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

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GOLF DEVELOPMENT IN UKRAINE: CHALLENGES AND PERSPECTIVES

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Abstracts

Topicality. The inclusion of golf in the Olympic sports, the process of its globalization, commercialization and professionalization determines the prospects for the development of this sport within the framework of national and international scale. Despite the interest of the population in the golf in Ukraine, the positive development of golf in recent years, there are a problems. ***The purpose of the research*** is to carry out a comprehensive analysis of the development of golf in the world and Ukraine, to identify the main problems and determine the prospects for its modern development. ***Methods –*** analysis of data of special scientific literature, official legal documents, surveys, data analysis of the Internet, SWOT-analysis, comparison, generalization. ***Results.*** The article defines the modern trends of world golf, among which there is a significant increase in the popularity and geography of the distribution of golf; maintaining of the leadership of USA in golf development; the concentration in system of the golf in Europe up to 92 % of all professional players and 90 % of golf courses; the introduction by 2020of a unified world system of handicaps; unification of standards for the preparation and certification of coaches, judges, greenkeepers; the progress of the golf business-industry and, etc. The modern causes affecting the further development of golf in Ukraine are investigated: the imperfection of the legislative provision of sports development and the promotion of the activities of subjects of the national golf system; low level of motivation of different groups of population for golf to practice in the country; lack of golf courses at children's and youth sports schools; the backlog of the material and technical base of golf development from the level of most countries of the world; mismatch with the modern requirements of scientific and methodological support for the development of golf and staffing, and others. Are developed the strategic directions, goals and objectives for the development of golf in Ukraine for the period up 2030. ***Conclusions.*** The strategy of golf development in Ukraine will allow dignified representation of the state in the world sports community, popularize golf as a kind of active rest in the system of a healthy lifestyle of citizens and promote the consolidation of the nation.

Key words: golf, management of golf in the world and in Ukraine, trends of development, problems, strategy, prospects.

Мирослав Дутчак, Оксана Шинкарук, Марина Лавренчук. Розвиток гольфу в україні: проблеми та перспективи. ***Актуальність.*** Включення гольфу до олімпійських видів спорту, а також процес його глобалізації, комерціалізації та професіоналізації зумовлюють перспективи розвитку цього виду спорту в рамках національного й міжнародного масштабу. Незважаючи на зацікавленість населення до занять гольфом в Україні, його позитивний розвиток в останні роки, спостерігаємо низку проблем. ***Мета*** статті – здійснити комплексний аналіз розвитку гольфу у світі та Україні, окреслити основні проблеми та визначити перспективи його сучасного розвитку. ***Методи досліджень*** – аналіз даних спеціальної науково-методичної літератури, офіційних нормативно-правових документів, опитування, аналіз даних Інтернет, SWOT-аналіз, зіставлення, узагальнення. ***Результати.*** У статті визначено сучасні тренди світового гольфу, серед яких – суттєве зростання популярності й географії поширення гольфу; збереження провідних позицій США в розвитку гольфу;

концентрація системи гольфу в Європі до 92 % усіх професійних гравців та 90 % майданчиків для гольфу; упровадження до 2020 р. єдиної світової системи гандикапів; уніфікація стандартів підготовки та сертифікації тренерів, суддів, грінкіперів; прогрес бізнес-індустрії гольфу тощо. Досліджено сучасні виклики, що впливають на подальший розвиток гольфу в Україні: недосконалість законодавчого забезпечення розвитку спорту й сприяння діяльності суб'єктів системи вітчизняного гольфу; низький рівень мотивації різних верств населення до занять гольфом у країні; відсутність відділень із гольфу в дитячо-юнацьких спортивних школах; відставання матеріально-технічної бази розвитку гольфу від рівня більшості країн світу; невідповідність сучасним вимогам науково-методичного супроводження розвитку гольфу та кадрового забезпечення й ін. Розроблено стратегічні напрями, цілі й завдання розвитку гольфу в Україні на період до 2030 р. ***Висновки.*** Обґрунтована стратегія розвитку гольфу в Україні дасть змогу гідно репрезентувати державу у світовому спортивному співтоваристві, популяризувати гольф як вид активного відпочинку в системі здорового способу життя громадян та сприяти консолідації нації.

Ключові слова: гольф, управління гольфом у світі та в Україні, тренди розвитку, проблеми, стратегія, перспективи.

Мирослав Дутчак, Оксана Шинкарук, Марина Лавренчук. Развитие гольфа в Украине: проблемы и перспективы. ***Актуальность.*** Включение гольфа в олимпийские виды спорта, а также процесс его глобализации, коммерциализации и профессионализации обусловливают перспективы развития данного вида спорта в рамках национального и международного масштаба. Несмотря на заинтересованность населения к занятиям гольфом в Украине, позитивное развитие гольфа в последние годы, наблюдается ряд проблем. ***Цель*** статьи – осуществить комплексный анализ развития гольфа в мире и Украине, определить основные проблемы и перспективы его современного развития. ***Методы исследований*** – анализ данных специальной научно-методической литературы, официальных нормативно-правовых документов, опрос, анализ данных Интернет, SWOT-анализ, сопоставление, обобщение. ***Результаты.*** В статье определяются современные тренды мирового гольфа, среди которых – существенный рост популярности и географии распространения гольфа; сохранение ведущих позиций США в развитии гольфа; концентрация системы гольфа в Европе до 92 % всех профессиональных игроков и 90 % площадок для гольфа; внедрение к 2020 г. единой мировой системы гандикапов; унификация стандартов подготовки и сертификации тренеров, судей, гринкиперов; прогресс бизнес-индустрии гольфа и др. Исследуются современные причины, влияющие на дальнейшее развитие гольфа в Украине: несовершенство законодательного обеспечения развития спорта и содействия деятельности субъектов системы отечественного гольфа; низкий уровень мотивации различных слоев населения к занятиям гольфом в стране; отсутствие отделений по гольфу в детско- юношеских спортивных школах; отставание материально-технической базы развития гольфа от уровня большин- ства стран мира; несоответствие современным требованиям научно-методического сопровождения и кадрового обеспечения и др. Разработаны стратегические направления, цели и задачи развития гольфа в Украине на период до 2030 г. ***Выводы.*** Обоснованная стратегия развития гольфа в Украине позволит достойно представлять страну в мировом спортивном сообществе, популяризировать гольф как вид активного отдыха в системе здорового образа жизни граждан и способствовать консолидации нации.

Ключевые слова: гольф, управление гольфом в мире и в Украине, тренды развития, проблемы, стратегия, перспективы.

Introduction. Golf in Ukraine is an integral part of the nationwide system of physical culture and sport and is focused on health improvement, development of physical, moral, volitional, and intellectual abilities of individuals through their involvement in golf competitions [1]. Golf is an important means of promoting people's social and labour activity, satisfying their moral, aesthetic and creative incentives, vital needs for mutual communication, development of friendly relationships between people [3].

The inclusion of golf in the Olympic sports, as well as the process of its globalisation, commercialisation (producers of goods and services interested in its development) and professionalisation determine the prospects for the development of this sport within the national and international framework [2; 6].

Despite Ukraine population's interest in golfing, positive development of golf in recent years, there is a number of problems connected with the development of golf in the country [7]. At the current stage, there is no coherent understanding of the historical, organisational, managerial, and methodological foundations of golf development, taking into account modern factors influencing its further development in the international sports movement.

The purpose of this work is to carry out comprehensive analysis of the golf development in the world and in Ukraine, outline the main problems and determine the prospects for its modern development.

Research methods and organisation. The following methods were used in the work: analysis of special scientific-methodical literature, official legal documents, surveys, data analysis of the Internet, SWOT-analysis, comparison, generalisation.

Research results and their discussion. Golf has a long tradition. In its modern classical version, it was formed in Scotland in the nineteenth century [3]. In 2016, this type of games returned to the Olympic Games (it was first included in these games in 1900 and 1904). Apart from being the sport of higher performance, golf is widely used for active recreation of various groups of population [4].

Golf went through the long way of development, in the process of which several varieties formed: golf, pitch-and-patt, and mini golf. The launch of golf and its dissemination in different countries shows the interest of different people in the development of golf and its orientation toward the system of Olympic and professional sport, raising the development and improvement of the entire golf system to a new level [13].

Golf appeared in Ukraine in 1913, and the present stage of development of Ukrainian golf began in 1997. The development of golf encompasses three periods: the first (1913) – the origination of golf in Ukraine; the second (1997–2008) – the emergence of golf in independent Ukraine, infrastructure development, management structures creation; third (2009 till know) – entry into international golf organisations [4]. Based on foreign and domestic literary sources, regulatory documents analysis [5; 8; 9–11; 12, 15–19] of current world golf trends have been determined, such as:

- ✓ significant popularity growth and geographical dissemination of golf;
- ✓ remaining US leading positions in golf development;
- ✓ in Europe, golf system remains concentrated in the following proportion: 92 % of all professional players and 90 % of golf courses in ten countries, primarily in the UK (England, Scotland, Wales), Germany and France;
- ✓ dynamic development of golf in the countries of eastern Europe and the Balkan countries;
- ✓ increasing the number of international athletes in the arena of the countries having no appropriate previous traditions;
- ✓ development and implementation of national programmes and strategies for golf development and popularisation;
- ✓ existence of a unified system of competitions at the international level, combining professional and amateur trends;
- ✓ introduction of a unified world handicap system by 2020;
- ✓ standards unification for training and certification of trainers (instructors), judges, firemen;
- ✓ rapid progress of golf business-industry (golf clubs and golf courses, production and sales of clothing and sports equipment, sports sights production and trading, tourist services, information services for sports fans, earnings of professional players, cottage construction near golf course, fields, etc.);
- ✓ golf courses certification and golf club accreditation;
- ✓ opening of municipal state supported golf courses at central, regional, and local levels.

