physical exercise, group sportsactivities and has a health-improving, educational and military-applied orientation.

An experimental program is developed on the basis of a commonly used program using CrossFit elements. CrossFitis a training technique and a competitive sport based on the combination of intense strength and functional exercisesduring one session. Crossfit classes include elements of interval training of high intensity, weightlifting, athletics, powerlifting, gymnastics, weight training and other kinds of sports, etc. [8]. This system allows the usage of wide physical activities, which increases the interest and effectiveness of the training process. The training methodology, unlike other types of fitness, can harmoniously affect all types of physical qualities.

The structure of the experimental author's program contains the purpose, tasks, means, levels and their tasks, forms of training. The program offers options for the physical qualities development (strength, coordination, speed), which can be independently selected by the teacher, based on the specific tasks of the training session. The advantage of the developed program is the recommendations list of exercises for the development of appropriate physical quality, that can be used during physical education classes.

The developed program of the pedagogical experiment is built on the application of CrossFit in the cadets' training process. The methodological principles of our cadets' physical education program are the division of the class into two parts. The first part of the training session (70% of the total time) the students performed the main tasks and during the second part (30% of the total time) of the class CrossFit was used for the development of strength, coordination, endurance and flexibility.

Four groups of exercises have been developed within the program. The first group of exercises are worked with their own weight. In the second group, exercises can be used as in the form of anaerobic (100–800 meters) and as aerobic (1500 meters or more) exercises, both independently and in the complex of exercises. The third and fourth exercises include exercises of weightlifting and athletics (table 1).

Table 1

The Content of the Author's Program ofHigher Military Institutions Cadets' Physical Training Duringthe Period of Initial-Entry Training by Means of CrossFit

Aim	Prepare cadets for unexpected diversified loads and overloads, which can be faced in the process of educational combat activities.
Tasks	To accelerate adaptation of cadets to the professional activities conditions.
	To increase the functional state of cadets.
	To form the essential physical development to fulfill the training and combat tasks during the initial period of training.
	To achieve the essential level of cadets' general physical preparation for the formation of applied physical preparation.
Means	Gymnastics (dips, pull-ups, handstand, triple jumps on the rope, ring dips, pull-ups on the rings, reverse burpee, raising the legs on the rings, squats on one leg, double-unders, lifting by force on the rings, push-ups in the handstand, lifting the legs to the crossbar, climbing the ladder, backflip, aerialsquat, raising the knees to the chest, muscle-up, hand stand walk, lifting the body, box jump, lying pull-ups, push-ups on the floor, rope climb, burpee, support L-hold, lunges, jumps, static exercises) and others.
	Aerobics (swimming, cycling, rowing, running, ski racing, skiing).
	Atleticism (kettlebellswing, kettlebelljerk, kettlebellpull, jerk of dumbbells, reverse kettlebell row, exercises with medicine ball, kettlebellpull to a chin, bench press, kettlebelljerk (long cycle))
	Weightlifting (push, power push, cluster, seat press, barbell snatch,shoulder press, thrusters,back squat, overhead squat,dead lift, barbell jerk, clean)

End of the Table 1

Time	Studies –twice on 90 minutes.
	Group sports activities–twice on 50 minutes.
Program levels	**Initial Training Level**
	1. To check the initial level of cadets' physical preparation.
	2. To get acquainted with CrossFit exercises.
	3. To test the training methodology.
	4. Toadapt the organism to the loads.
	Individual Training Level
	1. Execution of highly intensive complex (WOD) with own body weight.
	2. Going exercises with self-weighand lots of repetitions.
	Group Training Level
	1. Doingexerciseswithina crew.
	2. Doing exercises within a squad.
	3. Doing exercises within a platoon.
Organizational methods	Frontal, current, group, individual, competitive.
Result	General physical fitness, functional preparedness.

Conclusions and perspectives of further researches.

1. The effectiveness of the methodological approach to the program development of higher military institutions cadets' physical training during the period of initial-entry training, which combines generally accepted means of physical qualities development (70% of the total time in the classroom) and means of CrossFit (30% of the total time in the classroom) has been experimentally proved.

2. Using CrossFit during training sessions allows to optimize and diversify physical training activities. In the future, it is planned to pilot-testing the effectiveness of the developed program.

3. The obtained data can be used in the development of typical cadets training programs, while teaching the theory and methododology of physical education for cadets of specialized higher education institutions, as well as servicemen of the Armed Forces of Ukraine.

In future of the further research it is expected to test the effectiveness of the developed program.

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ANALYSIS OF THE TARGET COMPONENT OF SPORTING AND MASS PARTICIPATION EVENTS IN HIGHER MILITARY EDUCATIONAL ESTABLISHMENT OF THE ARMED FORCES OF UKRAINE.

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Abstracts

Physical fitness of servicepeople is the basis of their combat readiness. Therefore, a lot of attention is paid to its providing from the first years of service of them. However, practice shows that as a result of a decrease in interest in physical culture and sports in modern society, people without prior sports experience and with a level of physical readiness which does not meet the requirements of combat training, and especially the military activities of military specialists, enter military educational institutions. Those psychological and training methods adopted in the Armed forces nowadays may only improve the readiness of future officers to the minimum necessary level, but they are not enough to form a conscious attitude to physical training in servicepeople, they fail in creating a stable motivation to maintain physical fitness at the required level throughout the entire service.

Physical improvement of cadets is carried out in several organizational forms. Every of theese has different potential in terms of upbringing the physical culture of future officers. On the point of certain features of organization and carrying out physical training lessons the highest possibilities owns sports mass work. That is why we decided to examine the state of sports mass work in the military educational institutions of the Armed Forces of Ukraine. To find out its' pedagogical potential efficiency in training cadets personal physical culture – the foundation for their long term physical activity, in particular, formation of a military professional as a whole.

We have found that, a lack of a specifity in guidance documents on the training of military personnel and absence of a single well-defined accurate target set of sports work in military schools has led to demotivation and making emphasize only on points, estimates and taken places and, most importantly, loss of connection with the educational process.

The main conclusion of our study is that in the present form of sports-mass work in military educational institutions is not able to cultivate the personality of a cadet, to form his personal physical culture and valuable attitude to physical training.

Key words: physical training**,** sports mass work, education of physical culture, cadets.

Євген Анохін. Аналіз цільового компонента спортивно-масової роботи у вищих військово-навчальних закладах Збройних Сил України. Фізична підготовленість військовослужбовців є основою їхньої боєздатності. Тому її забезпеченню приділяють багато уваги з перших років служби військовослужбовців. Однак практика засвідчує, що внаслідок зниження в сучасному суспільстві інтересу до фізичної культури й спорту, до військових навчальних закладів поступають особи без попереднього спортивного досвіду та з рівнем фізичної підготовленості, який не відповідає вимогам навчально-бойової й особливо бойовій діяльності військових спеціалістів. Прийнятими на сьогодні в збройних силах психолого-педагогічними методами в кращому випадку вдається підвищити підготовленість майбутніх офіцерів до мінімально необхідного рівня, але сформувати в них ціннісне ставлення до фізичної підготовки, стійку мотивацію підтримувати фізичну підготовленість на необхідному рівні впродовж усієї служби не вдається.

Фізичне вдосконалення курсантів здійснюється в декількох організаційних формах. Кожна з них володіє різним потенціалом із погляду виховання в майбутніх офіцерів фізичної культури. Унаслідок особливостей

організації й проведення найвищими можливостями в цьому плані володіє спортивно-масова робота. Саме тому ми вирішили дослідити стан спортивно-масової роботи у військових навчальних закладах Збройних сил України, вияснити, як ефективно використовується її педагогічний потенціал щодо виховання в курсантів особистісної фізичної культури – основне для їх багаторічної фізичної активності, зокрема, і формування військового професіоналу в цілому.

Нами встановлено, що невизначення керівними документами з фізичної підготовки військовослужбовців єдиної чітко сформульованої конкретної цільової установки спортивно-масової роботи у військових навчальних закладах послужило причиною зміщення акцентів спортивно-масової діяльності у військових академіях із виховання особистості майбутніх офіцерів на суто кількісні показники – бали, очки й місця та, головне, утрати зв'язку з освітнім процесом.

Основним висновком нашого дослідження є те, що в цьому вигляді спортивно-масова робота у військових навчальних закладах не в стані служити справі виховання особистості курсанта, формуванню в нього особистої фізичної культури та ціннісного ставлення до фізичної підготовки.

Ключові слова: фізична підготовка, спортивно-масова робота, виховання фізичної культури, курсанти.

Евгений Анохин. Анализ целевого компонента спортивно-массовой роботы в высших военно-учебных заведениях Вооруженных сил Украины. Физическая подготовка военнослужащих является фундаментом их боеготовности. Поэтому её обеспечению приделяется много внимания з первых лет службы военнослужащего. Однако практика свидетельствует, что в результате снижения интереса к физической культуре и спорта в военные учебные заведения поступают лица без предварительного спортивного опыта и с уровнем физической подготовленности, который не соответствует требованиям учебно-боевой и особенно боевой деятельности военных специалистов. Принятыми на сегодня в вооруженных силах психолого-педагогическими методами в лучшем случае удаётся повысить подготовленность будущих офицеров до минимально необходимого уровня, но сформировать у них ценностное отношение до физической подготовки, устойчивую мотивацию поддерживать физическую подготовленность на необходимом уровне на протяжении всей службы не удаётся.

Физическое совершенствование курсантов осуществляется в нескольких организационных формах. Каждая из них владеет разным потенциалом з точки зрения воспитания у будущих офицеров физичкой культуры. В силу некоторых особенностей организации и проведения наивысшим потенциалом в этом отношении имеет спортивно-массовая робота в военных учебных заведениях Вооруженных сил Украины. Выяснили, как эффективно используется её потенциал относительно воспитания у курсантов личной культуры – основы для их многолетней физической активности, в частности, и формирования военного профессионализма вообще.

Нами установлено, что в результате отсутствия в руководящих документах по физической подготовке военнослужащих единой чётко сформулированной целевой установки спортивно-массовой работы в военных учебных заведениях послужило причиной смещения акцентов спортивно-массовой роботы в военных академиях с воспитания личности будущих офицеров исключительно на количественные показатели – баллы, очки, места и, главное – потери связи с образовательным процессом.

Основным выводом нашего исследования есть то, что в существующем виде спортивно-массовая робота в военных учебных заведениях не в состоянии служить делу воспитания курсанта, формирования у него личной физической культуры и ценностного отношения к физической подготовке.

Ключевые слова: физическая подготовка, спортивно-массовая работа, воспитание физической культуры, курсанты.

Introduction. Physical education (PE), physical development and formation of physical readiness (PR) of cadets of higher military educational establishments takes place in various organizational forms, one of which is sports-mass work (SMW). Due to the features of the use of tools and methods, each form has its own degree of effectiveness in solving the tasks of physical training (PT) of military personnel. In this regard, the SMW belongs to the place immediately after the training lessons – the main form of physical improvement of military personnel. In the process of SMW, the cultivation, recreation, educational and disciplinary functions of the PT can be successfully carried out. This is precisely why interest in finding ways to increase the pedagogical potential of this form of physical improvement of future officers is not only in the aspect of increasing their professionalism, but also the formation of personal physical culture (PC) in them, in particular, the value relation to the PT, as the preconditions for its effectiveness in general.

The purpose of the work: determination of the status of SMW in the Higher Military Educational Establishment (HMEE) at the present stage of the development of the Armed Forces of Ukraine (AFU) and

the prospects for its further use for the education of cadets about value attitude to physical improvement as a necessary prerequisite for ensuring the proper level of their PR to perform tasks for combat and functional purposes.

Methods and organization of research: analysis of literary sources and research, analysis and synthesis.

Analysis of research and publications. Analysis of scientific research and publications shows that individual studies are devoted to the problem of SMW. All of them are devoted to the analysis of other areas of development and improvement of the system of the SMW of HMEE. The predominant direction of these studies is the organizational form of this form of PT in order to increase its effectiveness for the development of motor skills of cadets of the HMEE [15; 16; 17]. The problem of increasing the pedagogical potential of SMW in the aspect of upbringing of future officers, the formation of their personal physical culture, in particular, the value relation to the PT in existing publications is absent. There is no analysis of the system of SMW, its city in the pedagogical process of military specialists.

Presenting main material. In order to characterize the situation, that prevailing at the Higher Military Educational Establishment of the AFU in the field of sports, it is now necessary to determine the qualitative state of the contingent entering military institutions, so to speak, when it «enters»" into the system.

Numerous studies of entrants of the HMEE (Yu.O. Borodin, O. G. Piddubnyy 2003, A. M. Oderov so-author, 2015, I. S. Ovcharuk 2010, O. Nebozhuk so-author, 2016, S. V. Romanchuk 2013) [4; 9; 10; 11; 15; 19], prove the presence of a pronounced negative dynamics of their physical fitness. The reason for this phenomenon is a significant decrease in the number of children's and youth schools, and hence the number of children and adolescents engaged in one or another sport [6]. Consequently, every year, the smaller number of people with pre-sport experience is getting to the HMEE.

It is precisely the previous sport experience of the entrants to the HMEE that has the greatest interest in the subject of our study and, accordingly, to increase the pedagogical potential of the SMW in the HMEE in order to form the value attitude of the students to the PT, and thus to the tasks of physical improvement of the servicemen. After all, as you know, the value attitude to any activity is formed in the activity itself.

The nature of the changes that have taken place in the sports fitness of university entrants can be traced in three ways: the percentage of entrants who do not have sports titles with different sports titles (up to 1 level) and athletes of senior levels (I, KMS, MS).

The choice of such indicators is due to the fact that, in addition to the fact that these indicators characterize the previous experience of sports in those who enter the HMEE, until recently, athletes with a level of preparation for 2 title form the basis of mass sports, and the eldest – the basis of the teams of the HMEE.

The data in Table 1 clearly indicate a gradual increase in the first indicator and a decrease in the second and third. At present, the values of these indicators reached their maximum. Already on the basis of these data it is necessary to conclude that the organization of mass sports in the HMEE needs to be changed, as most of the entrants are more than ever experienced in sports.

Table 1

The proportion of candidates for cadets with different levels of sports qualification in different years of research, *%*

Sports qualification	Years of research								
	1975	**1982**	**1991**	**1995**	**1997**	**2000**	**2008**	**2012**	**2016**
Without title	52,4	51,9	70,4	82,5	85,3	86,4	87,1	87,6	89,0
Junior, III and II titles	41,7	40,0	22,2	13,1	10,3	8,5	9,1	8,3	5,0
I title, CMS, MS	5,9	8,1	7,4	4,4	4,4	5,1	3,8	4,1	6,0

Note: data for 1975, 1982,1991 year are indicated by the results of the research of VIFK (St.Petersburg) – NDR «Prizov», «Unification», «Anchar»; 1995, 1997, 2000, 2008, 2012, 2016 – based on the results of own research on the basis of Hetman Petro Sahaidachny National Army Academy (Lviv city).

Reducing the athletic and physical fitness of current entrants is a consequence of the imperfection of the system of school physical education of Ukraine, which at the present-day historical stage does not solve the problems of physical development of the younger generation and undergoes conceptual changes [6].

Critical condition of the system of physical training, fitness and sports (FS) was recognized at the state level in the Target Complex Program «Physical Education – Health of the Nation» (1998). And in the National Doctrine of fitness and sports (2004). In particular, the Doctrine acknowledged that public opinion and social practice largely ignored the abilities of the FS in solving many important social issues. It was pointed out that there was no effective propaganda of FS and a lack of involvement of the population in systematic exercise by physical exercise (only about 6 % of the total population). The document cited the reasons for the critical situation of the FS system. The strategy of their elimination is determined. The mass and accessibility of sport in society – sport for all, were determined as ways of the development of the PT system of Ukraine [6].

Innovative processes in the system of PT, and in particular in the school system, proceed quite slowly and it is not expected to achieve a positive result in the short term. Therefore, given the low level of athletic and physical fitness of persons entering the HMEE, on the one hand, and the objective need to provide the PR of future officers to successful professional activities in combat conditions – on the other hand, the problem of increasing the effectiveness of the process of physical education of cadets in the walls of the HMEE are the most urgent problem in modern conditions. And start solving it, according to S. V. Romanchuk [14] and Ye.D. Anokhin [1] it follows from the formation of a future attitude of officers to the PT and, preferably, from the beginning of studying at the HMEE. The largest potential for the formation of value attitude to physical improvement is the SMW [2]. From it, in our opinion, and it is necessary to begin reforming the forms of PT of cadets.

The study of the status of SMW directly in the HMEE of the Armed Forces of Ukraine should begin with quantitative and qualitative parameters of its functioning.

In accordance with the requirements of the systematic approach, it is assumed that the goal of the SMW, as in the pedagogical system, should be. The goal is the system-generating factor of any system. No goal - no system. [5].

However, the Provisional Instruction on Army Physical Training of the Armed Forces of Ukraine in 2014 the goal of the SMW does not formulate. In the main document on the organization of the PT of the Armed Forces, it is replaced by definitions that in general form reflect the orientation (functional purpose) of the SMW [18].

According to many experts, without a precisely formulated, understandable and specific goal, the high efficiency of any pedagogical system is impossible. The lack of well-defined goals may lead to the selection of wrong or unnecessary decisions and actions or the risk of «proposing the best ways to perform unnecessary functions or the best ways to achieve unsatisfactory end results» [11].

In order to detect the consequences of the lack of a clear target for the SMW in the EPT-2014, we decided to study the goals of this form of PT and its separate components (subsystems) at the HMEE. For this purpose, we became acquainted with the orders on the organization and holding of SMW in the Armed Forces of Ukraine (Army, some HMEE, Hetman Petro Sahaidachny National Army Academy, the Zhytomyr Military Institute named after S.P. .Korolov, and the Military Institute of the Kyiv National Taras Shevchenko University).

Careful study of orders allowed to reveal that there are differences even in the formulation of the system. In the orders of some institutions there are no goals or SMW as a whole, or those or some of its components. Goals for the same components vary in number and direction. In total, 15 (!) Definitions of SMW goals are given in the orders, while in the EPT-2014 they have only 4, 5 goals for the surveys of the SMW and 12 for the sports events (competitions for the championship institutions). Many goals are abstract, precarious, and in some cases incorrect. Thus, the objectives of the SMW include «popularization of military service» and «determination of the state of the personnel PT», and to the objectives of the competition – «improvement of professional level and skill of servicemen», «popularization of military service» and «establishment of the authority of the Armed Forces among the civilian population».

The general thing for all the HMEE, with orders we have got acquainted with, is the availability of conversion goals, in the form of standards from the military-sports complex and athletic discharges, development of qualities: physical and «military-professional». Even without taking into account the abstract nature of these goals, it should be noted that it is not about the integrity of a person, but its parts – qualities.

The second most important feature is the lack of goals of learning - that is, the goals that reflect the cognitive type of activity. Perhaps such a situation would be acceptable in the presence of a contingent, for which orders are developed, a high level of athletic fitness. But, as was shown above, there are no such prerequisites.

Value-orientation kind of sports-mass activity, which in the pedagogical process is education, in the orders is not provided at all. Consequently, in the process of SMW, it is not expected to educate the integrity of the personnel of the military.

With all the diversity of goals and objectives, it should be noted that in the vast majority of them, they have a declarative character, and, consequently, non-compliance with the requirements imposed on the objectives of the activity.

There are many definitions of the notion of «purpose», but with all their diversity, each of them can find some invariant signs. Here are just the most famous of them, which are more commonly used in various fields than others. Consequently, different authors understand the «desired state of the object», «desired state of the object in the future», «model of future results», «model of the desired future», «long-term desirable result», «future state of the system, state, to which it aspires to», «the end result, the product – goal of the creation of system». In psychology, the goal is understood as the representation of the subject about the outcome, as an image of a product that satisfies a certain motive and need [7].

The list of definitions given is far from complete, but it shows that one of the invariant features indicated in the definition of the goal is the image of the future result. But, based on the goals of the SMW of the HMEE, defined in the orders, the future outcome is not specifically defined and the target «field» is very broad and blurred. The most definite is the wording «Determination of units (parts, HMEE), which have achieved the best results in the organization of PT and SMW». It is the indicators of the summing up of sports work, probably, and is «the end result», for the achievement of which the system is created and functions [3].

When studying the system of the SMW of the HMEE, it is impossible to ignore the system of summing up the SMW. Judging by HMEE orders, there is no clear holistic system of estimation of the results of the operation of the SMW in the suburbs and the HMEE in general. Instead, there are two separate, non-interconnected systems for assessing the participation of teams of subdivisions in the HMEE championship and in the review of the SMW.

Superiority of units in the HMEE championship is determined by the smallest amount of seats occupied by teams of units in the championship competitions of the HMEE.

Plots for departments in the Survey of SMW are determined by the sum of the points accrued to the units for the state of physical readiness of the personnel for the execution of the soldiers of the corresponding sports qualification «Warrior-athlete» (higher qualification, first, second or third class); for getting cadets rating «excellent» for physical readiness.

In fact, all of these indicators are reduced to the implementation of the personnel of the estimated standards of four exercises of the military-sports complex: running 100m, pulling or lifting force on the crossbar, running 3 km, general control exercises on the obstacle course, and in addition, a certain exercise in weight sports.

At the level of the Armed Forces of Ukraine, the definition of the best HMEE for the organization of SMW takes place in accordance with the indicators specified by the order of the Chief of the General Staff of the Armed Forces of Ukraine No. 459 dated 12/28/2017. These are:

1. The performance of the teams of the HMEE in the AFU Championships.

2. Performance of athletes of the HMEE at the World and European Championships, the Championship of the Armed Forces of Ukraine, at international competitions on professional-use sports in the composition of the teams of the Armed Forces, participation in which is carried out on the relevant commission.

3. Training of athletes of higher qualification (Masters of Sports of Ukraine, Masters of Sports of Ukraine of International Class, Honored Masters of Sports of Ukraine) determined by the order Olympic and non-Olympic sports.

Thus, the «future outcomes» of the SMW system in the HMEE are established and determined in the form of appraisal norms, standards for sports, and places that the teams of the HMEE have occupied in competitions and the number of trained athletes of the highest qualification. Probably, such «future result» of the system of SMW in the HMEE would not cause objections to organizations whose main activity is sport. But for a pedagogical system such a goal setting is precisely the goal, in our opinion, is not acceptable, since such facts indicate the existence of deformation of the purpose of pedagogical activity, in which the personality of the cadet, in essence, remains outside the field of view, and the social utility of the purpose is significantly is limited. Apparently, exactly about such a situation in sports said the founder of physical education PF Lesgaft: «... if victories in sports become an independent goal, ready to justify any means of achieving it, then such a sport is not in favor ...» [8].

Consideration in assessing the effectiveness of the system of the SMW of the HMEE of the indicators that are inherent in the sport system of higher achievements, determine the connection of mass sports in the HMEE, and in general all the pedagogical process, with the sport of higher achievements. But, in our opinion, at present, in the theory of PT military personnel, there are no grounds for using the sport of higher achievements in the military-educational system in the form that the it has now. Sport of higher achievements can not function within the PT military personnel, since its functioning has other goals. And the introduction of these indicators for assessing the functioning of the SMW is determined not by the internal needs of the SMW system, but by external factors. As a result of this, unreasonable expenses of office hours are provided by the teachers of the departments of physical education, special physical training and sports of the HMEE, which they spend on conducting training sessions with the members of the teams and organizing various competitions that are not directly related to the military-educational process and military- professional formation of future officers; biased evaluation of the quality of athletic work in the HMEE. These circumstances, according to many experts, are a deterrent to the development of mass sports [20]. Their roots go back to the Soviet PT system, which served the existing political line at that time and whose main goal was to prove in any way its advantages. And their survivability is explained exclusively by the inertia of social systems in general and military in particular.

In HMEE, the goal of the SMW declared "the involvement of servicemen in systematic sports," in our opinion, is rather ambiguous, since it involves the possibility of achieving it both on the basis of a personal approach and through team methods, which, as practice shows, is more widespread.

Conclusions:

Thus, the analysis and synthesis of the guidance documents developed by the Armed Forces and some of the Higher Military Educational Establishment, those provisions put forward as goals and objectives allow us to draw some conclusions:

1. Sports-mass work of the Higher Military Educational Establishment of the Armed Forces is not a system.

2. A characteristic feature of sports-mass activity as a pedagogical process is the neglect of a particular person in its integrity, which is expressed in its focus on the predominant development of one or another qualities.

3. The target link of the sports-mass work with the formation of the physical culture personality is not reflected.

4. There are no training goals and abstract education goals in the sports-mass work.

5. There is no connection with the higher education system – the educational process and, consequently, future professional activities. And, on the contrary, the presence, the negative impact on it of sport of higher achievements, which has been actively implemented in the system of the sports-mass work of the Higher Military Educational Establishment recently.

6. Presence of restraining factor in the development of mass sports – indicators of sport of higher achievements.

The achievement of the goal of the functioning of any system is achieved through the application of certain specific tools for each system. Effectiveness (speed and accuracy) to achieve the goal depends to a

large extent on the correct means of choice. Means of sports-mass work are training sessions and competitions. Their study and analysis will be the subject of our further research.

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CHARACTERISTICS OF TYPES OF STREET GYMNASTICS AS MEANS OF YOUTH PHYSICAL ACTIVITY

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Abstracts

Relevance. Nowadays in the youth environment street gymnastics are very popular. However, on the background of a wide practical popularity, the history of their development, experience and substantiation of the organization of their studies are not sufficiently scientifically studied. ***The aim of the study is*** – to study the features of modern types of street gymnastics content as innovative means of motor activity of youth and to identify aspects of improving their organization. Methods of the research: comparative analysis, generalization of literary and Internet sources, interview, accounting. ***Result sof the Study.*** It is figured out that in nowadays youth environment the following types of street gymnastics as workout, parkour, freerun, acrostreet are the most popular. The title «street» is based on the fact that this gymnastics is implemented on the «open» air.Workout considered as a mix of gymnastics and weight training on a horizontal bar, parallel bars, horizontal ladders and other «street» design.For today in the «horizontal bar gymnastics» are distinguish the following styles: street workout, ghetto workout, yard gymnastics, gymbar, freestyle bar. Another direction of street gymnastics («acrobatic») include parkour, freerun, acrostreet. They are characterized as varieties of fast overcoming obstacles in the «street area» with the help of your body (running, jumping, acrobatic elements, tricks, etc.). The similarity to them has tricking – the synthesis of acrobatic, stunt tricks and elements of classical martial arts. It has been found that street gymnastics are highly traumatic and conducted, as a rule, within the framework of self-examination of young people. Therefore, there is need for broad educational activities on this issue among the participants of street motor cultures and experts in the field of physical culture and sports. ***Conclusions.*** The most popular types of street gymnastics areworkout, parkour, freerun, acrostreet, tricking. They are rated as extreme motor activity with a high level of traumatism. Actual questions of further scientific researches are development of ways of prevention of injuries of street trainings.

Key words: workout, parkour, freerun, acrostreet, characteristics, injury prevention.

Тетяна Гнітецька, Лідія Завацька, Олександра Голуб. Характеристика вуличних видів гімнастики як засобів фізичної активності молоді. ***Актуальність.*** Нині в молодіжному середовищі високу популярність мають вуличні види гімнастики. Однак на тлі широкої практичної популярності історія їх розвитку, досвід та обґрунтування організації занять ними недостатньо вивчені. ***Мета дослідження*** **–** розкрити особливості змісту сучасних видів вуличної гімнастики як інноваційних засобів рухової активності молоді й визначити аспекти вдосконалення їх організації. ***Методи дослідження*** – компоративний аналіз, узагальнення літературних та інтернет-джерел, опитування, облікування. ***Результати досліджень.*** Установлено, що в сучасному молодіжному середовищі найбільш популярні такі види вуличної гімнастики, як воркаут, паркур, фріран, акростріт, трикінг. Назва «вулична» ґрунтується на тому, що ця гімнастика реалізується на «відкритому» повітрі. Воркаут розглядають як суміш гімнастичних і силових вправ на турніку, брусах, горизонтальних драбинах та інших «вуличних» конструкціях. Нині в «турніковій гімнастиці» розрізняють такі стилі: стріт воркаут, ґетто воркаут, дворову гімнастику, джімбар, фрістайл-бар. До іншого напряму вуличної гімнастики («акробатичного») відносять паркур, фріран, акростріт. Вони характеризуються як різновиди мистецтва володіння тілом у вуличних умовах, наприклад швидкого долання перешкод «вуличної місцевості» (бігом зі стрибками, акробатичними елементами, трюками), тощо. Схожість до них має трикінг – синтез акробатичних, каскадерських трюків та елементів класичних бойових мистецтв. Установлено, що вуличні види гімнастики мають високу травматичність і проводяться, зазвичай, у рамках самотренування молоді. Тому на сьогодні актуальна широка просвітницька діяльність із цього питання серед учасників вуличних рухових культур і фахівців сфери фізичної культури та спорту. ***Висновки.*** Найбільш популярними видами вуличної гімнастики є воркаут, паркур, фріран, акростріт, трикінг. Їх оцінюють як екстремальну рухову діяльність із високим рівнем травматичності. Актуальним питанням подальших наукових досліджень є розробка способів попередження травматизму вуличних тренувань.

Ключові слова: воркаут, паркур, фріран, акростріт, характеристика, попередження травматизму.

Татьяна Гнитецька, Лидия Завадская, Александра Голуб. Характеристика уличных видов гимнастики как средств физической активности молодежи. ***Актуальность.*** Сейчас в молодежной среде высокую

популярность имеют уличные виды гимнастики. Однако на фоне широкой практической популярности история их развития, опыт и обоснование организации занятий ими недостаточно научно изучены. ***Цель исследования*** – раскрыть особенности содержания современных видов уличной гимнастики как инновационных средств двигательной активности молодежи и определить аспекты совершенствования их организации. ***Методы исследования*** – компоративный анализ, обобщение литературных и интернет-источников, опрос, учетность. ***Результаты исследований.*** Установлено, что в современной молодежной среде наиболее популярны такие виды уличной гимнастики, как воркаут, паркур, фриран, акрострит, трикинг. Название «уличная» основывается на том, что эта гимнастика реализуется на «открытом» воздухе. Воркаут рассматривают как смесь гимнастических и силовых упражнений на турнике, брусьях, горизонтальных лестницах и других «уличных» конструкциях. Теперь в «турниковий гимнастике» различают следующие стили: стрит-воркаут, гетто-воркаут, дворовая гимнастика, джимбар, фрістайл-бар. К другому направлению уличной гимнастики («акробатическому») относят паркур, фриран, акрострит. Они характеризуются как разновидности искусства владения телом в уличных условиях, например быстрого преодоления препятствий «уличной местности» (бегом с прыжками, акробатическими элементами, трюками) и т. п. Сходство с ним имеет трикинг-синтез акробатических, каскадерских трюков и элементов классических боевых искусств. Установлено, что уличные виды гимнастики имеют высокую травматичность и проводятся, как правило, в рамках самотренировки молодежи. Поэтому на сегодняшний день имеет актуальность широкая просветительская деятельность по этому вопросу среди участников уличных двигательных культур и специалистов сферы физической культуры и спорта. ***Выводы.*** Наиболее популярными видами уличной гимнастики является воркаут, паркур, фриран, акрострит, трикинг. Их оценивают как экстремальную двигательную деятельность с высоким уровнем травматичности. Актуальным вопросом дальнейших научных исследований является разработка путей предупреждения травматизма уличных тренировок.

Ключевые слова: воркаут, паркур, фриран, акрострит, характеристика, предупреждение травматизма.

Introduction. Today, our country takes over foreign and forms its own experience in organizing active leisure activities of the population. Increasingly, on the streets, you will meet people on skateboards and roller skates, there is growing interest in engaging in sports on «street» playgrounds and objects in park areas. In addition, youth continue to search for innovative means and forms of organization of sports leisure that could provide physical improvement, interesting and useful leisure. In particular, in recent years, extreme types of street motor activity («parkour», «freerun», «tricking», «workout», «gymbar», «bocking» and others) have become very popular in the youth environment . Thanks to the Internet, they quickly spread and gain more and more followers. However, analysis of information base [1–12] shows that on the background of the practical popularity of the types of street motor cultures, their history of origin and development, the experience of organization in our country and the substantiation of the methods of studies are not sufficiently scientifically studied.

The aim of the study **is** – to study the features of modern types of street gymnastics content as innovative means of motor activity of youth and to identify aspects of improving their organization.

Methods of the research: comparative analysis, generalization of literary and Internet sources, interview, accounting: taking pictures of objects and subjects of training, documented plans, schemes, projects, etc. The poll was conducted during the years 2014–2018 in the Volyn region (Ukraine) among activists of street motor cultures (57 people aged 12–35 years), among students of the faculty of physical culture, sports and health of Lesya Ukrainka Eastern European National University (Lutsk, 87 people) and among teachers of physical education of institutions of secondary education in Lutsk (11 people). The questions were related to the history and methods of street gymnastics study of the feasibility of introducing such knowledge into the training of specialists in physical culture and sports, etc. All respondents agreed to the survey.

Results of the study. Based on analysis of information sources, interviewing street sports leaders, has been established that in the modern youth environment the most popular types of street gymnastics are parkour, freerun, acrostreet, tricking, workout. The common thing is that they are implemented in the «open» air, but the objects of their activities are different.

In particular, workout considered as a mix of gymnastics and weight training on a horizontal bar, parallel bars, horizontal ladders and other «street» designs or even without their use, implemented in the «open» air. A person who is engaged in workout is called – «*workouter*» [7]. For today in the «horizontal bar gymnastics» are distinguish the following styles: street workout, ghetto workout, yard gymnastics, gymbar, freestyle bar.

Ghetto workout is considered as a force direction of training in which dominated by static delays, which are not necessarily performed on horizontal bars. In street wotkout the main focus of strength training is given to technical training, which is held on special sports grounds [4].

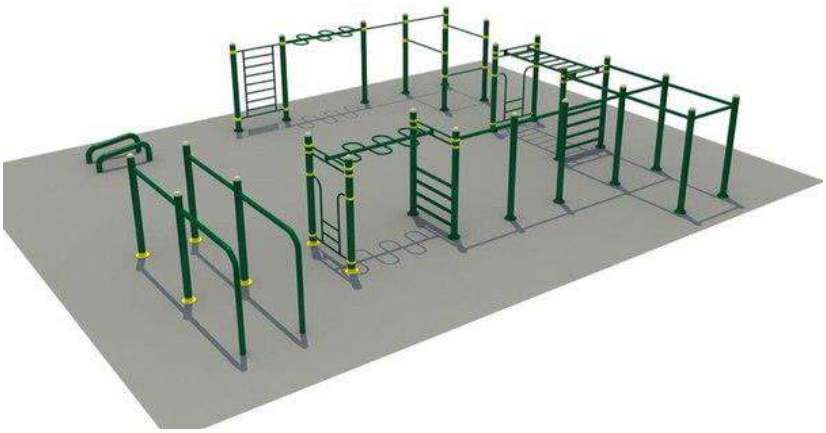
Basic workout exercises are different kinds of hinges, balance elements, dynamic turns. In particular, the most common exercises with *static delays* are: «Horizon»/»Planch» (lateral, plane, on one hand); horizontal emphasis; «Crocodile» (2 hands / 1 hand); «Swallow»; front hing stand on hands (bent, straight, candle, legs cut); angle; emphasis on half inclined; «Flag» and others (Pic. 1.) Among the *dynamic exercises* is: «the exit of the angel»; «Prince's Exit»; power output for 1 hand/2 hands; «Spear»; «Officer/captain's exit»; lifting-overturn (slowly, feather, back grip, on one hand); power output for two hands and so on [4].

Pic. 1. *The most common static elements of street workout*

The venues for the street-workout have a certain standard. Figure 2 shows the classic street-workout platform, which includes:

1. Handles (circular, curved, annular).
2. Tournaments (classical, high, low, cascades).
3. Swedish wall.
4. Bars (narrow, wide).
5. Bars for muscle press training [4; 7].

Currently, the streets-workout movement is very popular around the world, including Ukraine, which is guided by the Worldwide NGO «Street workout», held festivals and World Championships, Championships in Europe, Asia, healthy lifestyle tours, etc.



Pic. 2. *The project of the classic street-workout platform*

Street gymnastics – a kind of street training, associated with the implementation of complex exercises on street bars (Pic. 3). Usually people who are engaged in street gymnastics are called horizontal bar man. It is believed that the term and «Horizontal bar man movement» was launched in 2009 by Voronezh Street Athlete Mikhail Baratov (Russia). A special feature of street gymnastics are «Colombian», «Spanish» exits, «Baratov's exit», «Besha's exit» and others [8].

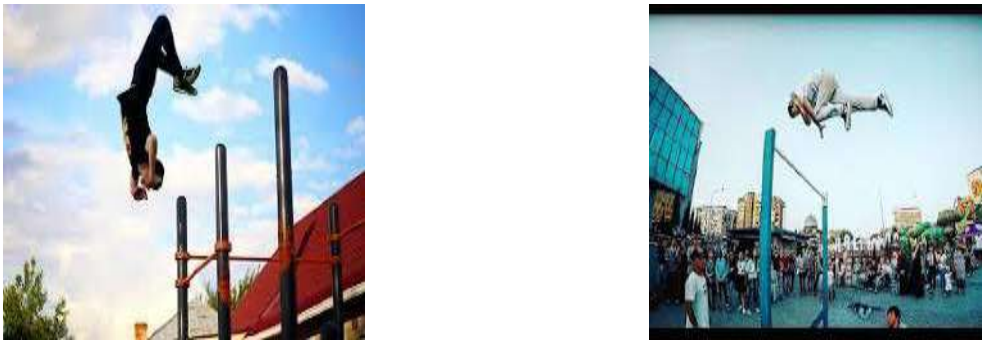
Pic. 3. *Examples of street gymnastics exercises on the bars*

Within street horizontal bar gymnastic there is special kin called body horizontal bar man style. The aim of horizontal bar man is to perform as many feints and strength exercises as possible, but for body horizontal bar man- build up of muscle mass (accordingly, requires other exercises) [8].

Gimbarr – Colombian national sport that involves performing on special supports or horizontal bars exercises with extreme manifestation of joint mobility (Pic.4). Columbians believe that gimbar became the forefather of many street sports kinds [5].

Pic. 4. *Examples of gimbarrs exercises*

Freestyle Bar *(Free-bar)* – the most up-to-date and most complex kind of street gymnastics (Pic.5). It can be characterized as dynamic complexes of previous workout directions, in which the creative connections of horizontal tricks, static delays, flights between the crossings are performed at the time of the musical track. Due to the factor of entertainment, the free-bar is compared with the freerun. Only the first one is executed on the system of horizontal bars, and the other – on street obstacles. Free-bar exercises require high strength endurance, agility, flexibility and more.



Pic. 5. *Elements of freestyle bar*

Parkour – is a motor activity related to traversing obstacles in natural environment through the use of running, vaulting, jumping, climbing, rolling, and other movements in order to travel from one point to another in the quickest and most efficient way possible without the use of equipment [6; 12]. Parkour combines gymnastics, athletics, bildering (climbing the walls) and a special philosophy of world perception. A practitioner of parkour is called a »*traceur*» **(**from the French verb «*tracer*», which means – «the one who paves the way»). The philosophy of their activities is the position: «In life there are no limits, there are only obstacles». A lot of attention in Parkour is given to the practice of jump movements, which have the following types: «drop», »spring», «up from down jump», «blind», «gap jump», «accuracy», «running accuracy», »turn precision», «fly roll» (Pic.6).

Pic. 6. *Examples of parkours exercises*

Freerun – the separation of parkour in which are added a spectacular effect and commercialization of performances [4]. A practitioner of freerun is called a »*freerunner*»**.** In freerun, besides the parkour elements are practiced different acrobatic tricks : different types of flips, «wall spin», «kicks», «twists», «combo» – combination of tricks [12] (Pic.7).

Pic. 7. *Examples of freeruns elements*

Acrostreet or street acrobatics – informal sport that originated in England at the end of the 20th century – the beginning of the 21st century [1]**.** Many people partly associate acrostreet with parkour and freerun. Unlike ordinary parkour, acrostreet tricks include handstands, jumping from great heights, flip through obstacles and other, which are aimed at creating a spectacular effect as in freerun (Pic.8) [1].

Pic. 8. *Examples of acrostreets tricks*

Tricking – is a modern kind of extreme sports and sports activity, which is the synthesis of elements of martial arts, acrobatic, stunt tricks and other sports disciplines to create a spectacular effect of turns in various planes, kicking in jumps with turns 360, 720 and more degrees. People who doing tricking are called «trickers» [11] (Pic. 9).