In Ukraine, golf has been actively developing since 1997. In the same year, the All-Ukrainian Golf Federation (hereinafter – AGF) was established, which according to the legislation of Ukraine enjoys a national status. The AGF is a member of the International Golf Federation (IGF), the European Golf Association (EGA) and closely cooperates with the international organisation The R & A. AGF is a member of the National Olympic Committee of Ukraine and the Sports Committee of Ukraine [14].

In 2018, there were 5 golf clubs in Kyiv and Kharkiv, 6 fields (2 for 9 holes, 4 for 18 holes). Five domestic golf courses have international certification. There are 3 golf simulators in Kyiv and 1 in Kharkiv. Specialised training platforms (driving-range) operate in Kyiv (2), Lviv (1) and Odessa (1). Approximately 700 people are engaged in golf, half of whom play at least one tournament during the year [14].

In 1999, the National Golf Team of Ukraine has started to participate in international competitions, in particular, since 2012 – in the most prestigious amateur tournament – World Amateur Team Championships (WATC) [4; 14].

Since 2011, the World Amateur Golf Ranking (WAGR) has been sponsored by Ukraine. The first WAGR tournament in our country was the Ukrainian Ladies Open Amateur Championship 2011. There were already 14 WAGR competitions and 8 Ukrainian players ranked WAGR by 2014 [18].

After stricter WAGR rating rules aquisition was introduced, Ukraine did not have any players in this ranking. Only in 2018, a national team member Ivan Malovichko fulfilled new conditions of WAGR and entered the corresponding rating system. However, Ukrainian athletes do not rank among the best players in the world: male OWGR (Official World Golf Ranking) and female Rolex Ranking [14].

In 2015, the Unified Handicap Index System (Datagolf) was introduced in Ukraine. National sports golf rating records of Ukrainian players have been kept since then [14].

In 2017, the Ukrainian Professional Golf Association was set up and the Ukrainian Paralympic Golf Course was launched.

There are 15–20 professional trainers of different levels and qualifications; There is 1 judge of international category, 1 judge of national category, 4 judges of the first category, 10 junior judges [14].

Further development of golf in Ukraine is complicated by a number of modern challenges:

- ✓ imperfection of the legislative provision of sports development and promotion of the activities of domestic golf system subjects;
- ✓ instability of the social and economic environment;
- ✓ tense demographic situation in the state;
- ✓ strengthening share reduction trend of state budget sports allocations, in particular, limited financial resources for golf development in the country;
- ✓ low motivation level of different population groups for golfing in the country;
- ✓ lack of golf courses at children's and youth sports schools;
- ✓ backlog of material and technical base level of golf development from that of the countries developing golf;
- ✓ imperfect regulatory and organisational provision of golf;
- ✓ incompatibility with modern requirements for scientific and methodological support of golf development;
- ✓ lack of staff.

The challenges overleaf are inner and systematic and require that the actions of state authorities, public and private structures should be coordinated and based on the vision and mission of golf system in Ukraine in the long-term perspective, as well as the implementation of strategic directions, goals and objectives for further development of this sport.

Strategic directions, goals and objectives of further development of golf in Ukraine are developed on the basis of the Law of Ukraine «On Physical Culture and Sport» and other legislative acts of Ukraine [2], the synthesis of thematic research results, advanced foreign and domestic work experience, the Strategic Plan of the IGF for 2017–2020 [17], SWOT-analysis of corresponding social system functioning, suggestions of experts and the public.

The golf system vision of Ukraine is to ensure decent representation of the state in the world sports community, golf popularisation as a leisure activity in the system of citizens' healthy lifestyle and promoting the nation's consolidation.

The golf system mission in Ukraine for the period until 2030 presupposes:

- ✓ ensuring the Olympic and Paralympic sports promotion in the community;
- ✓ increase of Ukraine's investment attractiveness;
- ✓ creation of conditions for domestic athletes' golf skills growth;
- ✓ involvement of pupils, students and other population groups in golf;
- ✓ strengthening the social institution of the family by means of active rest;
- ✓ use of golf for physical and psychological rehabilitation of the military and veterans of combat operations;
- ✓ promoting moral and ethical education, especially of children and young adults.

The mission will be realised on the basis of IGF values: integrity; solidarity; respect; perfection

In the course of research, strategic directions, goals and objectives of golf development in Ukraine for the period including 2030 were determined (Fig. 1).

The «Golf Accessible for All» Vector (Fig. 2).

Strategic Goal 1. Implementation of golf courses at educational institutions.

Objective: to introduce golf in educational process and extra-curricular work in physical education at educational institutions of all levels (development of methodological recommendations, material and technical support improvement, enhancement of the system of training and advanced training of teachers of physical culture for conducting lessons with golf elements, use effective means of motivation for schoolchildren and students to go to golf, conduct nationwide competitions for the best organisation of the relevant work, etc.); to organise cooperation between educational institutions in which golf and mini golf sections operate; to ensure the creation and operation of the Student Golf League of Ukraine.

Fig. 1. *Strategic directions of golf development in Ukraine*

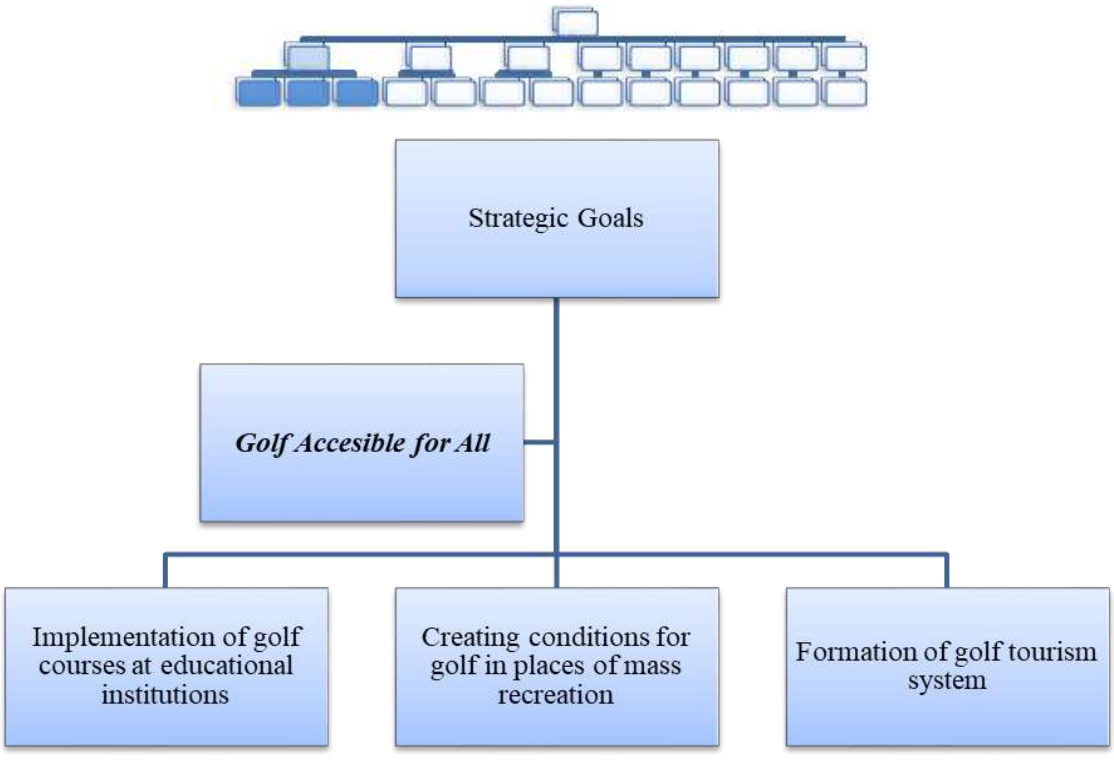

Fig. 2. *Strategic Goals for «Golf Accessible for All» Vector*

Strategic Goal 2. Creating conditions for golf in places of mass recreation of the population.

Objective: to conduct public sports activities with elements of golf as effective types of family activities in places of mass recreation of citizens; to create family golf courses; to develop and implement target programs for creation of children playgrounds and platform sports facilities for golf in recreational parks and active recreation areas; to create a system of mass sports events, holidays with golf elements among children, teenagers and young adults; to provide conditions for bringing children to short-term training on technical elements of golf based on the special project «Mass entertaining golf schools».

Strategic Goal 3. Formation of golf tourism system.