Pic.9. *Examples of trickings elements*

Tricking is based on other types of motor and sports activities with which it has some similarities. In particular, people consider it one of the varieties of street acrobatics, because it is performed mainly on the «open» air, while others compare tricking with capoeira and acrostreets.. Specialists note that many types of kicks and acrobatic elements in tricking are borrowed from capoeira. However, the subject of action in a tricking is a set of independent movements of a person, without interaction with others, while in capoeira, on the contrary – everything is reduced to a «game» – interaction with a partner. In contradistinction to acrostreet, tricking has kicks that belong to the movements of martial arts and «flow» – a connection between the elements which gives them a dance form. [1; 11].

Analysis of information base shows that most experts compare tricking with eXtreme Martial Arts (XMA), considered as a combination of gymnastics, dance, acrobatics and different techniques and philosophies of martial arts. Its founder is the Thai stuntman Mike Chat. Also similar to tricking is another training program – Multi Level Moves, which literally translates as «multiple execution of uniform movements», Canadian air tricks performer Joe Ego. This program is aimed at the experimental study of the limits of the capabilities of the human body and appeared on various martial arts competitions at the end of the XX century - the beginning of the XXI century [11].

It was found that street gymnastics predominantly has Anglo-American or European roots. *Tricking* was founded in 60th years of XX century among American athletes in martial arts (founders – Ernie Reyes (USA) and others) [11]. *Parkour* – in France in the late 80's of the twentieth century (founder – David Belle, native of Normandy) [6]. *Freerun*, as the branch of parkour, was founded by French freerunner Sebastien Foucan in 90th years of XX century [12]. *Workout* also was originated in the 90 years of the twentieth century (in USA, founder – King Hannibal, native of Egypt). *Acrostreet* – in England, in the late 90's of the XX – the beginning of the XXI century. (thanks to Cyril Raffaelli, Daniel Ilabaca and freerunner's team «Team Evo») [1].

It has been established that Ukraine has joined the world movement of street training in the early twenty-first century. The first (since 2004) in the country began to appear workout association (founder – Denis Minin, 1980, Dnipro [7]). The official establishment of parkour in our country dates back to 2009 when the relevant federation of Ukraine was created (Parkour Federation of Ukraine, president of the federation – Oleksandr Chernobrovkin, Kiev [9]). Also in the same year, trickings was founded in Ukraine and it is associated with the All-Ukrainian Association «Astorun» (Bila Tserkva, the head of the association – Roman Konopatsky [9]). Today, all regions of the country are involved in the «street gymnastics» movement: all regional centers have teams of workouters, traceurs, trickers. The most famous of them - in Mykolaiv, Kiev, Kharkiv, Lviv, Cherkasy, Rivne [7; 10; 11].

Discussion. Street training is a useful hobby. Such training provide them with rapid growth of strength, coordination, flexibility, hardening of the body, improve the functioning of the cardiovascular and respiratory systems, improve moral-volitional and communicative qualities. However, almost all types of modern «street gymnastics» are highly traumatic. The danger of injury from the implementation of complex gymnastic tricks is reinforced by the fact that, as a rule, these trainings take place within the framework of

self-learning - the reproduction seen from each other or from the Internet without supervision and guidance of specialists. Consequences of inadequate knowledge, incorrect organization of work places, training techniques and non-compliance with their safety can lead to disability.

The analysis of the information base of street culture available to Internet network (since from it derive knowledge workouters, traceurs, freerunners, trickers and other members of street cultures) shows that it is quite large, but mostly journalistic that, in many cases, does not provide organizational and methodological aspects of prevention of injuries, overtraining people, etc.

Accordingly, we believe that the urgent need for the field of physical culture is the need for broad educational activities on this issue among the participants of street motor crops and relevant specialists. In particular, we consider it necessary to include in the programs of training of specialists in physical education and sports information on the content, methods of street gymnastics (for example – in the program of discipline «Gymnastics and methods of its training»), as well as in physical education programs for students and educational institutions at studying the gymnastics module, etc.

Conclusions. 1. It has been established that in today's youth environment the following types of street gymnastics are most popular: workout, parkour, freerun, acrostreet, tricking. The name «street» is based on the fact that this gymnastics is implemented in the «open» air. Workout is considered as a mix of gymnastic and strength exercises on bars, girders, horizontal ladders and other «street» designs. Currently, within the «bar gymnastics» distinguish the following styles: street workout, ghetto workout, yard gymnastics, gimbar, freestyle bar. Another direction of street gymnastics («acrobatic») include parkour, freerun, acrostreet. *They are characterized as types of body art in outdoor conditions, for example, the rapid overcoming of obstacles in the «street area» (running with jumps, acrobatic elements, tricks), etc. The similarity to them is tricking – a synthesis of acrobatic, stunt tricks and elements of classical martial arts.* 2. The problem of the scientific approach to the organization and methodology of street gymnastics is found: in particular, the problems of preventing injuries, adherence to the principles of age accessibility, graduality in the selection of means and magnitude of loads, etc. The necessity of corresponding educational activity among participants of street motor cultures and experts in sphere of physical culture is established. In particular, it is proposed to introduce the theme «Modern types of street gymnastics» in the course/module «Gymnastics» in institutions of higher and secondary education, etc. 3. Perspective direction within this problem is the further study on the development of these and other street cultures in the country, their teaching methods, etc.

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ON THE QUESTION OF THE FEASIBILITY OF INTRODUCING THE VARIABLE MODULE "FITNESS" IN THE PROCESS OF PHYSICAL EDUCATION OF CHILDREN WITH HEARING IMPAIRMENTS

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Abstracts

Novelty. Adapted Physical Education is a new branch in science and educative field. It needs a content development and improvement by finding new forms and methods of work with special needs children. Analysis of science and teaching literature & Internet sources, studying of work of special schools for children with hearing disorders shows that content of physical training programs for such children is undeveloped. ***Purpose of investigation*** – to study the possibility of implementation of fitnesses in physical training of children with hearing disorders. The next methods of investigation were used: analysis of science and methodical literature and Internet sources, synthesis, filing, specification. ***Results of Investigation.*** Disorders of acoustic analyzer reflect on vestibular and kinetic functions ad provide delay of vertical position formation, muscular distonia, instability, arrested development of space orientation, difficulties in motor differentiation and performance of precise movements. Due to this fact the implementation of special pedagogical system in school for children with indicate disorders. Such system coud ensure correponding level of physical education. ***Conclusions.*** The presence of contradictions between psychological, social and physical demandsand possibilities of children with heaing disabilities helps us to define the scientific support of efective ways of coraction thiermotor disorders by methods of adapted physical education such as variable modul «Fitness» and its types «Step- aerobics», «Fitball-gym», «Pilates» and «Stabilisation». The special equipment used for this: pulley weights trainer «Butterfly» pulley weights «Mini Bands», strech bands, pilates hoops, step-platforms, fitballs, balance platforms.

Key words: motor activity, adapted physical education, hearing disordrs, variable modul, elements of fitness.

Роман Іваніцький, Алла Альошина, Олександр Бичук. До питання доцільності впровадження варіативного модуля «фітнес» у процес фізичного виховання дітей із вадами слуху. ***Актуальність.*** Адаптивне фізичне виховання – новий напрям у науковому та освітньому просторі, який потребує постійного розвитку й удосконалення, за допомогою пошуку нових форм і методів роботи з дітьми, котрі мають різні вади в індивідуальному розвитку. Аналіз наукової та науково-методичної літератури, Інтернет-джерел й ознайомлення з практикою роботи спеціальних шкіл для дітей із вадами слуху дає підставу стверджувати, що зміст програм із фізичного виховання для цієї категорії школярів є недостатньо розробленим. ***Мета дослідження*** – вивчити можливість впровадження елементів фітнесу в процес фізичного виховання дітей із вадами слуху. У процесі дослідження ми використовували ***такі методи***, як аналіз науково-методичних літературних та Інтернет-джерел, синтез, систематизація, конкретизація. ***Результати дослідження.*** Ураження слухового аналізатора позначається на роботі вестибулярного й кінестетичного апаратів, що супроводжується затримкою формування прямостояння, порушенням м'язового тонусу та здатності підтримки рівноваги, недорозвиненням просторової орієнтації, утрудненнями в диференціації рухових відчуттів і виконанні складно-координаційних рухів. У зв'язку з цим важливого значення набуває впровадження в спеціальній школі для дітей означеної нозології відповідної системи педагогічних заходів, яка б забезпечувала належний рівень розвитку фізичних якостей у поєднанні з корекційно-оздоровчою спрямованістю процесу адаптивного фізичного виховання. ***Висновки.*** Наявність суперечностей між психологічними, соціальними й фізичними потребами дітей із вадами слуху та їхніми можливостями визначає пошук і наукове обґрунтування ефективних шляхів корекції наявних у них рухових порушень засобами адаптивного фізичного виховання, зокрема впровадженням варіативного модуля «Фітнес» із використанням таких його видів, як «Степ-аеробіка», «Фітбол-гімнастика», «Пілатес» та «Стабілізація», і відповідного обладнання, зокрема еспандера-тренажера «Метелик», еспандера «Mini Bands», гумових стрічок, обручів для Пілатесу, степ-платформ, фітболів, балансувальних платформ.

Ключові слова: рухова активність, адаптивне фізичне виховання, вади слуху, варіативний модуль, елементи фітнесу.

Роман Иваницкий, Алла Алёшина, Александр Бычук. К вопросу целесообразности внедрения вариативного модуля «фитнес» в процесс физического воспитания детей с недостатками слуха. ***Актуальность.*** Адаптивное физическое воспитание – новое направление в научном и образовательном пространстве, которое

требует постоянного развития и совершенствования путем поиска новых форм и методов работы с детьми, имеющими различные недостатки в индивидуальном развитии. Анализ научной и научно-методической литературы, Интернет-источников и ознакомление с практикой работы специальных школ для детей с недостатками слуха позволяет утверждать, что содержание программ по физическому воспитанию для этой категории школьников недостаточно разработанное. ***Цель исследования*** – изучить возможность внедрения элементов фитнеса в процесс физического воспитания детей с недостатками слуха. В процессе исследования мы использовали ***такие методы***, как анализ научно-методических литературных и Интернет-источников, синтез, систематизация, конкретизация. ***Результаты исследования.*** Поражение слухового анализатора сказывается на работе вестибулярного и кинестетического аппаратов, сопровождается задержкой формирования прямостояния, нарушением мышечного тонуса и способности поддержания равновесия, недоразвитием пространственной ориентации, затруднениями в дифференциации двигательных ощущений и исполнении сложнокоординационных движений. В связи с этим важное значение приобретает внедрение в специальной школе для детей указанной нозологии соответствующей системы педагогических мероприятий, обеспечивающей должный уровень развития физических качеств в сочетании с коррекционно-оздоровительной направленности процесса адаптивного физического воспитания. ***Выводы.*** Наличие противоречий между психологическими, социальными и физическими потребностями детей с недостатками слуха и их возможностями определяет поиск и научное обоснование эффективных путей коррекции имеющихся у них двигательных нарушений средствами адаптивного физического воспитания, в частности внедрением вариативного модуля «Фитнес» с использованием таких его видов, как «Степ-аэробика», «Фитбол-гимнастика», «Пилатес» и «Стабилизация», а также соответствующего оборудования: эспандера-тренажера «Бабочка», эспандера «Mini Bands», резиновых лент, обручей для Пилатеса, степ-платформ, фитболов, балансировочных платформ.

Ключевые слова: двигательная активность, адаптивное физическое воспитание, недостатки слуха, вариативный модуль, элементы фитнеса.

Introduction. Modern society is known to be developing on the basis of the ideas of humanization involving the disclosure and implementation of the creative potential of each person, including those with developmental disabilities. Nowadays there is a negative trend towards increasing the number of people with special needs. The reasons for this are both external and internal factors [1; 5; 6; 10; 12].

Children physical training with hearing impairments is an integral part of the process of education and upbringing. The purpose of adaptive physical education is the formation and development of motor activity, physical and mental abilities, which ensure the adaptation of man to his state of health, environment, society and various activities. With proper organization and a special approach to this process, the classes contribute to the effective mastering of the curriculum, the formation of a developed individual, and in the future – its socialization and successful mastery of modern professions [1; 2; 5; 11].

The I. M. Lyakhova study [10] emphasizes that democratic and economic transformations that took place in Ukraine at the beginning of the 21st century led to the need of significant changes in the educational system, which was embodied in the State National Program "Education (Ukraine of the XXI Century)", in the National doctrine on the development of Ukraine's education in the 21st century, in the National program "Children of Ukraine" and in the other official state documents. These documents point out that children with psychophysical development peculiarities require special care; there is a need to update the content of education, to introduce new approaches, forms, methods of teaching and education that would meet the needs of development of the personalities of these children, to contribute to the disclosure of talents, their mental and physical abilities; to prioritise ensuring their full-fledged life, optimal conditions for maximum social and labor rehabilitation.

All of mentioned above lets us suggest of the creation of favorable conditions for development of new pedagogical technologies and approaches to the organization of training and education of children with hearing impairments. The main purpose of the "Physical Culture" subject for the deaf is to strengthen health, physical development and correction of its violations, to form the foundations of a healthy lifestyle; mastering of motor skills; development of motor qualities (strength, speed, endurance, etc.); education of a positive attitude to physical activity; moral, volitional qualities (courage, perseverance, etc.); development of communication skills [1; 5; 10; 11].

The purpose of the research is to explore the possibility of introducing fitness elements into the process of physical education of children with hearing impairments.

Research methods. In the process of research, we used the following methods: analysis of scientific – methodological literary and Internet sources, synthesis, systematization, specification.

The results of the reseach. Analysis of literary sources [4; 6; 8; 10] indicates that loss of hearing, especially at an early age, has a negative impact on the formation of the child's personality, the development of functional systems and impedes its social and psychological adaptation. The study of changes in functional systems that interact and affect the auditory analyzer is essential not only for diagnosing the disease and its complications, but for justifying and choosing an effective method for correction of motor disorders in children with hearing impairments.

The conducted analysis of scientific researches showed that the motor area disorders of children with hearing impairments are interconnected and caused by general reasons: the degree of functioning of the vestibular apparatus, the structure of the hearing impairment, lack of speech function, reduction of the volume of received information, and the state of the motor analyzer [3; 5; 6; 10].

In the majority of children with hearing impairments, there is an insufficient level of formation of coordination abilities, which are the basis of everyday motor skills and abilities, in connection with which their correction and development in this category of children have a great importance for adaptation and realization in society [5; 7; 9; 10].

The lesion of the auditory analyzer affects the work of the vestibular and kinestetic apparatus, accompanied by a delay in the formation of the upstanding, a violation of muscle tone and the ability to maintain balance, underdevelopment of spatial orientation, difficulties in differentiation of motor sensations and the implementation of complex coordination movements. In this regard, becomes very important the introduction of a proper system of pedagogical measures for the children of the indicated nosology, which would ensure the proper level of development of physical qualities in conjunction with the correctional-well-being orientation of the process of adaptive physical education. [5; 6; 9; 11].

The purpose of the subject "Physical Culture" is realized by applying an integrated approach to solving general educational and specific correctional and developmental problems.

The state standard requirements of the program for physical culture for the deaf do not differ from the requirements of the mass educational institutions.

The program of physical culture is characterized by a focus on the implementation of the principle of variability. The curriculum is based on a modular system. It contains an invariant and a variational component. The educational institution forms content of the variable component independently from the modules offered by the curriculum. At the same time, almost every kind of sport can be represented as a variant module, as physical education specialists can develop their variational modules for this program [5; 10; 11].

The variational module consists of the three sections. The section "Content of the educational material" includes theoretical information, special physical training and physical education, which are typical for this module, training standards and equipment list. The section "State requirements for the level of general education of the deaf" focuses on the qualitative assimilation of knowledge, abilities and skills of the submitted material. The section "Direction of Correctional and Developmental Work and Expected Results", in particular, provides for work on the development of deaf students' ability to understand and reproduce oral speech, the formation of vocabulary resources at physical education classes. [1; 2; 10; 11].

The criteria for selecting the variational modules are: availability of material and technical base, regional sports traditions, staffing and the will of students. The will of students is determined by compulsory written interview at the end of the school year [1; 2; 11].

At the present phase of society's development, there is a need to introduce in the process of adaptive physical education those sports that are in demand by the time: fitness and tourism.

So, in our opinion, the implementation of the variable module "Fitness" in the educational process is more realistic, since equipment for conducting lessons is quite diverse, does not require large areas, are easy to use and to afford. Particular attention deserves such means: expander «Butterfly», expander «Mini Vands», coordination staircase, Pilve's hoop, step-platform, balancing platforms, rubber ribbons for fitness, fitness set «Trening Set». We propose to introduce such variants - "Step-aerobics", "Fitball-gymnastics", "Pilates" and "Stabilization" to the variant "Fitness".

In fact such kinds of sport as tourism and fitness which are quite popular nowadays should be included into the process of an adaptive physical education on the current modern stage of the development of society.

Hence, to our mind implementation of variation module "Fitness" into the studying process is more real, as equipment for conducting classes is quite different, doesn't require big squares, fairly easy to use and available at prices. Such equipments as : espander "Butterfly", espander "Mini Bands", coordination ladder, pilates hoop, step platform, balancing platform, rubber ribbons, "Trening set" for fitness – deserve a special attention.

We offer to add new species of variation module "Fitness" as –" Step aerobic", "Fitbol gymnastic", "Pilates" and "Stabilization".

Implementation of variation module is also due to the fact that investigation process proved that comprehensive focused physical exercises (aerobic complex including equipments and without , step-jogging, game tasks and relay race), exercises for formation and strengthening the right posture and statico-dynamical are effective means of correction and development the child's motor field with hearing impairments. As the matter of fact, implementation into the reality of children with hearing impairments effects on growth of interest of physical culture, activisation of movement activity , creation and expansion of the base of movement and speech experience , which plays a pivotal role at mastering of new motor actions .

Taking into account that the class density isn't higher than 12 people , a circle training with the use of those equipments could be used as an option plus exercises which affect the development of vertical body firmness and static balance .

So that's why we offer to make up the technology of the development of the motor field of pupils with hearing impairments and implement them into the studying process with the help of fitness which affects on the increase of motor activity and socialization during the modern life rhythm.

Conclusion. Contradictions between psychological, socialistic and physical needs of children with hearing impairments and their possibilities indicates search and scientific explanation of the effective ways of the current motor disturbances correction by using the adaptive physical education , in addition by implementing varied module "Fitness"by using; "Step-aerobic", "Fitbol-gymnastic", "Pilates" and "Stabilization" and appropriate equipments : simulator "Butterfly", espander " Mini Bands", rubber ribbons, a pilates hoop, step platform , fitbol, balanced platform .

Perspectives for further reaserch. For the development, realization and implementation into the process of physical education the varied module "Fitness", need very carefully learn the problem of implementation of modern information technologies into the studying process of children with hearing impairments.

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DYNAMICS OF METHODOLOGICAL PREPARATION OF CADETS IN THE OPTIMIZATION OF PHYSICAL TRAINING

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Abstracts

Actuality. A large number of specialists take part in the process of physical training of servicemen, but the leading place in this belongs to the unit commanders. Preparedness of unit commanders for the duties of the leaders of physical training forms begins at the higher military education institutions (HMEI) in the process of physical training. Methodological skills-formation among graduates of the HMEI is a direct contribution to the methodological provision of physical training in troops, a prerequisite for the excellent physical training, which is a component of combat training. In scientific works by O. M. Loyik (2000, 2012), O. M. Olkhovyi (2005–2014), Ye. D. Anokhin (2010), S. V. Romanchuk (2015) and others, it is noted that the process of physical fitness level of cadets in HMEI is reduced to the formation of physical features. ***The purpose of the study*** – to experimentally verify the effectiveness of the author's program of the methodological component of the discipline «Physical Education and Special Physical Training» for the cadets of HMEI for the methodological skills-formation among future unit commanders. ***Methodology of the study*** – organized a four-year pedagogical experiment. Sixty cadets participated in it (experimental group, n=30; control group, n=30). The effectiveness of the experimental concept was determined using changes in the indicators of methodological and theoretical training of cadets. ***The Results of the Study.*** The results of the pedagogical experiment, which prove the effectiveness of the author's program of methodological preparation, were considered. It was determined that during the study at HMEI the results of the dynamics of the average level of methodological preparedness of control group cadets improved by 0,3 points (from 3,7 to 4,0 points), while no significant changes occurred (t=1,28; p>0,05). It was proved that at the end of the experiment, the level of methodological preparation among graduate cadets of the experimental group is 1,0 point, in comparison with the initial level (from 3,6 to 4,6 points), that is statistically significant (t=4,38; p<0,001). ***Conclusions.*** The program of improving the methodological preparation in the process of physical training in HMEI is recommended to be used during the training of cadets of HMEI.

Key words: leaders, physical training, methodological preparation, author's program, cadets.

Андрій Петрук, Сергій Романчук, Орест Лесько, Андрій Демків, Сергій Гоманюк, Олександр Воронцов. Динаміка методичної підготовленості курсантів в процесі оптимізації фізичної підготовки. ***Актуальність.*** У процесі фізичного вдосконалення військовослужбовців бере участь велика кількість фахівців, але провідне місце в цьому належить командирам підрозділів. Їх підготовка до виконання обов'язків керівників форм фізичної підготовки розпочинається в стінах вищих військових навчальних закладів (ВВНЗ) у процесі фізичної підготовки. Формування методичної майстерності випускників ВВНЗ – це прямий внесок у методичне забезпечення фізичної підготовки у військах, необхідна передумова відмінної фізичної підготовки, яка є складовою частиною бойової. У наукових працях О. М. Лойка (2000, 2012), О. М. Ольхового (2005-2014), Є. Д. Анохіна (2010), С. В. Романчука (2015) та інших відзначено, що процес фізичної підготовки курсантів у ВВНЗ зводиться тільки до формування фізичних якостей. ***Завдання роботи*** – експериментально перевірити ефективність авторської програми методичної складової навчальної дисципліни «Фізичне виховання та спеціальна фізична підготовка» курсантів ВВНЗ у формуванні методичних умінь та навичок у майбутніх командирів військових підрозділів. ***Методологія проведення роботи*** – організований чотирирічний формувальний педагогічний експеримент. У ньому брали участь 60 курсантів (експериментальна група, n=30; контрольна група, n=30). Ефективність експериментальної концепції визначили, використовуючи зміни показників методичної та теоретичної підготовленості курсантів. ***Результати роботи.*** Розглянуто результати педагогічного формувального експерименту, які доводять ефективність авторської програми методичної підготовки. Установлено, що в курсантів контрольної групи протягом навчання у вищому військовому навчальному закладі в процесі дослідження за результатами динаміки середнього рівня методичної підготовленості покращилася на 0,3 бала (від 3,7 до 4,0 бала),

при цьому достовірних змін не відбулось (t=1,28; p>0,05). Доведено, що по закінченню експерименту в курсантів-випускників експериментальної групи різниця рівня методичної підготовленості складає 1,0 бала, порівняно з вихідним рівнем (від 3,6 до 4,6 бала), що є статистично достовірно (t=4,38; p<0,001). ***Висновки.*** Програму вдосконалення методичної підготовленості в процесі фізичної підготовки у ВВНЗ рекомендуємо використовувати під час підготовки курсантів ВВНЗ.

Ключові слова: керівники, фізична підготовка, методична підготовленість, авторська програма, курсанти.

Андрей Петрук, Сергей Романчук, Орест Леско, Андрей Демкив, Сергей Гоманюк, Александр Воронцов. Динамика методической подготовленности курсантов в процессе оптимизации физической подготовки. ***Актуальность.*** В процессе физического совершенствования военнослужащих принимает участие большое количество специалистов, но ведущее место в этом принадлежит командирам подразделений. Их подготовка к выполнению обязанностей руководителей форм физической подготовки начинается в стенах высших военных учебных заведений (ВВУЗ) в процессе физической подготовки. Формирование методического мастерства выпускников ВВУЗ – это прямой вклад в методическое обеспечение физической подготовки в войсках, необходимая предпосылка отличной физической подготовки, которая является составной боевой подготовки. В научных трудах А. Н. Лойко (2000, 2012), А. Н. Ольхового (2005 2014), Е. Д. Анохина (2010), С. Романчука (2015) и др. отмечается, что процесс физической подготовки курсантов ВВУЗ сводится только к формированию физических качеств. ***Задачи работы*** – экспериментально проверить эффективность авторской программы методической составляющей учебной дисциплины «Физическое воспитание и специальная физическая подготовка» курсантов ВУЗа на формирование методических умений и навыков у будущих командиров воинских подразделений. ***Методология проведения работы*** – организован четырехлетний формовочный педагогический эксперимент. В нем принимали участие 60 курсантов (экспериментальная группа, n = 30; контрольная группа, n = 30). Эффективность экспериментальной концепции была определена, используя изменения показателей методической и теоретической подготовленности курсантов. ***Результаты работы.*** Рассмотрены результаты педагогического формирующего эксперимента, которые доказывают эффективность авторской программы методической подготовки. Установлено, что у курсантов контрольной группы на протяжении обучения в высшем военном учебном заведении в процессе исследования по результатам динамики среднего уровня методической подготовленности улучшилась на 0,3 балла (от 3,7 до 4,0 баллов), при этом достоверных изменений не произошло (t = 1,28, p> 0,05). Доказано, что по окончании эксперимента у курсантов-выпускников экспериментальной группы разница уровня методической подготовленности составляет 1,0 балла, по сравнению с исходным уровнем (от 3,6 до 4,6 балла), что является статистически достоверным (t = 4,38; p<0,001). ***Выводы.*** Программу совершенствования методической подготовленности в процессе физической подготовки ВВУЗа рекомендуем использовать при подготовке курсантов ВУЗа.

Ключевые слова: руководители, физическая подготовка, методическая подготовленность, авторская программа, курсанты.

Introduction. Adequate training and warfare under modern conditions depends on physical fitness as well, and a methodological part is one of the core elements and it has been proved by scholars [1, 4, 5, 7, 12]. For almost three decades methodological element of physical training in the Armed Forces of Ukraine (AFU) has remained beyond scholars' attention. Nowadays we lack systematic and combined researches on this topic. At the stage of reforming AFU methodological element of physical training in higher military education establishments in which commanding military professionals undergo training requires significant changes as to its further improvement and development.

The article is a part of scientific programmes of scientific and scientific-technical activities plan of Physical Training HQs of Training and Routine Military Activities Management Central HQs of AFU for 2011–2016 according to the topic: "Model of physical training in the AFU as to 2017 and perspectives of its development", code – "Perspective-FP" (state license number - 0101U001568), plan of research work for 2011-2016 of the Ministry of Defence of Ukraine in the frame of topics "Condition of criterion and figures of servicemen psychological capabilities during combat actions", code – "Capabilities" (state license number - 0101U001767).

Analysis of recent researches and publications. The issue of enhancing level of servicemen`s methodological readiness on stages of professional growth was raised by scholars in their publications, namely: S.V. Romanchuk, O.M. Olkhovyi, O.M. Loiko, Y.D. Anokhin, A.I. Yavorskyi and others [5, 8, 9, 10, 12]. Form scholars` perspective one of the main approach which could be taken into consideration in

solving questions of intense cadets` physical training is improvement of basics of physical training process.

Professor O. M. Olkhovyi and others have worked out recommendations on improvement level of methodological readiness of future officers under module-rating conditions. [5, 11]. Professor A.V. Mahliovanyi and others researched various aspects of training organization of those who are responsible for physical training in foreign armies [2]. Analysis of foreign experience showed that much more attention has been paid to obtaining theoretical knowledge, shaping methodological skills and capabilities for self-study. Other scholars took into consideration some aspects of commanders training but this seems to be not enough due to changes in structure and contents of combat training, due to new approaches for utilization methods and means of troops training. Analysis of scientific literature proved that there are lacks of works aimed at research of influence of various authors` programmes on cadets` methodological readiness in the process of physical training under conditions of AFU reformation and establishment ways of its improvement.

Goal of investigation: to check effectiveness of authors` programme as a methodological part of academic major "Physical education and special physical training" of cadets from higher military education establishments as to future commanding officers` possessing methodological skills.

Material and methods of investigation: theoretical analysis of scientific-methodological literature and global informational network Internet; forming pedagogical experiment; mathematical-statistic processing of data which was being researched. The research was conducted in the National Army Academy (Lviv). 60 cadets were involved in the research (experimental group n=30; control group, n=30). We have established a 4 year forming pedagogical experiment. Changes of methodological and theoretical preparedness of cadets were the basics for defining experimental concept effectiveness.

Results of the research. Discussion. During the analysis of doctrines on physical training it has been identified that the core elements of training for chiefs of physical training are the process of obtaining theoretical knowledge and methodological skills on planning and delivery of lessons, morning PT, sports events, physical training during combat activities and self-training. This process is delivered in all high military education establishments as well as individual training. [3]. Professor O. M. Olkhovyi made investigations which showed that main disadvantages of present system of training commander are disregard of entry physical fitness level of those who are trained; absence of differentiation between academic majors depending on professional tasks, contents and skills for their fulfillment; absence of grade system on how the information was assimilated. [5]. Methodological training – is one of the competences being formed in cadets. This chapter of curriculum implies acquiring skills and knowledge in planning and delivery various forms of servicemen physical training and development of main psychological skill by cadets. During physical training commanders act as planners, instructors and trainers for subordinates. The need of training personnel and provide knowledge on physical exercises, techniques and actions, developing and enhancing moral characteristics makes the commander know modern methods of physical training management, methodological skills on planning and delivery of physical training. Without all these aspects it is impossible to fulfill the designated tasks efficiently as to servicemen physical fitness to accomplish combat missions.

Formation of methodological skills of cadets – is a direct contribution to methodological support of physical training in units, and necessary preliminary aspect in effective process of improving physical capabilities of servicemen of military units and formations of the AFU and due to this meeting the necessary level of readiness.

Author`s programme of methodological training of cadets` despite the actual programme cadets have in higher military education establishments of Land Forces implies instructors` training in accordance with skills and knowledge that cadets gain during subject-matter specialties [6].

Defining the level of methodological fitness of cadets from experimental group (EG) and control group (CG) takes place during examinations on discipline "Physical education, special physical training" at the end of I, II, III and IV academic years.

Content of methodological task met the skills and knowledge capacities that were acquired during the academic year. New peculiarities of cadets` methodological fitness during physical training are described in author`s programme what differs it from the classical approach. New components of methodological expertise, requirements and evaluation of Chief of physical training, methodological asks for cadets of different academic years and specialties who take into consideration peculiarities of planning physical training in military units which cadets will be posted in as those responsible for physical training. A handbook has been worked out on planning individual physical training as a tool for young officers.

Based on the results of examinations on physical education and special physical training in control group (CG n-30) and in experimental group (EG n-30) during 2013–2017 the dynamics of methodological preparedness (fitness) was identified.

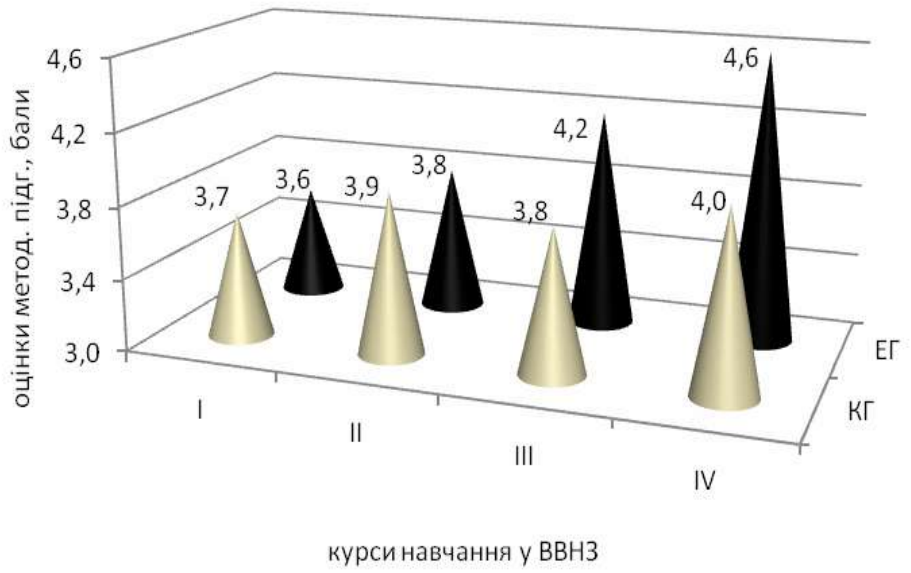
Results we got at the end of the first academic year are thought to be the initial level of methodological training. Statistics processing of received information does not show discrepancies between figures of cadets from EG (3,6±0,2 grade) and from CG (3,7±0,2 grade) ($t=0,45$; $p>0,05$). Those cadets who underwent classical programme of training on polishing methodological training level while studying in high military education establishment appeared to be of positive result (waving result). Thus while being on the second academic year GPA improved to 3,9±0,2 in comparison with 1 year when it was 3,7±0,2 but accurate difference in figures are not identified ($t=0,61$; $p>0,05$). At the end of the third academic year figures of cadets` methodological training of CG deteriorated to 0,1 grade, so GPA was 3,8, in comparison with 4semester during one year period there were no changes ($t=0,37$; $p>0,05$). At the end of the experiment the discrepancy of level of methodological training of cadets-graduates was 0,2 grade in comparison with cadets of the third academic year (4,0±0,2 бали) ($t=1,01$; $p>0,05$). During the research it has been identified that cadets from CG improved their level of methodological training while being in high military education establishment for 0,3 grade, but to be accurate – no changes ($t=1,28$; $p>0,05$; table. 1).

Those cadets who underwent author`s programme of improvement methodological efficiency while studying in a higher military education establishment showed positive changes. So during training GPA of cadets` of EG at the second academic year improved to 3,8±0,2 in comparison with the first academic year when it was 3,6±0,2 grade, but accurate discrepancy in the figures has not been identified ($t=0,76$; $p>0,05$). At the end of the third academic year figures of cadets` methodological efficiency of EG improved for 0,4 grade, so the GPA is 4,2 grades, in comparison with the results got during the $4^{th}$ semester no changes were seen for that one year ($t=1,32$; $p>0,05$). At the end of the $4^{th}$ academic year figures of cadets` methodological efficiency of EG improved for 0,4 grade, so the GPA is 4,6 бала, in comparison with the results got during the 4^{th} semester no changes were seen for that one year ($t=1,80$; $p>0,05$). At the end of the experiment the difference of methodological training level of cadets-graduates is 1,0 grade, in comparison with methodological training level of the same cadets at the end of the first academic year (3,6±0,2 grade, 4,6±0,2 grade) that is accurate IAW statistics ($t=4,38$; $p<0,001$) (Pic. 1).

Qualitative analysis of the level of methodological efficiency that graduates of higher military education establishment possess and who took part in the experiment showed that at the end of training there is credible discrepancy between EG and CG ($t=3,94$; $p<0,001$). It should be pointed out that most of cadets of EG showed excellent results in methodological efficiency level (63,3%), 36,7% cadets have grade “good”. Most cadets in CG have good level of methodological efficiency (66,6%), 16,7 % of personnel has grade “satisfactory” and the same percentage of cadets of CG (16,7%) possess excellent level of methodological efficiency (Pic. 2).

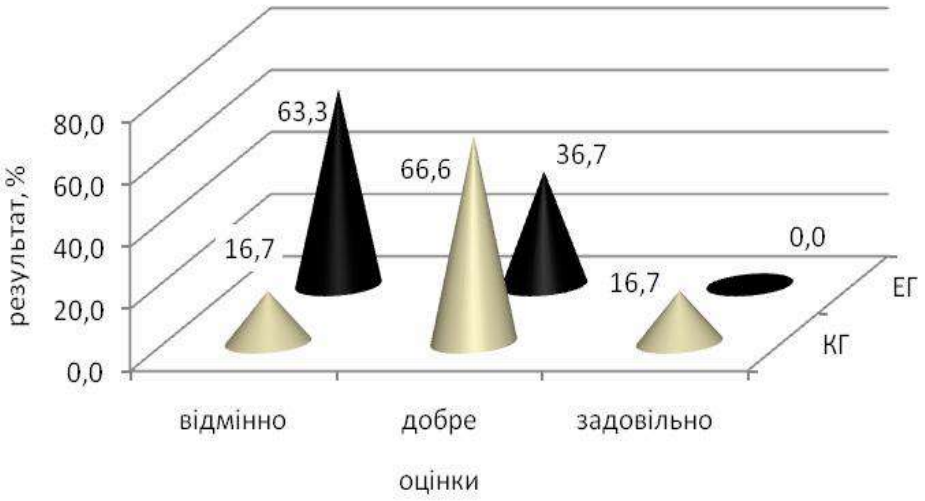
While implementing author`s programme of formation methodological efficiency of cadets of higher military education establishments during the physical training process it has been identified that the accurate task statement and understanding of methodological lessons contents, cadets` understanding of necessity to learn teaching methods have bigger effect in comparison with classical programme, namely organization of methodological training. Thus it has been proved that author`s programme of establishing

methodological efficiency allows to train graduates – future commanders of military units more effective to plan and deliver various forms of physical training for subordinates.



Pic. 1. *Dynamics of cadets` methodological efficiency - EG (n-30) and CG (n-30) during the experimental period, grade*

Remarks:
– cadets` GPA (CG)
– cadets` GPA (EG)



Pic. 2. *Characteristics of cadets` methodological preparedness (fitness), EG (n=30) and CG (n=30) at the end of experiment, %*

Remarks:
– cadets` GPA (CG);
– cadets` GPA (EG);

Conclusion. The process of cadets` training of commanding higher military education establishments of AFU depends on instructors and leaderships` methodological efficiency, their theoretical knowledge

together with employment of modern pedagogical methods, forms, approaches and activities. Most scholars think that present methodological system of physical training is not sufficient enough and requires changes based on modern tendencies of military education development taking into account practical experience in ATO in the East of Ukraine and scientific-methodological experience of leading foreign countries. The results of pedagogical experiment prove that author`s programme of methodological training is of great effectiveness. Cadets from CG while studying in higher military education establishment improved the average level of methodological efficeincy to 0,3 grades (from 3,7 to 4,0 grades), but no accurate changes happened ($t=1,28$; $p>0,05$). Cadets of EG who underwent author`s programme of improvement methodological efficiency during physical training in higher military education establishment displayed some positive changes. At the end of the experiment the difference of cadets-graduates level of methodological efficiency in comparison with the initial figures was 1,0 grade, (from3,6 to 4,6 grades), that is statistically accurate ($t=4,38$; $p<0,001$). We recommend to utilize this very programme of improving methodological efficiency in the process of physical training in higher military education establishment in cadets` training process.

Perspective of further research is a comprehensive approach to design and improvement of scientifically proved programmes and methodological recommendations on planning various activities for servicemen during physical training process.

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ANALYSIS OF PHYSICAL PREPAREDNESS OF STUDENTS BASED ON THE RESULTS OF TESTS AND STANDARDS OF ANNUAL EVALUATION

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Abstracts

The article deals with the problem of physical preparedness of student youth of higher educational institutions of different levels of accreditation. Among the students of Ivan Franko National University of Lviv (n = 4636) and the Medical College at Danylo Halytskyi LNMU (n = 327) there were conducted tests and norms of the annual assessment of physical preparedness, which correspond to their age rating. The level of physical preparedness of the students of these universities according to gender, age and training courses is analyzed. The research made it possible to find out that first-year students of Ivan Franko National University of Lviv have a lower level of physical preparedness compared to senior students. Physical preparedness equals 34,47 % (male students) and 42,55 % (female students), which is considered to be at a low level. Among the students of the Medical College at Danylo Halytskyi LNMU, a decrease was observed in the number of students with a sufficient level of PP at 27 % and an increase of 30 % with an average level from I to IV course. Reduced qualitative assessment in test exercises for flexibility and running for short distances was observed. The low results were shown by female students of all courses of study in the following exercises: the jump in length from the place and the bending of the extension of the hands in the emphasis. It was established that sedentary lifestyle of students at university and medical college, which is observed in young students and often limited only to physical education classes at the university (2 hours per week),which is well below the needs of the young body and has a negative impact in terms of physical preparedness. The obtained results of students' PP should become an important factor in increasing the motivation of students to systematical training in physical culture and sports, as well as optimization of physical education at higher educational establishments.

Key words: physical preparedness, physical education, students, testing.

Романа Сіренко, Юрій Яремчук, Наталія Семенова. Аналіз фізичної підготовленості студентів на основі результатів тестів і нормативів щорічного оцінювання. У статті розглянуто проблему фізичної підготовленості студентської молоді вищих навчальних закладів різних рівнів акредитації. Серед студентів Львівського національного університету імені Івана Франка (n=4636) і Медичного коледжу ЛНМУ імені Данила Галицького (n=327) проведено тести й нормативи щорічного оцінювання фізичної підготовленості, що відповідають їхньому віковому цензу. Проаналізовано рівень фізичної підготовленості студентів зазначених ВНЗ за гендерною ознакою, віком та курсами навчання. Дослідження дало змогу виявити що студенти-першокурсники Львівського національного університету імені Івана Франка мають нижчий рівень фізичної підготовленості, порівняно зі студентами старших курсів. Фізична підготовленість 34,47 % досліджуваних чоловічої статі та 42,55 % студентів жіночої статі університету перебуває на низькому рівні. Серед студентів Медичного коледжу ЛНМУ імені Данила Галицького встановлено зниження кількості студентів із достатнім рівнем ФП на 27 % і зростання на 30 % – із середнім рівнем від I по IV курс. Отримано зниження якісної оцінки в тестових вправах на гнучкість та в бігу на короткі дистанції. Визначено низькі результати в студенток усіх курсів навчання у вправах «стрибок у довжину з місця й згинання-розгинання рук в упорі лежачи». Установлено, що малорухомий спосіб життя студентів університету та медичного коледжу, який спостерігаємо в студентської молоді, котра часто обмежується лише заняттями фізичним вихованням у ВНЗ (2 год на тиждень), що є значно нижчим від потреб молодого організму та негативно відображається на показниках фізичної підготовленості. Одержані результати ФП студентів мають стати важливим чинником у підвищенні мотивації студентів до систематичних занять фізичною культурою й спортом та оптимізації фізичного виховання у ВНЗ.

Ключові слова: фізична підготовленість, фізичне виховання, студенти, тестування.

Романа Сиренко, Юрий Яремчук, Наталья Семенова. Анализ физической подготовленности студентов на основе результатов тестов и нормативов ежегодного оценивания. В статье рассматривается проблема физической подготовленности студенческой молодёжи высших учебных заведений разных уровней аккредитации. Среди студентов Львовского национального университета имени Ивана Франко (n=4636) и Медицинского

колледжа ЛНМУ имени Данила Галицкого (n=327) проводятся тесты и нормативы ежегодного оценивания, физической подготовленности, соответствующие их возрастному цензу. Анализируется уровень физической подготовленности студентов указанных вузов по гендерному признаку, возрасту и курсам обучения. Исследование позволило выявить, что студенты-первокурсники Львовского национального университета имени Ивана Франко имеют уровень физической подготовленности ниже, по сравнению со студентами старших курсов. Физическая подготовленность 34,47 % студентов мужского пола и 42,55 % студентов женского пола университета находится на низком уровне. Среди студентов Медицинского колледжа ЛНМУ имени Данила Галицкого установлено снижение количества студентов с достаточным уровнем ФП на 27 % и прирост на 30 % – со средним уровнем с I по IV курс. Получено снижение качественной оценки в тестовых упражнениях на гибкость и в беге на короткие дистанции. Определены низкие результаты у студенток всех курсов обучения в упражнениях «прыжок в длину с места» и «сгибание-разгибание рук в упоре лёжа». Установлено, что малоподвижный образ жизни студентов университета и медицинского колледжа, который наблюдается у студенческой молодежи и часто ограничивается лишь занятиями физическим воспитанием в вузе (2 часа в неделю), что значительно ниже потребностей молодого организма и негативно отражается на показателях физической подготовленности. Полученные результаты ФП студентов должны стать важным фактором в повышении мотивации студентов к систематическим занятиям физической культурой и спортом и оптимизации физического воспитания в вузе.

Ключевые слова: физическая подготовленность, физическое воспитание, студенты, тестирование.

Introduction. An important problem in the life of student youth at the present stage of development of society is the preservation and strengthening of health, increased physical activity, overcoming hypokinesia, adherence to the foundations of a healthy lifestyle, which, according to experts, is unquestionably interconnected [3; 5]. The research of scientists proves that physical preparedness is one of the criteria of health, and in the practice of physical education of students in higher educational institutions -- the main criterion for its effectiveness, development of physical qualities, the formation of motor skills, health promotion and future professional activities [1; 4; 6]. Scientists argue that the definition of the level of physical preparedness is a necessary component of the process of pedagogical control in physical education [2]. The conduction of which helps to optimize the process of physical education at educational institution.

In order to implement the «National Strategy for Motor Rehabilitation in Ukraine until 2025 «Motor activity – healthy lifestyle – healthy nation», the Cabinet of Ministers of Ukraine adopted the Decree No. 1045 since December 9, 2015 «On Approval of the Procedure for conducting an annual assessment of physical preparedness among the population of Ukraine».

Ministry of Youth and Sports of Ukraine by order dated 15.12.2016 № 4665 «On approval of tests and standards for conducting an annual assessment of the physical preparedness of the population of Ukraine» approved tests and standards, as well as instructions for organizing an annual assessment of physical preparedness of the population of Ukraine. For pupils and students, the process of testing physical preparedness (PP) is mandatory.

The purpose of the research is to determine and analyze the level of physical preparedness of students of Ivan Franko National University of Lviv (hereinafter referred to as university) and the Medical College of the Danylo Halytskyi National Medical University Lviv (hereinafter referred to as college).

Materials and methods of the research. Physical preparedness of students was evaluated on the quality of performing test exercises approved by the order of the Ministry of Youth and Sports of Ukraine by order dated December 15, 2014, No. 4665. The tests in both higher educational establishments were conducted during two academic classes according to the schedule. At the university during the first class, there was a test in running, distance: 100 m, jump in length, running at the distance of 3000 m (for male students) or 2000 m (for female students); during the second class – pull-ups on the bar (male students) or bending and extension of hands in the laying emphasis (female students), shuttle running, distance 4x9 m, the body tilt forward from the sitting position. In the college, on the first day of the test, students aged 15 years were running 60 m, others – 100 m, jump in length, running 2000 m (boys 15–16 years) or females from 17 years old, 1500 m (girls aged 15–16 years), 3000 m (males from 17 years old); On the second day of testing – pull-ups on the bar (males) or bending and extension of hands in the lying emphasis (female), shutter running, distance 4x9 m, the body tilt forward from the sitting position.

4,636 students of the Ivan Franko National University of Lviv were admitted to physical preparedness testing, of which 1559 were males, and 3077 were females. At all courses of study, «Physical education» takes place in the amount of 2 hours per week. During the first course as a normative educational discipline, during II–IV courses as a discipline for a student's free choice.

Physical education in college for students who entered the basic general secondary education is conducted in the amount of 2 hours per week at the first and second year, at the third, fourth year, and for the students who entered the college on the basis of complete secondary education, have 4 hours of Physical Education classes per week, except for the last semester.

In the medical college, 375 students are enrolled, of which 327 were admitted to testing: 301 female and 26 male.

Research results. Discussion. The analysis of the data obtained among the university students allowed us to establish that the students of the first year have a significantly lower level of physical preparedness than the senior students (Table 1). The most significant differences in the results of the tests are observed in the cross running at the distance of 3000 m. It should be noted that the endurance of the students of the first year is low, while the endurance of the students of the university of senior courses did not have significant differences and is within the intermediate level.

Table 1

Indices of physical preparedness of male students of Ivan Franko National University of Lviv (X±δ)

Course	Testing				
	3000 м (min, sec)	**Jump in length (cm)**	**100 м (sec)**	**Shuttle running (sec)**	**Bending of the body in sitting position (cm)**
I	15,27 1,76	210,0 17,5	14,18 0,1	9,80 0,03	8,2 0,8
II	14,06* 1,7	216,0 19,4	14,68* 0,05	9,92 0,04	11,0 * 0,6
III	14,02* 0,98	227,0 16,5	14,16 0,08	9,57 0,05	9,5 0,4
IV	14,26* 1,56	229,0 17,0	14,09 0,07	9,50 0,02	10,8 * 0,5

Note: * - the differences between groups are reliable at p <0,05.

Testing of high-speed properties of university students showed satisfactory results (qualitative assessment of 3 points). The lowest rates of speed were for second-year students. In jumps in length from place, the lowest results (at a rate of 2 points) of 210 ± 17.5 cm were shown by freshmen students. The highest average group results were observed in IV year students – 229 ± 17.0 cm. However, qualitatively this is also an unsatisfactory result (2 points).

The highest rates in male students were observed in skills tests (shuttle running 4x9 m) and flexibility. The qualitative indicators were satisfactorily and good.

Indices of physical preparedness of university students are shown in the table 2.

Table 2

Indices of physical preparedness of female students at Ivan Franko National University of Lviv (X±δ)

Course	Testing				
	2000 м (min, sec)	**Jump in length (cm)**	**100 м (sec)**	**Shuttle running (sec)**	**Bending of the body in sitting position (cm)**
I	13,01 2,78	166,0 16,0	17,45 0,09	11,08 0,04	15,8 0,8
II	12,46* 2,68	174,0 12,7	17,51 0,07	11,12 0,06	16,2 0,5
III	12,55* 2,27	176,0 15,5	16,56* 0,08	10,94 0,05	19,0* 0,4
IV	12,20* 3,47	172,5 13,9	16,47* 0,10	10,49* 0,04	18,8 * 0,6

Note: * - the differences between groups are reliable at p <0,05.

In the tests of endurance in females, there was a significant divergence of results in the run of 2000 m. The lowest average group figures were recorded in the first year students. It should be noted that 54.5% of first year students overcame distances of 2000 meters for a longer period than 12 min. and 30 seconds and got an unsatisfactory score of 0 points. Only 3.4% of students ran a distance to an excellent score of 5 points.

In our opinion, this is an extremely threatening situation, which shows that the number of female students with a reduced level of health is growing, as one can draw a parallel between endurance and the functional state of the body of women.

In the testing of speed-power and speed capabilities, a similar dynamics was observed. The results of the tests were in the low and intermediate level (jump in length from place) and low level (running at 100 m).

In jumps in length, 41.3% of students showed a result below 165 cm and scored 0 points. Even more alarming is the situation in running at 100 m, where the result of 0 points ran 58.8% of test participants.

In women, the same tendency was observed in the testing of speed and flexibility, as in men. These tests were the easiest for female students and the qualitative evaluation ranged between 3-4 points.

Table 3 shows the results of testing physical preparedness levels.

Table 3

Levels of physical preparedness among students of the university

Course	Sex	Level of preparedness, %			
		high	good	intermediate	low
I	Male.	6,60	19,34	30,42	43,63
	Female.	1,49	10,92	31,84	55,75
II	Male.	10,8	27,02	21,62	40,54
	Female.	1,98	5,94	39,60	52,48
III	Male.	16,67	19,44	41,67	22,22
	Female.	0,82	17,65	56,04	25,49
IV	Male.	17,46	18,22	32,82	31,50
	Female.	1,39	17,22	44,92	36,47
Total	Male.	12,88	21,01	31,63	34,47
	Female.	1,42	12,93	43,10	42,55

As can be seen from Table 3 in the first-year students, there is a significantly lower number of people with a high level of preparedness compared to senior students. This is especially noticeable in men. Also, the number of people with a low level of preparedness (up to 43.63%) has increased among representatives of a strong sex.

In female students, the highest percentage of people with a low level of preparedness is observed on the first year of study.

Comparison of the results of testing students of different courses at the medical college was not possible, hence college students start their education at the age of 15 and the tests for determining speed and endurance differ. Only in the 3rd and 4th year students, tests do not differ.

Female students of the first year, aged 15 years (n = 71), on the average showed an «good» level of physical preparedness that exceeded 16.6 points, which corresponds to mark: «good» according to assessment of the level of physical preparedness (Table 4).

Table 4

Indices of physical preparedness of female students aged 15 years in the Medical College at Danylo Halytskyi LNMU (X±δ)

Testing					
1500 м (min, sec)	Jump in length (cm)	60 м (sec)	Shuttle running 4x9 м (sec)	Bending of the body in sitting position (cm)	PP score (points)
9,78±1,44	159,05±22,09	10,67±1,03	11,12±0,65	11,92 ± 8,54	16,6 «good»

Among 15 years old female students, eight have performed exercises for determining strength: bending and extension of arms in laying emphasis. Three female students completed this test for «excellent», two for «good», one for «satisfactory» and two for «unsatisfactory» scores.

Male students, aged 15 years (n = 7), on average, showed «good» level of physical preparedness that exceeded 17.8 points, which corresponds to a «good» assessment of the level of physical preparedness (Table 5).

Table 5

Indices of physical preparedness of male students aged 15 years in the Medical College at Danylo Halytskyi LNMU (X±δ)

Testing					
2000 м (min, sec)	Jump in length (cm)	60 м (sec)	Shuttle running 4x9 м (sec)	Bending of the body in sitting position (cm)	PP score (points)
9,96±0,85	205,8±30,26	9,58±0,59	9,97±0,92	5,67±3,27	17,8 «good»

Among the first-year female students of the age of 15 years, the lowest results were obtained at a run of 1500 m and a jump in length from place. Among the male students of this age, the lowest results were obtained in running at 2000 m and bending of the body in sitting position.

Female students of the 1st and 2nd year, at the age of 16 years (n = 67), on average showed an «average» level of physical preparedness that exceeded 15.2 points, which corresponds to the assessment score: «satisfactorily» by the level of physical preparedness. Among 16 years old female students twenty nine performed exercises for determining strength: bending and extension of arms in laying emphasis. The average result in this exercise was 11.68 ± 5.19 repetitions, which corresponds to the «low» level. Female students who performed the jump in length from the place also showed a «low» score (Table 6).

Table 6

Indices of physical preparedness of female students aged 16 years in the Medical College at Danylo Halytskyi LNMU (X±δ)

Testing					
1500 м (min, sec)	Jump in length (cm)	100 м (sec)	Shuttle running 4x9 м (sec)	Bending of the body in sitting position (cm)	PP score (points)
9,56±1,47	163,69±17,43	17,37±1,15	11,09±0,58	14,0±6,64	15,24 «satisfactory»

Male students, aged 16 and over (n = 5), except for the test of flexibility, practically completed each test with 4 points and demonstrated a level of «intermediate» «good», but bending of the body sitting position only one student performed with «excellent» mark, while others demonstrated an «unsatisfactory» state of flexibility.

PP indices were obtained among the female students of the third and the second year, who reached the age of 17 years (n = 99) and fourth year (n = 70), allowed to establish the «intermediate» level of PP with score - «satisfactory» of both groups of female students. (Table 7).

A comparative analysis of the data obtained revealed that there were no significant differences between the results of the tests performed by the second-third year female students at the age of 17 and students of the fourth year of study.

To determine the level of development of the strength of 60 female students of the third year and 50 students of the fourth year, they selected the exercise of bending and extension of arms in laying emphasis, the obtained data averaged 13–14 repetitions in both courses, and the evaluation of PP was unsatisfactory.

In the process of performing test exercises, male students of the third year (n = 14) demonstrated a sufficient level of physical preparedness (Table 8).

Table 7

Indices of physical preparedness of female students aged 17 years, III, IV courses at the Medical College at Danylo Halytskyi LNMU (X±δ)

Course	Testing					
	2000 м (min, sec)	**Jump in length (cm)**	**100 м (sec)**	**Shuttle running 4x9 м (sec)**	**Bending of the body in sitting position (cm)**	**PP score (points)**
II, III	12,45±1,75	163,71±14,13	17,16±1,71	11,16±0,99	13,06±6,50	14,36 «satisfactory»
IV	12,28±1,29	158,55±21,84	17,02±1,20	11,36±1,01	13,97±6,67	13,98 «satisfactory»

Table 8

Indices of physical preparedness of male students aged 17 years of the third year at the medical college at Danylo Halytsky LNMU (X±δ)

Testing					
3000 м (min., sec.)	Jump in length (cm)	100 м (sec.)	Shuttle running 4x9 м (sec.)	Bending of the body in sitting position (cm)	PP score (points)
13,36±2,28	201,07±28,79	15,02±0,91	9,69±0,64	8,80±5,15	16,07 «good»

However, it should be noted that the lowest rates, which corresponded to unsatisfactory evaluation of PP, were obtained in exercises: a jump in length from the place and bending of the body in sitting position.

In the fourth year there is only one male student, whose level of physical preparedness was equal to 18 points, corresponds to a sufficient level, the level of PP is «good».

Among the students of the medical college with a «high» level of PP in the 1st year, 14 % of students were identified, in the 2nd – 6 % of students, in the 3rd – 5 %, and in the fourth course, this indicator dropped to 3 %. From I to IV courses, the number of students with «sufficient» level of PP dropped significantly from 48 % to 21 % and the number of students with the «average» level of PP increased by 30 %.

The obtained results of the annual testing of physical preparedness of students of Ivan Franko National University of Lviv and Medical College at Danylo Halytskyi LNMU and their analysis allow to claim about the negative impact of the slow-moving lifestyle of university students and medical college, which is observed in student youth on indices of physical preparedness that is undeniably reflected on the condition of their physical health. After all, motor activity of students is often limited to physical education at higher education institutions (2 hours per week), which is significantly lower than the optimal quantity and needs of the young organism. The obtained results of students' PP should become an important factor in increasing the motivation of students to systematically practice physical culture and sport, also optimize physical education in higher education.

Conclusions. It is established that freshman students of Ivan Franko National University of Lviv have a lower level of physical preparedness compared to senior students. PP of more than a third of university students are at a low level. Data on reducing the number of medical college students with a sufficient level of PP by 27%, reducing the qualitative assessment in exercise tests on flexibility and running in short distances are obtained. The obtained results of PP students are an important factor in increasing the motivation of students for further self-improvement, positive attitude towards systematic practices of physical culture and sport, and increasing the extent of their motor activity. This will allow teachers of physical education to identify the advantages and disadvantages of applied means, teaching methods and forms of conducting classes, based on their analysis, adjust the curriculum.

The prospects for further research are the comparative analysis of the dynamics of the indicators of the annual determination of the physical preparedness of students of higher educational institutions of different levels of accreditation.

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INFLUENCE OF COORDINATION EXERCISES ON ELEMENTARY SCHOOLCHILDREN WITH MENTAL RETARDATION

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Abstracts

Novelty. The investigators have established that children with mental retardation consist of one fifth from all elementary schoolchildren. It's proved the novelty of problem and necessity to find of effective ways for its solution. ***Purpose of research*** – to show the effectiveness of influence of coordination exercises on coordination skills, psychiatric processes and qualities of elementary schoolchildren with mental retardation. ***Methods of Research.*** It was used theoretical, empirical, statistical methods of investigation. The research was carried out during 2012–2016 years and divided into four stages: analytico-ascertaining, searching, formating and synthesis. Research was done in Lutsk educational and rehabilitation centre. ***Results of Research.*** It was made methods for teaching of elementary schoolchildren with mental retardation to coordination exercises. Methods consists of two blocks – psychological and physical. Psychological block contains such processes and properties: visual and listening memory, figurological and visually active mentation. Physical block consists of such coordination skills: possibility to estimate and regulate dynamic and temporal parameters of movement, space orientation, static and dynamic stability. Means which are used for these methods are divided into common and special. The peculiarity of special means was execution conditions which influence on development of coordination skills, psychological processes and properties effectiveness. ***Conclusions.*** It was proved the effectiveness of experimental methods. Statistical significance changes of self-exiting operative visual and hearing memory, fugurological and visually active mentation were stated. It was improved the capacity to estimation and regulation of spacotemporal and dynamic parameters of movements, static and dynamic stability.

Key words: mental retardation coordination exercises, methods, elementary school age.

Олег Тучак. Вплив координаційних вправ на учнів молодшого шкільного віку із затримкою психічного розвитку. ***Актуальність.*** Дослідниками встановлено, що діти із затримкою психічного розвитку становлять одну п'яту частину від загальної кількості дітей, які йдуть до першого класу. Це свідчить про актуальність проблеми й необхідність пошуку ефективних шляхів для її розв'язання. ***Мета роботи*** – обґрунтувати ефективність впливу координаційних вправ на координаційні здібності, психічні процеси та властивості учнів молодшого шкільного віку із затримкою психічного розвитку. ***Методи дослідження***. Використано теоретичні, емпіричні, статистичні методи дослідження. Дослідження відбувалося впродовж 2012–2016 рр. і реалізовувалось у чотири етапи: аналітико-констатувальний; пошуковий; формувальний та узагальнювальний. Дослідницько-експериментальну роботу здійснювали на базі Луцького навчально-реабілітаційного центру. ***Результати роботи***. Розроблено методику навчання координаційних вправ учнів молодшого шкільного віку із затримкою психічного розвитку. Методика складається з двох блоків – психічного та фізичного. Психічний блок містить такі процеси та властивості: зорова й слухова пам'ять, образно-логічне та наочно-дійове мислення. До фізичного блоку увійшли такі координаційні якості: здатність до оцінки та регулювання динамічних і часових параметрів руху, орієнтування в просторі; рівновага статична й динамічна. Засоби, які використовувалися під час реалізації методики поділялися на загальні та спеціальні. Особливістю спеціальних засобів були умови їх виконання, які підібрані таким чином, щоб як найефективніше сприяти розвитку координаційних здібностей, психічних процесів і властивостей. ***Висновки***. Підтверджено ефективність експериментальної методики. Виявлено статистично значимі зміни за мимовільним оперативним зоровим та слуховим запам'ятовуванням, образно-логічним і наочно- дійовим мисленням. Покращено здатність до оцінки й регуляції просторово-часових та динамічних параметрів рухів, стійкість рівноваги статичної та динамічної.

Ключові слова: затримка психічного розвитку, координаційні вправи, методика, молодший шкільний вік.

Олег Тучак. Влияние координационных упражнений на детей младшего школьного возраста с задержкой психического развития. ***Актуальность.*** Исследователями установлено, что дети с задержкой психического развития составляют одну пятую часть от общего количества детей, которые идут в первый класс. Это является свидетельством актуальности проблемы и необходимости поиска эффективных путей для ее решения.

Задача работы – обосновать эффективность влияния координационных упражнений на координационные способности, психические процессы и свойства учащихся младшего школьного возраста с задержкой психического развития. ***Методы исследования.*** Использованы теоретические, эмпирические, статистические методы исследования. Исследование происходило на протяжении 2012–2016 гг. и реализовывалось в четыре этапа: аналитико-констатирующий, поисковый, формирующий и обобщающий. Опытно-экспериментальную работу осуществляли на базе Луцкого учебно-реабилитационного центра. ***Результаты работы.*** Разработана методика обучения координационных упражнений учащихся младшего школьного возраста с задержкой психического развития. Методика состоит из двух блоков – психического и физического. Психический блок содержит такие процессы и свойства: зрительная и слуховая память; образно-логическое и наглядно-действенное мышление. К физическому блоку вошли такие координационные качества, как способность к оценке и регулированию динамических и временных параметров движения, ориентировка в пространстве; равновесие статическое и динамическое. Средства, которые использовались при реализации методики, делились на общие и специальные. Особенностью специальных средств были условия их выполнения, которые подобраны таким образом, чтобы наиболее эффективно содействовать развитию координационных способностей, психических процессов и свойств. ***Выводы.*** Подтверждена эффективность экспериментальной методики. Выявлены статистически значимые изменения по произвольным оперативным зрительным и слуховым запоминаниям, образно-логическому и наглядно-действенному мышлению. Улучшено способность к оценке и регуляции пространственно-временных и динамических параметров движений, устойчивость равновесия статического и динамического.

Ключевые слова: задержка психического развития, координационные упражнения, методика, младший школьный возраст.

Introduction. Children with mental retardation today are a special category that requires increased attention from specialists [9]. According to the data, they make up from 12 to 18 % of the total number of those entering the first form of a secondary school [5]. The presence of this fact testifies to the urgent need to find new approaches to solving a problem.

The analysis of literary sources has shown that today some aspects of correction of the delay of mental development of schoolchildren are studied. In particular, the method of physical exercises for teenage children with MR is scientifically substantiated [4]. The organizational and methodical bases of the use of mobile games in the physical education of junior pupils with MR [6] have been studied. Methods of correction of memory indices in children aged 6 years with MR [3] have been developed. An integrative correction-development program for the rehabilitation and adaptation of children with peculiarities of psychophysical development was created [8]. Study of age and individual psychosomatic features of children of junior school and adolescence are viewed as predictors of mental development [11].

At the same time, with the coverage of individual aspects of the problem under investigation, there are no comprehensive studies on the justification of the methodology for coordinating exercises of junior pupils as an effective means of correction of mental retardation.

The purpose of the work is to substantiate the effectiveness of the influence of physical exercises on coordination abilities, mental processes and properties of pupils of junior school age with a delay of mental development.

Materials and methods of research. To achieve the goal, the following research methods are used:

– *theoretical* – analysis of psychological and pedagogical, special literature and documentary sources, comparison, systematization of information (for argumentation of the initial provisions of the study, generalization of available data, substantiation of the essential content of key concepts);

– *empirical* – testing of the level of development of coordination abilities and mental processes and properties (for studying the impact of the developed methodology on the students of junior classes with the LRR); theoretical modeling, pedagogical experiment (statement, forming) – for the development of teaching and methodological support for training in coordination exercises and the identification of the effectiveness of the proposed methodology;

– *statistical* – for processing empirical data, checking the reliability of the results obtained by methods of mathematical statistics.

The research took place during 2012-2016 and was implemented in four stages:

– the analytical-qualifying stage (2012-2013) envisaged the analysis of psychological and pedagogical, scientific and methodological literature on the problem of delaying the mental development of junior schoolchildren, methods and means of training the coordination rights of junior schoolchildren; definition of object, subject, goal, tasks, research program; accumulation and systematization of empirical material.

– the search phase (2013–2014) – the definition of the state of development of coordination abilities of mental processes and properties in younger students with a delay in mental development and their interrelations; the formation of structural components of the author's methodology for teaching coordination exercises of junior school age students with a delay in mental development in physical education lessons.

– the formative stage (2014–2015) was the implementation of the author's methodology for teaching coordinating exercises of junior schoolchildren with a mental retardation and checking its effectiveness in practice.

– the generalization phase (2015–2016) envisaged the analysis, generalization of the results of approbation of the methodology of teaching coordination exercises of junior school age with the delay of mental development in physical education lessons, writing conclusions and predicting future perspectives of the study.

Research and experimental work was carried out on the basis of the Lutsk Training and Rehabilitation Centre. Experimental group was 29 people. The control group included 30 students.

Research results. The study of the preconditions for the implementation of the methodology for coordinating exercises for junior schoolchildren with a delay in mental development revealed the existence of a problem of development of coordination qualities, psychological processes and properties in modern junior schoolchildren with MR. In general, it has been established that the study of quality, processes and properties are at a low level of control. The heterogeneity of groups according to indicators was revealed: in each age group there are students with a higher level of development and with very low.

In particular, the study of the possibilities for orientation in space implemented through the race to numbered stuffed 5 balls. It is established that among the students of all classes of control and experimental groups there is no statistically significant difference between the indicators of ability to orientation in space (Table 1).

Table 1

The state of development of coordination abilities in junior schoolchildren with a delay of mental development

Group	n	X	S	Sx	V %	± %	t (U)	P
Second Graders Dexterity Indicators								
Control	16	12,73	1,28	0,33	10,05	6,68	-1,014	>0,05
Experiment	10	13,58	2,45	0,82	18,04			
Third Graders Dexterity Indicators								
Control	7	13,56	1,68	0,69	12,39	2,21	-0,347	>0,05
Experiment	9	13,86	1,76	0,62	12,70			
Fourth Graders Dexterity Indicators								
Control	9	10,35	1,07	0,38	10,34	18,84	-2,773	<0,01
Experiment	11	12,3	2,01	0,64	16,34			
Second Graders Orientation in Space Indicators								
Control			2,65	0,71	15,92	-0,60	$71^{(U)}$	>0,05
Experiment (~~N~~)	10	16,75	2,75	0,92	16,42			
Third Graders Orientation in Space Indicators								
Control	6	20,56	3,77	1,69	18,34	3,11	-0,281	>0,05
Experiment	8	21,2	4,74	1,79	22,36			
Fourth Graders Orientation in Space Indicators								
Control	9	14,31	2,15	0,76	15,02	9,36	$45^{(U)}$	>0,05
Experiment (~~N~~)	10	15,65	5,65	1,88	36,10			
Second Graders Static Equilibrium Indicators								
Control (~~N~~)	14	14,18	8,69	2,41	61,28	3,81	$61,5^{(U)}$	>0,05
Experiment	10	14,72	9,7	3,23	65,90			
Third Graders Static Equilibrium Indicators								
Control (~~N~~)	6	11,32	21,52	9,62	190,11	54,77	$27^{(U)}$	>0,05
Experiment	8	5,12	4,07	1,54	79,49			
Fourth Graders Static Equilibrium Indicators								
Control	8	29,84	20,91	7,90	70,07	62,60	2,256	<0,05
Experiment	11	11,16	12,36	3,91	110,75			

End of the table 1

Second Graders Dynamic Equilibrium Indicators								
Control	15	10,40	2,96	0,79	28,46	1,06	0,106	>0,05
Experiment	10	10,29	2,21	0,74	21,48			
Third Graders Dynamic Equilibrium Indicators								
Control	6	12,08	4,40	1,97	36,42	13,91	-0,621	>0,05
Experiment	8	13,76	5,72	2,16	41,57			
Fourth Graders Dynamic Equilibrium Indicators								
Control	9	8,89	3,11	1,10	34,98	8,10	0,510	>0,05
Experiment	9	8,17	2,87	1,01	35,13			

Note: (U) - Mann-Whitney's U-criterion, which compared the difference between two independent samples with a distribution other than normal; (N) - a group of data with a distribution other than normal.

Students of the second control class were running to numbered stuffing balls for 16.7 seconds, their peers in the experimental group for 16.8 seconds. In third-graders, the results in the control group were 20.6 s, in the experimental group – 21.2 s. Fourth-graders of the control group performed the test for 14.3 seconds, and their peers in the experimental group for 15.7 seconds.

The analysis of the coefficient of variation shows that all six groups studied according to the results of testing the orientation in space can not be called homogeneous. The coefficient of variation is ranged from 15% to 36%. This in turn indicates that the ability to orientate in the space of schoolchildren significantly differed in the level of development within these age groups.

The evaluation of the results of the testing of orientation in space in accordance with the normative literature available [7] shows a very low level of development of this quality in junior schoolchildren with MR. Only one of the average results of all tested classes approached the standards. In particular, in the fourth-graders of the control group, the average result was 14.3 s, which corresponds to a sufficient level of development of first-graders. Such a result shows a significant lagging of children with MR from norms on the level of development of orientation in space.

At the same time the improvement with age of a number of coordination qualities, psychological processes and properties in junior schoolchildren with the MR. In view of this positive dynamics, it can be argued that developmental features are characteristic of the cortical, mental processes and properties of the investigated contingent.

Investigations of the peculiarities of the correlation interactions of coordination abilities with mental processes and properties have established that the more complex coordination quality, the more correlated, with the greater number of coordination abilities, mental processes and properties. Accordingly, the level of development of more quantity of qualities it is due [10].

The obtained research results confirmed our hypothesis about the existence of a close relationship between the coordination abilities and the psychological processes and properties of children. This has led to the assumption that the development of coordination quality can contribute to improving the mental processes and characteristics of children with MR. The theoretical foundation for this provision is the scientific concept of the unity of the organism as an integral system, where all components are closely interrelated and largely interdependent [1; 2].

In this regard, further research was aimed at the development and theoretical justification of the effectiveness of the methodology of teaching coordination exercises of junior school age with a delay in mental development in the lessons of physical culture. On the basis of experimental techniques the state educational curriculum for physical education for general education institutions (1–4 classes) is given.

The author's experimental method of teaching coordination rights is aimed at achieving the main goal – optimization of physical and mental development of junior pupils with MR. Achieving the goal involves solving two interrelated tasks: development of coordination abilities; the development of mental processes and properties.

In the structure of the method, it is conditionally possible to distinguish two main blocks – mental and physical. The first block (mental) includes the following main processes and properties: memory (visual and auditory); thinking (figuratively-logical and visual-acting). The physical (second) unit includes the following coordination qualities: agility (ability to evaluate and adjust the dynamic and time parameters of motion,

orientation in space); equilibrium (static and dynamic). Both blocks are one integral pedagogical process of schoolchildren with MR, their division during the implementation of the experimental method is conditional.

The tools used during the implementation of the methodology were divided into general and special. The common means include: theoretical knowledge; basic gymnastics; mobile games and fun, relay race; elements of athletics; general development exercises; elements of self-massage. Each group of general funds is divided into subgroups, and those in turn consist of special means. A characteristic feature of special means is the conditions for their implementation. All of them are chosen in such a way as to most effectively promote the development of coordination abilities, mental properties and processes.

The component of the author's technique is the criterion of a complex evaluation of the level of development of coordination abilities, mental processes and properties in junior schoolchildren with the MR. Mental processes and properties are evaluated according to indicators: visual and auditory memory; figuratively-logical and visual-action thinking. Assessment of coordination abilities is carried out using indicators of dynamic and time parameters of motion, orientation in space, static and dynamic equilibrium. For this purpose, the following tests are used: «Remember the pictures», «Remember the words», «Seasons», «Cutting figures», «Shutter run 3 Ч 10 m», «Running to 5 numbered balls», «Methodology of Bondarevsky» and «Turning on the gymnastic bench».

Evaluation is based on quantitative (points) and qualitative (verbal) indicators. A quantitative evaluation system provides a five-point scale for each quality. For a comprehensive assessment of the child's development, all quantitative test results are added.

Qualitative evaluation criteria are verbal assessments such as "Good", "Very good", "Excellent", "Excellent" and "Fairy", which correspond to a certain quantitative assessment. Teacher at the lessons in direct contact with students used only qualitative assessments. Quantitative evaluation is used to control the state of coordination abilities, mental processes and properties, their dynamics.

The study of the influence of the experimental methodology on the coordination qualities, psychological processes and properties of junior pupils with LRR, has established its greater efficiency compared to the generally accepted (Table 2).

Table 2

Coordinating abilities of junior schoolchildren with a delay of mental development in conditions of experimental technique

Group	n	X	S	Sx	V %	± %	t (T)	P	± %	t (U)	P
Second Graders Dexterity Indicators											
Control	13	11,84	1,12	0,32	9,46	6,99	1,936	>0,05	1,44	0,326	>0,05
Experiment	8	12,01	1,08	0,41	8,99	11,56	2,220	<0,05			
Third Graders Dexterity Indicators											
Control	6	11,24	1,29	0,58	11,48	17,11	2,718	<0,05	5,16	0,740	>0,05
Experiment	9	11,82	1,50	0,53	12,69	14,72	2,609	<0,05			
Fourth Graders Dexterity Indicators											
Control (N)	11	10,37	1,47	0,46	14,18	0,19	0,032	>0,05	6,27	$42^{(U)}$	>0,05
Experiment	12	11,02	1,11	0,33	10,07	10,41	2,246	<0,05			
Second Graders Orientation in Space Indicators											
Control	13	15,48	2,39	0,69	15,44	7,03	1,191	>0,05	3,20	0,580	>0,05
Experiment	8	15,00	1,21	0,46	8,07	10,45	$3^{(T)}$	<0,05			
Third Graders Orientation in Space Indicators											
Control	6	18,17	3,59	1,61	19,76	11,62	1,040	>0,05	2,73	0,300	>0,05
Experiment	9	18,68	1,56	0,55	8,35	11,89	2,217	<0,05			
Fourth Graders Orientation in Space Indicators											
Control	11	13,41	2,42	0,77	18,05	6,29	0,833	>0,05	1,94	$48^{(U)}$	>0,05
Experiment (N)	12	13,15	1,76	0,53	13,38	15,97	$13^{(T)}$	<0,05			
Second Graders Static Equilibrium Indicators											
Control (N)	13	17,81	10,14	2,93	56,93	25,60	$35^{(T)}$	>0,05	4,49	$55^{(U)}$	>0,05
Experiment	8	18,61	2,03	0,77	10,91	26,43	2,220	<0,05			
Third Graders Static Equilibrium Indicators											
Control	6	14,70	12,61	5,64	85,78	29,86	$16^{(T)}$	>0,05	31,37	$28^{(U)}$	>0,05
Experiment (N)	9	11,19	5,35	1,89	47,81	118,55	2,383	<0,05			

End of the table 2

Fourth Graders Static Equilibrium Indicators											
Control	11	28,63	17,41	5,51	60,81	-4,05	0,141	>0,05	25,92	1,25	>0,05
Experiment	12	21,21	7,11	2,14	33,52	90,05	2,790	<0,05			
Second Graders Dynamic Equilibrium Indicators											
Control	13	9,04	2,97	0,86	32,85	13,08	1,144	>0,05	7,63	0,678	>0,05
Experiment	8	8,35	1,45	0,55	17,37	18,85	2,312	<0,05			
Third Graders Dynamic Equilibrium Indicators											
Control	6	8,99	2,78	1,24	30,92	25,58	1,547	>0,05	12,72	$25^{(U)}$	>0,05
Experiment (~~N~~)	9	10,30	1,98	0,70	19,22	25,15	2,444	<0,05			
Fourth Graders Dynamic Equilibrium Indicators											
Control (~~N~~)	11	10,12	4,20	1,33	41,50	13,84	0,685	>0,05	20,65	$44^{(U)}$	>0,05
Experiment (~~N~~)	12	8,03	1,15	0,35	14,32	1,71	0,204	>0,05			

Note: (T) – The Wilcoxon T-criterion, by which the dependent samples with a distribution other than normal were compared.

In experimental classes there were more significant statistically significant changes in the coordination qualities, mental processes and properties of junior pupils with MR. At the same time, we can also talk about some effectiveness of the conventional methodology, since some positive changes are also found in the control classes.

Visual memory has significantly improved on average by 3 experimental classes by 19 %, by listening by 55 %, figurative logical thinking by 25 %, speed and accuracy of visual-action thinking by 24 % and 23 % respectively. The control classes did not reveal any statistically significant changes in the tendency to improve visual and auditory memory by 7 % and 24 %, figurative logic thinking by 14 %, speed and accuracy of visual-action thinking by 5 % and 12 %.

The average gains in agility in the three experimental classes were 12 %, the ability to orient in space – 13 %, the static equilibrium – 77 % and dynamic equilibrium – 16 %. There were no statistically significant changes in the control qualities in the control classes of coordination qualities. The general tendency to improve agility by 13 %, orientation in space by 8%, static equilibrium at 16 and a dynamic 17 % equilibrium are revealed.

The analysis of the dynamics of the homogeneity of the groups by the coefficient of variation also showed the effectiveness of the author's technique. During the study period in the experimental groups the variations of all the studied parameters decreased, in control groups no significant changes were detected. In experimental groups, the variation of coordination qualities dropped from 48 % to 18 % on average and psychiatric processes and properties ranged from 39 % to 14 %.

According to the developed protocol of complex evaluation of coordination qualities, psychological processes and properties of junior pupils with MR, improvement of their development in the conditions of experimental research was found out. Second-graders saw an improvement in the level of development from above average to high, while in third-graders from below average to average. The level of development of the studied qualities of the fourth-graders was average with a positive dynamics of the total number of points during the study period.

Discussion. The conducted research confirms that for the first time the efficiency and effectiveness of teaching methods for coordinating exercises of pupils of junior school age with delayed mental development in physical education lessons have been developed and substantiated. Statistical analysis has confirmed its greater efficiency in comparison with the generally accepted method used during physical education of children with MR.

This study expanded and complemented the state curriculum on physical culture for students of grades 2–4 with a mental retardation. A characteristic feature of the author's technique is that by developing coordination abilities, it contributes to the improvement of spontaneous operative visual and auditory memory, figuratively-logical and visual-action thinking of junior schoolchildren with MR.

The research complements the data related to the methodology of occupations by the physical culture of adolescent schoolchildren with MR [4]. At the same time, in our opinion, the study of the contingent of junior pupils is more significant from a practical point of view, since this very age is sensitive to the development of coordination abilities and mental processes and properties. Also, data on correction of

memory indices in children 6 years of age with means of physical education is added [3]. Our study, in addition to memory, embodies figurative logic and visually-effective thinking. It involves a larger age range of children.

In the course of research, correlation relations of coordination qualities with mental processes and properties have been revealed and the interdependence of their development has been confirmed. This is in agreement with the fundamental provisions of the theory of functional systems that consider an organism as a whole, in which all phenomena and processes are interrelated and interdependent [1].

At the same time, the current developments of organizational and methodological foundations for the use of mobile games in the physical education of junior schoolchildren with MR [6], the results of these studies specify the structure of general and special means of training coordinating exercises of junior school students with a delay in mental development [7]. The study is comprehensive and allows for a MR.

The practical significance of the results obtained is that the proposed methodology for teaching coordination exercises of junior high school students with a mental retardation can be used in the process of educational and correctional work. The main provisions can be used in conducting methodological seminars, training courses for teachers of physical education and teachers of pedagogical universities.

Practical significance is confirmed by the acts of implementation of research results used in the form of an author's methodology for teaching coordinating exercises of junior schoolchildren with a delay in mental development at physical education lessons at the Lutsk Training and Rehabilitation Centre (from 1.09.2016) while reading theoretical and practical disciplines for students of the Department of Physical Rehabilitation, and applied by students during the course of specialized practice at the Lutsk Institute of Human Development at the University of Ukraine" (from 1.09.2016), during the development of the initial programs, and used during the reading by teachers of educational disciplines,"Fundamentals of Defectology", "Theory and Methods of Physical Education" as well as the pedagogical practice of students of the Lesia Ukrainka Eastern European National University (from 1.09.2016).