Objective: to organise excursions for pupils involving golf and mini golf competitions; to create favourable conditions on golf courses for tourists as spectators and/or participants in mass competitions; to promote the formation of tourist groups attending prestigious international golf competitions; to organise a golf courses tour throughout Ukraine.

The «Golf for Kids and Teenagers» Vector (Fig. 3)

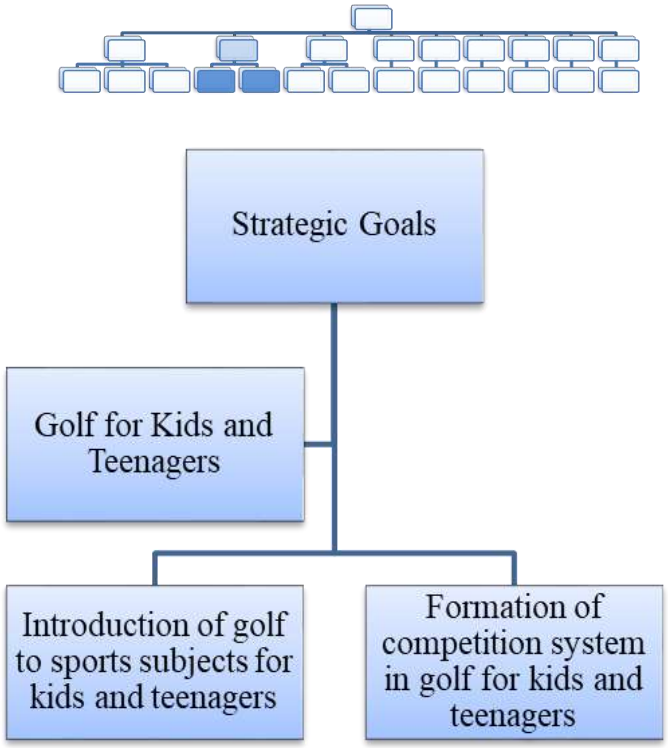

Fig. 3. *Strategic Goals for Kids and Teenagers Golf*

Strategic Goal 1. Introduction of golf to sports subjects for kids and teenagers.

Objective: to implement a training curriculum for kids and teenagers sports schools, specialised sports schools of the Olympic reserve for kids and teenagers, schools of higher sports skills and specialised schools with golf profile; to open golf departments in kids and teenagers sports schools and in other subjects of this sports kind; to create Golf Academy for young players based on leading golf clubs; to organise summer camps for best young golfers; to develop programs for the Olympic reserve golf preparation like «From the first ball hit to the sport of higher achievements»

Strategic Goal 2. Formation of the system of competitions in kids and teenagers golf.

Task: to organise all-Ukrainian multi-league golf competitions among young players; ensure participation in various international sports competitions of best young golfers; to launch and hold an international tournament for young golfers in Ukraine.

The «Golf as a Higher Achievements Sport» Vector (Fig. 4)

Strategic Goal 1. Ensuring the development of golf infrastructure as a sport of higher achievement.

Objective: to promote the formation of a system of golf clubs of various forms of ownership; to create a center for the preparation of national gold teams Ukraine; to ensure the functioning of the national golf team of Ukraine.

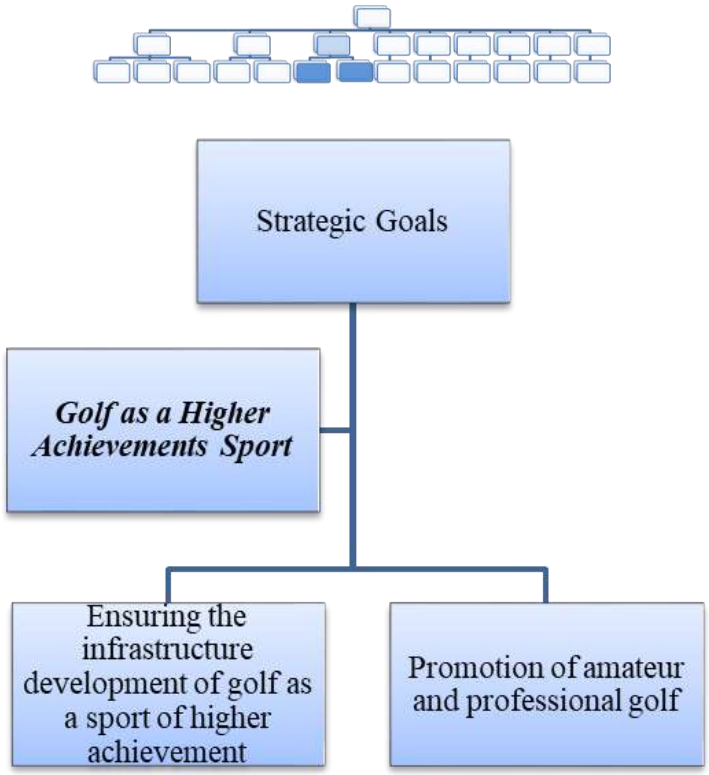

Fig. 4. Strategic goals of the *«Golf as a Higher Achievements Sports»* Vector

Strategic Goal 2. Promotion of amateur and professional golf.

Objective: To stimulate tournament clubs among golf fans and launching a respective national tournament; to create a competitive system of competitions for professional golf players in Ukraine in accordance with international standards and rules; to register Ukrainian golf professionals, their certification and assignment of the corresponding categories; conducting the official sports rating of Ukrainian golf professionals; to support Ukrainian players participating in prestigious international competitions of amateurs and golf professionals; to assist leading Ukrainian golfers in attracting sponsors and investors from commercial amateur and professional golf projects; to implement a range of activities for Ukrainian athletes' participation in the Olympics and Paralympic Golf Games.

The «Golf in the system of physical culture and sports rehabilitation» Vector (Fig. 5).

Strategic Goal 1. Introduction of golf elements in the system of physical culture and sports rehabilitation of people with disabilities.

Objective: to implement social programmes using golf elements in physical culture and sports rehabilitation of adults with disabilities, children with disabilities in order to improve their physical and psychological state; to ensure the availability of golf (mini-golf) training for physical education and sports rehabilitation of the military and battle veterans; to provide unhindered access to barrier-free golf courses for adults and children with disabilities.

The «Promotion and information provision of golf» Vector (Fig. 5).

Strategic Goal 1. Formation of the information environment for golf promotion.

Objective: to introduce social advertising on the benefits of golf for the formation of a citizens' healthy lifestyle in the media, primarily on television, as well as educational programmes for people of all ages in relation to golf during lifetime and overcoming the state of social indifference; to provide coverage of sporting events from golf in the media and social networks; to integrate existing resources and create new

informational ones to ensure the exchange and dissemination of golf information; to launch the publication of the periodical – the «Golf of Ukraine» magazine ; to create a golf league of journalists in Ukraine.

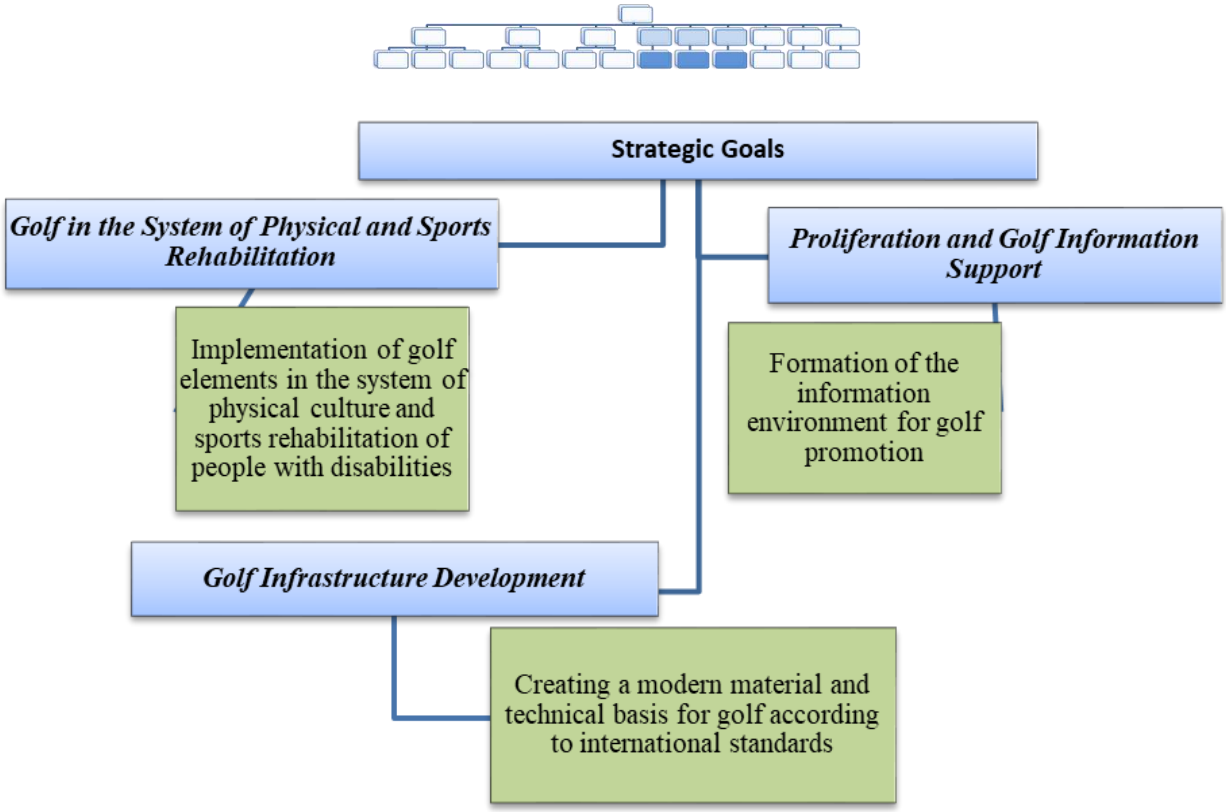

Fig. 5. *Strategic Goals of the Vectors: Golf in the System of Physical and Sports Rehabilitation, Proliferation and Golf Information Support, Golf Infrastructure Development*

The «Development of golf infrastructure» Vector (Fig. 5).