Conclusions and perspectives of further research.

1. The research has established that the coordination qualities, mental processes and properties of younger students with a delay in mental development are at a low level.

2. The method of training of coordination exercises of pupils of junior school age with the delay of mental development on the lessons of physical culture, aimed at optimization of physical and mental development is developed.

3. The positive dynamics of coordination qualities, psychological processes and properties of junior schoolchildren with MR are revealed as evidence of the effectiveness of coordination exercises for junior pupils with a mental retardation.

The study does not claim to comprehensively solve all aspects of the problem being studied. The prospect of further research is seen in the development and substantiation of the effectiveness of methods of developing the coordination qualities, psychological processes and properties of secondary and senior students with a mental retardation.

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EVALUATING OF PHYSICAL PREPAREDNESS AMONG YOUNG STUDENTS AGED 18–20

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Abstracts

Topicality. First results of testing attested that by individual tests considerable amount of students (more than 50 % of under studies) cannot carry out minimal standards. Such incompetence may appear because of using inadequate methods of development of evaluation criteria. ***The Goal of the Research*** consisted in development of the standards of physical readiness' evaluation among young students aged 18–20. ***Methods of the Research.*** The indices of students' physical readiness were determined by the method of pedagogic testing. We carried out an analysis of the accordance of valid standards with the current state of young students' physical readiness. Using the "three-sigmarule" were developedes timated standards of physical preparedness. On the basis of the data, which were determined by the research of the large quantity of a similar quota, we suggest evaluating the result which agrees with the arithmetic mean of the excerpt ($\overline{X}$) as the mark «3». The marks «4» and «2» are the result which agrees with the values $+1\sigma$ і -1σ. The marks «5» and «1» are the result which agrees with the value $+2\sigma$ і -2σ. ***Results of the Research.*** Were developed standards of the evaluation of physical readiness which correspond to the level of physical preparedness of modern youth. ***Conclusions.*** On the basis of the testing's results of the level of students 'physical readiness (year 2017) we have ascertained that more than a half of the results by particular standards doesn't exceed the minimal mark. It indicates that the present methodology for the evaluation of the 18–20 aged youth' physical readiness doesn't allow evaluating the physical qualities impartially. The suggested methodology of the standards' working out is based on the «three-sigma rule». The standards for the evaluation of physical readiness worked out by the author's methodology ensure the opportunity for around 95 % of the students to accomplish the tests within the limits of the evaluative scale.

Key words: males, females, physical preparedness, standards.

Юрій Фурман, В'ячеслав Мірошніченко, Олександра Брезденюк. Оцінка фізичної підготовленості студентської молоді 18–20 років. ***Актуальність.*** Перші результати тестування фізичної підготовленості студентів засвідчили, що за окремими тестами значна кількість осіб (понад 50 % досліджених) не можуть виконати мінімальні нормативи. Така невідповідність може виникати за відсутності об'єктивних критеріїв оцінки фізичних якостей. ***Мета дослідження*** полягала в розробці методики нормативів оцінки фізичної підготовленості студентської молоді. ***Методи дослідження.*** Методом педагогічного тестування визначали показники фізичної підготовленості студентів 18–20 років. Проведено аналіз відповідності чинних нормативів фізичної підготовленості реальним можливостям молоді проявляти фізичні якості. Користуючись «правилом трьох сигм», розроблено оцінні нормативи фізичної підготовленості. На основі даних, установлених дослідженням великої кількості однорідного контингенту, пропонуємо оцінювати результат, який відповідає середньому арифметичному вибірки ($\overline{X}$) у «3» бали. Результат, який відповідає значенню $+1\sigma$ і -1σ, відповідає оцінці «4» і «2» бали відповідно, $+2\sigma$ і -2σ – «5» і «1» бал. ***Результати роботи.*** Розроблено нормативи оцінки фізичних якостей, які відповідають рівню фізичної підготовленості сучасної молоді. ***Висновки.*** На підставі результатів тестування рівня фізичної підготовленості студентів (2017 р.) установлено, що за окремими нормативами більшість результатів не перевищують мінімальний бал. Це вказує на те, що наявна методика оцінки фізичної підготовленості молоді 18–20 років не дає змоги об'єктивно оцінити фізичні якості. Запропонована методика розробки нормативів ґрунтується на основі «правила трьох сигм». Розроблені за авторською методикою нормативи оцінки фізичної підготовленості забезпечують можливість близько 95 % студентів виконати тести в межах оцінної шкали.

Ключові слова: юнаки, дівчата, фізична підготовленість, нормативи.

Юрий Фурман, Вячеслав Мирошниченко, Александра Брезденюк. Оценка физической подготовленности студенческой молодежи 18–20 лет. ***Актуальность.*** Первые результаты тестирования физической подготовленности студентов показали, что по отдельным тестам значительное количество лиц (более 50 % исследованных) не могут выполнить минимальные нормативы. Такое несоответствие может возникать при отсутствии объективных критериев оценки физических качеств. ***Цель исследования*** – разработка нормативов оценки физической подготовленности студенческой молодежи 18–20 лет. ***Методы исследования.*** Методом педагогического тестирования определяли показатели физической подготовленности студентов 18–20 лет. Анализируется соответствие

существующих нормативов физической подготовленности реальным возможностям молодежи проявлять физические качества. Пользуясь «правилом трех сигм», разработаны оценочные нормативы физической подготовленности. На основе данных, установленных путем исследования большого количества однородного контингента, мы предлагаем оценивать результат, который соответствует среднему арифметическому выборки (X) в «3» балла. Результат, который соответствует значению + 1σ и -1σ, соответствует оценке в «4» и «2» балла, + 2σ и -2σ – «5» и «1» балл соответственно. ***Результаты работы.*** Разработаны нормативы оценки физических качеств, которые соответствуют уровню физической подготовленности современной молодежи. ***Выводы.*** На основании результатов тестирования уровня физической подготовленности студентов (2017 г.) мы установили, что по отдельным нормативам большинство результатов не превышают минимальный балл. Это указывает на то, что существующая методика оценки физической подготовленности молодежи 18–20 лет не позволяет объективно оценить физические качества. Предложенная методика разработки нормативов основывается на основе «правила трех сигм». Разработанные по авторской методике нормативы оценки физической подготовленности обеспечивают возможность около 95 % студентов выполнить тесты в пределах оценочной шкалы.

Ключевые слова: юноши, девушки, физическая подготовленность, нормативы.

Introduction. Ministry of youth and sports of Ukraine published the order №4665 of 15.12.2016 «About the sanction of Procedure of carrying annual evaluation of physical readiness among Ukrainian population», where new criteria of evaluation of physical readiness among different groups of population are published, in particular for young students [7]. First results of testing attested that by individual tests considerable amount of students (more than 50% of under studies) cannot carry out minimal standards. Such incompetence may appear because of using inadequate methods of development of evaluation criteria. Attempts to find in literary sources the methods by which the norms of evaluation of testing the physical readiness were developed didn't bring any results.

In our previous publications we did a critical analysis of norms of evaluation of physical readiness which were valid since 2003 to 2017 year [3; 8]. There we indicated that every year a considerable amount of students doesn't carry out the minimal standards by individual tests. Moreover, by single tests (e.g. 100 m race for girls) only a few the first, the second and the third year students carry out the standard which agrees with the mark 5 and individuals carry out the standard which agrees with the mark 4 [3]. As the first results of evaluation of young students' readiness show, current standards should be discussed as well.

The aim of the research consisted in development of the standards of physical readiness' evaluation among young students aged 18-20.

Materials and methods of the research. *Partakers.* The research was conducted on the base of Vinnytsia State Pedagogical University named after Mykhailo Kotsiubynsky with the students aged 18–20 who were the first, the second and the third year students of all the departments but the department of physical education and sport. All the under studies don't go in for sports, are in the main medical group and have given a written agreement for taking part in the researches. 728 boys and 1047 girls took part in the research.

The organization of the research. The indices of students' physical readiness were determined by the method of pedagogic testing. The testing of physical qualities was conducted within the framework of annual evaluation of physical readiness of Ukrainian population, accordingly to the order of Ministry of youth and sports of Ukraine [7]. The testing was conducted in the end of the academic year (since April to June of 2017). The statistical treatment of derived results was fulfilled. We determined simple mean deviation and root-mean-square deviation by results of every test. We carried out an analysis of the accordance of valid standards with the current state of young students' physical readiness. On the basis of literary sources' analysis we suggested the methods for development of standards for evaluation of physical readiness, which allowed to determine the standars for the evaluation of physical qualities. The results which we got, we compared with current standards.

According to the order «About the sanction of Procedure of carrying annual evaluation of physical readiness among Ukrainian population» the endurance of girls was determined by the test «2000 m race», and the endurance of boys was determined by the test «3000 m race» in measurement units (min, sec). Explosive force was determined by the test «long jump from place» in centimeters accurate to integral values.

Force endurance was determined by the tests «push-ups» and «pull-ups» by the amount of completed numbers. Active flexibility was determined by the test «torso forward inclination from a sitting position» in

centimeters accurate to integral values. Speed endurance was determined by the test «100 m race» in seconds accurate to one decimal. Promptitude was determined by the test «4 x 9 m shuttle run» in seconds accurate to one decimal. According to the demands, under studies were choosing one of the tests of their own free will for testing of their force capacities: boys – «pull ups» or «long jump from place», girls – «push-ups» or «long jump from place». The testing was carried out by the technology which agreed with the Instruction about the organization of conducting the annual evaluation of physical readiness of Ukrainian population [7].

Statistical processing of the data obtained during the research was carried out with the help of mathematical statistics methods. Such figures as the arithmetical mean ($\overline{X}$) and root-mean-square deviation (σ) were defined.

There appeared the issue of choosing the methods of physical readiness' standards for achieving of our goal. These methods should provide the objectivity of physical qualities' evaluation. Analysing literary sources we haven't discovered the description of the technology by which the standards for the evaluation of physical readiness of Ukrainian population.

Developing the author's methodology, we used the recommendations of A.H. Dembo [1] for the evaluation of human's physical development. Creating anthropometric standards, the author used the range ± 1σ from the arithmetic mean of set of variate values as a mean level of a quality. This set of variate values was determined by the study of the large quantity of a similar quota. The author recommended to evaluate the results which were within limits of the range from +1σ to +2σ as an «above the average» level; the results which were within limits of the range from -1σ to -2σ as a «below the average» level; the results which were within limits of the range from +2σ to +3σ as a «high» level; the results which were within limits of the range from -2σ to -3σ as a «low» level. This working out is based on the "three-sigma rule", according to which the interval ± 1σ from the arithmetic mean includes 68,27 % of the whole excerpt; the interval $\overline{X}$± 2σ includes 95,45 % of the whole excerpt; the interval $\overline{X}$± 3σ includes 99,73 % of the whole excerpt [2].

We adapted the above-mentioned methods for the development of physical readiness' standards. On the basis of the data, which were determined by the research of the large quantity of a similar quota, we suggest evaluating the result which agrees with the arithmetic mean of the excerpt ($\overline{X}$) as the mark «3». The marks «4» and «2» are the result which agrees with the values +1σ i -1σ. The marks «5» and «1» are the result which agrees with the value +2σ i -2σ. Thus, we get the result when the standard for the mark «5» may be completed by the 2,27 % of the students; the standard for the mark «4» and «1» may be completed by 13,59 % of the students; the standard for the mark «3» and «2» may be completed by 34,14% of the students. Only 2,27 % of the students won't be able to complete the standard for the mark «1».

The results of the research. Using the author's methodology, we developed standards of the evaluation of physical readiness of young students for boys (table 1) and girls (table 2).

Table 1

Tests and Standards for Assessing Physical Preparedness of Males Aged 18–20

Scale of assessment, points	Tests, standars					
	running on 3000 m, min, sec	pull ups, times	long jump from place, cm	running on 100 m, sec	shuttle run 4 × 9 m, sec	torso forward inclination from a sitting position, cm
5	12,07	16	256	13,0	8,9	18
4	13,03	13	240	13,8	9,4	15
3	13,59	9	224	14,6	9,9	11
2	14,55	5	209	15,4	10,4	7
1	15,51	2	193	16,2	10,9	4

Comparing the author's working out with valid standard, we establish the following distinctions. The 3000 m race standards for boys established by us don't essentially differ from the valid ones. In substitution the author's 2000 m race standards for girls (table 2) have a wider range. Thus, the minimal evaluation as the

mark «2» meets the result 12, 30 (min, sec) by valid standards, whereas the standard suggested by us meets the result 13, 48 (min, sec).

Table 2

Tests and Standards for Assessing Physical Preparedness of Females Aged 18–20

Scale of assessment, points	Tests, standars					
	running on 2000 m, min, sec	push ups, times	long jump from place, cm	running on 100 m, sec	shuttle run 4 × 9 m, sec	torso forward inclination from a sitting position, cm
5	10,22	16	206	15,6	10,1	24
4	11,02	12	188	16,5	10,7	20
3	12,26	8	171	17,4	11,3	15
2	13,48	4	153	18,3	11,9	10
1	15,10	1	136	19,3	12,5	5

The standards for the test «pull-ups» suggested by us (for boys, table 1) also have a wider range. Thus, the minimal evaluation as the mark «2» by valid standards meets the result 10 times, whereas the standard as the mark «2» suggested by us meets the result 4 times.

The author's standards by the test «long jump from place» both for boys and for girls don't essentially differ from the valid ones.

The essential distinctions from the valid standards are observed by the test «100 m race». It particularly relates to girls. The standard recommended by us which agrees with the mark «5», is 15,6 (sec), whereas the valid standard is 14,8 (sec). The standard for the mark «2» for girls agrees with the result 18,3 (sec), whereas the valid standard is 17,0 (sec).

The essential distinction may be observed in the standards to the test «push-ups» for girls (table 2). By the author's working out one should do 16 push-ups for the mark «5» and 4 push-ups for the mark «2». A valid standard as the mark «5» supposes 25 push-ups for the mark «5» and 15 push-ups for the mark «2». In this way one can state that the valid standards of the test «push-ups» are essentially overestimated.

Comparing the author's working out of the standards for the test «4 x 9 m shuttle run» for boys and girls, we state somewhat bigger range of the author's standards.

Such a tendency is observed in the standards for the test «torso forward inclination from a sitting position».

Discussion The evaluation of students' physical readiness uncovered the imbalance between the received results and the standards which are recommended by the Ministry of youth and sports of Ukraine. Thus, for instance, our studies have discovered that the average value of our girls by the test «push-ups» is 8 times. According to the valid standards, girls can get the minimal mark for 15 times. Such a considerable distinction indicates that more than a half of the students of the institutes of higher education don't even get a minimal mark. The average value of the results of the students' testing (100 m race) turned out to be lower than a minimal standard as well.

At the same time the average value by the tests «torso forward inclination from a sitting position» and «4 x 9 m shuttle run», established by the students (girls), almost agrees with the standard for the mark «3» which we regard as normal.

The same general tendency remains among the students (guys) who have been tested.

The imbalance of the results of testing by particular standards which we have discovered indicates that the authors of the standards have used the methodology which doesn't bring impartial results. Besides, the absence of the standard for the mark «1» restricts the range of the standards, which increases such a negative tendency.

The standards which have been worked out by the author's methodology give an opportunity about 95 % of the students to keep within the evaluative scale, since the range of $\pm 2\ \sigma$ includes 95,45 % out of all the values. We have already used this methodology by the working out of the model of physical readiness [4].

We haven't discovered any scientific publications which show the attempts to improve the valid tests. It may be because the valid standards are in effect only during one year. Instead there were attempts to improve the system of the evaluation of student's physical readiness, functioning since the year 2003 to the year 2017. Thus, M.I. Puzdemir and co-authors [5] have developed the 2000 score evaluative scale by 10 tests for the evaluation of the I–II year students' physical readiness. It's impossible to compare their working out with ours, since the functioning system of the evaluation has the «5» – score scale for every standard and the «25» – score scale for the evaluation of the level of physical readiness by the sum of the tests (for persons of 8–20years).

We also were raising an issue of the discrepancy between the standards and the abilities of the students in our previous publications [3]. But this publication has concerned the tests and the standards functioning since the year 2003 to the year 2017 [6].

Conclusions. On the basis of the testing's results of the level of students 'physical readiness (year 2017) we have ascertained that more than a half of the results by particular standards doesn't exceed the minimal mark. It indicates that the present methodology for the evaluation of the 18-20 aged youth' physical readiness doesn't allow evaluating the physical qualities impartially. The suggested methodology of the standards' working out is based on the «three-sigma rule». The standards for the evaluation of physical readiness worked out by the author's methodology ensure the opportunity for around 95% of the students to accomplish the tests within the limits of the evaluative scale.

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THE PLACE OF SPORTS AND RECREATION TOURISM IN PHYSICAL ACTIVITY OF STUDENTS OF HIGHER EDUCATION INSTITUTIONS

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Abstracts

Topicality. The authors have considered the issue of use of sports and recreation tourism as means of increasing the physical activity of students. *Purpose and methods of Research.* The purpose of the study was to search for reserves of physical activity in the forms of sports and health tourism. The following research methods were used: analysis of scientific and methodological literature, questioning and generalization, theoretical forecasting. ***Results of the Research.*** We researched the works of modern researchers and scientists related to the study of sports and health tourism. The analysis of scientific and methodological literature has made it possible to find out that sports and health tourism is an effective means for physical development, the formation of functional reserves of the human body; it is accessible to people with different physical training and allows to improve many indicators of human health. We found out that sports and health tourism is indispensable in promoting healthy lifestyles. We revealed the forms of tourist activity that are popular with students: one-day trips and walks, easy hikes with overnight stay, excursions. Accordingly, we have proposed series of sports and health tourism events that may be introduced in extra- curricular work with students and thus partially solve the problem of lack of physical activity. ***Conclusions.*** Because of the questioning of students of the Pedagogical Faculty of the Rivne State Humanitarian University the authors revealed the primary interest and, accordingly, motivation for realization of one-day tourist trips to interesting local lore objects or for educational purposes. The obtained data testify in favor of the rather common and accessible form of tourist activity in the form of one-day campaigns that are used in the practice of educational institutions for decades and has not lost its relevance for modern students.

Key words: higher education institution, hikes, physical activity, tourist events, one-day trips.

Людмила Чалій, Вадим Кіндрат. Місце спортивно-оздоровчого туризму в системі фізичної активності студентів закладів вищої освіти. ***Актуальність.*** Розглянуто проблему використання спортивно-оздоровчого туризму як засобу підвищення рухової активності студентів. ***Мета та методи дослідження.*** Мета дослідження – пошук резервів фізичної активності у формах спортивно-оздоровчого туризму. Використано такі методи наукового дослідження, як аналіз науково-методичної літератури, опитування та узагальнення, теоретичне прогнозування. ***Результати роботи.*** Досліджено роботи сучасних дослідників і науковців, пов'язані з вивченням спортивно-оздоровчого туризму. Аналіз науково-методичної літератури дав підставу з'ясувати, що спортивно-оздоровчий туризм – ефективний засіб для фізичного розвитку, формування функціональних резервів людського організму; він доступний для людей із різною фізичною підготовкою та дає змогу покращити багато показників здоров'я людини. З'ясовано, що спортивно-оздоровчий туризм незамінний у пропаганді здорового способу життя. Виявлено форми туристської діяльності, що користуються популярністю в студентської молоді: одноденні подорожі та прогулянки, нескладні походи з ночівлею, екскурсії. Запропоновано низку заходів спортивно-оздоровчого туризму, що можливо запровадити в позааудиторну роботу зі студентами й, таким чином, частково розв'язати проблему недостатньої фізичної активності. ***Висновки.*** У результаті опитування студентів педагогічного факультету Рівненського державного гуманітарного університету виявлено першочерговий інтерес та, відповідно, мотивацію до здійснення одноденних туристичних подорожей до цікавих краєзнавчих об'єктів або з навчальною метою. Отримані дані свідчать на користь досить поширеної й доступної форми туристської діяльності у вигляді одноденних походів, що десятиліттями використовуються в практиці навчальних закладів і не втратили своєї актуальності для сучасних студентів.

Ключові слова: заклад вищої освіти, походи, рухова активність, туристські заходи, одноденні подорожі.

Людмила Чалий, Вадим Киндрат. Место спортивно-оздоровительного туризма в системе физической активности студентов заведений высшего образования. ***Актуальность.*** Рассматривается проблема использования спортивно-оздоровительного туризма как средство повышения двигательной активности студентов. ***Цель и методы исследования.*** Целью исследования стал поиск резервов физической активности в формах спортивно- оздоровительного туризма. Использованы такие методы исследования, как анализ научно-

методической литературы, опрос и обобщение, теоретическое прогнозирование. ***Результаты работы.*** Изучены работы современных исследователей и ученых, посвящённые спортивно-оздоровительному туризму. Анализ научно-методической литературы позволил определить, что спортивно-оздоровительный туризм – эффективное средство для физического развития, формирования функциональных резервов человеческого организма, он доступен людям разной физической подготовки и дает возможность улучшить многие показатели здоровья человека. Определено, что спортивно-оздоровительный туризм незаменим в пропаганде здорового способа жизни. Выявлены формы туристской деятельности, популярные среди студенческой молодежи: однодневные путешествия и прогулки, несложные походы с ночевкой, экскурсии. Соответственно предлагается ряд мероприятий спортивно-оздоровительного туризма, которые возможно внедрить во внеаудиторную работу со студентами и, таким образом, частично разрешить проблему недостаточной физической активности. ***Выводы.*** В результате анкетирования студентов педагогического факультета Ривненского государственного гуманитарного университета определен первоначальный интерес, соответственно, мотивация к проведению однодневных туристических путешествий к интересным краеведческим объектам или с учебной целью. Полученные данные подтверждают пользу распространённых и доступных форм туристической деятельности в виде однодневных походов, которые десятилетиями используются в практике учебных заведений и не потеряли своей актуальности для современных студентов.

Ключевые слова: заведение высшего образованиям, походы, двигательная активность, туристические мероприятия, однодневные походы.

Introduction. Physical activity is considered by scientists and practitioners as a prerequisite for a healthy lifestyle and positive changes in physical qualities and abilities (G. Griban, E. Dobrovolsky, E. Zakharina, T. Krutsevich, G. Leshchenko, O. Kuts, S. Romanchuk, S. Sichov , A. Tsos and others). Physical education and mass sports are an important part of the process of full-fledged human development and his education, an effective means of preventing diseases, preparing for high-performing labor, protecting the Motherland, providing creative longevity, organizing meaningful leisure, and preventing anti-social activities.

Sports and wellness tourism is an effective means for physical development, the formation of functional reserves of the human body, as it is accessible to people with different physical training and allows improving the indicators of human health [6].

In practice, however, the full potential of sports and wellness tourism is not fully used in education institutions.

Different aspects of the organizational and methodological foundations of sports and wellness tourism have been reflected in the works of V. Ganopolsky, M. Rutynsky, M. Krachyl, I. Kotsan, G. Mykhailychenko, V. Fedorchenko, Y. Shchur, D. Dmytruk and others.

The significance of the research of various aspects of the disturbed problem is great and valuable, but the question of using the organizational forms that are most attractive for students of institutions of higher education has not become the subject of a separate pedagogical study. The urgency of using sports and wellness tourism in the system of physical activity has led us to find the most optimal forms and means.

The purpose of the research. The purpose of the research was to identify the reserves of physical activity in the forms of sports and wellness tourism.

To achieve the set of goals one needs to perform the following **tasks**:

– to work out psychological and pedagogical literary and informational sources;

– to identify the main forms of tourism activity with recreational potential for student youth;

– to develop an indicative annual plan of sports and wellness tourism for full-time students of Pedagogical Faculty at Rivne State University of Humanities.

Material and methods of research. The analysis of scientific and methodological literature allowed revealing directions and trends of research in the field of sports and wellness tourism. Questioning of 105 students of the first and second year of full-time studying at Faculty of Pedagogy in the Rivne State University of Humanities indicated the youth preferences and aspirations to certain forms of organizational forms of tourism. The obtained data proved the necessity of theoretical planning of a number of annual tourist events, the realization of which will become a significant part of the wellness and educational work in educational institutions.

Research results. Discussion. Today, the deterioration in the health of Ukrainian youth becomes apparent. Among the main reasons for this state of affairs is the decrease of motor activity in the educational process of educational institutions and in everyday life.

Dobrovolsky argues that the motor activity of students will be enhanced by integrating the forms of physical education in higher educational institutions on the basis of the unity and interconnection of training classes and independent physical education and recreation activities of student youth [1].

A. Konokh considers sports and wellness tourism as a specific type of tourist and sports activity, which combines the recreational function of tourism and elements of sports tourism, provided that the physical load does not exceed the potential human capabilities [2].

K. Mulyk points out that active tourism, which affects the muscular, cardiovascular, respiratory systems, joints and ligaments, is especially useful, and when all obstacles are overcome, all groups of muscles, without exception, are involved [3].

According to L. Tymoshenko, K. Labartkova, physical education of students in the Ukrainian high school is oriented towards the European model: more autonomy in the choice of forms and means, more emphasis on activities in the framework of sport tourism [5].

L. Tsyukalo's research showed that due to the use of elements of sports and wellness tourism in the process of physical education of students, so the body mass index improved, some indicators of blood pressure, the average heart rate, the rates of overall endurance of students, and the rates of pulse restoration improved [7].

In the context of our research, the results of the questionnaire on the motives of sports and wellness activities in tourism, conducted by K. Mulik and V. Mulik, are interesting. The authors found that with the age the priority of motivation with sports-wellness tourism is being changed – at the fourth year the motive of health support was the most important one, while at the first year it was the motive of the development of physical qualities [4].

V. Shafransky considered the pedagogical conditions for the formation of healthy lifestyles by means of sports and wellness tourism [8].

The received by various authors' data about sports and wellness tourism encouraged us to study the attitude of students to certain organizational forms that are inherent in sports and wellness tourism.

For the questioning we have selected students of different specialties studying at the I – II year of the Pedagogical Faculty in the Rivne State University of Humanities. They are: 27 persons - specialty "Secondary education (physical culture)"; 14 persons - specialty «Physical Culture and Sport»; 30 persons – «Preschool education»; 34 persons - «Primary education».

Speaking about the question of the expediency of organizing sports and wellness tourism activities for students of higher education institutions, we received a positive response from 80 % of the respondents (84 persons) and 20 % of respondents indicated that they did not need to do this.

Analysis of responses of students regarding the purpose of sports and health tourism, which they really like, allows us to state: 16 % of respondents pursue a sporting goal; 30.5 % would like to travel to local lore objects with cognitive purpose, 12.5 % of interviewed students have intentions of recreational purpose, 30.5% want educational purpose; 10.5 % of respondents are interested in a comprehensive goal. After asking about the time frame of the sports and wellness tourism activities, we received the following answers: 66 % of respondents were interested in short-term active leisure, 15 % of respondents chose 2–3 days long travel, about 13% of students expressed their desire to travel, and 6 % of respondents did not give an answer .

The distribution of answers about the priority of the forms of sports and wellness tourism was also interesting.

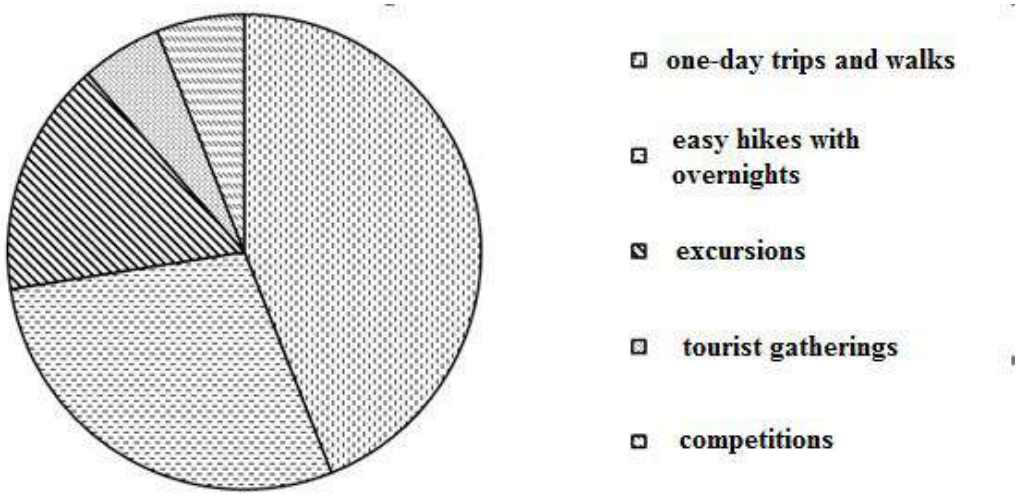
The biggest amount of fans have one-day trips and walks – 44 %; easy hikes with overnights get 28.5 %; excursions get 16%. The least attractive are tourist gatherings (5.50 %) and competitions (6 %). The distribution of the answers of the interviewed students is shown in the diagram in the picture 1.

The answers of the interviewed students allow us to state that most of all students want to travel in spring (46 %) and in summer (33 %); 19 % of students would go on a trip in autumn, and while in winter sports and wellness tourism is attractive only for 3 % of young people.

The results of the questioning of the students directed us to create an indicative plan of events that will be proposed for non-auditing sports-mass work on tourism at the faculty. Such events will be confined to certain social dates and events; will have a wellness, educational and cognitive character.

So, for the first half of the academic year, we suggest organizing the following events: a one-day trip to an interesting local lore object in late September, due to the International Day of Tourism (September 27th);

in October, it is possible to take a walk to the suburban recreational zone with ecological intentions (cleaning the territory) or landscaping; in November we should organize a trip devoted to the memory of the victims of the Holodomor in 1932–1933 and to join the all-Ukrainian action "A Candle of Memory"; in December it would be advisable to organize a one-day trip along the route offered by the students themselves. In the second half of the school year, the following will be relevant: educational hikes with simple technical tasks (February-March), or the addition of volunteers to patriotic campaigns that are traditionally held in Rivne region since March 14th was announced in 2017 as the Day of the Ukrainian Volunteer ; the Earth Day that is celebrated in April will be suitable to organize a trip to study the ecological situation of a certain part of the region; In May students can be proposed to organize a trip with overnights to sightseeing destinations, using a route initiated and offered by students, for example, to the Tunnel of Love, the Tarakaniv Fort, to the monuments of nature, etc.



Picture 1. *The distributions of the answers of the interviewed students about the priority of the forms of sports and wellness tourism*

Conclusions and perspectives of further research. The study of the possibility of using various forms of sport and wellness tourism as a means of physical activity of students in extra-curricular time revealed some key positions: positive attitude towards sports and wellness tourism; the desire to get new impressions and knowledge from traveling; interest in short-term active rest, preferably in spring and summer. Taking into account the results of student surveys, we proposed an annual plan of sports and wellness tourism activities, which will allow diversifying the system of physical activity by introducing one-day trips.

In the future, we plan to explore the possibility of increasing the proportion of sports and wellness tourism in the total amount of motor activity through participation in tourist events offered at the regional and city levels.

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THE LEVEL OF POWER SKILLS AND COGNITIVE & VALUABLE ORIENTATION OF SENIOR SCHOOL AGE GIRLS

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Abstracts

Novelty. The development of power skills has a peculiar significance for save and improvement of girl's health. Power loading positive influence on the health state, work capacity, speed endurance, agility. So research of power development at senior school girls is an important condition for designing of optimum parameters their motor activity. ***Research Task.*** To define the level of power development at senior age girls and factors that motivate to execute the power loads. ***Methods and Materials of Reasearch.*** Include theoratical analysis of science and methodiacal literature, pedgogic supervision, questining, statistic methods. 269 girls of senior school age participated in research, among them 135 girls from 10th class and 134- from 11th class. ***Result of Research.*** In the paper the peculiarities of strength training of senior school age girls are clarified. It was shown the explosive strength of standing long jump is 162,3±21,01 sm; upward jump – 26, 92±7,33 sm; medical ball thouing from sitting position – 417,2±22,3. The investigation of strength endurance verity that indexes of 60s arising from lay position equal 40,54±6,12 times, bent suspension- 31,85±7,39 in 10th classes schoolgirls. In 11th classes schoolgirls 60s arising from lay position was equal to 38,74±4.19 times, bent suspension – 33,11±6,16. According to data of handgrip test it was shown that maximum strength of 10th classes schoolgirls corresponds to 13,99±6,17 kg, the same index in 11th classes schoolgirls was equal to 15,08±5,28 kg. The research results prove that only 16.33 % 10th classes schoolgirls and 14,28%of 11th classes girls have a real interest to physical trainings. 44,76 of 10th classes schoolgirls and 42,36 % of 11th classes schoolgirls have average and above - average interest to physical trainings. ***Conclusions.*** It was found out the tendensy of decreasing of strength level on senior schoolgirls. It was stated that only 4,38 % of girls has maximum strengt level , 33,6 % – average and above-average, 50,3 % – below average, 11,72 % – unsatisfied level. Also it was definied the place of stength loads in system of cognetive and valuable orientation of sinior schoolgirls.

Key words: strength, properties, sinior schoolgirls, motivation, physical training, strength -buildingactivities.

Людмила Черкашина, Роман Черкашин, Андрій Сітовський. Рівень розвитку силових здібностей та мотиваційно- ціннісних орієнтацій дівчат старшого шкільного віку. ***Актуальність.*** Особливе значення для зміцнення й збереження здоров'я дівчат має розвиток силових здібностей. Силові навантаження позитивно впливають на стан здоров'я, працездатність, витривалість, спритність, швидкість. Тому вивчення стану розвитку сили в дівчат старшого шкільного віку – важлива передумова розробки оптимальних параметрів їхньої рухової активності. ***Завдання дослідження*** – визначення рівня розвитку сили дівчат старшого шкільного віку та чинників, які спонукають до виконання силових фізичних навантажень. ***Матеріал і методи дослідження*** включають теоретичний аналіз й узагальнення науково-методичної літератури, педагогічне спостереження, анкетування, педагогічне тестування, методи математичної статистики. У дослідженні взяли участь 269 дівчат старшого шкільного віку. Із них 135 дівчат 10-х і 134 – 11-х класів. ***Результати дослідження.*** У статті розкрито особливості силової підготовленості дівчат старшого шкільного віку. Виявлено, що вибухова сила за показниками стрибка в довжину з місця становить 162,3±21,01 см, стрибка вгору з місця – 26,92±7,33 см, метання набивного м'яча 1кг сидячи – 417,2±22,3 см. Дослідження силової витривалості засвідчило, що показники підйому тулуба з положення лежачи за 60 с дівчат 10-х класів – 40,54±6,12 раза, вис на зігнутих руках – 31,85±,7,39. У дівчат 11-х класів підйом тулуба з положення лежачи за 60 с склав 38,74±4,19 раза, а вис на зігнутих руках – 33,11±,6,16. За показниками кистьової динамометрії виявлено, що максимальна сила перебуває на рівні 13,99□6,17 кг у дівчат 10-х класів, та 15,08□5,28 кг – у дівчат 11-класів. Результати дослідження свідчать, що лише 16,33 % дівчат 10-х, 14,28 % дівчат 11-х класів мають високий рівень інтересу до фізичних вправ. Середній або вищий від середнього інтерес до виконання фізичних вправ показали 44,78 % дівчат 10-х класів та 42,36 % – 11-х. ***Висновки.*** Виявлено тенденцію до зниження рівня розвитку сили в старшокласниць відповідно до вимог навчальних програм. Установлено максимально високий рівень сили лише в 4,38 % дівчат, середнього та вищого від середнього – у 33,6 %. 50,3 % респондентів мають нижчий за середній рівень, а незадовільний –

11,72 %. Визначено місце силових навантажень у системі мотиваційно-ціннісних орієнтацій дівчат старшого шкільного віку.

Ключові слова: силові якості, дівчата старшого шкільного віку, мотивація, фізичне виховання, силова підготовленість.

Людмила Черкашина, Роман Черкашин, Андрей Ситовський. Уровень развития силовых способностей и мотивационно- ценностных ориентаций девушек старшего школьного возраста. ***Актуальность.*** Особое значение для укрепления и сохранения здоровья девушек имеет развитие силовых способностей. Силовые нагрузки положительно влияют на состояние здоровья, работоспособность, выносливость, ловкость, скорость. Поэтому изучение состояния развития силы у девушек старшего школьного возраста является важной предпосылкой разработки оптимальных параметров их двигательной активности. ***Задача исследования*** – определение уровня развития силы девушек старшего школьного возраста и факторов, побуждающих к выполнению силовых физических нагрузок. ***Материал и методы исследования*** включают теоретический анализ и обобщение научно- методической литературы, педагогическое наблюдение, анкетирование, педагогическое тестирование, методы математической статистики. В исследовании приняли участие 269 девушек старшего школьного возраста. Из них 135 – девушки 10-х классов и 134 – 11-х. ***Результаты исследования.*** В статье раскрыты особенности силовой подготовленности девушек старшего школьного возраста. Выявлено, что взрывная сила по показателям прыжка в длину с места составляет 162,3 ± 21,01 см, скачка вверх с места – 26,92 ± 7,33 см, метание набивного мяча 1 кг сидя – 417,2 ± 22 3 см. Исследование силовой выносливости показало, что показатели подъема туловища из положения лежа за 60 с девушек 10-х классов составили 40,54 ± 6,12 раза, вис на согнутых руках – 31,85 ±, 7,39. У девушек 11-х классов подъем туловища из положения лежа за 60 с составил 38,74 ± 4,19 раза, а вис на согнутых руках – 33,11 ±, 6,16. По показателям кистевой динамометрии выявлено, что максимальная сила находится на уровне 13,99±6,17 кг у девушек 10-х классов, 15,08±5,28 кг – у девушек 11-х. Результаты исследования свидетельствуют, что только 16,33 % девушек 10-х классов и 14,28 % – 11-х имеют высокий уровень интереса к физическим упражнениям. Средний или выше среднего интерес к выполнению физических упражнений показали 44,78 % девушек 10-х классов и 42,36 % – 11-х. ***Выводы.*** Выявлена тенденция снижения уровня развития силы в старшеклассниц в соответствии с требованиями учебных программ. Установлено, что максимально высокий уровень силы наблюдается только в 4,38 % девушек, среднего и выше среднего – в 33,6 %. 50,3 % респондентов ниже среднего уровня, а неудовлетворительное – 11,72 %. Определяется место силовых нагрузок в системе мотивационно-ценностных ориентаций девушек старшего школьного возраста.

Ключевые слова: силовые качества, девушки старшего школьного возраста, мотивация, физическое воспитание, силовая подготовленность.

Introduction. Strengthening of health, increasing of the level of physical preparedness of pupils' youth, engagement them in a healthy lifestyle are the most acute problems of social policy today. They acquire a particular importance at school age when the basis of future health and prosperity of the nation are formed [1]. Scientists give data [4; 5; 10; 12] that about 70–80 % of comprehensive schools' pupils have a low level of the motor abilities development and have certain deviations of health. Analysis of factors which determine the occurrence of different pathological conditions of pupils, shows ineffective physical education at school and at place of residence, low level of students' knowledge in the field of physical culture and health technologies, negative motivation to systematic physical education and lack of care about their healthy lifestyle [2].

The basis for improving the health of students makes proper motor activity (a natural biological need determined by a complex of movements carried out by a person in the process of life). Many investigations have been made for decades in which the role and significance of motor activity for the human body, interconnections of motor activity and physical condition of students, daily and weekly volumes were well-grounded [4; 8; 10]. The leading value for optimal rationing of physical activity in the process of physical education is information about the physical preparedness of schoolchildren [6; 3]. Physical preparation is generally considered as one of the indicators, which shows the quality of physical health. And the level of motor activity of younger generation. One of the most important components of physical preparation – physical quality " strength" has the particular importance for strengthening and maintaining of health [5; 12; 13].

Power abilities is one of the most important types of motoric qualities of senior pupils, which affect all aspects of physical preparation. Trainings with power exercises are carried out under the influence of certain incentives and motives that have a role the routine forces of educational activity. Such motivating forces are interests, beliefs, ideals, value orientations [4; 10; 11].

The level of power preparation does not only reflect the development of motor functions in general, but and is one of the main and most noticeable signs of physical improvement. Power load positively affects the state of health, working capacity, endurance, agility, speed. Besides, they create self-confidence that enables them to cope with the work that requires a lot of physical effort, which are and will always be in our life. Many girls of the senior school age underestimate the role of physical activity in force, that in the future negatively affects not only the formation of the female body and their health, but also on the future reproductive function [6; 8; 9].

Insufficient amount of muscle tissue can lead to the development of metabolic diseases – diabetes, obesity, atherosclerosis, hypertrophic illness. Insufficient corset function may appear primarily due to diseases of the spine – breach of posture, flat-foot, functions of organs of the abdominal cavity disturbance etc [3, 9].