Strategic Goal 1. Creating modern material and technical basis for golf in accordance with international standards.

Task: to prepare and make changes and official additions to the legislation to create a favourable legal development platform for the domestic golf infrastructure; further development of golf infrastructure through construction of modern golf courses and their certification amendments for sporting events of various levels; to accept and financially provide a long-term plan for building for 9- and 18-hole golf courses of different types and classes, shortened golf courses, mini golf courses; improvement of urban planning in terms of creating golfing and mini-golfing places; to create a network of golf simulators on various sports locations of Ukraine.

The «Scientific and Methodological Support of Golf» Vector (Fig. 6).

Strategic Goal 1. Introduction of innovative approaches to scientific and methodological support of golf development.

Objective: to develop scientific support programmes for training the leading domestic golfers and national teams of Ukraine; to organise scientific research and implementation of their results into practice of golf clubs and other sports objects; to provide prevention of injuries and illnesses of golfers in the process of sports activities, as well as prevent the use of illicit substances and methods, etc; to use innovative technologies for the mobilisation of functional and mental reserves to increase the efficiency of training and competitive activities of golfers; to carry out preparation and publication of methodical and scientific publications, textbooks, manuals, videos, audio products for trainers, judges, athletes; to ensure participation in international conferences and seminars devoted to actual issues of golf development.

The «Golf Staff» Vector (Fig. 6).

Strategic Goal 1. Improvement of the staff system for golf development.

Objective: to determine the need for different golf courses and to adopt a long-term plan for golf development staff; to establish training golf coaches in leading specialised institutions of higher education; to arrange the work of the School of Golf Judges; to assist domestic judges in obtaining licenses from international golf organisations; to provide training domestic golf care professionals and involvement of special golf equipment; to promote the professional growth of trainers and other golf specialists, to form a system of their certification; to develop a program of volunteer golf development for the organisation of recreational and sport activities.

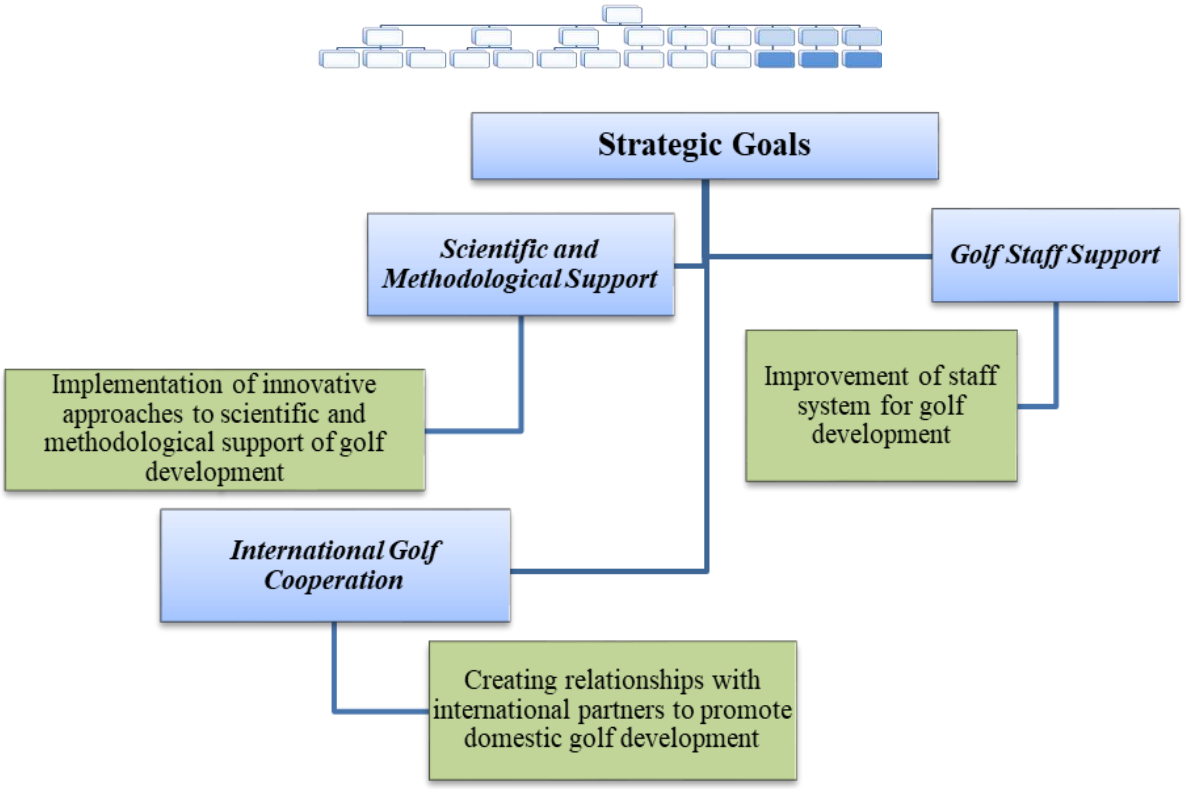

Fig. 6. *Strategic Goals of the Vectors: «Scientific and Methodological Support», «Golf Staff Support», «International Golf Cooperation»*

The «International Cooperation on Golf Development» Vector (Fig. 6).

Strategic Goal 1. Setting up relationships with international partners to promote domestic golf.

Objective: to maintain and develop business contacts with international golf organisations, national golf federations from other countries based on bilateral agreements and to establish cooperation with new international partners; to ensure the participation of trainers and other golfers in international bilateral and multilateral exchange programmes and internships; to expand the representation of Ukraine in international golf organisations; to ensure the participation of domestic scientists and experts in international forums, conferences and seminars on topical issues of golf development; to promote the participation of domestic golf clubs and other sports subjects in international golf supporting projects.

Conclusions and perspectives of further research. Realisation of strategic directions, goals and tasks for further golf development in Ukraine will allow:

✓ to coordinate the activities of subjects of various social-economic sectors to ensure the development of golf as an effective means of forming a healthy lifestyle and to establish the international authority of Ukraine in the global sports community;

✓ to increase the interest of different groups of the population in the use of golf (mini golf) as an effective type of recreational motion activity and involvement in a healthy lifestyle, the establishment of family values;

✓ to introduce lessons with golf elements in institutions of full secondary education in each region of Ukraine and to arrange the work of golf sections during extracurricular hours;

✓ to form the national system of golf tourism;

✓ to open golf departments in subjects of children and youth sports;

✓ to raise the level and prestige of all-Ukrainian golf competitions, the performance of the national golf team of Ukraine at international competitions, the use of performances of Ukrainian athletes as an effective means of patriotic education of our country's population;

✓ to introduce golf elements in the system of physical culture and sports rehabilitation of individuals with disabilities, military and veterans of battle operations;

✓ to popularise golf in society;

✓ to provide state support for the development of material and technical base of domestic golf and opening of 8 new golf courses for 18 holes;

✓ to increase the number of golfers training and taking part in competitions of different levels up to 21 thousand;

✓ to improve the training system for trainers and other golfers;

✓ to use the results of scientific research and innovative technology to ensure the development of golf;

✓ to expand international cooperation with the aim of domestic golf development.

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THEORETICAL GROUNDS OF FUTURE SPECIALISTS IN PHYSICAL EDUCATION AND SPORTS READINESS FORMATION FOR PROFESSIONAL ACTIVITIES

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Abstracts

Topicality. The need for a clear understanding and differentiation of key concepts and terms for the successful activities of future specialists in physical education and sports has caused the ***topicality*** of the paper. The ***purpose*** of the article was to determine the theoretical grounds for the training of future specialists in physical education and sport for professional activities. During the study, the following ***tasks*** were to be solved: to analyze scientific and methodological literature on the research problem; select and describe an array of basic terms related to the training of future specialists in physical education and sport for their professional activities. To achieve this purpose and to solve the research tasks, a set of research ***methods*** was used, in particular: theoretical analysis, synthesis, comparison, systematization and generalization. ***Results.*** Based on theoretical analysis and generalization of the data of encyclopedic, reference and psychological and pedagogical literature, the main concepts of the educational component of the training of future specialists in physical education and sport for professional activity have been described. In particular, the essence of the concepts of «higher education institution», «training», «professional training», «professional training of future specialists in physical education and sports», «professional readiness», «readiness for activity», «readiness of future specialists in physical education and sports to professional activity». We rely on the definition of key concepts integrated or suggested by other scholars. «Higher Physical Education» is a purposeful formation of knowledge, skills and abilities for the acquisition of social experience in achieving physical perfection. «Preparation» is a process that results in readiness. «Readiness» is considered as integrated quality of personality, characterizing its emotional, cognitive and volitional selective predictive mobilization at the moment of inclusion in the activity of a certain orientation. Under the notion «readiness of future specialists of physical education and sports for professional activity» we understood the complex of necessary knowledge and abilities formed as a result of general education and professional education, whose structural components are psychological, physical, theoretical and practical readiness.