In this regard, the study of the dynamics of muscular strength of the senior school age girls in the process of education is, according to S.V. Novakivsky, L.S. Dvorkina, SV, Stepanova (2002), is of both scientific and practical interest. This allows to identify pedagogical and physiological regularities in the development of power capabilities and on this basis, more independently, plan the power load at the Physical Education lessons. Therefore, the study of the state of force development of the senior school girls is an important prerequisite for the development of optimal parameters of their motor activity.

The task of research is to determine the level of development of the strength of senior school age girls and factors that induce exercise physical activity.

Material and methods of research include theoretical analysis generalization of scientific and methodical literature, pedagogical observation, questionnaire, pedagogical testing, methods of mathematical statistics. 269 senior school age girls of Lutsk comprehensive schools № 11, 18 participated in the research. There were 135 f them from the 10^{th} form, 134 from the 11^{th}. All participants gave written consent to participate in our research.

Motivational component of performing physical activity by senior school age girls was determined by using questionnaire. Definition of power qualities development was carried out with the help of generally accepted means and methods. Explosive power was determined by the results of the standing long jump and standing high jump, throwing of 1 kilo stuffed ball from sitting position, strength endurance – by sit-up, bending and unbending of hands in the lying down position, bent suspension, speed-strength endurance – by the number of jumps from full squat, maximum strength – by handgrip test. The obtained results were processed by methods of mathematical statistics [7].

The results of research. According to the generalized results of testing the level of development of power qualities, we can state that, explosive power of senior school age girls by indicators of the standing long jump is 162, 3 ± 21,01centimeters, standing high jump is 26, 92 ± 7, 33 centimeters, throwing 1 kg stuffed ball from the position sitting is 417, 2 ± 22, 3 centimeters.

We have found out, that 6,21 % of girls have the high level of explosive power, 32,73 % have above average power, 23,62 % have average, 28,1 % – below average and 9,23 % – unsatisfactory level (table 1).

Investigation of strength endurance showed that the indicators of sit-up in 60 seconds of the 10^{th} form girls were 40,54 ± 6.12 times, bent suspension – 31,85 ± 7,39. For the 11^{th} form girls, sit-up in 60 seconds was 38,74 ± 4,19 times, bent suspension was 33,11 ± 6,16 times.

It is established that only 2,19 % of students have a high level of development of this motor quality, average – 14,86 %, higher than average – 15,37 %, below average – 51,48 % and unsatisfactory level – 16,10 % girls of the senior school age.

Determination of maximum strength showed that bending and unbending of hands in the lying down position from the bench of the 10^{th} form girls is 18,08 ± 3.63, and of the 11^{th} form girls is 16,97 ±

2.76 times. According to the indicators of handgrip test it was found that the maximum force is at the level of 13,99–6,17 kg of the 10th form girls, and 15,08–5,28 kg – for the 11th form girls.

Table 1

Level of power qualities development of the senior school age girls, %

Level of power qualities development	Power qualities		
	Explosive power	Maximum power	Strength endurance
High	6,21	4,38	2,19
Above average	32,73	17,54	15,37
Average	23,62	16,06	14,86
Below average	28,11	50,30	51,48
Unsatisfactory	9,23	11, 72	16,10

We have found that the highest level of power have only 4,38% of senior school age girls, the average and above average – 33,6 % of girls. 50,3 % of respondents have below average, and unsatisfactory level – 11,72 %.

Exercise performance is carried out according to interest, certain incentives and motivation for sports and recreation activities. The results of the survey show that only 16,33% of girls of the 10th form and 14,28 % of girls of the 11th form have a high level of interest in performing physical exercises (Table 2).

Table 2

Level of girls' interest to performing physical exercises, %

Level of interest	Form of study	
	10th	11th
High	16,33	14,28
Above average	24,36	20,05
Average	20,42	22,31
Below average	25,72	26,09
Low	8,33	10,47
Lack of interest	3,22	4,24
Negative attitude	1,62	2,56

44,78 % of girls of the 10th form and 42,36 % of girls of the 11th form have an average or above average interest to performing physical exercises. It should be noted that a minority of girls of the 10th form have no interest in physical exercises (3,22 %), or have a negative attitude (1,62 %). It was found that 4.24 % of the 11th form girls have no interest to physical exercises, 2.56 % have a negative attitude.

It is important to note that interest in physical education and sports in general does not determine yet the active healthcare behaviour of senior school age girls. Therefore, the motives for exercising with physical activity were determined. The results of the survey show that the motives for exercising exercises by respondents are different. Most of the girls tend to perform power exercises to increase physical fitness (19,94 – 20,74%) or to improve the body structure (16,44 – 20,52 %).

Anxiety is caused by the fact that the incentive for physical education (compulsory classes) of a significant number of girls of the senior school age, is the desire to avoid trouble because of classes misses (8,93 – 14,15 %). A small number of girls (3,07 – 3,22 %) attend physical education classes because of their interest to the person of the specialist.

15.67 % of respondents of the 10th form and 17.23 % of the 11th form are involved in sports sections. The largest number of respondents are engaged in sports games, track and field athletics, swimming and

fitness with power. It can be assumed that senior school age girls regard strength exercises as the means of complex effect which provide high level of physical preparation and body structure correction opportunity.

Discussion. The results of research have shown that majority of senior school age girls have below average, average and above average levels of strength features progress. Such data are similar to the results of other authors research and speak about general tendency in different regions of Ukraine. In this regard girls strength progress is the major task of secondary educational establishments.

Simultaneously, the analysis of the investigation results attests that the level of interest in Physical Education falls. In particular, the high level of interest in Physical Education has dropped by 2,05 % during the period of studying in comprehensive schools. In its turn low level of interest in Physical Education has increased by 2,14 %. The fact that the amount of senior school age girls with negative attitude to the Physical Education have increased causes concerns. In this regard it is necessary to put into practice of Physical Education of pupils new types of motor activity which could stimulate the positive attitude to the implementation of physical exercises.

Conclusions. The results of research show the insufficient strength training of senior school age girls. In general the progress level of strength abilities remains low and doesn't meet the requirements which the society imposes to the physical preparation of pupils. Such state is conditioned by low motor activity of girls which decreases every year.

Received data show that among all types of motor activity girls prefer strength exercises. The main motive is correction of body structure. So the big interest to carrying out of strength exercises creates favourable prerequisites for the effective recreational activity of girls.

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THE ROLE OF THE PHYSICAL ACTIVITIES IN PHYSICAL REHABILITATION PROCESS IN PREGNANT WOMEN

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Abstracts

Pregnancy and childbirth are a significant physical strain on the body of every woman. Fetal bearing and labor activity require the pregnant to strengthen the functioning of all organs and systems of the body. The purpose of the study is to theoretically substantiate the peculiarities of physical rehabilitation of pregnant women in the prenatal period. The material presented in the article indicates that motor activity during pregnancy contributes to the normalization of the psychological state of women during pregnancy, the formation of a generic dominant, prevents the development of stress and promotes the preservation and strengthening of the health of the mother and offspring, and thus the health of the family. Also, physical exercises allow you to effectively prepare for childbirth and facilitate the rapid course of the maternity and post-natal period. They have positive emotions, mood improves, confidence in a favorable pregnancy, full development of the fetus, overcoming difficulties with bearing a fetus and during childbirth, the birth of a normal healthy child. Pregnant women, who exercised on the proposed program, noted the tonic, health and general strengthening effect of the classes.

Key words: pregnancy, program, physical exercises, physical rehabilitation.

Ігор Григус, Марина Човпило, Дорота Ортенбургер. Роль фізичної активності в процесі фізичної реабілітації вагітних. Вагітність і пологи є значним фізичним навантаженням на організм кожної жінки. Виношування плода та пологова діяльність вимагають від вагітної посиленого функціонування всіх органів і систем організму. ***Мета дослідження*** – теоретично обґрунтувати особливості проведення фізичної реабілітації вагітних жінок у передпологовому періоді. Представлений у статті матеріал свідчить, що рухова активність під час вагітності сприяє нормалізації психологічного стану жінок у процесі вагітності, формуванню родової домінанти, перешкоджає розвитку стресу та сприяє збереженню й зміцненню здоров'я матері та потомства, а тим самим – і здоров'ю сім'ї. Також фізичні вправи дають змогу ефективно підготуватися до пологів і сприяти швидкому протіканню пологового та післяпологового періоду. У них виникають позитивні емоції, покращується настрій, створюється впевненість у сприятливому перебігу вагітності, повноцінному розвитку плода, подоланні труднощів із його виношуванням і під час пологів та народження нормальної здорової дитини. Вагітні, які займалися фізичними вправами за запропонованою програмою, відзначили тонізуючий, оздоровчий і загальнозміцнювальний ефект занять.

Ключові слова: вагітність, програма, фізичні вправи, фізична реабілітація.

Игорь Григус, Марина Човпило, Дорота Ортенбургер. Роль физической активности в процессе физической реабилитации беременных. Беременность и роды являются значительной физической нагрузкой на организм каждой женщины. Вынашивание плода и родовая деятельность требуют от беременной усиленного функционирования всех органов и систем организма. ***Цель исследования*** – теоретически обосновать особенности проведения физической реабилитации беременных женщин в предродовом периоде. Представленный в статье материал свидетельствует, что двигательная активность во время беременности способствует нормализации психологического состояния женщин во время беременности, формированию родовой доминанты, препятствует развитию стресса и способствует сохранению и укреплению здоровья матери и потомства, а тем самым – и

здоровью семьи. Также физические упражнения позволяют эффективно подготовиться к родам и способствовать быстрому протеканию родильного и послеродового периода. У них возникают положительные эмоции, улучшается настроение, создается уверенность в благоприятном течении беременности, полноценном развитии плода, преодолении трудностей с вынашиванием плода и во время родов, рождением нормального здорового ребенка. Беременные, которые занимались физическими упражнениями по предложенной программе, отметили тонизирующий, оздоровительный и общеукрепляющий эффект занятий.

Ключевые слова: беременность, программа, физические упражнения, физическая реабилитация.

Introduction. The demographic situation in Ukraine is getting better, but the number of cases of the pathological course of pregnancy does not decrease. There is high level of miscarriage, infertility, maternal and infant mortality, artificial interruption of unwanted pregnancy, oncological morbidity of the reproductive sphere etc. The low level of pregnant women's health greatly increases the risk of maternal and childish pathology, also it's a reason for the high frequency of the complicated childbirth, which causes to the reproductive loss. The expectation of the birth of healthy children is doubtful because of unsatisfactory condition of pregnant women's health. However, despite of all specialists' efforts and the progress of the modern medical science, the situation in regard to complications of the pregnancy and the perinatal pathology remains one of the most important problems in our country [2; 6; 10].

The analysis of special literature showed that pregnancy and labor are extremely serious tests for women physically and psychologically. Physical changes are meant like all systems of the organism changes, namely: cardiovascular, digestive, respiratory, nervous, hormonal, and musculoskeletal [1; 8; 9]. Regarding to psychological changes, they manifest mainly in behavior and perception of other people. A lot of researches noticed unfavorable impact of mother emotional stress on pregnancy and childbirth.

H. Malyhina, E. Vetchanina, T. Pronina revealed that pregnant women typical pathologies with emotional stress are toxemia of the first part of pregnancy (46%), early progress of gestoses (45%), chronic placental insufficiency in the third trimester (56%). As a result children are born in a state of hypoxia of varying degrees in 76% of cases and in 28% of cases they need long-term rehabilitation therapy. Emotional stress sign in 16% of cases leads to preterm labor, in 10% of cases leads to miscarriage [4; 12].

A. Zaharov systematized psychological factors, which promote emergence of emotional stress during pregnancy, among them anxiety is an important one. So, we notice that psychological stress leads to different perinatal problems. Timely correction of psychological condition is an analogue of prevention of labor activities anomalies and an analogue of painless labor contractions [5; 7].

Besides, the complexes of corrective exercises, which are proposed in Ukraine, are outdated and standard. They are used not enough so there is necessity of their improvement and implementation into practical activity.

Objective is to justify prosecutorial physical rehabilitation features theoretically in pre-natal period.

Research methods: the analysis and generalization of data of special scientific and methodical literature connected with curative physical culture during pregnancy; exploring and generalization of experience of rehabilitation specialists as to using physical rehabilitation during pregnancy in pre-natal period; method of medical documentation analysis; processing Internet sources.

The results of the research. Pregnancy is a special period in women life, which continues on average 270-275 days. A lot of women want to live actively during pregnancy, while pregnancy can provide motivation for others, who live less actively, to start using exercises for their health improvement and keeping fit. During pregnancy there are some changes, for instance organism adaptation to childbirth and preparing everything necessary for his intrauterine existence. Also pregnancy period becomes the reason for double pressure for future mother and influences all aspects of woman's life changing all organism systems and their functions.

Changes in the body of women during pregnancy are divided into two groups: aimed at the maintaining the well-being of the fetus and the well-being of mother.

The modern vision of pregnancy is due to social changes that were initiated in the late 19th and early 20th centuries. One hundred years ago, most women during pregnancy were not only working hard physically, but at the same time they did not think about a proper, nutritious diet, not only for them, but for their future baby.

In our time, engaging in physical activity during pregnancy has become a very popular area. Already there are trainers who specialize only in the development of programs for pregnant women, they carry out

special classes, according to the individual characteristics of each pregnant woman, during which women feel comfortable and safe. This aspect is crucial because the specialist should choose the exercises and the length of their implementation. In addition, these coaches work together with a pregnant physician, which minimizes the occurrence of any threats.

With the help of physical exercises during pregnancy you can promote the following effects: to maintain normal body weight and reduce excessive accumulation of fat in the body; to maintain or improve the cardiovascular system, muscular strength and endurance, flexibility; to improve the position and mechanics of the pregnant body through training classes; to help reduce the complaints of the musculoskeletal system; to help reduce minor inconveniences during pregnancy; prevention and elimination of problems associated with gestational diabetes, hypertension and preeclampsia; reducing stress and improving self-esteem.

Safe and accessible physical rehabilitation should be used to prevent complications that develop during pregnancy. Particular attention is paid to changing lifestyle, eating habits and exercise, in order to create the most safe and comfortable conditions for the proper development of the child and the protection of women's health.

According to the recommendations of ACOG (American College of Obstetricians – Gynecologists), regular physical activity brings significant benefits to a pregnant woman. According to experts, benefits of the moderation of physical activity during pregnancy are the following: reducing the risk of gestational diabetes, improving psychological health, fitness support, limiting cesarean section rate and operative delivery and faster recovery after childbirth. In addition to this, it has been shown that physical activity during pregnancy reduces the risk of pre-eclampsia and positively affects on glucose levels of women with a history of diabetes mellitus. Women who did not perform their exercises before pregnancy are recommended postponement to increase the load, whereas those who were trained before pregnancy can continue at a good state of health.

Safe and dangerous types of physical activity during pregnancy (according to ACOG).

Safe activity: walking, swimming, exercising on a stationary exercise bike, orbitrack, walking on steps, etc., jogging (for women who had been practicing this jogging before pregnancy).

Dangerous activity: Contact sports: hockey, boxing, football, basketball, handball, rugby, activity that is accompanied by high risk of falling: equestrian sport, artistic gymnastics, skiing, snowboarding, surfing, diving, rock climbing, etc. Yoga or pilates require positions that impair the venous outflow from the lower body [13;14].

Threatening symptoms requiring termination of physical activity of a pregnant woman (ACOG) are the following: bleeding from the genital tract, regular painful uterine contractions, discharge of amniotic fluid, shortness of breath in the beginning of workout, dizziness, headache, chest pain, muscle weakness with a loss of equilibrium, pain or edema of the ankle [13; 14].

It is possible to be engaged in curative physical training only with the permission of a doctor. There are certain contraindications that are either temporary or even permanent in which it is strictly forbidden to be engaged in curative physical training. These include: guests fever conditions, edema, nephropathy, preeclampsia, eclampsia, uterine bleeding, self-abandoning; miscarriage in anamnesis with a negative Rh factor; increase in blood pressure; exacerbation of chronic diseases; infectious diseases; purulent processes in any organs and tissues; sharply expressed early and late toxicosis of pregnant women; polyhydramnios; threat of miscarriage; pain syndromes, caused by muscular efforts; divergence of the pubic joints; sharply expressed ptosis of internal organs; strong fatigue and bad health; violation of coordination of movement; concomitant diseases with which the exercise therapy is contraindicated; destructive forms of tuberculosis; decompensated states in the presence of progressive diseases of the cardiovascular system. The bronchial asthma attacks, gynecological operations, adiposity, initial stages of hypertension, eclampsia during the previous pregnancy, previous pregnancy, neuroses, neuralgia, compensated defects of heart, expansion of the veins of the lower extremities and other diseases of the past are not contraindications [3; 11; 15].

As a result of the analysis and elaboration of various special medical literatures, it has been found that moderate physical activity positively affects the body of the pregnant woman not only during pregnancy but also contributes to the positive course of the maternity and postpartum period. According to various scientific works and studies the basic principles of constructing a program and method of conducting classes in different trimesters of pregnancy have been founded and generalized. The studies of various authors on the effective use of physical exercises during pregnancy have been also analyzed and worked out.

Our research has been conducted on the basis of the Rivne Central District Hospital. The research involved 12 pregnant women in the II – III trimesters who would give birth for the first time, aged 19 to 32 years. The study period covered three months. Measurement of indicators has been carried out at the beginning and at the end of the research.

At the initial stage of the work, an individual examination of pregnant women has been conducted in the form of a survey using methods developed by J. Taylor, T. A. Nemchinow, V. V. Boyko and with the help of the "Spielberger questionnaire".

Pregnant women have been also asked to fill in a questionnaire (PARmed-X for pregnancy), on the basis of which for each of them have been selected exercises that fit them, in accordance with their activity.

Researchers have shown that during pregnancy, every second woman experiences a degree of back pain or in the pelvic area. Although there are several well-founded tools for assessing back pain for the general population, they are not suitable for use by pregnant women and have not been tested with this methodology. Since the nature of the pain during pregnancy is not only different, but also often accompanied by the pelvic belt component, the researchers have developed their own assessment of mobility, especially for pregnant women – PregnancyMobilityIndex. This index consists of subjects related to the daily activities selected through literature studies and clinical experience. This index has been also offered our pregnant women and has been conducted at will.

The poll also included a general and a special anamnesis. General anamnesis consisted of: passport part; complaints; ancestral anamnesis; diseases that had been postponed: in childhood, in adulthood, during pregnancy; working conditions and living conditions. When collecting a special anamnesis, attention has been paid to menstrual, sexual and reproductive functions, as well as the course of this pregnancy. In addition, objective methods of investigation have been analyzed, including laboratory ones, the results of which almost did not deviate from the normal anamnesis.

Tab. 1, Fig. 1. show the results of the rapid test by Pirogova, which have been recorded in pregnant women at the beginning of the research.

Table 1

Indicators of the physical condition of pregnant women at the beginning of the study

№	Indicators of the physical condition	V.1	V.2	V.3	V.4	V.5	V.6	V.7	V.8	V.9	V.10	V.11	V.12
1	The nature of labor activity	1	3	1	3	1	1	1	3	3	3	1	1
2	Age	18	20	20	18	20	18	16	20	16	18	20	16
3	Motor activity	5	0	10	5	0	0	5	0	0	0	5	10
4	Body weight	10	6	10	6	6	6	6	6	0	6	10	10
5	Pulse in a state of rest	12	0	8	6	8	3	2	9	0	0	5	10
6	Blood pressure	20	15	20	15	20	15	15	15	15	15	20	20
7	Complaints	5	0	5	0	0	0	0	0	0	0	0	5
	Total amount of scores	71	44	74	53	55	43	45	53	34	42	61	72

We observe that the level of physical tone of the most pregnant women corresponds to an average degree and ranges from 53 to 54 points. There is a low level of physical condition of pregnant women, which is 34-35 points.

In addition to the rapid test in the exploration, the following tests were used to detect anxiety levels: "Scale of reactive and personal anxiety" (Spilberger's questionnaire), "Personal scale of anxiety" (J. Taylor, adaptation by T. A. Nemchinov), "Tendency to unmotivated anxiety" (V. V. Boyko).

The results obtained after these tests are presented in Table 2 and Figure 2.

As you can see, the indicator for the "scale of lies" (T.A. Nemchinov) does not exceed the norm. This indicates that the answers are true. In the "scale of situational anxiety" (J. Taylor) we observe that of 12 pregnant there are only 3 in a moderate degree of anxiety. The rest of the same have a high level of situational anxiety. With regard to personal anxiety, 8 women had a high level, and 4 women had a moderate

level. In the “alarm scale” 1 pregnant woman had a very high level, 10 pregnant women had high level, and 1 woman had average level with a tendency to high.

Table 2

Indicators of the level of anxiety of pregnant women at the beginning of the research

№ of pregnant	Spilberger’s questionnaire		Taylor’s scale		Unmotivated anxiety
	scale of situational anxiety	personal anxiety	scale of lies	alarm scale	
1	53	62	5	32	6
2	50	50	3	39	9
3	45	43	2	27	8
4	35	40	3	22	3
5	47	67	5	35	10
6	61	72	4	37	6
7	49	40	4	36	6
8	58	70	4	46	8
9	52	62	3	38	7
10	42	49	2	35	7
11	43	44	3	28	8
12	47	49	5	34	10

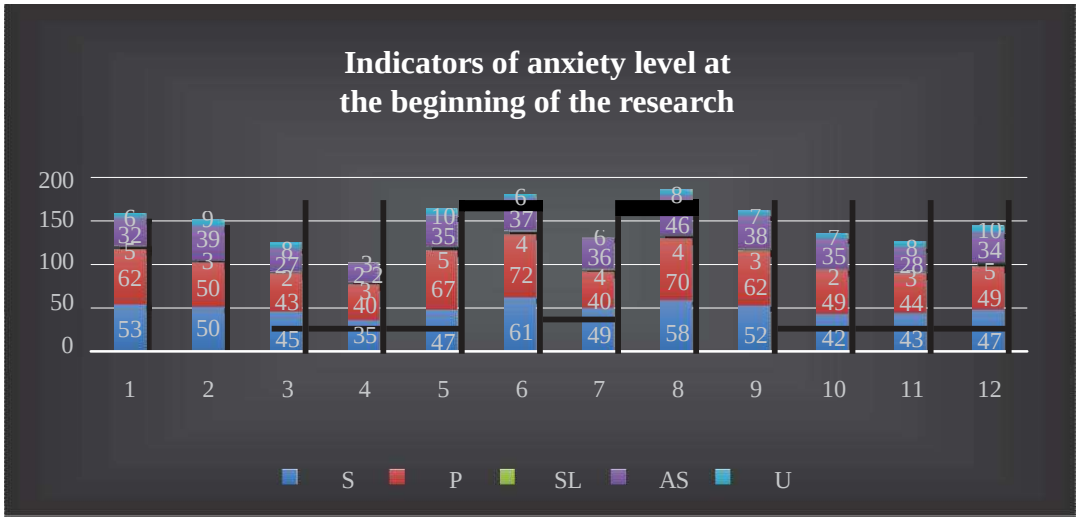


Figure 1. *Indicators of the level of physical condition of pregnant women at the beginning of the study*

The test “Tendency to unmotivated anxiety” (V.V. Boyko) showed that only one pregnant inclination to anxiety is not observed, 9 women had a slight tendency to anxiety, and 2 pregnant women had an unreasonable anxiety that manifests itself very bright and became an integral feature of their behavior.

For this contingent of pregnant women a physical rehabilitation program has been developed based on surveys.

The program of physical rehabilitation included the using of therapeutic physical training in the form of gymnastics, dosed walking, hydrocolonotherapy, recommendations for a healthy diet, massage, psychotherapy and elements of occupational therapy. The main emphasis of the program of physical rehabilitation was on strengthening and relaxing certain muscle groups, as well as on the proper breathing that pregnant women will use during childbirth.

Every gymnastics session with pregnant women during all trimesters of pregnancy consisted of the preparatory, main and final part.

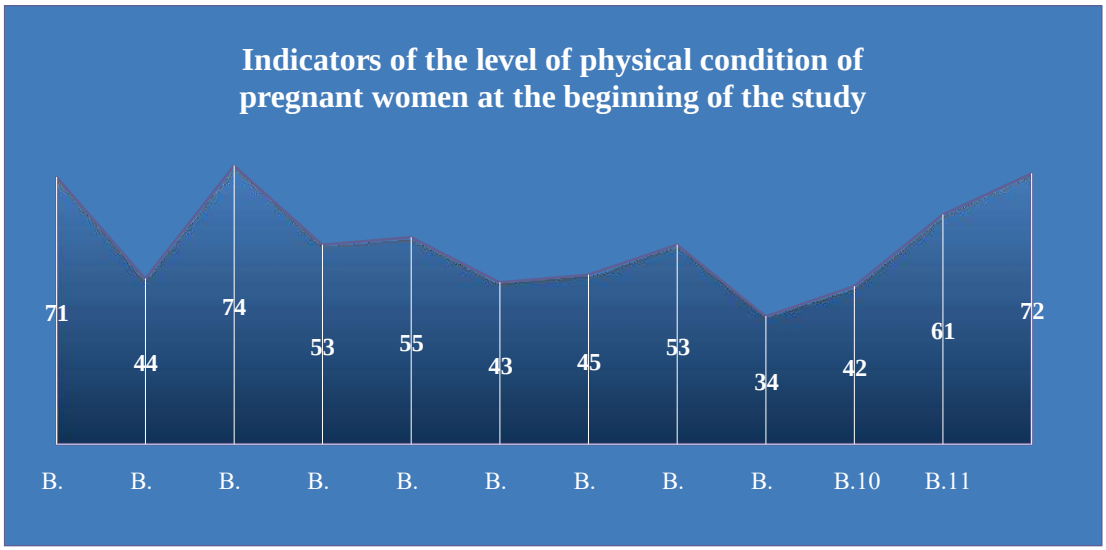


Figure 2. *Indicators of the anxiety level of pregnant women at the beginning of the research*

In the preparatory part, physical exercises for the lower and upper limbs, body and neck, breathing static and dynamic exercises, relaxation exercises, the most simple ordinary movements (saunter) were performed.

In the main part, the selection of exercises has always had stepped character. Depending on the trimester of pregnancy including respiratory exercises; exercises to strengthen the transverse, internal and external oblique abdominal muscles; leg flexion/extension and leg lifts exercises; rotational movements in the hip joints; exercises to strengthen long back muscles and increase the flexibility of the vertebral column; exercises for the prevention of various complications; exercises to strengthen pelvic floor muscles; exercises for the coordination of movements and attention; exercises for tension and stretching of muscles in rotation with exercises for relaxation; exercises to develop skills in the adoption of certain positions and the implementation of some movements in childbirth.

In the final part, simple applied and gymnastic exercises (walking at an average and slow pace with different positions of hands and deep breath), as well as exercises for relaxation of neck muscles, belt of lower and upper limbs, etc., were used.

Each pregnant woman recommended the use of aqua aerobics as an independent exercise at least 2 times a week for 45 minutes, as it is proved that swimming in water not only hardens of the body of the pregnant woman, but also trains the respiratory muscles, increases the lung capacity, stimulates blood circulation, provides A beneficial effect on the placenta and the fetus, which is also accustomed to hypoxia due to a decrease in the oxygen capacity of the mother.

At the final stage, a survey was conducted again, which allowed a subjective and objective assessment of the pregnancy status. The results of the pregnancy examination at the end of the study are presented in Table 3, 4 and Image 3, 4.

Table 3

Indicators of the physical condition of pregnant women at the end of the research

№	indicators of physical condition	Pr.1	Pr.2	Pr.3	Pr.4	Pr.5	Pr.6	Pr.7	Pr.8	Pr.9	Pr.10	Pr.11	Pr.12
1	the nature of labor activity	1	3	1	3	1	1	1	3	3	3	1	1
2	age	18	20	20	18	20	18	16	20	16	18	20	16
3	motor activity	10	10	10	10	10	10	10	10	10	10	10	10
4	body weight	10	6	10	6	10	6	6	10	6	6	10	10
5	pulse in rest	12	0	10	6	8	3	2	9	0	0	10	13
6	blood pressure	20	15	20	15	20	15	15	20	15	15	20	20
7	complaints	5	5	5	5	5	5	5	5	5	5	5	5
	count of scores	76	59	76	63	74	58	55	77	55	57	76	75

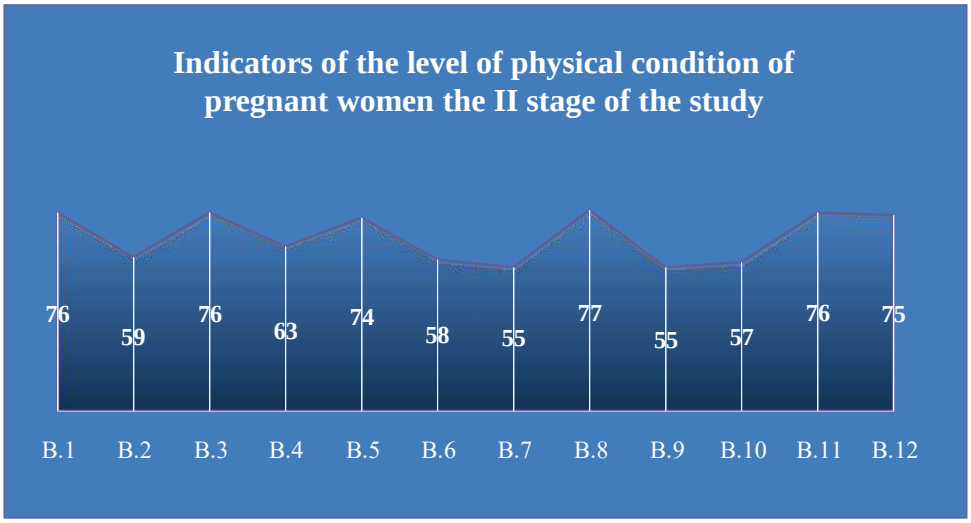
Table 4

Indicators of anxiety level in pregnant women at the end of the research

№ of pregnant	Spielberg's questionnaire		Taylor scale		Unmotivated anxiety
	СТ	ОТ	ШБ	ШТ	
1	42	54	2	28	3
2	46	47	3	26	2
3	43	39	3	27	4
4	25	29	3	2	3
5	40	35	2	21	5
6	39	43	2	24	6
7	38	30	1	16	5
8	41	40	2	25	7
9	44	42	3	23	6
10	32	31	2	13	2
11	28	34	1	3	4
12	29	26	3	4	2

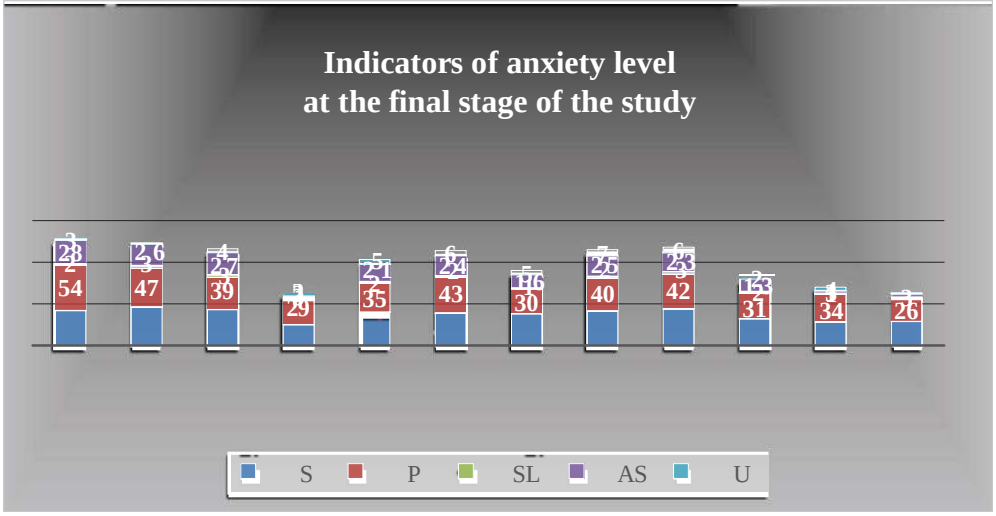
The survey shows that the physical conditions of pregnant women improved and the low level of physical condition, which was observed in 5 pregnant women at the beginning of the study, changed at the end of the study. In 7 pregnant women, the level of physical fitness corresponds to an average level of 55–74points, while in the 5 pregnant women the level of physical fitness has risen to a high level and ranges from 75-77 points.

Comparing with the primary examination, the level of anxiety of pregnant women have decreased slightly, but not much. According to "The scale of situational anxiety" 3 pregnant women have a low degree of anxiety – (25-29 points), 8 of them have a moderate degree – (32-44 points) and 1 woman has a high degree of anxiety – (46 points). Concerning to the personal anxiety, 2 pregnant women have a high level – (47-54 points), 7 of them have a moderate one – (31-43 points) and 3 have a low degree – (26-30 points).



Drawing 3. *Indicators of the express methods of the level of physical condition of pregnant women at the final stage of the research*

According to "The scale of anxiety" 1 woman has a medium level of anxiety with a tendency to a low – 13 points, 5 have a medium with a tendency to high (16-25 points), 3 pregnant have a high level of anxiety – (26-28 points) and 3 have a low level – (2-4 points). Test "The propensity to non-motivated anxiety" has showed that 7 pregnant have no inclination to anxiety – (2-4 p.) and 5 have a slight inclination to anxiety – (5-7 p.).



Drawing 4. *Indicators of the express methods of the level of anxiety of pregnant women at the final stage of the research*

At the end of the research, we also drew attention to the fact that, if the program is developed correctly and physical rehabilitation is applied, we can observe an increase in the psycho-emotional condition, improvement of the respiratory and cardiovascular system, increasing efficiency and reduction of fatigue. In addition, future child is engaged in physical activity together with future mother. Scientists confirm that infants, whose mothers during pregnancy were engaged in therapeutic gymnastics, have better physical development and motor skills than their peers, whose mothers had a sedentary lifestyle during pregnancy. Physical exercises also allow achieve optimal mode of functioning of the basic systems of an organism in the changed conditions, and counteract a number of undesirable complications of pregnancy.

It can be concluded from the research that proper physical activity, adapted to the period of pregnancy and the health of woman is strongly recommended, but it is important to consider that certain restrictions in the implementation of intensive exercises are required during pregnancy.

Conclusions. Motor activity during pregnancy promotes the normalization of the psychological condition of women, the formation of generic dominant and prevents the development of stress and promotes the preservation and strengthening of mother's and child's health and thus the health of the family. Physical exercises also allow preparing effectively for childbirth and promoting fast delivery of the maternity and postpartum periods. Women get more positive emotions, their mood improves, they become more confident in the favorable course of pregnancy, in the full development of the fetus, in overcoming the difficulties of bearing the fetus and the birth of a normal, healthy child. Pregnant women who were engaged in physical activity on the proposed program noted toning, improving and restoring effect of physical exercises.

The prospects for further research are to develop practical recommendations for modern approaches to the use of physical rehabilitation to improve the physical and psychological condition of pregnant women, and also for the correction and prevention of complications.

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FACTORS AND PREVENTATIVE MEASURES OF THE VISUAL ORGANS PATHOLOGY AMONG STUDENTS

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Abstracts

Topicality. The urgency of the article is determined by a large number of students with a visual organs disorder, which causes anxiety both to doctors and teachers, as vision is one of the most important analyzers of the human body, which provides full dynamic information about a color, a form, a distance, the world around us, etc. The goal of this research is to synthesize the causes of the visual organs pathology and the ways of preserving the sense of vision. ***Methodology*** of the research is the analysis of scientific and methodological cited literature, the survey of students on the use of computer and mobile devices. ***Results:*** the factors of the visual organs pathology have been generalized, they may be hereditary, congenital and acquired. Hereditary factors of the visual organs pathology are transmitted from parents to children, or through generations. Congenital factors of the visual organs pathology can have negative effects on the fetus during pregnancy. The reason for the acquired diseases is the disease of internal systems and organs, primarily diseases of ORL organs and cardiovascular pathologies, as well as bad habits, inappropriate nutrition, environmental conditions and the work with displays. Many-hours-long reading from the monitor provokes the visual syndrome and generally worsens the eyesight. Students are obsessed with the computer and mobile technologies, leaving out of account their negative impact. Consequently, the authors emphasize the need to adhere to the rules of using the computers and mobile devices, to provide special exercises for prevention and vision correction, which are to increase the level and intensity of metabolic processes in the human body, and blood circulation are to be enhanced. These regular special exercises affect both the work of eye muscles and the visual acuity positively. ***Conclusions.*** The visual organs pathology can be prevented by doing the therapeutic exercises and the exercises for relaxation, as well as by following both general and special recommendations such as a proper display arrangement and regular breaks.

Key words: students, visual organs pathology, factors of influence on the visual analyzer, prevention, correction.

Наталія Захожа, Ольга Касарда, Володимир Захожий, Оксана Усова, Андрій Гаврилюк. Фактори патології органів зору в студентів та їх профілактика. ***Актуальність*** статті зумовлена значною кількістю студентської молоді з порушенням зору, що викликає тривогу як у медиків, так і в педагогів, адже зір – один із найголовніших аналізаторів організму, який забезпечує отримання повної динамічної інформації про колір, форму, віддаль, навколишній світ тощо. ***Мета роботи*** – узагальнення причин патології органів зору та способи його збереження. ***Методологія дослідження*** – аналіз науково-методичної літератури, опитування студентів щодо користування комп'ютерними й мобільними пристроями. ***Результати.*** Узагальнено фактори патології зору, які можуть бути спадковими, вродженими та набутими. Спадкові передаються від батьків або через покоління. До вродженої патології можуть призвести негативні впливи на плід у період вагітності. Причиною набутих є захворювання внутрішніх систем й органів, передусім хвороби ЛОР-органів та серцево-судинні патології, шкідливі звички, нераціональне харчування, екологічні умови, а також робота з дисплеями. Багатогодинне читання з монітора провокує зоровий синдром і загалом погіршує зір. Студентська молодь надто захоплюється комп'ютерними й мобільними технологіями, незважаючи на їх негативний вплив. Тому науковці наголошують на необхідності дотримання правил користування комп'ютерами й мобільними пристроями, наводять спеціальні вправи для профілактики та корекції зору, завдяки яким підвищуються рівень й інтенсивність обмінних процесів в організмі, посилюється кровообіг. Регулярне їх виконання позитивно впливає як на роботу м'язів ока, так і на гостроту зору. ***Висновки.*** Керуючись як загальними, так і спеціальними рекомендаціями, такими як належна організація роботи з дисплеями, регулярні перерви, використання вправ для розслаблення та лікувальної гімнастики, можна запобігти патології зору.

Ключові слова: студенти, патологія зору, фактори впливу на зоровий аналізатор, профілактика, корекція.

Наталья Захожа, Ольга Касарда, Владимир Захожий, Оксана Усова, Андрей Гаврилюк. Факторы патологии органов зрения студентов и их профилактика. ***Актуальность*** статьи обусловлена значительным количеством студенческой молодежи с нарушением зрения, что вызывает тревогу как у медиков, так и в педагогов, ведь зрение является одним из главных анализаторов организма, обеспечивает получение полной динамической информации о цвете, форме, расстоянии, окружающем мире и т. п. ***Целью*** данной работы является обобщение

причин патологии органов зрения и способы его сохранения. ***Методология исследования*** – анализ научно-методической литературы, опрос студентов по использованию компьютерных и мобильных устройств. ***Результаты.*** Обобщены факторы патологии зрения, которые могут быть наследственными, врожденными и приобретенными. Наследственные передаются от родителей или через поколение. К врожденной патологии могут привести негативные воздействия на плод в период беременности. Причиной приобретенных являются заболевания внутренних систем и органов, прежде всего, болезни ЛОР-органов и сердечно-сосудистые патологии, вредные привычки, нерациональное питание, экологические условия, а также работа с дисплеями. Многочасовое чтение с монитора провоцирует зрительный синдром и ухудшает зрение. Студенческая молодежь слишком увлекается компьютерными и мобильными технологиями, несмотря на их негативное влияние. Поэтому авторы подчеркивают необходимость соблюдения правил пользования компьютерами и мобильными устройствами, приводят специальные упражнения для профилактики и коррекции зрения, благодаря которым повышается уровень и интенсивность обменных процессов в организме, усиливается кровообращение. Регулярное их выполнение положительно влияет как на работу мышц глаза, так и на остроту зрения. ***Выводы.*** Руководствуясь как общими, так и специальными рекомендациями, такими как надлежащая организация работы с дисплеями, регулярные перерывы, использование упражнений для расслабления и лечебной гимнастики, можно предотвратить патологии зрения.

Ключевые слова: студенты, патология зрения, факторы воздействия на зрительный анализатор, профилактика, коррекция.