Key words: physical culture, concept, readiness, professional training, professional activity.

Ольга Романчук, Мирослава Данилевич. Теоретичні основи формування готовності майбутніх фахівців із фізичного виховання та спорту до професійної діяльності. ***Актуальність*** роботи зумовлена потребою чіткого розуміння та диференціації ключових понять і термінів для успішної практичної діяльності майбутніх фахівців із фізичного виховання й спорту. ***Мета*** статті – визначити теоретичні основи підготовки майбутніх фахівців із фізичного виховання та спорту до професійної діяльності. У ході дослідження передбачено виконання таких ***завдань:*** проаналізувати науково-методичну літературу з проблеми дослідження; вибрати та описати масив базових термінів, пов'язаних із підготовкою майбутніх фахівців із фізичного виховання й спорту до професійної діяльності. Для досягнення поставленої мети та виконання завдань дослідження використано комплекс ***методів дослідження,*** зокрема теоретичний аналіз, синтез, порівняння, систематизацію й узагальнення. ***Результати.*** На основі теоретичного аналізу та узагальнення даних енциклопедичної, довідкової й психолого-педагогічної літератури схарактеризовано основні поняття освітянської складової частини підготовки майбутніх фахівців із фізичного виховання та спорту до професійної діяльності. Зокрема, визначено сутність понять «заклад вищої освіти», «підготовка», «професійна підготовка», «професійна підготовка майбутніх фахівців із фізичного виховання й спорту», «професійна готовність», «готовність до діяльності», «готовність майбутніх фахівців фізичного виховання та спорту до професійної діяльності». У роботі опираємося на інтегровані чи запропоновані іншими науковцями визначення ключових понять. «Вища фізкультурна освіта» – це цілеспрямоване формування знань, умінь і навичок для засвоєння соціального досвіду досягнення фізичної досконалості. «Підготовка» – це процес, результатом якого є готовність. «Готовність» розглядаємо як «цілісну інтегровану якість особистості, що

характеризує її емоційно-когнітивну та вольову вибіркову прогнозуючу мобілізаційність у момент уключення в діяльність певної спрямованості. Під поняттям «готовність майбутніх фахівців фізичного виховання та спорту до професійної діяльності» розуміємо комплекс необхідних знань, умінь і здібностей, сформованих у результаті виховання та професійної освіти, структурними компонентами якої виступає психологічна, фізична, теоретична та практична готовність.

Ключові слова: фізична культура, поняття, готовність, професійна підготовка, професійна діяльність.

Ольга Романчук, Мирослава Данилевич. Теоретические основы формирования готовности будущих специалистов по физическому воспитанию и спорту к профессиональной деятельности. ***Актуальность*** работы обусловлена необходимостью четкого понимания и дифференциации ключевых понятий и терминов для успешной практической деятельности будущих специалистов по физическому воспитанию и спорту. ***Цель*** статьи – определить теоретические основы подготовки будущих специалистов по физическому воспитанию и спорту к профессиональной деятельности. В ходе исследования предусматривалось решение следующих ***задач:*** проанализировать научно-методическую литературу по проблеме исследования; выбрать и описать массив базовых терминов, связанных с подготовкой будущих специалистов по физическому воспитанию и спорту к профессиональной деятельности. Для выполнения поставленной цели и решения задач исследования использовался комплекс ***методов исследования,*** в частности теоретический анализ, синтез, сравнение, систематизация и обобщение. ***Результаты.*** На основе теоретического анализа и обобщения данных энциклопедической, справочной и психолого-педагогической литературы дается характеристика основных понятий образовательной составляющей подготовки будущих специалистов по физическому воспитанию и спорту к профессиональной деятельности. В частности, определяется сущность понятий «учреждение высшего образования», «подготовка», «профессиональная подготовка», «профессиональная подготовка будущих специалистов по физической культуре и спорту», «профессиональная готовность», «готовность к деятельности», «готовность будущих специалистов физического воспитания и спорта к профессиональной деятельности». В работе используем интегрированные или предложенные другими учеными определения ключевых понятий. «Высшее физкультурное образование» – это целенаправленное формирование знаний, умений и навыков для усвоения социального опыта достижения физического совершенства. «Подготовка» – это процесс, результатом которого является готовность. «Готовность» рассматриваем как «целостное интегрированное качество личности, характеризующее ее эмоционально-когнитивную и волевую выборочную прогнозирующую мобилизациозность в момент включения в деятельность определенной направленности». Под понятием «готовность будущих специалистов по физическому воспитанию и спорту к профессиональной деятельности» понимаем комплекс необходимых знаний, умений и способностей, сформированных в результате воспитания и профессионального образования, структурными компонентами которой является психологическая, физическая, теоретическая и практическая готовность.

Ключевые слова: физическая культура, понятие, готовность, профессиональная подготовка, профессиональная деятельность.

Introduction. Education is a strategic resource of socio-economic, cultural and spiritual development of society. In accordance with the laws of Ukraine «On Education» (2017), «On Higher Education» (2014) and the National Strategy of the Development of Education in Ukraine for the period up to 2021 (2013), education is intended to improve the well-being of people, to protect national interests, to form a positive image of our country and create conditions for each person's self-realization.

Changes that are taking place in modern Ukrainian society require higher education institutions graduates to have a high level of readiness to carry out their professional activities in accordance with European standards of quality [5].

According to V. Martynenko, in present socio-economic situation, the role of higher physical education is increasing, which leads to actualization of not only traditional but also professional functions of the teacher (organization of the content and professional aspects of education and socio-cultural environment) [16, p. 56].

The professional activity of specialists in physical education and sport was explored in the works by many Ukrainian (M. V. Dutchak, L. I. Ivanova, R. P. Karpyuk, A. P. Konoh, E. N. Prystupa, N. I. Stepanchenko, L. P. Sushchenko, O. V. Tymoshenko, B. M. Shyian) and foreign scientists (A. Craft, A. J. Cropley, G. J. Hwang, H. F. Chang, K. Maršíková, G. Moodie and others).

In the system of physical education, according to G. Shamardina, the transition from the traditional experience (in the form of development of motor physical abilities, skills and qualities) to the realization, mastery and creation of man of various spiritual values of physical culture (culture of thinking, imagination, the feeling of artistic image, etc.) in relation to the development of the experience of physicality as the foundation of their own personality culture, which is characterized by conscious activity [26, p. 102].

The need for awareness of the integral process of professional training of specialists in physical education and sport, its main contradictions and their causes requires understanding the accumulated experience in the context of its progressive tendencies, national peculiarities and essential laws [27].

According to N. I. Stepanchenko, «the successful solution of the new tasks facing the higher education of the physical education profile depends on the readiness and ability of teachers to make the transition to the new pedagogical thinking, the essence of which is to perceive learning as the process of professional development of the student's personality» [25 , p. 443].

The purpose of the study is to determine the theoretical basis for the training of future specialists in physical education and sport for professional activities.

Achieving the goal involves solving the following tasks:

1. To analyze the scientific and methodological literature on the research problem.

2. To select and describe an array of basic terms related to the training of future specialists in physical education and sports for professional activities.

Material and methods. To accomplish this goal and to solve the research tasks, a whole range of research methods was used, in particular: theoretical analysis, synthesis, comparison, systematization and generalization.

Results of the research and their discussion. To find out the theoretical foundations for the training of future specialists in physical education and sports in professional activity, we have analyzed the interpretation of key notions of research, which include «institution of higher education», «higher physical education», «training», «vocational training», «readiness», «professional readiness», «readiness for activity», «readiness for professional activity», «readiness of future specialists in physical education and sports for professional activity».

In Article 1 of the Law of Ukraine «On Higher Education» (2014) the term «institution of higher education» is interpreted as «a separate type of institution that is a legal entity of private or public law, acts in accordance with a license issued for conducting educational activities at certain levels of higher education, conducts scientific, scientific and technical, innovative and/or methodical activities, provides the organization of the educational process and education of postgraduate higher education taking into account their vocations, interests and abilities.»

N. V. Makovetska interprets the term «higher physical education» as «the purposeful formation of knowledge, skills and abilities for the acquisition of social experience to achieve physical perfection» [15, p. 119].

Let's explain the essence of the notions of «training» and «professional training».

In the «Great Explanatory Dictionary of Contemporary Ukrainian Language» the notion «preparation» is interpreted as «the stock of knowledge, skills, experience gained in the process of learning and practical activity» [1].

V. A. Semichenko in his works draws attention to the fact that the essence of the notion of «preparation» is revealed in its two meanings: 1) as learning, i.e. some specially organized process of formation of readiness to perform future tasks; 2) as readiness, i.e. the presence of the competence, knowledge, skills and abilities necessary for the successful implementation of a set of tasks [22].

In the study, we will use the notion of «preparation» in the interpretation provided by Yu. O. Lyannoy. The scientist points out that «the preparation is a process that results in readiness» [14, p. 38].

In the «Encyclopedia of Education», the term «professional training» is interpreted as a set of special knowledge, skills and abilities, qualities, work experience and norms of behaviour that ensure the possibility of successful work in the chosen profession [9, p. 390].

We have analyzed the encyclopedic and reference literature in order to determine the essence of the definition of «readiness».

For the correct interpretation of the notion of «readiness» we consider it necessary to consult, first of all, reference sources. Thus, in the «Great Explanatory Dictionary of Contemporary Ukrainian Language», edited by V. T. Busel, readiness is interpreted as «the state of the finished; a desire to do something» [1, p. 194]; in the «Modern Dictionary of the Ukrainian Language», edited by V. V. Dubichynsky, readiness is interpreted as «the desire to do something» [6, c. 210]; in the «Dictionary of Psychological-Pedagogical Notions and Terms», readiness is interpreted as a person's state, which allows to enter the professional environment successfully, develop rapidly in a professional manner [24, p. 20].

The further analysis of scientific psychological and pedagogical literature has shown that researchers interpret this notion ambiguously. For example, in native psychology, the term is used predominantly to refer to a conscious person's readiness to evaluate situations and behavior that are conditioned by previous experience. According to T. Zhvaniya, at the present stage of development of science the researchers formulated a number of stable definitions of «readiness», revealed its content, structure, main parameters and conditions influencing the dynamics, duration and stability of its manifestations [8].

There are many different interpretations of the notion. In particular, T. Gershkovych interprets «readiness» as an integrative subjective characteristic of adaptation, which includes individual characteristics of personality and peculiarities of constructing individual adaptation strategies [4]; M. I. Dyachenko and L. A. Kandybovych understand it as a purposeful manifestation of the personality, which includes beliefs, views, motives, feelings, volitional and intellectual qualities, knowledge, skills, skills, readiness for certain behaviour [7]; N. Paperna interprets it as a complex integral combination of the individual, which involves a positive direction of the individual to the activity ..., as well as the formation of communicative skills [20, p. 63–64].

According to D. Voronin, readiness is a selective prognostic activity of the person at the stage of his preparation for activity, which begins from the moment of determination of the goal on the basis of awareness of needs and motives and develops in accordance with the person-defined plan, settings, general patterns of further actions embodied in substantive actions and correspond to precisely defined means and methods of activity [3, p. 24].

I. O. Mashuk defines readiness as a «special mental condition, conditioned by a complex of objective and subjective factors, which is characterized by optimal mobilization of all body resources and is formed as a result of the combination of personality traits and due to the purposeful training of the individual» [18]. Under the combination of personal qualities, the scientist understands primarily professional qualities of the personality, including intellectual and volitional abilities; the presence of professional orientation, ambitions, motives, needs; awareness of goals; availability of professional knowledge, skills and abilities [18].

L. O. Matsuk interprets readiness as «the result of the activity of the higher pedagogical school of Ukraine as a kind of professional combination characterizing a new type of teacher's personality in a state of lawful country with the priorities of humanism and democracy» [17, p. 10–11].

The problem of readiness, according to M. Safina, researchers study from different points and, in this regard, emphasize certain characteristics due to the peculiarities of the aspect in the context of which this phenomenon is considered [21, p. 44]. In her opinion, most researchers define readiness as a quality or personality formation, which has a multicomponent structure [21, p. 44].

Summing up pedagogic and psychological research, N. Ye. Moiseyuk emphasizes that readiness is used in such meanings as: learning, readiness to perform future tasks; the presence of the competence, knowledge and skills necessary for the accomplishment of tasks [19, p. 367].

We are impressed with the notion of «readiness» in the interpretation by Z. N. Kurland. The scientist treats the notion of «readiness» as «an integrative quality of the personality that characterizes his emotional-cognitive and volitional selective predictive mobilization at the moment of inclusion in the activity of certain direction» [12, p. 225].

Scientists are considering different types of readiness (Fig. 1).

M. I. Dyachenko and L. A. Kandybovych use the term «professional readiness» to determine the long-term willingness of the individual to perform certain activities, the combination of which is socially typical for a certain group of society, united by belonging to a particular profession. The list of activities, the readiness for which determines professional readiness, is determined by the profile of the speciality [7, p. 16].

According to M. Ya. Vilensky and I. P. Obraztsov, professional readiness is a complex synthesis of closely interconnected components that characterize, first of all, motivational-value (personal) and executive (procedural) aspects of activity [2, p. 36].

In our study attention is paid as well to the definition of «readiness for a particular type of activity».

In the «Encyclopedia of Education», edited by V. G. Kremen, the notion of «readiness for activity» is considered as «the state of mobilization of psychological and psychophysiological systems of man, which ensure the performance of certain activities» [9, p. 137]. In psychology, there are several aspects of readiness for activity: operational, motivational, socio-psychological, psychophysiological. Each state of readiness for activity is determined by a combination of various factors that define different levels, aspects of readiness, depending on the content of the activity and the conditions for its implementation, the leading may become one of these aspects [9, p. 137].

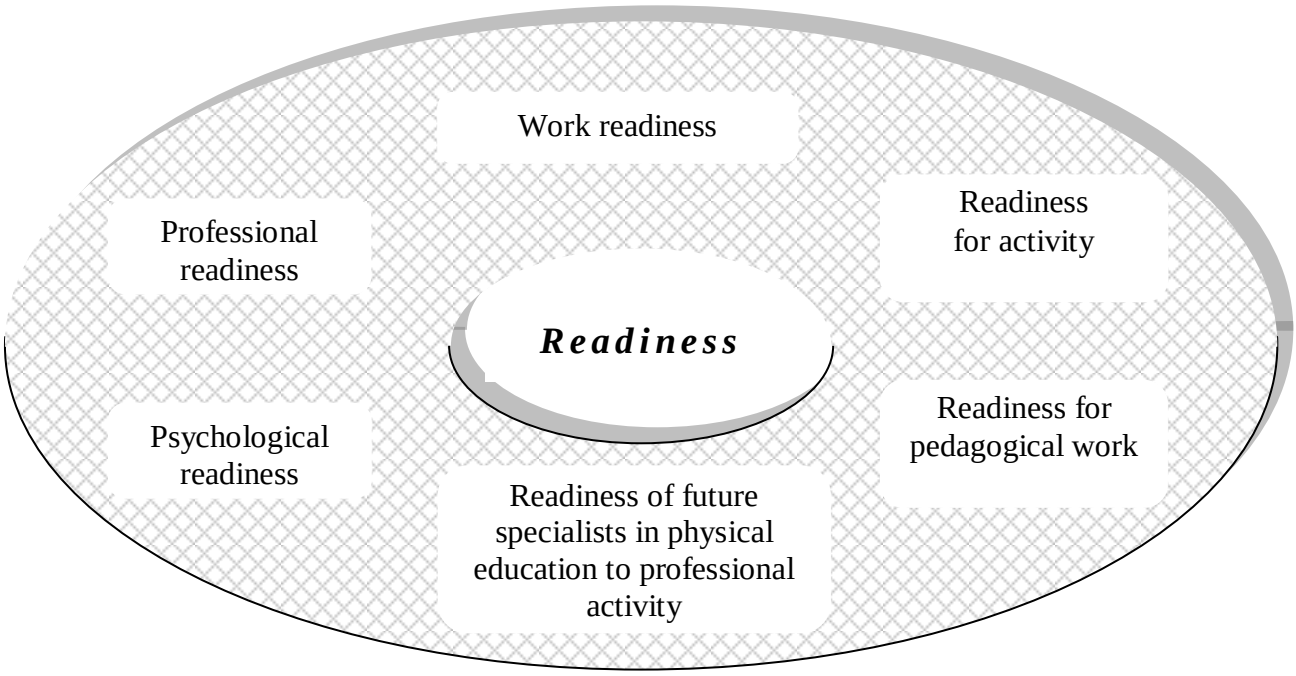

Fig. 1. *Readiness types*

In accordance with the content of the tasks performed by the individual, M. I. Dyachenko and L. A. Kandibovych determine the readiness for a particular type of activity as a purposeful and predetermined manifestation of the individual [7, p. 156]. They view this phenomenon from two positions: the mental state (temporary, or situational readiness) and personality characteristics (long-term, or general). Temporary readiness is the actualization, adaptation of all forces, creation of psychological opportunities for successful actions at the time following the one in which readiness is observed. Long-term readiness is a collection of acquired attitudes, knowledge, skills, abilities, experience, qualities and motives of activity [7, p. 156].