Introduction. In today's conditions, the load on sight is particularly widespread, which is characterized by significant changes in the nature and conditions of visual work associated with the use of information and communication technologies. Computers and mobile phones that support many features and, of course, the Internet, are indispensable for students. However, excessive reading from a computer monitor, tablet, or smartphone negatively affects the lens of the eye. From the internal overheating it collapses and becomes cloudy. This manifests itself in a cut in the eyes and noise in the head [2].

Of course, in today's life, it's hard for students to do without laptops, tablets, gadgets and smartphones. However, there are two issues that await those who often use these electronic media. The first is the probability of the development of true or false myopia, the so-called myopia. The difference between these two pathologies lies in the fact that when true short-sightedness is an extension of the eyeball, that is, it is extracted and distorts the image. As a result of myopia, muscle spasm occurs, so the picture loses its sharpness. The second problem is the development of dry eye syndrome, which is due to the fact that a person is too fond of what is happening on the screen and forgets to blink, so that the eyes are hydrated naturally.

Work on a computer, even in spite of high-quality monitors with a special protective coating, reduces visual acuity, mobility of the eye; disrupts refraction and accommodation, binocular vision and a sense of color. The degree of fatigue directly depends on the nature of the user's activity. Conditionally distinguish 4 categories of works by computer:

- reading information from the monitor screen (reading, viewing files, etc.);
- operations for entering information;
- combined operations (text editing, writing and debugging programs, etc.);
- use of computer graphics (drawing, work with design programs, etc.).

Of course, the greatest risk of a negative impact of the computer on vision is on individuals who regularly perform work in categories III and IV. According to American researchers, after 45 min. Continuous work on the computer appear the first signs of asthenopia (visual fatigue), after 2 hours. - the work of the visual analyzer is violated, and after 4 hours. - changes of irreversible nature begin. In such information-rich countries as the US and China, according to the statistics in 2016, the number of people with short-sightedness was 40% and 70% respectively (given the fact that 50 years ago, such people in China were 10-20%) [5]. In Ukraine, short-sightedness is manifested in every fourth inhabitant. Unfortunately, in virtually all schools and institutions of higher learning, students, students and teachers systematically ignore the basic rules of work at the computer.

If reading from a computer monitor, tablet or smartphone did not hurt the eyes, e-book makers would not have the incentive to come up with new electronic devices directly for reading, since modern portable laptops and tablets are no less ergonomic and comfortable. However, compared to the e-book, they are lagging behind in terms of eye gain, precisely because hours-long reading from the monitor provokes a dry eye syndrome, a computerized visual syndrome, and generally worsens vision. The fact is that the phone

works like a microwave oven, on similar waves. If the impact is long - the likelihood of damage increases. In the brain and in many tissues there is a blood circulation, due to which the impact of a mobile phone is not so strong, because the tissues are refreshed with blood. One should not think that there is any harm at all, but the effects of the waves are at least somewhat weakened. Particularly suffering from the mobile phone those parts of the body that do not wash the blood, and therefore remain outside the system of thermoregulation of the body, in particular, the lens of the eye. According to the World Health Organization, the use of a mobile phone for more than 1 year. The day is markedly worsening both by sight and hearing. Israeli scientists have come to the conclusion that people who often use a cell phone for a long time may develop cataracts over time [3].

The purpose of the work is to synthesize the factors of visual impairment and to justify the necessity of using various means for its preservation.

The research methodology is the processing of information provided by students of the 1–2 year course at the Lesia Ukrainka Eastern European National University on the use of computer and mobile technologies.

Results of the research and their discussion. A survey of students at the above university allowed the following results: about 60% of students use a personal computer and a mobile phone for more than three hours a day, of which about two hours are spent on homework. More than 20 % of students use computers and mobile phones for more than two hours during the day.

Working with displays, about 60% of students have complaints of reduced visual acuity, difficulty in their eyes, a feeling of «dusty» eyes, blurred vision, reddening of eyeballs. In addition, about 50 % of the respondents feel general tiredness, headache, difficulty in remembering, flying flies and iridescent circles in front of their eyes.

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Concerning the performance of the interviewed exercises for the eyes while working with the computer, their number is too low - about 15%. The reasons for such neglect of their own health should be ignorance of the respondents regarding the need for their implementation, ignorance of the correct methodology, consistency, lack of time.

About 20% of students do not consider displaying harmful to view. In their opinion, the visual analyzer is negatively affected by stressful situations, poor nutrition, ecology, etc. And this fact is not objectionable. Indeed, stress, inappropriate nutrition, and inadequate environmental conditions are harmful not only for sight. However, in the case of using computer and mobile communications, the main risk factors for vision impairment are: non-compliance with work and rest; incorrect organization of the workplace; incorrect monitor setting; inadequate level of illumination, etc. The visual load during work on a computer increases as a result of constant moving of a view from a screen to a keyboard and a paper text. In addition, the static posture during work, the uniformity of movements and the irrational organization of the workplace can lead to musculoskeletal disorders that

For people who work for a long time on a computer, every 40-45 minutes. arrange a break, leave the workplace and do gymnastics for the eyes, at least the easiest. For example, the following exercises [1]:

1. Close the eyes firmly and open wide. Repeat 5-6 times at intervals of 30 seconds.
2. Without turning his head, look up, down, left and right, and then up and down diagonally.

3. Choose the closest item located and fix it look at 3-4 s. Then translate the look at the object that is located a bit further. Continue the chain in the distance, and when the number of objects reaches 15, repeat everything in reverse order.

In order for the eyes to get tired as little as possible, when organizing the workplace, you should take into account 3 main factors: illumination; table and monitor placement; pose at work. Minimum illumination of the surface of the table: when using incandescent lamps 150 lux and 300 lux at fluorescent lamps. Total illumination in the room - within 300-500 lux. The recommended power of a table lamp is 60-80 Watts. The lamp must have a tight shade.

In clear weather from direct sunlight, blinds or curtains of translucent tones should be used to avoid direct light glare.

The best posture behind the desk: the spine has a perpendicular position relative to the surface of the seat and the floor; shoulders are on the same line; both arms are freely lying on the table; bending of the elbow does not exceed 20; the feet rest entirely on the floor, that is, the legs are bent at right angles in the hip and knee joints. The back is tightly pressed against the back of the chair.

To avoid spoiling your eyesight on a computer, the desktop and monitor should be properly positioned:

• It is desirable to place the desktop directly in front of the window or the left end to it (if left, then the right end);

• The table should be of such width that the distance to the screen was 60-70 cm, but at the same time it was possible to work with the keyboard in the immediate vicinity of the user (30-40 cm);

• The monitor should be installed almost perpendicular to the table, slightly higher than the user's eye level, so that it looks at the screen at an angle of 10 ° from the top down.

Before you start working on your computer, you need to set the proper contrast and brightness of the monitor. These options are individually tailored for each user. In general, the contrast should not be too low, and the brightness is too high. The optimal balance of the colors of the background and the text is determined by the principle of opposite tones: white - black, yellow - blue, red - green. It should also avoid a large contrast between the brightness of the screen and the brightness of the surrounding space.

Since sunlight has many valuable and necessary properties for health, then you need to ensure that the room gets as much sunshine as possible. It is advisable to have white walls in the room, which evenly reflects the incident light on them, which increases the indoor illumination. It should be borne in mind that objects of white color reflect 60-80% of incident light on them, objects of light tone (yellow, cream) – 50–60 %, dark (brown, red, gray) - 20-30%. Weak illumination leads to excessive eye strain. However, a strong source of light can cause blindness.

Even in the ancient gymnastics system included exercises in the form of various movements of the eyes (turns, circular movements). Undoubtedly, they are beneficial, because trained muscles that control eye movements, activate blood circulation in this area and well relieve fatigue after mental work. After such exercises, a person feels much more cheerful. At the heart of the positive effect, which is discussed, there are certain functional relationships between the ocular nerve and the nerve cells of the brain vessels. We offer several exercises that remove eye fatigue. It is not difficult to perform them, the main thing in this matter is regularity.

1. Fast blinking eyes for 1–2 minutes. Exercise improves blood circulation, it should be done sitting.

2. Move the focused view to the left corner of the eye, then move it horizontally to the right angle. Repeat 8 times.

3. Extend the index finger to the level of the nose and carefully focus on it. Gradually pull the finger to the nose, shifting the look until it begins to double in your eyes. Repeat this exercise 7 times.

4. In the clockwise direction, rotate the eyes one way and then go to the other. There will be enough five repetitions.

5. Look directly in front of you 2–3 s. Then place your finger at a distance of 25–30 cm from your eyes, translate the look at the beam and look at it 3–5 s. Lower your arm. Repeat 10–15 times. Running standing. Exercise reduces eye fatigue. Those who use glasses should perform the exercise without removing them.

6. Close the eyelids and gently massage them with circular finger movements for 1 min. Executing sitting. Exercise helps relax muscle and improves blood circulation.

7. Try to translate the view from a close object to the far and vice versa. If there are unpleasant feelings, it is advisable to change the pace of the task being performed. As a rule, such training complex should be

performed daily, and it will not be harmful if you do it in the morning and evening, supplemented by general developmental exercises and breathing gymnastics.

The training of ciliary muscle was one of the first proposed and started to be applied by Ukrainian ophthalmologist Professor AI Dashevsky in his practice. These were daily exercises for 10-15 minutes with concave lenses. In front of the eye (each one separately), he put a faint lens (starting at 0.5 D) for as long as the visual acuity that first decreased, did not rise to the baseline. Gradually, the power of the lenses increased to such an extent that it could overcome the eye. Of course, after such training, the visual acuity improved, and with each passing day the output power of the lenses, as well as the power of the lenses, from which the exercise ended, increased. This training can be conducted both for one eye and for each turn.

Undoubted interest is the technique of training and restoration of vision, developed by English physician M. Corbett. It is based on the principles of relaxation of ocular and ciliary muscles, which account for the bulk of the loads during visual perception. According to M. Corbett, the muscles surrounding the eyeball provide not only the movements of the eye, but also can affect the size of its longitudinal axis. Therefore, by special training exercises, bringing the focal length to the retina at short-sightedness or farsightedness, you can achieve the effect that gives the glasses. Of course, these exercises do not produce as fast a result as wearing glasses. However, their influence is deeper and more natural, and this beneficial effect extends even to the character of a person, contributing to a good mood.

The practical recommendations of M. Corbett are that:

• In no case can you keep a book (laptop, tablet, etc.) on your lap while reading. In this position, the cervical vertebrae are inclined forward, the carotid arteries are slightly flattened, which complicates the blood supply, in addition, the larynx contracts, which reduces the depth of inhalation;

• The distance from your eyes to a book or other object of information must be varied, not necessarily keeping the property poses. On the contrary, it is recommended to move the stool, throwing it hard on the back, or straightening out, pull up the legs to avoid their «squeezing» and spasms;

• For deterioration of visibility when working with a computer, it is recommended to use a «protracted breath» technique, which contributes to increasing the insatiability and as a consequence - essential relaxation of the upper limb, trunk and cervical vertebrae. Reception is the removal of air from the lungs through the compressed lips with a slight hissing while the body tilt is tilted forward. Naturally, there should be a corresponding deep breath beforehand. Depth of visual perception improves already from the second slow inspiration. If all the exercises for the eyes are accompanied by proper breathing, their results will be manifested more quickly;

• Put your fingers in the center of your forehead so that your hands cover your eyes. Do not squeeze the eyeballs and restrict the ability to move freely with the eyelids. Such artificial eclipse significantly accelerates the process of relaxing muscles and improves blood circulation;

• In the morning it is useful to work in front of the mirror several movements with eyelashes and eyebrows. In most cases, people with low vision are accompanied by a feeling of heaviness. These exercises expand and deepen the circulation of blood, massage the lacrimal glands and their excretory canals, and therefore extremely useful, especially after night sleep.

The program for correction of visual impairment should include morning hygienic gymnastics, special training gymnastics, physical culture pauses, etc. However, one should be careful about physical exercises, correct dosage loading, alternating with pauses for rest, filling exercises for visual training, relaxation and breathing regulation. It is necessary to refrain from prolonged static exercise, exercises of high intensity, which can lead to increased intraocular pressure, impaired ciliary muscle performance. Exclude high intensity exercises; limit sharp inclination, jumps, exercises with shaking of the body and inclining of the head, moving on skates, etc.

Discussion. The problem of pathology of the eyesight in children and young people is disturbed by many scholars. They indicate the main causes of this phenomenon, recommend various corrective and preventive measures, the effectiveness of which is indisputable. However, it is said that one of the factors of visual impairment, including short-sightedness, is the many hours of computer work and the excessive use of mobile devices. This serious illness can adversely affect the quality of life. Therefore, teachers and parents need to be vigilant and timely pay attention to this problem.

Conclusions and perspectives of further research. It is known that a large amount of information on computer and mobile communications students receive through a visual analyzer. Therefore, visual

impairment refers to the most massive deviations in their state of health, which greatly reduces performance. In the case of ocular pathology, there is a complex of motor defects due to reduced visual acuity. Therefore, it is necessary to provide assistance to those who already have vision problems, as well as to take seriously the prevention and hygiene of the eyes, and to apply various ways of its preservation. Physical therapy, therapeutic and correctional exercises, massage, physiotherapy plays an important role in the prevention of vision and its restoration. This technique should be applied not only in medical institutions, but also in high school in physical education classes and at home.

The prospect of further research we see in the search for and improve the methods of preventing the vision of student youth in the process of physical education.

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ALGORITHM OF PROGRAM OF PHYSICAL REHABILITATION INDIVIDUALIZATION IN CHILDREN 14-17 YEARS WITH VEGETATIVE-VASCULAR DYSFUNCTION

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Abstracts

Novelty of reaserch: is based on absence of complex estimation of psychological state of special medical groups pupils, suffered by vegetative-vascular dysfunction. The absence of multifaceted approach to this problem provides to incomplete solution of educational recreational tasks in school. ***Purpose and methods of research:*** Purpose of research is to improve the effectiveness of educational recreational tasks in school conditions for 14–17 years children with vegetative-vascular dysfunction by designing of algorithm program of individualization of physical rehabilitation for defined child group. It was analyzing education software and science & methodical literature touched on approach to physical rehabilitation of 14–17 y children with vegetative-vascular dysfunction at the school. For the purpose of research of defined aimtheinvestigationofphysical educationalprocess wasperformed at schoolsof Sumycity. For algorithmdesigning the methods of simplification and differentiation were used. ***Results of Research and Main Conclusions:*** The algorithm and schemesofindividualphysical rehabilitationprogramfor 14–17yofchildrenwith vegetative-vasculardysfunctionwasdone. It gives possibility to provide individual approach through definition of integrative index of vegetative-vascular dysfunction and individual indexes of vegetative-vascular dysfunction for every child (psychogenic, somatic, risk of vegetative-vascular dysfunction formation under vital activity factors). The proposed algorithm and scheme of individual physical rehabilitation program for 14–17y children with vegetative-vascular dysfunction allow to make individual approach based on quantitative estimation of prenosological states, improving of health state monitoring, program of motor activity reinforcement.

Key words: monitoring, schoolchildren, individual approach, prenosological states, motor actvity.

Олена Савчук. Алгоритм програми індивідуалізації фізичної реабілітації дітей 14–17 років із вегето-судинними дисфункціями. ***Актуальність*** теми дослідження зумовлена відсутністю комплексного підходу до оцінювання психофізичного стану учнів спеціальних медичних груп із вегето-судинними дисфункціями, що не виконує повною мірою оздоровчих завдань освіти в умовах навчального процесу закладів загальної середньої освіти. ***Мета й методи роботи***. Мета роботи – підвищити ефективність оздоровчих завдань освіти в умовах навчального процесу закладів загальної середньої освіти для дітей 14–17 років із вегето-судинними дисфункціями за допомогою розробки алгоритму програми індивідуалізації фізичної реабілітації дітей цієї групи. Проаналізовано навчальні програми та науково-методичну літературу щодо підходів до фізичної реабілітації дітей 14–17 років із вегето-судинними дисфункціями в умовах навчальних закладів загальної середньої освіти. Із метою вивчення сучасних проблем організації навчального процесу дітей спеціальних медичних груп проведено спостереження за перебігом процесів навчання на уроках фізичної культури для дітей 8–11 класів закладів загальної середньої освіти м. Суми. Використано методи симпліфікації та диференціації до процесу побудови алгоритму індивідуалізації програми фізичної реабілітації. ***Результати роботи та висновки.*** Розроблено алгоритм та схему програми індивідуалізації фізичної реабілітації дітей 14–17 років із вегето-судинними дисфункціями в умовах закладів загальної середньої освіти, що реалізують індивідуальний підхід через визначення рівня інтегрального показника вегето-судинної дисфункції й індивідуальних для кожної дитини складових частин ризику розвитку вегето-судинної дисфункції (психогенної, соматичної, ризику виникнення вегето-судинної дисфункції під впливом чинників життєдіяльності). Запропоновані алгоритм та схема програми індивідуалізації фізичної реабілітації дітей 14–17 років із вегето-судинними дисфункціями в умовах закладів загальної середньої освіти дадуть змогу здійснювати індивідуальний підхід на основі кількісної оцінки донозологічних станів, покращення моніторингу стану здоров'я школярів, програм закріплення форм рухової активності.

Ключові слова: моніторинг, школярі, індивідуальний підхід, донозологічні стани, рухова активність.

Елена Савчук. Алгоритм программы индивидуализации физической реабилитации детей 14–17 лет с вегето-сосудистой дисфункцией. ***Актуальность*** темы исследования обусловлена отсутствием комплексного подхода к оценке психофизического состояния учащихся специальных медицинских групп с вегето-сосудистыми дисфункциями, что не решает в полной мере оздоровительных задач образования в условиях учебного процесса заведений общего среднего образования. ***Цель и методы работы.*** Цель работы – повысить эффективность оздоровительных задач образования в условиях учебного процесса заведений общего среднего образования для детей 14–17 лет с вегето-сосудистыми дисфункциями путем разработки алгоритма программы индивидуализации физической реабилитации детей указанной группы. Проанализированы учебные программы и научно-методическая литература согласно подходов к физической реабилитации детей 14–17 лет с вегето-сосудистыми дисфункциями в условиях учебных заведений общего среднего образования. С целью изучения современных проблем организации учебного процесса детей специальных медицинских групп проведено наблюдение за ходом процессов обучения на уроках физической культуры для детей 8–11 классов учреждений общего среднего образования г. Сумы. Использованы методы симплификации и дифференциации для построения алгоритма индивидуализации программы физической реабилитации. ***Результаты работы и выводы.*** Разработаны алгоритм и схема программы индивидуализации физической реабилитации детей 14–17 лет с вегето-сосудистыми дисфункциями в условиях учреждений общего среднего образования, реализующие индивидуальный подход через определение уровня интегрального показателя вегето-сосудистой дисфункции и индивидуальных для каждого ребенка составляющих риска развития вегето-сосудистой дисфункции (психогенной, соматической, риска возникновения вегето- сосудистой дисфункции под влиянием факторов жизнедеятельности). Предложенные алгоритм и схема программы индивидуализации физической реабилитации детей 14–17 лет с вегето-сосудистыми дисфункциями в условиях учреждений общего среднего образования позволят осуществлять индивидуальный подход на основе количественной оценки донозологических состояний, улучшения мониторинга состояния здоровья школьников, программ закрепления форм двигательной активности.

Ключевые слова: мониторинг, школьники, индивидуальный подход, донозологические состояния, двигательная активность.

Introduction. The program for special medical groups of 5–9 grade pupils, recommended by the Ukraine Education and Science Ministry of October 15, 2008, determines that the purpose of the work with pupils of a special medical group (SMG) is to provide «individual and sustainable improvement of health state». In the annual report on the Ukraine population health state in 2017 it is stated that children aged 7–14 years in 1,2–3,3 times, and children aged 15–17 years – in 3,0–3,8 times more often than at 0-6 years, are registered with diseases of the nervous system, mental and behavioral disorders, etc. [14].

The main goals of the National Strategy for Motor Rehabilitation in Ukraine until 2025 «Motor activity – a healthy lifestyle – a healthy nation», approved by the Decree of the President of Ukraine of February 9, 2016 No. 42/2016, are the following: development of an indicators set for appreciation the physical health level of different population groups; substantiation of the indicators set for estimation of the physical health level of different population groups and the order of their estimation; introduction of a system for monitoring the main motor activity indicators of various age and social population strata, stimulating and restraining factors.

At present, there is no clear unanimous opinion on the exercises methodology on the physical education of SMG children. Available approaches to the physical education of the SMG children contain an individually oriented component which is solved by scientists in different ways. Thus, according to I. O. Korsak, individual approaches in the physical education of SMG children with cardiovascular diseases during the selection of physical exercise should take into account the pathogenesis of the disease, combine physical activity with other methods of physical rehabilitation (self massage and contrast shower hydrotherapy for limbs and cellular zone three times a week), staged control of the functional condition of schoolchildren at the beginning and end of the school year [6].

The practical experience of O. N. Kamishanova testifies the effectiveness of the individual approach implementation with the distribution of children by the degree of physical fitness [5].

Scientists, in particular, N.S. Polka, S.V. Gozak, O. T. Yelizarov, consider it advisable to take into consideration the level of functional capabilities of schoolchildren with cardiovascular diseases, their physical development harmony, the presence of chronic illnesses and the number of functional disorders and developmental abnormalities [10].

Differentiated psychophysical training of children with vegetative-vascular dystonia syndrome based on the psychophysical portrait of children with baseline vagotonic and sympathicotropic tonic vegetative tone is proposed in the N. N. Nezhkina scientific work [9].

In the valid program «Physical Culture», a differentiated approach to a special medical group for 10–11 grades pupils is implemented according to functional capabilities: on the right flank is the I subgroup – pupils with cardiovascular and the respiratory system diseases, the II subgroup – children with diseases of internal organs and weak sight and then the III – backward in physical development schoolchildren (F. F. Bondarev, V.V. Dubovis, 1997).

The actual program «Physical Culture» for special medical groups of secondary schools of 5-9 classes offers the formation of groups taking into account the age and health status with possible combination of a students group with various diseases (V. I. Mayer, V. V. Derevyanko, 2008).

In contrast to the segregational approaches to the physical education of SMG students, I. Bodnar develops the idea of integrating and inclusive physical education of such children, which contributes to improving the functional capabilities of the organism and the better social adaptation of children with weak health, and an individual approach can be implemented on the basis of common contraindications for children with different diagnoses [1].

In scientific works V.A. Mazur and O. S. Ishchenko describe the approach to students in physical education lessons on the basis of increasing the adolescents motivation to study physical culture, which should contribute to improving the effectiveness of physical education [2; 7].

The reasoning of motor activity regimes for students aged 15-17 with different degrees of health based on indexes of physical activity was carried out in the dissertation of N.V. Semenova [13].

In conclusion, we can assume that the modern models of SMG children physical education do not use a complex approach to assessing the psychophysical state of students. The lack of monitoring of the adolescents psychophysical state and programs for fixing motor activity reduce the health effect of physical education lessons. Thus, an individual-differentiated approach to students at lessons is carried out, first of all, taking into account physiological indicators and does not take into account the psychogenic influence of negative factors and lifestyle of adolescents, which does not fully fulfill the sanative goals of education in the conditions of the educational process at general secondary education institutions.

The purpose of research is to increase the efficiency of health education tasks in the conditions of the educational process at general secondary education institutions for children aged 14-17 with vegetative-vascular dysfunctions by developing an algorithm of physical rehabilitation individualization program for children of a such group.

Objectives of research:

1. To identify the main structural elements of the physical rehabilitation individualization program for children14-17 years old.

2. To propose an algorithm of physical rehabilitation individualization program for children aged 14-17 with vegetative-vascular dysfunctions in conditions of general secondary education institutions.

Material and methods of research. The analysis of educational programs and scientific and methodical literature on approaches to physical rehabilitation of children aged 14-17 with vegetative-vascular dysfunctions in the conditions of general secondary education institutions was conducted. In order to study the current problems of the educational process organization of the SMG children, observation of the learning process at the physical education classes for children of 8-11 grades of general secondary institutions education in the city Sumy was conducted. In the course of the investigation, the methods of simplification and differentiation to the process of a physical rehabilitation individualization program algorithm constructing were used.

The research was carried out in accordance with the theme of the physical culture medical and biological basis department of A. S. Makarenko Sumy State Pedagogical University «Physiological and hygienic maintenance of health preservation activity of educational institutions» (state registration number - 0113U004662).

Results of research. Study and analysis of the programs «Physical Culture» for 5-9 grade special medical groups of general educational institutions (authors Mayer V.I., Derevyanko V.V., 2008) and

«Physical Culture» for 10-11 grade students special medical group (F.F. Bondarev, Dubovis V.V., 1997), as well as observation of the learning processes course at physical education classes, showed that the individual quantitative approach to the dosage of physical activity for children with vegetative-vascular dysfunction is absent, individual factors of child vegetative-vascular dysfunction development risk are not considered. Therefore, in the course of the study, the scheme (Figure 1) and the algorithm (Figure 2) that implement the individual approach by determining the level of the integral index of vegetative-vascular dysfunction (VVD) and individual components for the VVD developing risk (psychogenic, somatic, the VVD emergence risk under the life factors influence) were proposed and methods of their quantitative determination are given in the author's work [3; 4; 11; 12].

Input data of the given program algorithm (Figure 2) include receiving indicators of physical and psycho-emotional state with further data entering in the lines of the psychophysical state elaborated table and the student the living conditions card. The indicators obtaining is carried out by a questionnaire conducted by the class teacher, as well as by anthropometric and physiometric measurements carried out by a school medical officer or a physical rehabilitation therapist.

Diagnosis is performed on the basis of the obtained indicators using the qualimeter calculation of the following four integral indicators:

1) the integral index of the VVD (II_{VVD});
2) integral indicator of the VVD development psychogenic risk of (II_{PR});
3) integral indicator of the VVD development somatic risk (II_{SR});
4) integral indicator of the VSD risk under the influence of life factors (II_{LF}).

Methods of calculation such integral indicators are presented in the previous articles [3; 4; 11; 12]. There are calculated four integral indicators (II_{vvd}, II_{sr}, II_{gr}, II_{pr}) that involving into the card of the psychophysical state of the pupil and the card of living conditions of the pupil.

The *«Health»* block assumes the pupil that will be given a «yes» response to physical activity with an intensity corresponding to the main group of physical culture.

Differentiation. Selection a rehab program. In order to implement an individual approach to pupils according to the data of the integral indicator VVD [3] applied to the following groups:

1. Healthy (Group D_1).
2. Minimal signs of VVD and weakly expressed VVD (Group D_2).
3. Significantly expressed and expressed VVD (Group D_3).

For the differentiation of groups into subgroups, the distribution of children according to the probability of occurrence of VVD according to the results of integral indicators of psychogenic, somatic, and life-threatening risks has been applied [4; 11; 12]:

1. General subgroup D_1 (children without signs of VVD).
2. Subgroup $D_{2.1}$ (children of group 2 with higher than average and high levels of psychogenic risk).
3. Subgroup $D_{2.2}$ (children of group 2 with higher than average and high levels of somatic risk).
4. Subgroup $D_{2.3}$ (children of group 2 with higher than average and high levels of risk of lifestyle exposure).
5. Subgroup $D_{3.1}$ (children of group 3 with higher than average and high levels of psychogenic risk).
6. Subgroup $D_{3.2}$ (children of group 3 with higher than average and high levels of somatic risk).
7. Subgroup $D_{3.3}$ (children of group 3 with higher than average and high levels of risk of lifestyle exposure).

Rehab for the chosen program in general will involve the implementation of differentiated programs by the pupils in accordance with the proposed division of children into subgroups. A detailed description of these differentiated programs will be presented in the following article

Monitoring of the functional level. Monitoring of the state of pupil's health is carried out with the help of the elaborated psychophysical status card and the student's living conditions card and is conducted twice in the academic year (at the beginning and at the end of the school year). The psychophysical card includes the following indicators: the points of the Wein questionnaire, the children's questionnaire for neuroses (adapted for children aged 14-17), the level of heart rate, CAP, DBP, the vegetative index of Kerdo and the Ruffie index, the integral index of the VVD.

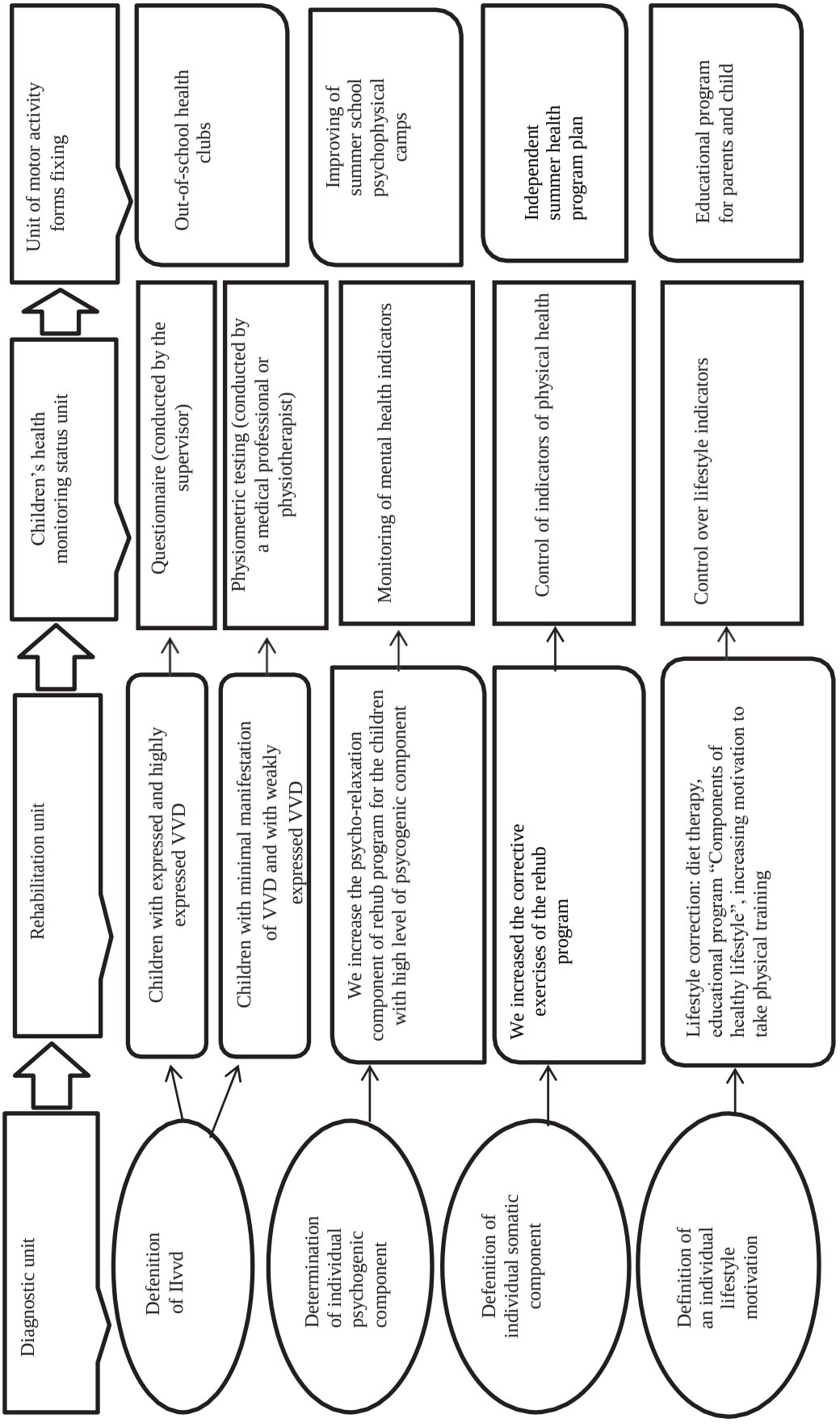

Figure 1. *Scheme of individualization program of physical rehabilitation for children aged 14–17 with vegetative-vascular dysfunctions*

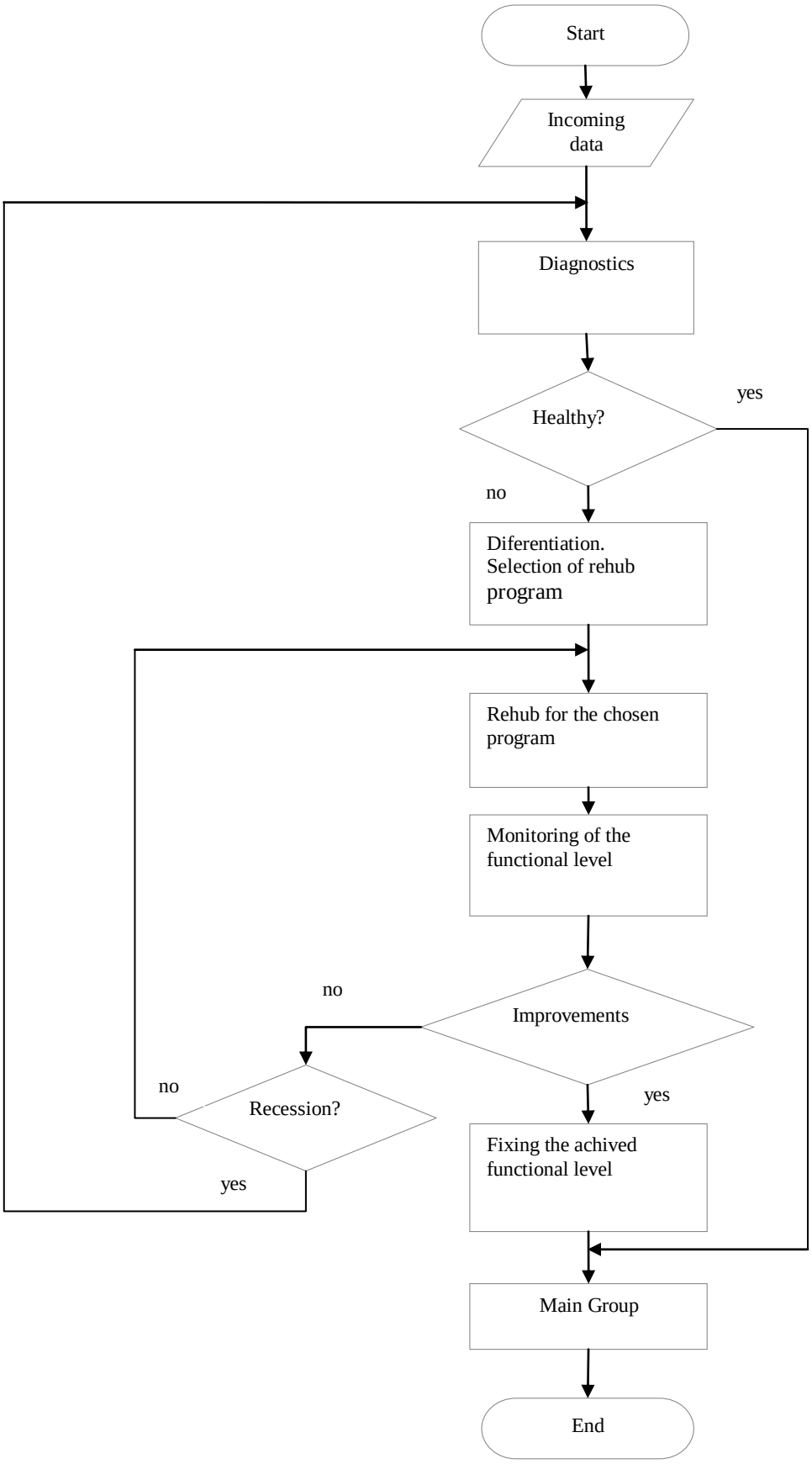

Figure 2. *Algorithm of the physical rehabilitation program for children with vegetative-vascular dysfunctions*

Body length, body weight, OTK, LJ, muscle strength of theright and left wrist, health group, shoulder index, index of vertebral curvature of the spine, size of subcutaneous fat on the abdomen, level and harmony of physical development, somatotype, adaptive potential, respiratory index, power index, integral index of the somatic risk of development of the VVD.

The card of living conditions of the pupil contains next indicators: domestic motor activity, time during the day and the number of classes during the week of specially organized motor activity, periodicity of eating, frequency of consumption of meat, dairy products, fish and seafood, cereals, potatoes, fruits, juices, vegetables, sweets, the frequency of alcohol use, the frequency of smoking, the duration of sleep, the integral indicator of the risk of VVD under the influence of factors of life: relationship with family, teachers, classmates and friends, load at school, homework time, extracurricular circles, activities in the spare time, feeling of pain in any localization in the last six months, health state for the past six months, self-esteem of health, taking medicine during the last month, an integral indicator of the psychogenic risk of developing VVD, Methods of the points assessment of the proposed indicators included in the psychophysical card condition card ant the card of the pupil's living conditions are described in our previous works [3; 4; 11; 12].

Improvements. We continue the rehab program.

Recession. Conduction new diagnosis and analysis of the causes of recession. Correction of the rehab program, taking into account the risk factors for the occurrence of VVD.

Fixing the achieved functional level. The consolidation of the achieved functional level is carried out at the expense of the training period in the health clubs of choice. The teacher according to the state of health of the pupil offers possible health improvement. A compulsory element of the assessment of the acquisition of a physical education curriculum should be developed by a pupil with the help of a physical education teacher to plan an independent health program in the summer that can significantly increase the level of conscious responsible attitude to their health (Figure 1). The important elements of the blocking of motor activity are conducting educational work with children and parents through the creation of an educational school site, as well as the involvement of schoolchildren in psychophysical improvement in older preschool and extracurricular camps (Figure 1).

Main group. In the presence of positive changes in the health of the child is transferred to the main group of physical culture.

Discussion. The application of algorithms with therapeutic purpose is widely used in the process of patients rehabilitation in the conditions of medical institutions (I.K. Babov, V.P. Torchinsky, I.I. Bila, V. M. Maiko, 2010). Algorithmic approach in school physical education is used, first of all, in methods of teaching physical exercise techniques for schoolchildren (M. Roztorguy, 2013, O. Tovstonog, F. Zagora, 2013, Yu. S. Kostiuk, 2016).

At the same time, numerous scientific researches have proved that in the process of adaptation to physical activity, each organism concludes its «physiological price». Herewith, heredity plays a leading role in determining the rate and degree of the organism adaptation to the training program. Individual differences depend on fluctuations in the intensity of cellular development, metabolism, as well as nerve and endocrine regulation (J.H. Wilmour, D. L. Kostill, 1997). Considering the predominance of unfavorable types of the body non-specific adaptive reactions (stress, overtraining, re-activation) in children with VVD, the physical loads of such children require individual dosage [8]. The foregoing confirms the expediency of using algorithms of individually differentiated dosage of physical activity during school lessons for SMG children with vegetative-vascular dysfunctions.

Conclusions and perspectives of further research. Analysis of literary sources and attending school physical classes show that modern models of special medical groups children physical education are aimed at overcoming the practical school difficulties in the absence of training bases, lack of time, high filling of educational groups and do not fully meet the therapeutic needs of education in the educational process at general secondary education institutions.

The proposed algorithm and physical rehabilitation individualization scheme of children aged 14–17 with vegetative-vascular dysfunctions in conditions of general secondary education institutions will make it possible to apply an individual approach on the basis of the quantitative assessment of the dono-

zological status, improvement of the schoolchildren health status monitoring, programs for the consolidation of motor activity forms.

Prospects for further research in this direction are the specification and experimental testing of the physical rehabilitation individualization program of children aged 14–17 with vegetative-vascular dysfunctions.

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THE ROLE OF PHYSICAL THERAPY IN THE SYSTEM OF PULMONARY REHABILITATION IN THE CASE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (THE ANALYSIS OF CLINICAL GUIDELINES)

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Abstracts

Topicality. Currently, pulmonary rehabilitation is an intervention recommended to all chronic obstructive pulmonary disease patients, regardless of the disease severity, and physical therapy is an integral part of effective pulmonary rehabilitation programs. Although there is a sheer number of studies on the impact of pulmonary rehabilitation programs (both in its general context and individual components), as well as on the physical, functional and psycho-emotional state of patients, the number of the detailed clinical guidelines on PR inthe case of chronic obstructive pulmonary disease is limited. ***The purpose of the study*** is to analyse clinical guidelines for management and pulmonary rehabilitation and to evaluate the role of physical therapy in the system of pulmonary rehabilitation in the case of chronic obstructive pulmonary disease. Clinical guidelines selected on the basis of the research conducted on databases of PubMed (data over the past 5 years), PEDro, Cochrane (January, 2018), dedicated to clinical guidelines on treatment, management, pulmonary rehabilitation and physical therapy of chronic obstructive pulmonary disease patients, were chosen as the subject of the analysis. It has been established that physical therapy is an integral part of pulmonary rehabilitation programs for COPD patients. The main means of physical therapy recommended by the clinical guidelines for COPD patients are the following: physical training, respiratory exercises, training of respiratory muscles, chest physical therapy and electrostimulation of peripheral muscles. Methods of the use of physical training for chronic obstructive pulmonary disease patients are the most extensively described. Recommendations regarding special features of physical therapy in the case of exacerbation and under conditions of inpatient treatment are either absent or insufficient; the amount of information on the role and specifics of the use of respiratory exercises and chest physical therapy for COPD patients at different stages of treatment is inadequate.

Key words: physical therapy, pulmonary rehabilitation, chronic obstructive pulmonary disease, clinical guidelines.

Катерина Тимрук-Скоропад, Світлана Ступницька, Юлія Павлова. Місце фізичної терапії в системі легеневої реабілітації при хронічному обструктивному захворюванні легень (аналіз клінічних настанов). ***Актуальність.*** На сьогодні легенева реабілітація – це втручання, яке рекомендоване всім пацієнтам із хронічними обструктивними захворюваннями легенів, незалежно від важкості перебігу захворювання, а засоби фізичної терапії є невід'ємною складовою частиною ефективних програм легеневої реабілітації. Поряд із великою кількістю досліджень про вплив програм ЛР загалом та окремих її компонентів на фізичний, функціональний та психоемоційний стан пацієнтів, детальних клінічних настанов із легеневої реабілітації при хронічних обструктивних захворюваннях легенів є обмежена кількість. ***Мета дослідження*** – проаналізувати клінічні настанови щодо менеджменту й легеневої реабілітації та оцінити місце фізичної терапії в системі легеневої реабілітації при хронічних обструктивних захворюваннях легенів. Проаналізовано клінічні настанови, відібрані на основі пошуку, здійсненого в базах даних PubMed (за останні п'ять років), PEDro, Cochrane в січні 2018 р., які стосуються клінічних настанов щодо лікування, менеджменту, легеневої реабілітації та фізичної терапії пацієнтів із хронічними обструктивними захворюваннями легенів. Установлено, що фізична терапія є невід'ємною складовою частиною програм легеневої реабілітації пацієнтів із хронічними обструктивними захворюваннями легенів. Головними засобами фізичної терапії, які рекомендовані клінічними настановами для пацієнтів із хронічними обструктивними захворюваннями легенів, є фізичне тренування, дихальні вправи, тренування дихальних м'язів, фізична терапія грудної клітки, електростимуляція периферичних м'язів. Найбільш повно описано методики застосування фізичного тренування в пацієнтів із хронічними обструктивними захворюваннями легенів. Відсутні або недостатні рекомендації щодо особливостей фізичної терапії при

загострenні та в умовах стаціонарного лікування; недостатньо інформації стосовно місця й особливостей застосування дихальних вправ і фізичної терапії грудної клітки в пацієнтів із хронічними обструктивними захворюваннями легенів на різних етапах лікування.

Ключові слова: фізична терапія, легенева реабілітація, хронічні обструктивні захворювання легенів, клінічна настанова.

Катерина Тимрук-Скоропад, Светлана Ступницкая, Юлия Павлова. Место физической терапии в системе легочной реабилитации пациентов с хронической обструктивной болезнью легких (анализ клинических руководств). ***Актуальность.*** На сегодня легочная реабилитация – это вмешательство, которое рекомендуется всем пациентам с хроническими обструктивными заболеваниями легких, независимо от тяжести течения заболевания, а средства физической терапии являются неотъемлемой составляющей эффективных программ легочной реабилитации. Наряду с большим количеством исследований о влиянии программ легочной реабилитации и отдельных ее компонентов, на физическое, функциональное и психоэмоциональное состояние пациентов есть ограниченное количество детальных клинических руководств по легочной реабилитации при хронических обструктивных заболеваниях легких. ***Цель исследования*** – проанализировать клинические руководства по менеджменту и легочной реабилитации и оценить место физической терапии в системе легочной реабилитации при хронических обструктивных заболеваниях легких. Анализируются клинические руководства, которые отобраны на основе поиска, совершенного по базам данных PubMed (за последние пять лет), PEDro, Cochrane в январе 2018 г., которые касаются клинических руководств по лечению, менеджменту, легочной реабилитации и физической терапии пациентов с хроническими обструктивными заболеваниями легких. Установлено, что физическая терапия является неотъемлемой составляющей программ легочной реабилитации пациентов с хроническими обструктивными заболеваниями легких. Основными средствами физической терапии, рекомендуемыми клиническими рекомендациями для пациентов с хроническими обструктивными заболеваниями легких, являются физическая тренировка, дыхательные упражнения, тренировки дыхательных мышц, физическая терапия грудной клетки, электростимуляция периферических мышц. Наиболее полно описаны методики применения физической тренировки у пациентов с хроническими обструктивными заболеваниями легких. Отсутствуют или недостаточны рекомендации по особенностям физической терапии при обострении и в условиях стационарного лечения; недостаточно информации о месте и применении дыхательных упражнений и физической терапии грудной клетки у пациентов с ХОБЛ на разных этапах лечения.

Ключевые слова: физическая терапия, легочная реабилитация, хронические обструктивные заболевания легких, клиническое руководство.

Introduction. Statistics on the incidence of chronic obstructive pulmonary disease (COPD) are disappointing, and forecasts are extremely threatening. WHO predicts that by 2020 COPD will be ranked the 3rd place among the causes of mortality of the planet population [1].

The practice of effective use of various medical, educational and rehabilitation measures to improve the functional state of people with respiratory disorders (including chronic ones) has long existed. However, given the prevalence of COPD, typical systemic disturbances going far beyond the respiratory system, and a significant number of comorbid diseases, the development of a well-designed rehabilitation system for COPD with scientifically proven efficacy was necessary.

And respectively, pulmonary rehabilitation has become such practice of the COPD patients' management. The official statement of the American Thoracic Society and the European Respiratory Society (ATS/ERS, 2013) claims that pulmonary rehabilitation (PR) is a complex intervention based on a careful patient assessment, according to which therapy should be applied including (but not limited to) physical training, education, and behavioural changes designed to improve both physical and psychological state of people with chronic respiratory diseases as well as to contribute to their long-term adherence to healthy behaviours [15].

Currently, pulmonary rehabilitation is an intervention recommended to all COPD patients, regardless of the disease severity, and physical therapy (PT) is an integral part of effective PR programs.

Along with a large number of studies on the impact of PR programs (both in general and of its individual components) on the physical, functional and psycho-emotional state of patients, the detailed clinical guidelines for PR in the case of COPD are limited.

The purpose of the study is to analyse clinical guidelines for management and pulmonary rehabilitation and to evaluate the role of physical therapy in the system of pulmonary rehabilitation in the case of COPD.

Materials and methods. This review covered the clinical guidelines selected on the basis of the search conducted in PubMed, PEDro, and Cochrane databases in January 2018.

Publications selected by the keywords «Chronic obstructive pulmonary disease» (ukr. *хронічне обструктивне захворювання легень*) served as the search criteria. PubMed's search was restricted to publications over the past 5 years focused on clinical guidelines for treatment and management, pulmonary rehabilitation and physical therapy for COPD patients.

Inclusion criteria. The studies included in the review met the following criteria: 1) Chronic Obstructive Pulmonary Disease, 2) Review, recommendations or practical guidelines for general principles of treatment, management, rehabilitation or physical therapy in the case of COPD.

Exclusion criteria: 1) Systematic reviews; 2) Conferences reports without full-text review; 3) Incomplete text articles; 4) Books; 5) Registered protocols of clinical researchers; 6) National adaptations of WHO GOLD recommendations [7].

In addition, the review did not include publications lacking general guidelines for treatment, management, rehabilitation and physical therapy for COPD patients. In particular, the review did not take into account the publications dedicated to surgical intervention; researches on the effects of medicines and medical interventions (in particular, artificial respiration); researches of other pathologies connected with COPD; study of structural and functional changes in the case of COPD. Among the publications excluded from the analysis were those unavailable in electronic format.

The selected clinical guidelines analysed: the components of pulmonary rehabilitation, program duration, the criteria for selection for the PR program and the criteria of the program effectiveness, the main and optional means of physical rehabilitation.

Results of the research. The review was based on 15 clinical guidelines selected out of 16 clinical guidelines that met the selection criteria. One clinical guideline was not included since it did not contain information analysed in the study [7].

8 guidelines (53.3%) do not provide recommendations on the PR components (Chart 1); one guidance sets the list of the recommended PR components while it does not contain components from the PT category [17]. 6 clinical guidelines (40%) provide a list of components including means of PT.

Chart 1

Basic recommendations for filling the pulmonary rehabilitation program in the case of chronic obstructive pulmonary disease (based on the analysis of clinical guidelines, n = 16)

Author, year	PR components	Duration of the PR program	Criteria for selection for the PR program
Ian Yang, 2017 [17]	1) patient assessment, 2) education, 3) behaviour change, 4) nutrition, 5) psychosocial support	on average, 8 weeks	Individuals/Patients: 1) with dyspnoea under physical activity, 2) with prolonged respiratory distress, characterized by dyspnoea, 3) with dyspnoea of all levels according to mMRC; 4) who experienced exacerbation.
Kankaanranta H., 2015 [9]	-	-	-
Hyoung Kyu Yoon, 2014 [18]	-	-	All patients with dyspnoea while walking at their own pace on flat areas.
2014 p. [10]	-	-	Stable patients with reduced physical endurance, regardless of pharmacological treatment, and patients who have recently been hospitalized after exacerbation.

End of the Chart 1

María Rosa Güell Rous, 2014 [8]	Compulsory components: 1) muscle training, 2) education, 3) chest physiotherapy. Optional components: 1) ergotherapy, 2) psychosocial support, 3) correction of nutrition.	8 weeks/20 sessions	Patients with dyspnoea at/above 2 points on the mMRC scale. All patients without contraindications.
Blair Anderson, 2013 [2]	-	-	Patients who: 1) have limited ability to exercise due to dyspnoea, despite medication, 2) were hospitalized after exacerbation.
Bolton CE, 2013 [4]	-	6–12 weeks	Patients who: 1) experience dyspnoea at/above 2 points on the mMRC scale and are functionally limited by dyspnoea. 2) were hospitalized after exacerbation.
Russi E.W., 2013 [13]	1) education, 2) self-control, 3) nutrition, 4) training, 5) psychological support.	-	-
Qaseem A., 2011 [11]	-	-	Patients: 1) with present symptoms of the disease, 2) with disabilities and FEV_1<50% of the eligible level.
Rudolf M. 2010 [6]	1) training of upper and lower limbs, 2) psychosocial support, 3) behaviour change, 4) education, 5) training of respiratory muscles.	minimum 6 weeks, maximum 12 weeks.	-
Davoren A Chick, 2010 [5]	1) patient assessment, 2) aerobic training, 3) strength training, 4) education, 5) psychosocial support.	-	1) patients with functional limitations, 2) PR is considered for all COPD patients with dyspnoea or limited physical activity, regardless of the air flow limitation.
Andrew L. Ries 2007 [12]	1) patient assessment, 2) training, 3) education, 4) nutrition, 5) psychosocial support.	6 to 12 weeks	Any COPD patient with respiratory symptoms of the disease.
Jadwiga A. Wedzicha, 2017 [16]	-	-	It is suggested to initiate the PR program within 3 weeks after the hospital discharge.

End of the Chart 1

Barreiro E., 2015 [3]	-	optimal duration -12 weeks ; minimum - 8 weeks	-
Sliwiński P., 2014 [14]	1) physical rehabilitation, 2) physical training (endurance and strength) 3) respiratory muscles training, 4) breathing exercises, 5) nutrition, 6) psychotherapy, 7) education, 8) psychosocial support.	minimum 6 weeks	All COPD patients, regardless of the disease severity.

Remarks:
mMRC - Modified British Medical Research Council Questionnaire.
FEV_1 - capacity of the air expired in the first second of forced expiration.

The following PR components are recommended in the majority of clinical guidelines as the main ones:
1) physical therapy;
2) education;
3) behaviour change - smoking;
4) patient assessment (survey).

In some guidelines, it is recommended to consider the possibility of changing dietary behaviour [8; 12; 13; 14; 17] and psychosocial support [5; 6; 12; 13; 14; 17]. There are recommendations for applying ergotherapy [8; 12; 17]. Consultations of the speech therapist are recommended for evaluation and management of repeated aspiration, swallowing and nutrition disorders arising as a result of dyspnoea of COPD patients [17].

The educational component involves discussing certain topics with patients in order to provide people with the understanding of the disease features, the functioning principles of the respiratory system under normal and pathological conditions, their behaviour in everyday life and during exacerbation period. In addition, practical study sessions on the use of inhalation devices and development of self-control skills (medication, assessment, and response to exacerbation) are provided [17].

It has been established that in accordance with the clinical guidelines, the duration of the PR programs, on average, constitutes 8 weeks with a recommended minimum 6 weeks' duration and maximum –12 weeks.

The selecting criteria for the PR program are similar:
1) individuals who suffer from dyspnoea during physical activity.
2) individuals with prolonged respiratory distress characterized by dyspnoea.
3) patients with dyspnoea at all levels of the mMRC scale.
4) patients experiencing exacerbation.

The criterion for the PR appointment for patients who experienced exacerbation was specified in the protocol of Bolton Ts. E. (2013) [4], which recommends starting PR during the first month after the hospital discharge. Jadwiga A. Wiedzicha (2017) [16] suggests initiating medical rehabilitation within 3 weeks after the discharge (conditional recommendation due to very poor quality of evidence).

Only María Rosa Güell Rous (2014) [8] provides a list of conditions and diseases being contraindicative to the patient inclusion in the PR program:

1) mental or behavioural disorders impairing collaboration with a therapist;

2) acute or unstable cardiovascular diseases limiting the patient's ability to exercise;

3) disorders of the musculoskeletal system, incompatible with physical activity.

In 11 clinical guidelines (73.3%) among the analysed, recommendations for the use of PT in the PR programs are made (Chart 2).

In the analysed clinical guidelines, the following means of PT are recommended as the principal:

1) physical training (physical exercises), in particular, aerobic (including interval training), strength training or their combination.

2) breathing exercises.

3) training of the respiratory muscles.

4) chest physical therapy.

5) electromyostimulation and electromagnetic stimulation of peripheral muscles.

In some of the protocols, such means as training respiratory muscles [8; 13; 17] and electro-myostimulation of peripheral muscles [4; 8] are classified as optional and are not recommended as the usual PR component. In addition, Blare Anderson (2013) [2] included respiratory cleansing techniques with the use of positive expiratory pressure (PEP) as an optional means of PT.

The use of physical training is recommended to train endurance, to increase physical activity and strength. In its turn, strength training can increase the strength of peripheral muscles, as well as help maintain or increase the bone mineral density [8]. According to Ian Yang (2017), physical training involves the accumulation of medium intensity exercises for large muscle groups ≥150 minutes per week for 5 days. Mostly it is walking outdoors or on a treadmill, and riding a bicycle. In addition, it is necessary to include strength training 2 times a week. [17].

Recommendations of María Rosa Güell Rous (2014) concerning aerobic or strength training include at least three 20-30 minutes' sessions per week. These sessions should be carried out continuously or at intervals in the case of more severe symptoms. The intensity of work constitutes 60-80% of the possible maximum. It includes walking on a treadmill or outdoors, swimming, dancing, and Nordic walking. Strength training for upper and lower limbs is recommended to be carried out at 70–85 % intensity of the possible maximum. 1–3 sets with 8–12 repetitions in each, 2–3 times a week are recommended; using external encumbrance in the form of trainers or dumbbells, and rubber loop bands [8].

According to Russi E.W. (2013), physical training includes such components as climbing, walking, treadmill training, and cycling, which can be used at intervals [13].

Slivinski P. (Sliwiński P., 2014) indicates that physical exercises should be carried out with intensity exceeding 50% of maximal oxygen consumption or at 70% of the maximum heart rate according to the patient's age. Exercises on a stationary bicycle, a treadmill or a 20-minute walk are recommended. Interval training can be used as well [14].

Chart 2

Means of physical therapy in the system of pulmonary rehabilitation in the case of chronic obstructive pulmonary disease (based on the analysis of clinical guidelines, n = 13)

Author, year, reference	Means of PT	Additional means of PT
Ian Yang, 2017 [17]	1) physical training, 2) breathing exercises, 3) chest physiotherapy.	1) training of inspiratory muscles.
Kankaanranta H., 2015 [9]	1) exercises	-
Hyoung Kyu Yoon, 2014 [18]	-	-
2014 p. [10]	1) breathing exercises.	-
María Rosa Güell Rous, 2014 [8]	1) muscle training, 2) aerobic or strength training, 3) interval training, 4) chest physiotherapy.	1) electromagnetic stimulation, 2) training of the respiratory muscles.

End of the Chart 2

Blair Anderson, 2013 [2]	1) breathing exercises.	1) respiratory tract cleansing techniques using positive expiratory pressure (PEP).
Bolton C.E, 2013 [4]	1) aerobic training.	1) neuromuscular electrical stimulation.
Russi E.W., 2013 [13]	1) physical training.	1) training of respiratory muscles.
Qaseem A., 2011 [11]	-	-
Rudolf M. 2010 [6]	1) strength training, endurance training or their combination.	-
Davoren A Chick, 2010 [5]	-	-
Andrew L. Ries 2007 [12]	1) physical training, 2) components of strength training, 3) endurance training of the upper limbs.	-
Jadwiga A. Wedzicha, 2017 [16]	-	-
Barreiro E., 2015 [3]	1) aerobic training, 2) interval training, 3) strength training, 4) electromyostimulation and electromagnetic stimulation of peripheral muscles, 5) training of respiratory muscles.	-
Sliwiński P., 2014 [14]	1) physical exercise, 2) endurance training, 3) training of the respiratory muscles.	-

Breathing exercises are recommended to reduce dyspnoea due to decreased hyperinflation of the lungs, to normalize respiratory muscles functioning and to optimize thoracoabdominal movements. The focus is on breathing through the uplifted lips and diaphragmatic breathing [2; 10; 17], as well as on yoga elements [2; 10].

The training of the respiratory muscles involves the use of small, accessible additional equipment for the training of respiratory inspiratory muscles whilst the inspiration reduction [8].

The purpose of chest physical therapy and respiratory tract cleansing is to improve sputum drainage, to increase tolerance to physical activity, and to reduce the need for a long-term antibiotics administration. Respiratory tract cleansing techniques are used in the case of sputum present in the respiratory tract [17]. Chest physiotherapy can include such elements as bronchial drainage methods, training of proper breathing, relaxation methods [8; 17].

The focus of the analysed clinical guidelines is on recommendations for physical training of COPD patients. Along with the fact that they provided detailed information on the methodology of aerobic and strength training, recommendations for the use of other physical therapy (respiratory exercises, chest physical therapy) are absent or insufficient. The role of breathing exercises and chest physical therapy in the PR program framework and the use of out-of-hospital physical training remains unclear. Unfortunately, there are no selection criteria and recommendations for the use of physical therapy in the case of exacerbation as well as under conditions of inpatient treatment.

Conclusions. Physical therapy is an integral part of pulmonary rehabilitation programs for COPD patients. The main means of physical therapy recommended in clinical guidelines for COPD patients are physical training, respiratory exercises, training of respiratory muscles, chest physical therapy, electrostimulation of peripheral muscles. In the analysed clinical guidelines, methods of the physical training used for COPD patients are the most extensively described. Recommendations regarding the features of

physical therapy in the case of exacerbation and under conditions of inpatient treatment are absent or insufficient; information on the role and specifics of the use of respiratory exercises and chest physical therapy for COPD patients at different stages of treatment is also insufficient.

Prospects for further research. It is necessary to study the peculiarities of the physical therapy effects (in particular, respiratory exercises and chest physical therapy) on the physical and functional state of COPD patients during the exacerbation period and inpatient treatment. It is important to improve the methods of physical therapy used at all stages of COPD patients' treatment.

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INDIVIDUALIZATION OF THE ASSESSMENT OF THE DEVELOPMENT OF MOTOR QUALITIES OF YOUNG WRESTLERS BASING ON SOMATOTYPING

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Abstracts

Topicality. The current relevance of the investigation is conditioned by the individual approach to controlling the physical preparedness of young sportsmen who are specialized in judo. The main criteria for the individualization are age, sex and somatotype. ***The Objectives of the Research.*** The results of pedagogical tests of physical qualities were carried out the complex analysis of general and special physical preparedness of 11–12-year-old judoists with different somatotypes. To conduct the correlation analysis and to establish paired interconnections between the indicators of general and special physical preparedness of 11–12-year-old judoists. To develop the criteria of assessments general and special physical preparedness of 11–12-year-old wrestlers based on the installation of their somatotypes. ***Methods of the research*** – the installation somatotype of young sportsmen was carried out according to the scheme of V. G. Shtefka, A. D. Ostrovsky in the modification of S. S. Darska (1975). This method involves the using of somatoscopy and somatometry and the distinction of four types of body structure - asthenoid, thoracic, muscular and digestive. During the pedagogical experiment, standard and special motor tests were conducted. With the help of these tests was characterized the development of physical preparedness of judoists. It has been carried out Spirmen's rank correlation analysis for installation the relationship between the investigated indicators. The scale of assessment results the motor tests is developed applying the rule of 3 sigma. ***Research Findings.*** 43 judoists aged 11–12 of thoracic, muscular and digestive somatotypes took part in the study. During the study, 22 motor tests were used which reflect the general and special preparedness of judoists. The results of 15 of them, established a statistically significant difference in judoists of different somatotypes. The judoists of the muscle somatotype have the results of sme physical tests in the vast majority. The using of complex of motor tests allowed receiving the full information about the effectiveness of the training process of young judoists. On purpose to unify the pedagogical control and to determine the most informative tests, a correlation analysis of the indicators of general and special physical preparedness of young judoists was carried out with the help of 22 motor tests. In the course of the research, great pair correlation relationships established between the parameters that characterize speed, speed force and special physical preparedness. The results of pedagogical experiment allowed to developed the scale of the results in points. Was substantiated its expediency of application in the pedagogical control of 11–12-year-old judoists with different somatotypes. The complex of test tasks has a simple technical characteristics, covers all physical abilities and their forms of manifestation to which are presented increased requirements in the sport fight. **Conclusions** The obtained results will allow coaches to easily carry out scientifically based selection of the most informative tests, with the purpose of qualitative pedagogical monitoring of the development of physical qualities of 11–12-year-old wrestlers. The five-point scale, developed for assessing the results of tests of physical qualities, should be used in the process of pedagogical control over the training process of 11–12-year-old judoists, taking into consideration their somatotypes.

Key words: evaluation criteria, physical qualities, 11–12-year-old judoists, somatotype.

Ольга Бекас, Юлія Паламарчук, Світлана Нестерова, Алла Сулима. **Індивідуалізація оцінки розвитку рухових якостей юних борців на основі соматотипування.** ***Актуальність.*** Актуальність роботи зумовлена індивідуальним підходом до контролю фізичної підготовленості юних спортсменів, які спеціалізуються в

боротьбі дзюдо. Основними критеріями індивідуалізації обрано вік, стать та соматичний тип. ***Завдання роботи*** – за результатами педагогічних тестувань фізичних якостей здійснити комплексний аналіз загальної й спеціальної фізичної підготовленості дзюдоїстів 11–12 років різних соматотипів, провести кореляційний аналіз і встановити парні взаємозв'язки між показниками загальної та спеціальної фізичної підготовленості в дзюдоїстів в 11–12 років; розробити критерії оцінки загальної й спеціальної фізичної підготовленості борців 11–12 років на основі встановлення їхніх соматотипів. ***Методи роботи.*** Установлення соматотипу в юних спортсменів здійснювали за схемою В. Г. Штефка, А. Д. Островського в модифікації С. С. Дарської (1975). Методика передбачає застосування соматоскопії та соматометрії й виділення чотирьох типів тілобудови – астеноїдного, торакального, м'язового й дигестивного. Під час педагогічного тестування проводили стандартні та спеціальні рухові тести, за допомогою яких характеризували розвиток фізичної підготовленості дзюдоїстів. Для встановлення взаємозв'язку між досліджуваними показниками проводили ранговий кореляційний аналіз за Спірменом. Шкалу оцінки результатів рухових тестів розробляли, застосовуючи правило 3-х сигм. ***Результати.*** У дослідженні взяли участь дзюдоїсти 11–12 років торакального, м'язового та дигестивного соматотипів (усього 43 особи). Під час дослідження використали 22 рухові тести, які відображають загальну та спеціальну підготовленість дзюдоїста. За результатами застосування 15-ти з них виявлено достовірні відмінності показників у представників різних соматотипів. Достовірно вирізняються своїми показниками дзюдоїсти м'язового соматотипу. Застосування комплексу рухових тестів дало змогу отримати повну інформацію про ефективність тренувального процесу юних дзюдоїстів. Із метою уніфікації педагогічного контролю та визначення найбільш інформативних тестів проведено кореляційний аналіз показників загальної й спеціальної фізичної підготовленості юних дзюдоїстів за результатами 22 рухових тестів. У процесі дослідження виявлено парні кореляційні зв'язки великої сили між параметрами, які характеризують швидкість, швидкісну силу та спеціальну фізичну підготовленість. За результатами педагогічного тестування розроблено оцінну шкалу результатів у балах. Обґрунтовано доцільність його застосовування в процесі педагогічного контролю дзюдоїстів 11–12 років із різними соматотипами. Комплекс тестових завдань має просту технічну характеристику, охоплює всі фізичні здібності й ті форми їх прояву, до яких пред'являються підвищені вимоги в спортивній боротьбі. ***Висновки.*** Отримані нами результати дають змогу тренерам легко здійснювати науково обґрунтований добір найбільш інформативних рухових тестів із метою якісного педагогічного контролю розвитку фізичних якостей борців 11–12 років. Розроблену нами п'ятибальну шкалу оцінки результатів тестувань фізичних якостей доцільно застосовувати в процесі педагогічного контролю за навчально-тренувальним процесом дзюдоїстів 11–12 років з урахуванням їхніх соматотипів.

Ключові слова: критерії оцінки, фізичні якості, дзюдоїсти 11–12 років, соматотип.

Ольга Бекас, Юлия Паламарчук, Светлана Нестерова, Алла Сулима. Индивидуализация оценки развития двигательных качеств юных борцов на основе соматотипирования. ***Актуальность.*** Актуальность работы обусловлена индивидуальным подходом к контролю физической подготовленности юных спортсменов, которые специализируются в борьбе дзюдо. Основными критериями индивидуализации выбраны возраст, пол и соматотип. ***Задание работы*** – по результатам педагогических тестов физических качеств провести комплексный анализ общей и специальной физической подготовленности дзюдоистов 11–12 лет разных соматотипов; провести корреляционный анализ и установить парные взаимосвязи между показателями общей и специальной подготовленности у дзюдоистов в 11–12 лет; разработать критерии оценки общей и специальной подготовленности борцов 11–12 лет на основе определения их соматотипа. ***Методы работы.*** Определение соматотипа у юных спортсменов проводили по схеме В. Г. Штефко, А. Д. Островского в модификации С. С. Дарской (1975). Методика предусматривает использование соматоскопии и соматометрии, а также выделение четырех типов телосложения – астеноидного, торакального, мышечного и дигестивного. В ходе педагогического тестирования проводили стандартные и специальные двигательные тесты, с помощью которых характеризовали развитие физической подготовленности дзюдоистов. Для установления взаимосвязи между исследуемыми показателями проводили ранговый корреляционный анализ по Спирмену. Шкалу оценки результатов двигательных тестов разрабатывали используя правило 3-х сигм. ***Результаты.*** В исследовании принимали участие дзюдоисты 11–12 лет торакального, мышечного и дигестивного соматотипов (всего 43 человека). В ходе исследования использовали 22 двигательные теста, которые отражают общую и специальную подготовленность дзюдоиста. По результатам использования 15-ти из них установлено достоверные отличия между показателями у представителей разных соматотипов. Достоверно отличаются своими показателями дзюдоисты мышечного соматотипа. Использование комплекса двигательных тестов позволило получить информацию об эффективности тренировочного процесса юных дзюдоистов. С целью унификации педагогического контроля и выделения наиболее информативных тестов проведен корреляционный анализ показателей общей и специальной физической подготовленности юных дзюдоистов по результатам 22 двигательных тестов. В ходе исследования выявлены парные корреляционные связи большой силы между параметрами, которые характеризуют скорость, скоростную силу и специальную физическую подготовленность. За полученными показателями педагогического тестирования разработана оценочная шкала результатов в балах. Обоснована целесообразность использования такого тестирования в процессе педагогического контроля дзюдоистов 11–12 лет различных соматотипов. Комплекс тестовых заданий имеет простую техническую характеристику, охватывает все физические качества и формы их проявления, к

которым предъявляются повышенные требования в спортивной борьбе. ***Выводы.*** Полученные нами результаты позволят тренерам легко осуществлять научно обоснованный отбор наиболее информативных двигательных тестов с целью качественного педагогического контроля развития физических качеств борцов 11–12 лет. Разработанную нами пятибальную шкалу оценки результатов тестирования физических качеств целесообразно использовать в ходе педагогического контроля за учебно-тренировочным процессом дзюдоистов 11–12 лет с учетом их соматотипа.

Ключевые слова: критерии оценки, физические качества, дзюдоисты 11–12 лет, соматотип.

Introduction. Recently there are a lot scientific researches dedicated to the problem of individualization of the physical improvement of children and youth. This concerns both to the field of sphere of recreational physical culture and to the process of sports improvement. In particular, some scientists pay close attention to the individual somatotypological properties of the organism those who are engaged in varied types of physical activity [6; 7; 8; 9].

A number of scientists underscore that sportsmen's physical prepradness is based on functional capabilities. The manifestation of these capabilities is determined by the constitutional features of the organism [10; 12; 14]. In particular, V.M. Platonov [10] notes that sportsmen's constitutional features should be taken into account at the second stage of long-term sport training.

Our research certifies that 10-11-year-old judoists of different somatotypes have expressed anthropometric differences. These differences are determined by indicators of linear dimensions parts of body and body mass component content [2]. Somatotypological regularities of development of qualitative parameters of motor activity are also manifested [3; 4]. The obtained results confirm the opinion of specialists about the influence of the constitution not only to physical development, but also to motor capability, because the visual differences of the body's shape are manifestation of differences in the structure of metabolism and functions of the most important physiological body's systems [11].

So, the training process of judoists must be based on the somatotypological features of young organism [4]. We will note that the process of long-term sport training constants complex operational control and assessing physical qualities. This kind of control and assessing should be implemented considering the constitutional features of of children's and teenagers' active biological and mental development. In our opinion, the development of an objective and scientifically substantiated system of assessing of physical qualities, which will take into account the young sportsmen's individual characteristics, will strengthen feedback between the trainer and his sportsmen.

The purpose of the research – basing on somatotyping, to substantiate scientifically and implement an individual approach to assessing general and special physical qualities of 11-12-year-old wrestlers.

Methods and organization of research. The survey was conducted on the basis of children's and youth sports schools in Vinnytsia and Vinnytsia region. According to the results of somatotyping and according to the scheme of Stefka-Ostrovsky in the modification S.S. Darska (1975) 43 11-12-year-old judoists with thoracic, muscular and digestive somatotypes were selected for the investigation.

During the pedagogical experiment, motor tests were used to determine the general and special physical qualities that are widely known in wrestling (V.A. Romanenko, 2005; V.B. Shestakov, S.V. Yeregin, 2008). The method of hand dynamometry and methods of mathematical statistics were also used.

Research results. Discussion. During the survey, 22 motor tests were used to reflect the general and special preparedness of the judoist (Table 1). The results of 15 motor tests reveal a statistically significant difference, found in judoists' parametres of thoracic, muscular and digestive somatotypes. The judoists of the muscular type of physique have the results of physical fitness tests in the vast majority (13 motor tests) more likely than those of other somatotypes.

The judoists of the digestive somatotype showed better results in some tests that required speed and coordination (6 motor tests). The wrestlers with thoracic constitution showed the best results comparing to those of the digestive somatotype only in tests that characterize the manifestation of speed and strength endurance - three motor tests (see Table 1).

Taking into consideration young age of judoists – 11–12 years, the aforementioned differences in the manifestation of motor qualities are explained due to the heterochronology of morphological and physiological changes occurring within the specified age limits, as well as the existence of sensitive periods of development of physical qualities.

Table 1

Testing results of qualitative parameters of motor activity of 11–12 year old judoists with different somatotypes

№	The name of the motor test	Somatic Types					
		thoracic (n=15)		muscular (n=14)		digestive (n=14)	
		$\bar{x}$	*S*	$\bar{x}$	*S*	$\bar{x}$	*S*
1.	30 meter run, s	5,47	0,05	5,44	0,04	5,26	0,06 * ○
2.	Pull-ups per 20 s (number of times)	7,80	0,15*	10,43	0,24 ◊ ○	6,57	0,24
3.	Turning up from the lying position in 1 min	47,73	1,23	54,36	0,89 ◊	54,49	1,14 *
4.	Rope climbing (3 м), s	8,52	0,22	7,35	0,18 ◊ ○	8,87	0,11
5.	Standing long jump, cm	184,20	2,31	181,43	3,25	182,00	1,71
6.	Throwing medi exercise ball (4 kg) forward over the head, cm	195,07	1,46	240,71	4,87 ◊ ○	211,36	1,14 *
7.	Throwing medi exercise ball (4 kg) backwards over the head, cm	349,80	4,01	359,50	10,24	348,29	2,92
8.	Power index (dynamometer of the driving hand (kg) / body weight (kg))	0,48	0,01	0,51	0,01	0,51	0,01
9.	6 minute run, m	941,33	25,43	1109,29	20,31 ◊ ○	1002,14	20,31
10.	Boat running (3×10 m) from standing start, s	8,46	0,07	7,69	0,07 ◊ ○	8,23	0,08 *
11.	Ball catching after hop jump, s	0,41	0,04	0,42	0,02	0,40	0,01
12.	10 rolls over ahead, s	8,91	0,11	8,85	0,09	8,06	0,16 * ○
13.	Plank hold, s	18,55	1,06	24,37	1,80 ◊ ○	16,12	1,14
14.	One legged squat (maximum number of times)	11,33	1,00	11,64	0,65	13,07	0,97
15.	Finger-tip push-ups (maximum number of times)	41,73	1,78 *	50,00	0,57 ◊ ○	33,07	1,30
16.	Finger-tip push-ups per 20 s (number of times)	22,40	0,77	24,14	1,38	22,50	0,57
17.	Pull-ups (maximum number)	9,53	0,46	12,71	0,97 ◊ ○	8,21	0,57
18.	«Crab position» (distance in cm from the heel to the fingertips)	25,60	1,31	19,21	1,14 ◊ ○	23,71	1,30
19.	Angle body, cm	17,47	1,00 *	18,14	0,97 ○	12,36	0,57
20.	Performing 6 different techniques at speeds in the right and left side, s	41,48	0,99	35,82	0,60 ◊ ○	41,95	0,84
21.	5-time exercise: «crab position» from stance, end of «crab position» with running to the right or left side and returning to the original stance, s	11,47	0,22	10,77	0,32	10,88	0,22
22.	Partner rolls per 20 s (number of rolls)	9,27	0,31	10,21	0,24 ◊	10,50	0,24 *

Notes. Probability of difference of mean values of quantitative indices in representatives of different Somatic Types $P < 0.05$:

◊ - between thoracic and muscular;

* - between thoracic and digestive;

○ - between muscular and digestive.

Differences in sensitive periods of the development of physical qualities of the thoracic, muscular, and digestive somatotypes of the same age were taken into account in the criteria for evaluating the results of motor tests developed by the authors (Table 2). Furthermore, the developed evaluation system is based on the analysis of the results of scientific research of specialists in the field of children's and youth sports (Boyko V.F., Danko H.V., 2004; Volkov V.L., 2005; Jagello V., 2002) and their own longstanding research (Bekas O., Palamarchuk Yu.H., 2012; Palamarchuk Yu.H., 2013; Bekas O., Palamarchuk Yu.H., 2014).

Table 2

Evaluation criteria of the results of motor tests of 11–12 year old judoists with different Somatic Types

Motor qualities	Motor test	Somatic Types	Grade, points				
			1	2	3	4	5
Speed and its manifestations	30 meter run, s	Thoracic	5,83	5,65	5,47	5,25	5,11
		Muscular	5,79	5,61	5,44	5,26	5,09
		Digestive	5,61	5,44	5,26	5,08	4,90
	Pull-ups per 20 s (number of times)	Thoracic	6	7	8	9	10
		Muscular	8	9	10	11	12
		Digestive	5	6	7	8	9
	Finger-tip push-ups per 20 s (number of times)	Thoracic	18	20	22	24	26
		Muscular	20	22	24	26	28
		Digestive	19	21	23	25	27
	Turning up from the lying position in 1 min	Thoracic	44	46	48	50	52
		Muscular	48	51	54	57	60
		Digestive	48	51	54	57	60
	Rope climbing (3 м), s	Thoracic	9,42	8,97	8,52	8,07	7,62
		Muscular	7,86	7,60	7,35	7,09	6,83
		Digestive	9,68	9,26	8,83	8,41	7,99
	Standing long jump, cm	Thoracic	166	175	184	193	203
		Muscular	162	172	181	190	199
		Digestive	163	173	182	192	202
	Throwing medi exercise ball (3 kg) forward over the head, cm	Thoracic	165	180	195	210	225
		Muscular	200	220	241	261	282
		Digestive	185	198	211	224	237
	Throwing medi exercise ball (4 kg) backwards over the head, cm	Thoracic	371	404	437	470	503
		Muscular	381	415	450	485	520
		Digestive	369	402	435	468	500
Power and its manifestations	Power index, standart units.	Thoracic	0,37	0,42	0,48	0,54	0,59
		Muscular	0,43	0,47	0,51	0,55	0,58
		Digestive	0,43	0,47	0,51	0,55	0,58
	Plank hold, s	Thoracic	25,86	27,20	28,55	29,89	32,24
		Muscular	30,53	32,45	34,37	36,29	37,29
		Digestive	13,98	15,05	16,12	17,19	18,26
	One legged squat (maximum number of times)	Thoracic	9	10	11	12	13
		Muscular	10	11	12	13	14
		Digestive	10	12	13	15	16
	Finger-tip push-ups (maximum number of times)	Thoracic	36	39	42	45	48
		Muscular	44	47	50	53	56
		Digestive	27	30	33	36	39
	Pull-ups (maximum number of times)	Thoracic	8	9	10	11	12
		Muscular	10	11	13	14	15
		Digestive	6	7	8	9	10

End of the Table 2

Endurance	6 minute run, m	Thoracic	969	930	1041	1071	1163
		Muscular	890	1000	1110	1220	1330
		Digestive	880	991	1002	1113	1222
Coordinating abilities	Ball catching after hop jump, s	Thoracic	0,49	0,45	0,41	0,37	0,33
		Muscular	0,46	0,44	0,42	0,40	0,38
		Digestive	0,44	0,42	0,40	0,38	0,36
	Boat running (3×10 m) from standing start, s	Thoracic	9,08	8,77	8,46	8,16	7,85
		Muscular	8,45	8,07	7,69	7,31	6,93
		Digestive	8,81	8,52	8,23	7,93	7,64
	10 rolls over ahead, s	Thoracic	9,68	9,29	8,91	8,53	8,14
		Muscular	9,63	9,24	8,85	8,46	8,07
		Digestive	8,78	8,42	8,06	7,70	7,34
Dorsal spine mobility	«Crab position» (distance in cm from the heel to the fingertips)	Thoracic	29	27	26	24	23
		Muscular	22	21	19	18	16
		Digestive	27	25	24	22	21
Special qualities of the wrestler	Performing 6 different techniques at speeds in the right and left side, s	Thoracic	48,91	45,18	41,46	37,74	34,01
		Muscular	41,82	38,84	35,87	32,89	29,91
		Digestive	49,53	46,58	42,64	38,69	35,75
	5-time exercise: «crab position» from stance, end of «crab position» with running to the right or left side and returning to the original stance, s	Thoracic	13,25	12,36	11,47	10,59	9,70
		Muscular	12,31	11,54	10,78	9,92	9,23
		Digestive	12,38	11,63	10,88	10,14	9,39
	Partner rolls per 20 s (number of rolls)	Thoracic	7	8	9	10	11
		Muscular	8	9	10	11	12
		Digestive	9	10	11	12	13

As can be seen from the table, we evaluate the motor qualities of a wrestler on a five-point scale. We apply tests, which can be used to assess the development and improvement of both general and special calisthenics of young judoists. An important place in our system of assessing motor qualities is the speed and its manifestation in the study of different muscle groups. This is due to the existence of close pair correlation relationships established between the speed indicators and the special physical fitness of 11–12-year-old judoists, established by the authors (Table 3).