V. O. Slastyonin defines the notion of «readiness for activity» as the ability of a person to confidently and effectively perform a professional activity, which includes a variety of guidelines for understanding the problem, the model of probable behavior, the definition of special means of action, the assessment of their

capabilities in their relationship with difficulty and the need to achieve a certain result [23, p. 78]. We share this definition of the notion of «readiness for activity».

I. A. Kucheryavenko claims that the state of readiness for activity should be understood as a complex, purposeful manifestation of a person having a dynamic structure, between the components of which there are functional dependences [13, p. 61]. Man in the practical activity, trying to satisfy their own needs, on the basis of internal activity (biological, physiological and mental) realizes the goal and reaches the result [13, p. 61].

According to T. V. Zhvaniya, the willingness to carry out certain activities is formed in the process of performing this activity at the educational stage and is included to the structure of activity at the stage of its professional implementation in the form of a specific personality formation [8].

O. E. Kurlygina is convinced that readiness for professional activity is formed and supported in the process of professional training through the implementation of exercises, special tasks solving and other means, which ensure the attraction of knowledge, skills and experience to accumulate professional experience [11].

The opinion of M. Kulakova is interesting, who investigates readiness for professional activity from the point of managerial approach and emphasizes that such readiness is manifested in the forms of activity and allows to perform the corresponding typical tasks, to forecast the ways to increase productivity in the professional direction [10, p. 20].

In our scientific work we mean the «readiness of future specialists in physical education and sports for professional activity» to understand the complex of necessary knowledge, skills and abilities formed as a result of education and professional education, which structural components are psychological, physical, theoretical and practical readiness.

Conclusions. On the basis of theoretical analysis and generalization of the data of encyclopedic, reference and psychological and pedagogical literature, the main notions of the educational component of the training of future specialists in physical education and sport for professional activity are described. In particular, the essence of the notions of «higher education institution», «training», «vocational training», "professional training of future specialists in physical education and sport", «professional readiness», «readiness for activity», «readiness of future specialists in physical education and sports to professional activity». The emphasis is placed on the fact that vocational training is a system of training or the process of obtaining by a future specialist special knowledge, skills and abilities, personal and professional qualities.

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CHARACTERISTIC OF SOCIAL CONFLICTS IN THE FIELD OF PHYSICAL CULTURE AND SPORTS

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Abstracts

Relevance of the Research Topic. In any interpersonal relationships often arise conflict situations. The field of physical culture and sports is also no exception. In the conditions of intensive training and competitive activity, tension and conflict potential increase. This is due to the lack of psychological preparation of the individual for constructive interaction. In this regard, the importance of scientific research of social conflicts that arise in the field of physical culture and sports with the use of an integrated approach is actualized. **The purpose of the research is** to characterize the legal nature of social conflicts in the field of physical culture and sports. **Methods of research** – analysis and synthesis of literary sources; system analysis; math modeling. **Results of the Study.** Systematization of scientific studies of social conflicts in the field of physical culture and sports allowed to find out their temporal and spatial framework, to characterize the participants, subject, object, stage of development and types. The essence of social conflicts, which may or may not be legal in nature, is disclosed. The features of legal conflicts and their manifestation in the field of physical culture and sports are determined. A geometric model is constructed that characterizes the space of legal regulation of social conflicts. **Conclusions.** It is revealed that conflicts in the sphere of physical culture and sports are related to the social type of conflicts, which are characterized by frames, participants, object, object, stages of development and type. It has been established that in the real practice of development of the sphere of physical culture and sports there are various kinds of social conflicts that are of a legal nature. They are solved using legal means and may be subject to consideration by such legal institutions as, for example, sports arbitration. The constructed model reflects the space of legal regulation of social conflicts. It is formed on the basis of three component characteristics: «needs», «resolution possibilities» and «satisfaction measures». They form three twodimensional spaces, where the diagonals form a coordinate system.

Key words: social conflicts, the sphere of physical culture and sports, the space of legal regulation, the geometric model.

Марина Саннікова. Характеристика соціальних конфліктів у сфері фізичної культурита спорту. ***Актуальність теми дослідження.*** У будь-яких міжособистісних стосунках нерідко виникають конфліктні ситуації. Сфера фізичної культури та спорту також не є винятком. В умовах інтенсивної тренувальної й змагальної діяльності неминуче зростають напруженість і конфліктогенність, що зумовлено недостатньою психологічною підготовкою особистості до конструктивної взаємодії. У зв'язку з цим актуалізується значущість наукових досліджень соціальних конфліктів, які виникають у сфері фізичної культури та спорту із погляду комплексного підходу. ***Мета дослідження*** – охарактеризувати правову сутність соціальних конфліктів у сфері фізичної куль- тури та спорту. ***Методи дослідження*** – аналіз та узагальнення літературних джерел; системний аналіз; матема- тичне моделювання. ***Результати дослідження.*** Систематизація наукових досліджень соціальних конфліктів у сфері фізичної культури та спорту дала змогу з'ясувати їхні часові та просторові рамки, охарактеризувати учас- ників, предмет, об'єкт, стадії розвитку й типи. Розкрито сутність соціальних конфліктів, які можуть мати або не мати юридичний характер. Визначено особливості юридичних конфліктів і їх прояв у сфері фізичної культури та спорту. Побудовано геометричну модель, яка характеризує простір правового регулювання соціальних конфліктів. ***Висновки.*** Виявлено, що конфлікти у сфері фізичної культури й спорту належать до соціального типу конфліктів, які характеризуються рамками, учасниками, предметом, об'єктом, стадіями розвитку та типом. З'ясовано, що в реальній практиці розвитку сфери фізичної культури й спорту простежуємо різні соціальні конфлікти, які мають юридичний характер, а отже, вирішуються з використанням дозволених юридичних засобів та можуть стати предметом розгляду таких юридичних інститутів як, наприклад, спортивний арбітраж. Побудована модель відображає простір правового регулювання соціальних конфліктів, сформована на підставі трьох складників характеристик: «потреби», «можливості розв'язання» й «міри задоволеності», що утворюють три двомірні простори, де діагоналі утворюють систему координат.

Ключові слова: соціальні конфлікти, сфера фізичної культури та спорту, простір правового регулювання, геометрична модель.

Марина Санникова. Характеристика социальных конфликтов в сфере физической культуры и спорта. ***Актуальность темы исследования.*** В любых межличностных отношениях нередко возникают конфликтные ситуации. Сфера физической культуры и спорта также не является исключением. В условиях интенсивной тренировочной и соревновательной деятельности неизбежно растут напряженность и конфликтогенность, что обусловлено недостаточной психологической подготовкой личности к конструктивному взаимодействию. В связи с этим актуализируется значимость научных исследований социальных конфликтов, которые возникают в сфере физической культуры и спорта с точки зрения комплексного подхода. ***Цель исследования*** – охарактеризовать правовую сущность социальных конфликтов в сфере физической культуры и спорта. ***Методы исследования*** – анализ и обобщение литературных источников; системный анализ; математическое моделирование. ***Результаты исследования.*** Систематизация научных исследований социальных конфликтов в сфере физической культуры и спорта позволила выяснить их временные и пространственные рамки, охарактеризовать участников, предмет, объект, стадии развития и типы. Раскрывается сущность социальных конфликтов, которые могут иметь или не иметь юридический характер. Определяются особенности юридических конфликтов и их проявление в сфере физической культуры и спорта. Построена геометрическая модель, которая характеризует пространство правового регулирования социальных конфликтов. ***Выводы.*** Выявлено, что конфликты в сфере физической культуры и спорта относятся к социальному типу конфликтов, которые характеризуются рамками, участниками, предметом, объектом, стадиями развития и типом. Установлено, что в реальной практике развития сферы физической культуры и спорта наблюдаются различного рода социальные конфликты, которые имеют юридический характер, а следовательно, решаются с использованием разрешенных юридических средств и могут стать предметом рассмотрения таких юридических институтов как, например, спортивный арбитраж. Построенная модель отражает пространство правового регулирования социальных конфликтов, сформированная на основании трех составляющих характеристик: «потребности», «возможности разрешения» и «меры удовлетворенности», образующие три двухмерные пространства, где диагонали образуют систему координат.

Ключевые слова: социальные конфликты, сфера физической культуры и спорта, пространство правового регулирования, геометрическая модель.

Introduction. Unfortunately conflicts are a reality of everyday life, particularly in the sphere of physical culture and sports. Social conflicts have always been of interest to politicians, economists, lawyers and other professionals. In the mid-90s of the 20th c., an independent complex science called «conflictology» was created. [3].

Conflictology, like any other science, has a close interdisciplinary cooperation with sociology and social psychology, pedagogy, history, political science, economics, etc. However, one of the most important crossdiscipline is legal science, since many social conflicts are either generated by legal situations or proceed in legal relations. This fact has caused the emergence of the discipline, called legal conflictology. Its subject ranges over the arising, developing and resolution of conflicts within the framework of either internal (national) or international law [5].

Legal conflictology is related to conflict resolution issues which arise in the sphere of physical culture and sports. These conflicts have both: common features, characteristic of any social conflict, and specific features.