Table 3

Correlation analysis of the results of tests of special physical fitness and high-speed qualities of 11-12-year-old judoists

Testing for special physical fitness	**Testing of speed and its manifestations**	**Coefficient of correlation at P<0,05**
Performing 6 different rolls at speeds in the right and left side, s	Throwing medi exercise ball (3 kg) forward over the head, cm	-0,75
	30 meter run, s	0,89
	Pull-ups per 20 s (number of times)	-0,82
	Standing long jump, cm	-0,80
	Rope climbing (3 м), s	-0,82

End of the Table 3

5-time exercise: «crab position» from stance, end of «crab position» with running to the right or left side and returning to the original stance, s	Standing long jump, cm	-0,70
Partner rolls per 20 s (number of rolls)	30 meter run, s	-0,77
	Pull-ups per 20 s (number of times)	-0,77
	Rope climbing (3 м), s	-0,82

Thus, the system of assessment of motor qualities, offered by the authors, allows us to quickly make adjustments to the training process of young judoists due to the purposeful selection of means and methods of training.

Conclusions and perspectives of further research. It has been established that the factor of the constitution of 11–12 year old judoists has a significant influence on the development of motor qualities. Wrestlers of the muscular type have better results in the vast majority of tests of physical qualities than those of the digestive and / or thoracic somatotype. The judoists of the digestive somatotype of the same age showed better results in individual tests that required speed and coordination. Thoracic-type fetal wrestlers have shown the best results only in comparison with the representatives of the digestive somatotype in separate tests, which characterize the manifestation of dorsal spine mobility, speed-strength and strength endurance.

The obtained results will allow coaches to easily carry out scientifically based selection of the most informative tests, with the purpose of qualitative pedagogical monitoring of the development of physical qualities of 11–12-year-old wrestlers.

The five-point scale, developed for assessing the results of tests of physical qualities, should be used in the process of pedagogical control over the training process of 11–12-year-old judoists, taking into consideration their somatotypes.

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PROGRAM OF CONDITIONNING FOR FOOTBALL REFEREES

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Abstracts

Novelty. Level of football referee conditioning directly influence on quantity and quality of lapses in judgment. So, design and implementation of effective training programs in pipe-line of referee is actual. ***Purpose of research:*** to prove the effectiveness of experimental program of football referee conditioning. ***Method of research:*** the reaction of organism on training loading was studied by pulsometer Polar M 200. The average age of experimental subject was 30 years. The program was tested on 10 referees. The first stage was planning. During second stage the theoretical design of experimental program was done. The third stage was a practical testing of program. The effectiveness was studied at the forth state. ***Result of Research.*** Experimental program consists of one training mesocycle divided into retractor, basic and control-preparative microcycles. Microcycles consist of training which have seven directions depend on their influence on organism. They are: uniform training, uniform training+, uniform and basic training, uniform and fast training, basic longtime training, fast training, fast and maximum training. ***Conclusions.*** Testing of experimental program has proved its effectiveness. It was shown the increasing of 10 km distance rate of advance with the same average heart rate, it was accompanied by tendency to energy demands decreasing. Analysis of running index shown positive ynamics of conditioning changes in the context of experimental program in general and in any referee certain. At the start of program the mean group running index was estimated as «average» during realization of program it was improved to «very good».

Key words: referee, specialization, football, training, program.

Програма спеціальної фізичної підготовки арбітрів у футболі. Віктор Романюк, Вікторія Петрович, Вадим Смолюк, Ігор Бичук. ***Актуальність***. Рівень спеціальної фізичної підготовленості арбітра напряму впливає на кількість і якість помилкових рішень. Тому, розроблення і впровадження у процес підготовки арбітрів ефективних тренувальних програм є актуальним. ***Мета роботи*** – обґрунтувати ефективність експериментальної програми спеціальної фізичної підготовки арбітрів у футболі. ***Методи дослідження***. Реакція організму на тренувальне навантаження вивчалась за допомогою годинника-пульсометра Polar M200. Середній вік обстежуваних 30 років. Програму апробовано на 10 арбітрах. Перший етап досліджень передбачав планування. На другому етапі здійснено теоретичну розробку експериментальної програми. Завданням третього етапу було апробувати програму на практиці. На четвертому етапі вивчалась її ефективність. ***Результати роботи.*** Експериментальна програма складається з одного тренувального мезоциклу, який містить втягуючий, базовий та контрольно-підготовчий мікроцикли. Мікроцикли складаються з тренувальних занять, які в залежності від дії на організм мають сім напрямів: рівномірне тренування; рівномірне тренування +; рівномірне і базове тренування; рівномірне і темпове тренування; базове тривале тренування; темпове тренування +; темпове і максимальне тренування. ***Висновки.*** Апробація експериментальної програми підтвердила її ефективність. Виявлено збільшення темпу долання десяти кілометрової дистанції при однаковійсередній частоті серцевих скорочень, яке супроводжувалось тенденцією до зменшення енергозатрат. Аналіз Індексу бігу засвідчив позитивну динаміку змін спеціальної фізичної підготовки в умовах експериментальної програми у групі досліджуваних загалом і в кожного арбітра зокрема. На початку реалізації програми середньо груповий Індекс бігу оцінювалася як «середній» та покращився за період реалізації програми до рівня «дуже хороший».

Ключові слова: арбітри, спеціальна фізична підготовка,футбол, програма тренувань.

Виктор Романюк, Виктория Петрович, Вадим Смолюк, Игорь Бычук. Программа специальной физической подготовки арбитров в футболе. Актуальность. Уровень специальной физической подготовленности арбитра напрямую влияет на количество и качество ошибочных решений. Поэтому, разработка и внедрение в процесс подготовки арбитров эффективных тренировочных программ есть актуальным. **Цель работы**– обосновать эффективность экспериментальной программы специальной физической подготовки арбитров в футболе. **Методы исследования.** Реакция организма на тренировочную нагрузку изучалась с помощью часов-пульсометра Polar M200. Средний возраст обследуемых 30 лет. Программа апробирована на 10 арбитрах. Первый этап исследований предусматривал планирование. На втором этапе осуществлено теоретическую разработку экспериментальной программы. Задачей третьего этапа было апробировать программу на практике. На четвертом этапе изучалась ее эффективность. **Результаты работы.** Эксперимен-

тальная программа состоит из одного тренировочного мезоцикла, содержащего втягивающий, базовый и контрольно-подготовительный микроциклы. Микроциклы состоят из тренировочных занятий, в зависимости от воздействия на организм имеют семь направлений: равномерная тренировка; равномерная тренировка +; равномерная и базовая тренировка; равномерная и темповая тренировка; базовая длительная тренировка; темповая тренировка +; темповая и максимальная тренировка. **Выводы.** Апробация экспериментальной программы подтвердила ее эффективность. Выявлено увеличение темпа преодоления десяти километровой дистанции при одинаковой средней частоте сердечных сокращений, которое сопровождалось тенденцией к уменьшению энергозатрат. Анализ Индекса бега показал положительную динамику изменений специальной физической подготовки в условиях экспериментальной программы в группе исследуемых в общем и каждого арбитра в частности. В начале реализации программы среднегрупповой Индекс бега оценивалась как «средний» и улучшилось за период реализации программы до уровня «очень хороший».

Ключевые слова: арбитры, специальная физическая подготовка, футбол, программа тренировок.

Problem statement and its significance. The level of special physical preparedness of an arbitrator directly affects the quantity and quality of false decisions. The analysis of domestic football matches, testifies to the lack of stable quality arbitration in Ukraine. The insufficient preparedness of Ukrainian arbitrator also indicates that today there is practically no arbitrator serving international matches. This is evidence that the system of special physical training for football arbitrators is imperfect and needs new scientific researches. We believe that the development and implementation in the process of training arbitrators an effective training programs a special physical training is topical.

An analysis of recent research and publications on this issue. The problem of physical and professional training of football referees was studied by domestic and foreign scientists. In particular, the state and ways of improving the physical training of football referees of different qualifications have been studied today [1]. Received theoretical and experimental substantiation of individualization of special physical training of football referees of high qualification [2; 9]. Organizational and pedagogical aspects of constructing the process of professional training the football referees of the initial category are considered [3]. The actual aspects of position in the judging of the football competition and the vectors of movement of the referees during the game are determined [4]. Peculiarities of the physical training of football arbitrators in the preparatory period of the year cycle of training are revealed [5]. Resistance to the discouraging factors of football arbitrators with different activators of nervous processes is characterized [6]. Developed basic model preparedness football arbitrators different skills [7]. Overall physical performance of football arbitrators was studied [8]. At the same time, with comprehensive coverage of the problem of general preparation of arbitrators in football, the practical process of special physical training is justified not enough. Today there are no available and effective programs that take into account individual Physiological features of each arbitrator.

The purpose of work is to develop and experimentally substantiate the effectiveness of the special physical training program of arbitrators in football.

Material and methods of research. A group of 10 referees participated in the research. The average age of the examined is 30 years. The study of the reaction of the organism to the training load was carried out with the help of the sports clock, pulsometer Polar M200. The study consisted of four stages. The first stage of studies foresaw planning. At the second stage the theoretical development of the experimental program was carried out. The task of the third stage was to try the program in practice. At the fourth stage, its effectiveness was studied.

Research results. Discussion. The conducted researches included four stages. First stage (Feb-Jul 2017) foresaw the determination of the name of research, setting goals and tasks, studying and analyzing scientific-methodological, scientific literature on the specified problem.

The second stage (August-September 2017) provided for the theoretical development of an experimental program of special physical training for referees, consisting of one preparatory mesocycle, which in turn contained three microcycles: retractable, basic and control-preparatory (Table 1). Each microcycle had its own task and differed in volume and intensity.

The predominant focus of the first microcycle is the development of general endurance. Volume of loadings on the sum of running work is 38070 m, according to the amount of energy spent – 2914 kcal. The microcycle is characterized by no high intensity.

Table 1

General structure of special physical training program of arbitrator

Mescycle	**Preparatory**																	
Month	October																	
Week	1						2						3					
Microcycle	Retractable						Basic						Control-preparatory					
Period	2.10-7.10						9.10-14.10						16.10-21.10					
Day	Mon	Tue	Wed	Thu	Fri	Sat	Mon	Tue	Wed	Thu	Fri	Sat	Mon	Tue	Wed	Thu	Fri	Sat
Date	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21
№ Training		1	2	3	4	5	6	7	8	9		10	11	12	13	14		15
Volume, kcal (dynamic)		411	677	750	400	676	589	1000	818	643		293	579	598	490	756		296
Intensity, % (dynamic)						2			4	17				4		2		
Volume, m (dynamic)		5000	9830	8000	5240	10 000	8940	7000	10 680	10 180		5020	7220	8450	7000	11 000		5710

The task of the second microcycle is preparation for specialized loadings and development of special endurance. The volume of loads of microcycle is 41820 m, to overcome which is 3343 kcal. At the same time increase of loads volume is increased their intensity.

The third microcycle involves the further development of a special endurance of the «40 Ч 75 m» approaching the test conditions. The microcycle is characterized by a slight decrease in the volume and intensity of loads, which is associated with the preparation for testing and ensuring a more effective recovery. The microcycle overflows 39380 m and consumes 2719 kcal.

Microcycles are divided into separate training sessions, which, depending on the action on the body, have a number and a name that is formed on the basis of the analysis of the training by the program «Polar» (Table 2). There are 7 directions of training: uniform training (№ 1); uniform training + (№ 2.1-2.3); uniform and basic training (№ 3.1-3.2); uniform and tempo (№ 4); basic long training (№ 5); tempo training + (№ 6.1-6.2); Temporal and Maximum Workout (№ 7).

Table 2

Model of training of special physical training of football arbitrators and their characteristics

№	**Type of training**	**Direction**	**Energy**		**kcal**	**RHR**		**Pace**	**Distance**	**Ind. running**	**Duration**
			source	**%, fat**		**aver.**	**max**	**(min/km)**	**(km)**		**(minute)**
1	Normal	aerobic	carb	25	346	144	164	7,38	5,00		39
2.1	Normal +	aerobic	carb	31	677	141	174		9,83		80
2.2		aerobic	carb	24	579	151	167	8,25	7,22	39	60
2.3		aerobic	carb	33	756	139	181		11,10	46	90
3.1	Normal and basic	aerobic	fat	32	400	134	170		5,24	42	50
3.2		aerobic	fat	35	293	130	158		5,20	51	40
4	Normal and tempo	aerobic	carb	28	598	143	186		8,45	46	67
5	Basic prolonged	aerobic	fat fat	44	589	124	159	8,30	8,94	50	87
6.1	Tempo +	anaerobic	carb	23	676	153	178	6,50	10,00	47	68
6.2		anaerobic	carb	26	818	149	187		10,68	46	86
7	Tempo and maximum	anaerobic	carb	22	643	152	184	6,36	10,18	47	66

All training sessions are illustrated by the charts of the heart rate monitor, which help during training to adhere to the pulse zones provided by the program. There are five zones of intensity of heart rate: the gray zone is very low intensity; blue low intensity zone; green zone of medium intensity; yellow intensive training area; red zone of maximum workout.

Consider for example workout 8 (table 1). This training is characterized as "Temp training +", its model number is 6.2 (table 2). The main load of this training was acceleration of 35 times per 100 m. This workout improves anaerobic stamina, because of this(thanks to it) increases maximum oxygen consumption (VO2max) and efficiency. In addition, it increases the speed that can be stored without the formation of lactic acid. The length of the workout is sufficient to improve stamina at a given speed. Carbohydrates are the main energy source used by the body at such intensity of training. The total distance, which is overcome during training is 10.68 km, the length is 86 minutes. Average heart rate is 149 speeds/min, maximal – 187. For all training spends 818 kcal, 26% of which due to burning fat. The run index is 46 cond. units. 4% of total training time the pulse is in the red zone, 38% in the yellow zone, 40% in green, and 16% in blue. The average of 100 m acceleration time is 17.29 seconds. The fastest 100 m will overcome in 15.25 sec, the slowest - for 19.53 seconds.

At the third stage (october 2017), the task of the research was to introduce a developed program to improve the special physical fitness of football referees in practice. For this from 3.10. to 21.10.2017 were held training sessions with arbitrators. At each lesson, with the help of a pulsometer, were monitored the training load. The reaction on every training session was recorded and analyzed, supplementing the already developed experimental program with the data of physiological indicators: heart rate, kcal, run index. Thus, each training session, which is included in the program can act as a model, with the planning of the training process.

At the fourth stage (november-december 2017), the effectiveness of the experimental program was studied. In particular, was analyzed: the reaction of the organism to the load during the realization of the entire program; the reaction of the organism during repeated overcomes of 10 km at the beginning and in the middle of the experimental program; the dynamics of the run index throughout the entire training period of the program.

In general, approbation of the experimental program of the special physical training of football referees confirmed its effectiveness. An increase in the pace of overcoming of 10 km from 7 min, 20 s/km to 6 min 10 s/km $p < 0{,}001$ at the same average heart rate of 153 speed/min, which was accompanied by a tendency to reduce energy costs from 676 to 643 kcal (table 3), was found. This is an indication that the cardiovascular system has adapted to the loads and is able to maintain a higher run speed without increasing its efforts in terms of heart rate and energy consumption.

Table 3

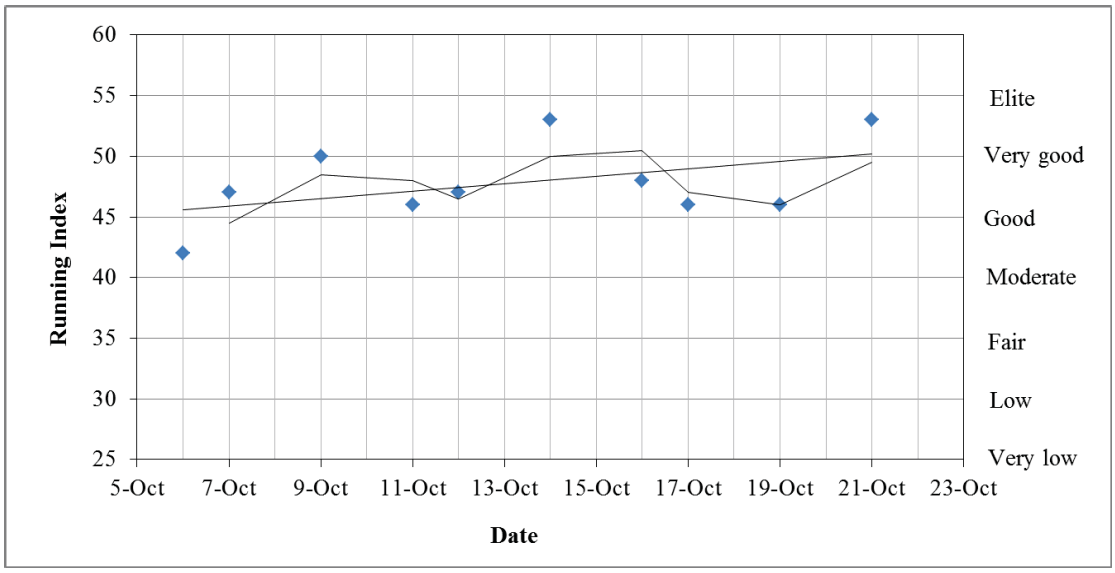
The comparison of the functional capabilities of football referees in overcoming the 10 km distance in the beginning and in the middle of the implementation of the program of special physical training

Indicator	HR (aver.)	HR (max)	Aver. tempo (s/km)	Max. tempo (s/km)	kcal	Run index (cond. units)	Time (min)
Average (X_1)	153	166	440	338	676	47	68
Standard mistake (Sx_1)	3,0	3,1	15,0	12,3	22,9	1,6	2,1
Average (X_2)	154	164	370	312	643	47	66
Standard mistake (Sx_2)	2,9	2,6	6,3	8,5	21,5	1,4	1,5
Student's t- test	-0,242	0,397	4,269	1,742	1,042	0,229	0,899
The level of significance	p>0,05	p>0,05	p<0,001	p>0,05	p>0,05	p>0,05	p>0,05

The analysis of football referees run index has shown a positive dynamics of changes in the conditions of the experimental program of special physical training in the group of the studied in general and for each referees in particular (pic. 1). At the beginning of the program, the average group run index was 42 cond. units, at the end it has increased to 53 cond. units $p<0{,}001$. By assessing the special physical fitness of

football referees with the help of the Run Index standards its improvement from the level «average» to the level «very good» is established.

Let's note, that the trend line on the graph (pic. 1), which is constructed using the linear regression equation, also shows a tendency of improvement the run index during the realization of the program from the «average» to the «good» level. The increase of the run index is from 45 cond. units up to 50 cond. units.



Pic. 1. *The dynamics of football referees run index in the process of realization the experimental program of special physical training*

Conclusions and perspectives of further research. The approbation of the experimental program of special physical training of football referees confirmed its effectiveness. An increase in the pace of overcoming of 10 km from 7 minutes, 20 s/ km to 6 minutes 10 s/km ($p < 0{,}001$) with the same average heart rate of 153 speed/min was observed, which was accompanied by a tendency to reduce energy costs from 676 to 643 kcal. This is an indication that the cardiovascular system has adapted to the loads and is able to maintain a higher run speed without increasing its efforts in terms of heart rate and energy consumption.

The analysis of football referees' run index has witnessed the positive dynamics of change in the conditions of the experimental program of special physical training in the group of researchers in general and of each referee in particular. At the beginning in the realization the program, the average of group run index was 42 cond. units., at the end it has increased to 53 cond. units ($p<0.001$). By assessing the special physical fitness of football referees with the help of the Run Index standards, its improvement from the level «average» to the level «very good» was established.

The perspectives for research in this area are the testing of the effectiveness of the pilot program for the preparation of football referees for the testing by the FIFA program, the development of a program of special physical training for the entire cycle of training referees, approbation and further improvement.

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INFLUENCE OF EMPLOYMENT BY MOBILE GAMES ON INDICATORS OF PHYSICAL AND TECHNICAL-TACTICAL READINESS OF YOUNG FOOTBALL PLAYERS IN THE PREPARATORY PERIOD

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Abstarcts

Relevance. In conditions of increasing the density of the game of football and its speed, it is important to include in the structure of the training process a set of mobile games that will contribute to the development of physical and technical and tactical preparedness. The task of the research is to determine the influence of specially selected mobile games on the state of physical, special and technical preparedness of young football players of 12 to 13 years. ***Material and methods of investigation.*** The study involved 40 players who were engaged in the group of sports improvement of the first year of training. The investigators belonged to the main medical group, at the time of the survey, they had no complaints about their health and well-being. In the experimental group, on each training session, according to the tasks assigned, mobile games were used. Classes in the control group were conducted according to the standard program. ***Results of the study***. It is established that the average long jump from the place, in young players of the experimental group is 163.8 cm, in young players of the control group - 173.6 cm (P <0.05). The values of the triple jump in length are respectively 526.2 cm and 520.8 cm; jump up – 41.4 and 43.2 cm; Running on the 400 m - 69.34 s and 68.18 s; shuttle race 3x15 m - 8,12 and 8,42 s (P> 0,05). A similar trend is revealed by the special physical preparedness of the players. ***Conclusions.*** The results of the conducted pedagogical experiment confirm the effectiveness of the developed methodology for the use of specially selected mobile games in the training process of young players of the second year of training, probably indicating the improvement of their physical, special and technical preparedness.

Key words: mobile games, physical preparedness, technical preparedness, young football players.

Юрій Цюпак, Тетяна Цюпак, Олександр Швай, Леонід Гнітецький, Андрій Ковальчук, Юрій Цюпак. Вплив занять рухливими іграми на показники фізичної та техніко-тактичної підготовленості юних футболістів у підготовчому періоді. ***Актуальність.*** В умовах збільшення щільності гри в футбол та її швидкості важливим є включення в структуру тренувального процесу комплексу рухливих ігор, які будуть сприяти розвитку фізичної та техніко – тактичної підготовленості. Завдання дослідження – визначити вплив спеціально підібраних рухливих ігор на стан фізичної, спеціальної та технічної підготовленості юних футболістів 12 – 13 років. ***Матеріал і методи дослідження***. У дослідженні взяли участь 40 футболістів, які займалися в групі спортивного вдосконалення першого року навчання. Досліджувані відносились до основної медичної групи, на момент обстеження, вони не мали скарг на стан здоров'я та самопочуття. В експериментальній групі на кожному тренувальному занятті, відповідно поставлених завдань, використовувалися рухливі ігри. Заняття в контрольній групі проводились за загально прийнятою програмою. ***Результати дослідження***. Встановлено, що середні показники стрибка у довжину з місця, у юних футболістів експериментальної групи становлять 163.8 см, у юних футболістів контрольної групи – 173.6 см (P<0,05). Величини потрійного стрибка у довжину відповідно становлять 526.2 см і 520.8 см; стрибка уверх – 41,4 і 43,2 см; бігу на 400 м – 69,34 с і 68,18 с; човникового бігу 3х15 м – 8,12 і 8,42 с (P> 0,05). Подібна тенденція виявлена і за спеціально-фізичною підготовленістю футболістів. ***Висновки.*** Результати проведеного педагогічного експерименту підтверджують ефективність розробленої методики застосування спеціально підібраних рухливих ігор у навчально-тренувальному процесі юних футболістів другого року навчання, що засвідчує вірогідне покращення їхньої фізичної, спеціальної і технічної підготовленості.

Ключові слова: рухливі ігри, фізична підготовленість, технічна підготовленість, юні футболісти.

Юрий Цюпак, Татьяна Цюпак, Александр Швай, Леонид Гнитецкий, Андрей Ковальчук, Юрий Цюпак. Влияние занятий подвижными играми на показатели физической и технико - тактической подготовленности юных футболистов в подготовительном периоде. Актуальность. В условиях увеличения плотности игры в футбол и ее скорости важным является включение в структуру тренировочного процесса комплекса подвижных игр, которые будут способствовать развитию физической и техніко – тактической подготовленности. Задача исследования – определить влияние специально подобранных подвижных игр на

состояние физической, специальной и технической подготовленности юных футболистов 12–13 лет. **Материал и методы исследования.** В исследовании приняли участие 40 футболистов, которые занимались в группе спортивного совершенствования первого года обучения. Исследуемые относились к основной медицинской группе, на момент обследования, они не имели жалоб на состояние здоровья и самочувствие. В экспериментальной группе на каждом тренировочном занятии, согласно поставленных задач использовались подвижные игры. Занятия в контрольной группе проводились по общепринятой программе. **Результаты исследования**. Установлено, что средние показатели прыжка в длину с места, у юных футболистов экспериментальной группы составляют 163.8 см, у молодых футболистов контрольной группы - 173.6 см (P <0,05). Величины тройного прыжка в длину соответственно составляют 526.2 см и 520.8 см; скачка вверх – 41,4 и 43,2 см; беге на 400 м - 69,34 с и 68,18 с; челночного бега 3х15 м – 8,12 и 8,42 с (P> 0,05). Подобная тенденция выявлена и по специально-физической подготовленностью футболистов. **Выводы.** Результаты проведенного педагогического эксперимента подтверждают эффективность разработанной методики применения специально подобранных подвижных игр в учебно-тренировочном процессе юных футболистов первого года обучения, свидетельствует вероятно улучшение их физического, специальной и технической подготовленности.

Ключевые слова: подвижные игры, физическая подготовленность, техническая подготовленность, юные футболисты.

Introduction. The analysis of special literature and the synthesis of practical experience shows that the increase in the level of sportsmanship of football players directly depends on the planned and qualified training of children from the early age. Only the wise application of an effective method of teaching and training, taking into account the laws of age-related development of the body's systems, makes it possible to fully solve the task of preparing high-end football players. The main goal of sporting training for football players is to achieve the maximum level of tactical, technical, physical and psychological training, which is conditioned by the specifics of football and the requirements to achieve the highest possible results in competitive activities [1; 5; 8; 10; 17].

The leading sports specialists are critical of the mechanical expansion of the load as a way to improve the effectiveness of training in modern conditions. The constant increase of this indicator every year causes less and less influence on the growth of sports results. Consequently, it is necessary to focus on other ways to increase the efficiency of the training process of qualified athletes [1; 7; 9; 16].

Moreover, many scientists are unanimous in the fact that one of the most promising directions for increasing the efficiency of the training process of athletes is the one, which is based on the accounting of the individual capabilities of the athlete proposed activities and requirements [4; 8; 15]. In conditions of increasing the density of the game, its speed, the increase of martial arts on the field, the number of podcasts and implementation of complex technical elements in modern football is an important issue to include a set of mobile games in the structure of the training process that will promote the development of physical and technical and tactical readiness of players [2; 3; 6; 12; 13; 14].

Separate children's coaches try each time to introduce new games into the training process. Such a desire for constant "innovation" is not justified. This is an extreme, as well as a constant repetition of the same games. The skills, which are fixed in the games, should be complicated gradually by introducing new obstacles, complications and additions to the rules. The dynamic stereotype that underlies the skills becomes stronger in these conditions [17].

Despite the fact that football, as a sport is very emotional and at first glance, does not require additional psychological stimuli, the current practice of football training shows how important it is to make the training sessions of football players fascinating and interesting [1; 7; 9; 17]. Such training works favorably on the increase of athletic skill and gives football players the desire to improve their technical and tactical skills.

The task of the study is to determine the impact of specially selected mobile games on the state of physical, special and technical training of young players of 12 -13 years old.

Material and methods of research. To study the physical training of young players who are engaged in a group of sports improvement in the second year of study, tests were used to determine the most important motive qualities of players – dexterity, speed, strength, endurance. The study was attended by 40 players who were engaged in the sports improvement group of the first year of study. The experiment lasted for 2016-2017 and covered two stages of scientific and pedagogical research.

For the pedagogical experiment, 2 groups of 12-13 year old boys were formed: control – 20 persons; Experimental group – 20 boys. Investigators belonged to the main medical group, at the time of the survey, they had no complaints about their health and well-being. In the experimental group, in each training session

with set tasks, mobile games were used. Classes in the control group were conducted according to the generally accepted program [11].

The studies were conducted in two stages. At the first stage, a confirmatory experiment was conducted, during which the level of general, special physical and technical training of adolescents 12-13 years was determined. At the second stage, the author's technique of implementing mobile games in the training process of young players was substantiated and developed. The effectiveness of the young players was checked, and corrections were made.

Results. In fact, any human physical actions is the result of coordinated activity of the central nervous system and peripheral parts of the locomotor apparatus, in particular, the musculoskeletal system. The person cannot perform any physical actions without the muscle strength manifestation. Being an integral locomotor quality, such strength causes such more or less manifestation dependence of other motor qualities on it. The muscle strength level has been appraised by means of the test called “Standing Long Jump”.

Subsequent to the results of testing, it has been found that the level of muscular strength in young football players belonging to the experimental and control groups is medium. Thus, the standing long jump average performance of the young players from the experimental group is 163.8 ± 2.32 cm, whilst it is 173.6 ± 2.58 cm (P <0.05) in football players from the control group (see Table 1).

Table 1

Young Players’ Fitness Level

Criteria	Commencement of the study		Completion of the study		t	P
	X_{avg}	m_x	X_{avg}	m_x		
Experimental Group						
10 meters long run, seconds	2. 34	0.1	2.13	0.07	2.02	<0.05
30 meters long run, seconds	4. 87	0.18	4.54	0.23	1.49	>0.05
50 meters long run, seconds	8. 94	0.18	8.35	0.57	0.97	>0.05
400 meters long run, minutes	6 9.34	0.52	67.27	0.98	2.01	<0.05
Shuttle run, 3x15 m, seconds	8.12	0.96	6.78	0.43	2.56	<0.05
Standing long jump, cm	163.8	2.32	186.4	3.49	3.23	<0.05
Triple jump, cm	526.2	2.21	556.7	2.05	2.16	<0.05
Vertical foot bounce with double beat	41.4	1.48	45.6	1.08	2.14	<0.05
Control Group						
10 meters long run, seconds	2. 24	0.08	2.18	0.23	0.96	>0.05
30 meters long run, seconds	4. 96	0.14	4.82	0.45	1.08	>0.05
50 meters long run, seconds	8. 76	0.34	8.55	0.31	0.66	>0.05
400 meters long run, minutes	6 8.34	0.42	67.37	1.23	1.54	>0.05
Shuttle run, 3x15 m, seconds	8.42	0.55	7.81	0.56	1.63	>0.05
Standing long jump, cm	173.6	2.58	179,2	1.34	2.04	<0.05
Triple jump, cm	520.8	2.49	538.2	4.02	2.17	<0.05
Vertical foot bounce with double beat	43.2	1.04	46.4	0.98	1.22	>0.05

The developmental level of speed and strength qualities has been determined with the help of the triple jump and vertical foot bounce with double beat tests. We have not revealed a significant difference (P> 0.05) in the young male speed and strength training. Thus, the average values of a triple jump in length are 526.2 ± 2.21 cm for young football players from the experimental group and 520.8 ± 2.49 cm for the respondents from the control group. The average values of the vertical foot bounce with double beat are 41.4 ± 1.48 cm for the players belonging to the experimental group and 43.2 ± 1.04 cm for the testees from the control group. Their speed and strength training level is estimated as below average gives evidence to judge about some insufficient level of work in that direction.

The overall endurance has been studied in our research as a human locomotor quality - the ability to perform some moderate intensity muscular work, using the 400 m run test. In general, the young male from

the control group overcame the distance of 400 m for a mean of 69.34 ± 0.52 seconds, but the young football players from the experimental group for 68.18 ± 0.42 seconds.

The analysis of findings relative to the study of the developmental level of the young football players' speed, who belong to groups of the second year of training shows that their speed is medium. The developmental level of speed was apprised by us on the ground of obtained results of running at 10 m, 30 m and at 50 m. Moreover, the adolescents from the experimental group ran on average: 10 m in 2.34 ± 0.1 seconds; 30 m – in 4.87 ± 0.18 seconds, 50 m – in 8.94 ± 0.18 seconds. In comparison, the football players from the control group ran the same distances as follows: 10 m in 2.24 ± 0.08 seconds, 30 m in 4.96 ± 0.14 seconds, and 50 m in 8.76 ± 0.34 seconds. The reliability degree is not significant (P> 0.05) in all cases.

The speed level of football players, who are engaged in groups of the second year of training, is estimated as medium. The same picture is observed as to the results of the dexterity development level study. The average values of the shuttle race 3x15 m is 8.12 ± 0.96 seconds in football players from the experimental group and 8.42 ± 0.55 s (P> 0.05) in the adolescents from the control group.

When analyzing the indices of the special physical readiness of the players, who are engaged in the second year training groups, we have not found any significant difference between these indicators (P> 0.05) in the football players either from the experimental or from control groups (see Table 2).

Table 2

Young Players' Special Fitness Level

Criteria	commencement of the study		completion of the study		t	P
	X_{avg}	m_x	X_{avg}	m_x		
Experimental Group						
30 meters run with a dribbling , sec	7.52	0.45	6.27	0.54	2.38	<0.05
5x30 meters run with a dribbling, sec	34.24	1.03	31.0	1.28	3.2	<0.05
Kicks for distance (by the left and right foot together), m	39.6	2.34	49.5	1.0	3.46	<0.05
Ball shying for a distance , m	11.8	2.16	14.5	1.72	1.85	>0.05
Control Group						
30 meters run with a dribbling , sec	6.92	0.55	6.32	0.34	0.83	>0.05
5x30 meters run with a dribbling, sec	32.95	1.26	32.5	0.93	1.29	>0.05
Kicks for distance (by the left and right foot together), m	42.7	1.93	47.7	2.34	2.16	<0.05
Ball shying for a distance , m	14.6	2.0	15.6	2.11	0.46	>0.05

The players of the experimental group ran 30 m with the ball for 7,52 ± 0,45 s, and the players of the control group for 6,92 ± 0,55 s. The average score of the "ball hit on a range" test in experimental group of teenagers – 39.6 ± 2.34 m and 42.7 ± 1.93 m in the young players of the control group; the "running 5x30 with the ball" test – 34,24 ± 1,03 s from young footballers EG and 33,95 ± 1,26 s in football CG.

The average level of technical readiness of players is also average. Thus, the average figures in the experimental group "stroke of struts and impact on the gate" are - 8,75 ± 0,29 s; "Ball hits for accuracy" – 6,48 ± 0,53 times, the players' score of the control group respectively – 8.74 ± 0.22 sec and – 6.45 ± 0.45 times (P> 0.05) .

So, the results of the study show that the level of physical, special and technical preparedness of footballers EG and CG are average and we didn't find a significant difference between these indicators (P> 0,05).

Discussion. Intensification of game activity of football players creates conditions in which the requirements for physical preparedness, timeliness and adequacy of responses and motor actions are dramatically increasing. Numerous studies [10; 17] found that physical fitness influences the quality of tactical and technical actions of football players.

In order to check the effectiveness of the implementation of a complex of mobile games in the training process and in order to identify changes in the indicators of physical and technical preparedness in young men of the investigated groups, re-testing was carried out. The results of the study indicate that the indicators of physical, special and technical preparedness have mainly improved both in the experimental and in the control groups. However, the indicators in the experimental group, are higher than in the control (Table 3).

Table 3

Indicators of technical readiness of young footballers

Indexes	Begin of the study		End of study		t	P
	x avg	m x	x avg	m x		
Experimental group						
Ball hit points for accuracy (number of hits)	3.14	0.87	5.45	0.24	2.17	<0.05
Keeping the ball, stroke and strike at the gate	13.28	0.54	10.48	0.79	3.14	<0.05
Juggling the ball with the foot, number of times	28.45	3.56	36.45	2.15	4.12	<0.05
Control group						
Ball hit points for accuracy (number of hits)	3.98	0.58	5.25	0.23	2.31	<0.05
Keeping the ball, stroke and strike at the gate	12.69	0.75	10.61	0.69	2.64	<0.05
Juggling the ball with the foot, number of times	30.25	2.66	34.25	1.48	1.69	>0.05

In the experimental group of young players, the results of the following standards improved the most: triple jump; jump in length from place; running 3x15 m. Thus, the young football players of the experimental group at the end of the experiment, when the norm was triple jump, jumped to 29.5 cm, jumped in length from a space of 21.05 cm, ran a distance of 3x15 m to 1.87 seconds faster than at the beginning of the study. At the end of the experiment, the young players respectively improved their results: in a triple jump only 17.4 cm, jump from 5.60 cm and ran a distance of 3x15m to 0.61 seconds faster.

A similar picture was found in the analysis of indicators of special-physical and technical preparedness. So in the boys of the experimental group, the most improved indicators - a blow to the accuracy (it increased by 1.16 hits), ball driving, stroke and strike on the goal (results improved by 1.33 seconds), running 5x30 m with driving the ball (the boys began to perform this exercise at 2.27 seconds faster). At the same time, the corresponding indicators in the young players of the control group remained almost unchanged.

Conclusions and perspectives of further research. The results of the conducted pedagogical experiment confirm the effectiveness of the developed method of using specially selected mobile games in the training process of young players in the second year of study, which confirms the probable improvement of their physical, special and technical preparedness. In our opinion, this is due to the fact that with the inclusion in the training sessions of mobile games, allowed to raise the motor density of classes and their emotions.

We recognize further research in the study of the creative approach to the use of mobile games in the training process of football players in the competitive period.

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Reviews, Chronicles and Personals

Uniwersytet Humanistyczno-Przyrodniczy im. Jana Długosza w Częstochowie, (Polska)
Wschodnioeuropejski Uniwersytet Narodowy imienia Łesi Ukrainki
(m. Łuck, Ukraina)

Szanowni Państwo

ZAPRASZAMY

do udziału w II Międzynarodowym Kongresie Naukowym Historyków Kultury Fizycznej
«HISTORIA KULTURY FIZYCZNEJ I SPORTU NARODÓW EUROPY»,
który odbędzie się w dniach ***10–12 września 2018 roku***
w Uniwersytecie Humanistyczno-Przyrodniczym im. Jana Długosza w Częstochowie
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Język konferencji: języki europejskie

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Prace (po pozytywnych recenzjach) zostaną opublikowane w czasopismach naukowych „Wychowanie fizyczne, sport i kultura zdrowia we współczesnym społeczeństwie" http://sport.eenu.edu.ua (Ukraina); „Prace Naukowe Akademii im. Jana Długosza w Częstochowie Kultura Fizyczna" http://www.wp.ajd.czest.pl/kultura-fizyczna, (Polska). **Wymagania redakcyjne (uwagi dla autorów, regulamin publikowania prac) są przedstawione na stronie internetowej każdego z czasopism).**

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II Międzynarodowy Kongres Naukowy Historyków Kultury Fizycznej
„Historia Kultury Fizycznej i Sportu Narodów Europy"

10-12 wrzesień 2018 r. – Złoty Potok/k. Częstochowy

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✓ **Conclusions and perspectives of further studies** in this course *(it is presented short formation of study results, comprehension and generalization of a topic. Conclusions should be laconic, specific, reasonable, relevant to the purpose of the study and follow the main content of work).*

✓ **References** (not more than 20, each position should have citation in the text of the article; Internet-citation in the text should be accompanied by full specific URL links) should have sufficient number of **modern** (for the last five years) references that reflect problem of the study. The list should include scientific articles of Ukrainian and foreign (up till 50%) specialized scientific journals, including the one published in the edition "Physical education, sport and health culture in modern society". Information about them must fulfill the requirements of **the State Standards of Ukraine 7.1:2006.** Citations within the text should be put in square brackets, separating each reference with a semicolon, as in the example [3; 4; 6; 8; 12; 15].

The List of References is placed after the main list of literature.

The List of References should be formed in English according to the international style APA (American Psychological Association) (http://www.bibme.org/citation-guide/apa/; http://www.citation-machine.net/apa/cite-a-book). Information should be transliterated according to the decree of the Cabinet of Ministers of Ukraine from 27.01.2010 № 55 (http://zakon2.rada.gov.ua/ laws/show/55-2010-%D0%BF) (for Ukrainian language) or requirements of BGN/PCGN (for Russian language).

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Subject of email letter and name of the file with the article: Author's Surname_Article.

Languages of the publication – Ukrainian, Russian, Polish (by choice) and English (obligatory).

Volume of the article — 8-12 pages with tables, schemes and pictures, A4, Word Editor 97-2003, in format *.doc. font 14 pt, Times New Roman, 1,5 line spacing (in tables 1 line spacing), portrait orientation, without hyphenation.

Annotations and key words – Times New Roman, font 12 pt.

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You should differentiate dash (–) and hyphen (-).

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The picture should be a single graphic object (grouped). For pictures made in Excel program, it is necessary also to send an Excel file (97-2003). Pictures should be numbered; they should have titles that are given outside a graphic object (for example, **Picture 1.** *Dynamics of physical working capacity*). Illustrative material must be contrasting black and white, way of filling in diagrams - dashed. Formulas (with standard numbering) are performed in Microsoft Equation Editor. Underlines of pictures and formulas should be available for editing. All graphic objects shouldn't be scanned.

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Збірник наукових праць

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