The analysis of recent research and publications has shown that the problems of social conflict in physical culture and sports are in the spotlight of professionals. In our opinion, their intensive study was conducted in the 80s of XX century [3; 9; 12]. At the same time, the need of practice in this period influenced the positions and priorities of researchers. As a result, the problem of social conflict in physical culture and sports was considered mostly in terms of psychology and pedagogy. Accordingly, social conflict in physical culture and sports was considered as either an interaction of conflicting parties, or as an interpersonal conflict or a problem of formal and informal leadership, social-psychological compatibility, etc. [1; 11; 13].

However, some social conflicts in the sphere of culture and sports cannot be considered, analyzed, and moreover, resolved only in terms of psychology and pedagogy.

The goal of the study is to characterize the legal nature of social conflicts in the sphere of physical culture and sports.

The objectives of the study: 1) to systematize contemporary scientific ideas concerning social conflicts in the sphere of physical culture and sports; 2) to construct a geometric model that characterizes the space of legal regulation of social conflicts.

The methods of the study: analysis and synthesis of literary sources; system analysis; mathematical modeling.

The results of the study. It has been revealed that the concept of «conflict» is interpreted by scientists ambiguously. In our opinion, the most successful is the interpretation of the social conflict in the scholarly works by V. V. Kuzin, M. E. Kutiepov, D. G. Kholodniak. They define social conflict as a process in which two (or more) individuals or groups are actively seeking to prevent each other from achieving a certain goal, keeping the opponent from satisfaction of his/her interests, or changing his/her views and social positions [12].

The research shows that social conflict is characterized by the framework, participants, subject, object, stages of development and types. V. Lukashuk [13] considers the spatial, temporal and intrasystem frameworks of social conflict. The analysis of participants in a social conflict can be carried out in terms of various sciences. In terms of psychology L. O. Kotlov considers a social conflict as interpersonal as its participants are always people: from two individuals to small formal or informal groups [10].

In terms of sociology I. Z. Tanchin describes social conflict as a conflict of social communities – social strata, classes, state and other organizations, mass movements, etc. [16]. A. Zalizko interpreted social conflict in terms of political science as political or geopolitical, that is, as a conflict at the state or interstate level [8].

The subject of the conflict is the main contradiction, because of which, and for the resolution of which, the subjects start a dispute: the problem of power, various values, formal and informal leadership, social and psychological compatibility, etc. [4]. In the work by S. I. Petrov we discover that the object of social conflict is always a resource, material or spiritual value, an element of the material world and social reality, which can be the subject of personal, group, social, state interests [15].

According to the authors [2; 3; 4], there are usually two main stages in the development of social conflict – latent (hidden) and open. The latent stage includes a number of steps: the emergence of a conflict situation; awareness of one's interests at least by one of the participants; awareness of the obstacles to the satisfaction of one's interests; awareness of one's interests and related obstacles by the other party; specific actions of one of the parties to defend their interests; negative response from one of the parties to the appeal of the other. The open stage is characterized by the presence and obviousness of conflict for all participants. At this stage the actions of the parties become external often involving media or third parties that may affect the conflict both in promoting its development and overcoming contradictions.

According to V. V. Kuzin, M. Ye. Kutiepov, D. G. Kholodniak, the main types of social conflicts include: global and regional; situational and positional; group and interpersonal; heated and slowly flowing; restorative, political, economic, domestic, cultural and social (in the narrow sense – in the sphere of labour, health care, social security, education, etc.) and others [12].

V. Lukashuk [13] distributes social conflicts on the following grounds: the number of participants, the degree of regulatedness, duration, resources, etc. Particularly, social conflicts in sports can be classified into conflicts in amateur sports and conflicts in professional sports, etc. The Olympic Games in 1980 and 1984 serve as an example of international, global, heated, political, long-lasting social conflict with a significant number of participants.

Some provisions, elaborated by domestic educators and psychologists, include consideration of some aspects relating to legal social conflict in physical culture and sports. Yu. A. Kolomeitsev singles out 10 main groups of reasons that can bring to a conflict in physical culture and sports. They include: the level of specific qualities; height and weight data of athletes; differences in psychophysiological characteristic properties; characterological constitution of athletes; personal traits of athletes; differences in the system of sport values and the means of their achievement, etc.; specificity of communication process, interpersonal contacts and communications; negative mental states; sports and production reasons; organizational and management reasons; domestic reasons [9].

According to the author the suggested classification is incomplete. However, it is important for us that some groups of reasons cause conflicts of legal nature. According to Yu. A. Kolomeitsev, they mostly include conflicts arising on the sports production, organizational, managerial and domestic grounds.

It's common knowledge that a social conflict may be either legal or not. According to A. Ya. Antsupov, A. I. Shypilov, a conflict is considered legal if a controversion is connected with legal relations of the parties (their legally relevant actions or states). Therefore the participants or the motivation of their behaviour, or the object of the conflict have legal characteristic features, and the conflict entails «legal consequences» [2].

As a matter of law, social conflicts are rather heterogeneous. In the legal sphere, social conflicts arise and develop in connection with existing contradictions between legal norms relating to the same subject. The

content and meaning of legal norms determine the actions of the conflicting parties in this case. Social conflicts of legal sphere acquire legal characteristics only in the process of their development. Social conflicts of a mixed nature include both legal and non-legal elements [13].

The legal nature of a social conflict depends on its participants – legal entities or natural persons. In case when the subjects are specific legal entities – the conflict always takes form of a legal nature. A natural person, as a subject of a conflict, becomes a participant of a civil, administrative process as a plaintiff, a respondent, an injured person, an accused person, a witness. On the other hand, in some cases, the legal aspect of the conflict is selective, that is, relating not to all individuals, but only to some. Moreover, the parties that confront may be unequal: a natural person may come into conflict with a legal entity and vice versa [6].

H. B. Vlasova claims that an important role in social conflict of a legal nature is performed by mediators and judges. Mediators try to prevent, stop, resolve the conflict, influencing over the conflicting parties with their authority or other means. They help the conflicting parties reach an agreement through negotiations, as they are not empowered to make any decision. Unlike mediators, judges must understand the causes and circumstances of the conflict and make their decision [5].

An important part in social conflicts of legal nature from the point of view of subject and object is occupied by irregular conflicts. Their main participant is a mediator, who is an expert in a certain area of law, able to clarify the situation and give necessary advice that eliminates the breeding ground for the emergence or development of the conflict. Irregular conflicts occur when the party believes that he or she is in legal relations with the other party, although in fact they do not exist; when the party does not realize that he or she is in legal relations with the other party; when the party believes that the other party acts illegally, while the actions of the adversary are legitimate; or when the party thinks the other party acting lawfully, which is not true [7].

The type of social conflict of legal nature is determined by: the branch of law to which the conflict refers (civil, administrative, labour, financial law, etc.); the nature of the legal norm relating to the conflict (which authorizes, obligates, prohibits the rules); type of enforcement institution (arbitration court, reference court, etc.), etc. [5].

According to the Constitution of Ukraine the resolution of a social conflict of legal nature rests with judiciary power, namely, the Constitutional Court, civil court, criminal court, administrative court etc. These are state legal authorities resolving social conflicts on the basis of formally regulated legal principles. However, there are social conflicts of legal nature, which are most effectively resolved by informal (quasi-legal) methods provided by informal arbitration courts or arbitral (informal) tribunal.

Some authors [12; 14] distinguish between several types of informal arbitration (arbitral tribunal). First, it is a binding arbitration, which considers disputes and makes a final decision, which is in force for the parties. Secondly, it is a non-binding arbitration, which considers disputes and renders a recommendatory award. Thirdly, it is a «flip-flop arbitration» (a type of binding arbitration), which considers the options offered to each of the parties to a dispute, and chooses one of them without making any changes. Fourthly, it is a limited arbitration (a type of binding arbitration), which acts in the course of a dispute within certain limits established by the parties before the consideration and disclosed to arbitrators.

In our study, we considered it expedient to present the space of legal regulation of social conflicts, using geometric representations as a more generalizing language for conveying necessary information about the nature of social conflicts. We proceeded from the fact that any social conflicts are based on «needs», «resolution capability» and «satisfaction measures». Each of the constituent characteristics is independent and, in combination of two, they generate three two-dimensional spaces (hereinafter, the unit square), in which the diagonals form a coordinate system unfolded at a 45 °degree angle. One of the diagonals is a scale measuring the degree of intensity of the corresponding generalizing characteristic, and the second reflects the variability of the value of the corresponding characteristic to the intensity on the first diagonal. For a complete understanding of legal regulation of behaviour, it is necessary to include the three independent characteristics. The full scope of legal regulation can be based on the «need», «solution capability» and «satisfaction measures», resulting in four scales – diagonals, one of which displays a generalizing characteristic of legal regulation, and the other –variability in value of the corresponding manifestation of this characteristic (Fig. 1.).

As we can see, the spaces of unit squares are divided into three zones, the distance of each one from the centre of coordinates is measured in sigma fractions. In the first zone of the functional optimum the borders

are located one sigma from the centre; in the second zone – the border is located two sigmas from the centre; in the third zone – the border is located three sigmas from the centre.

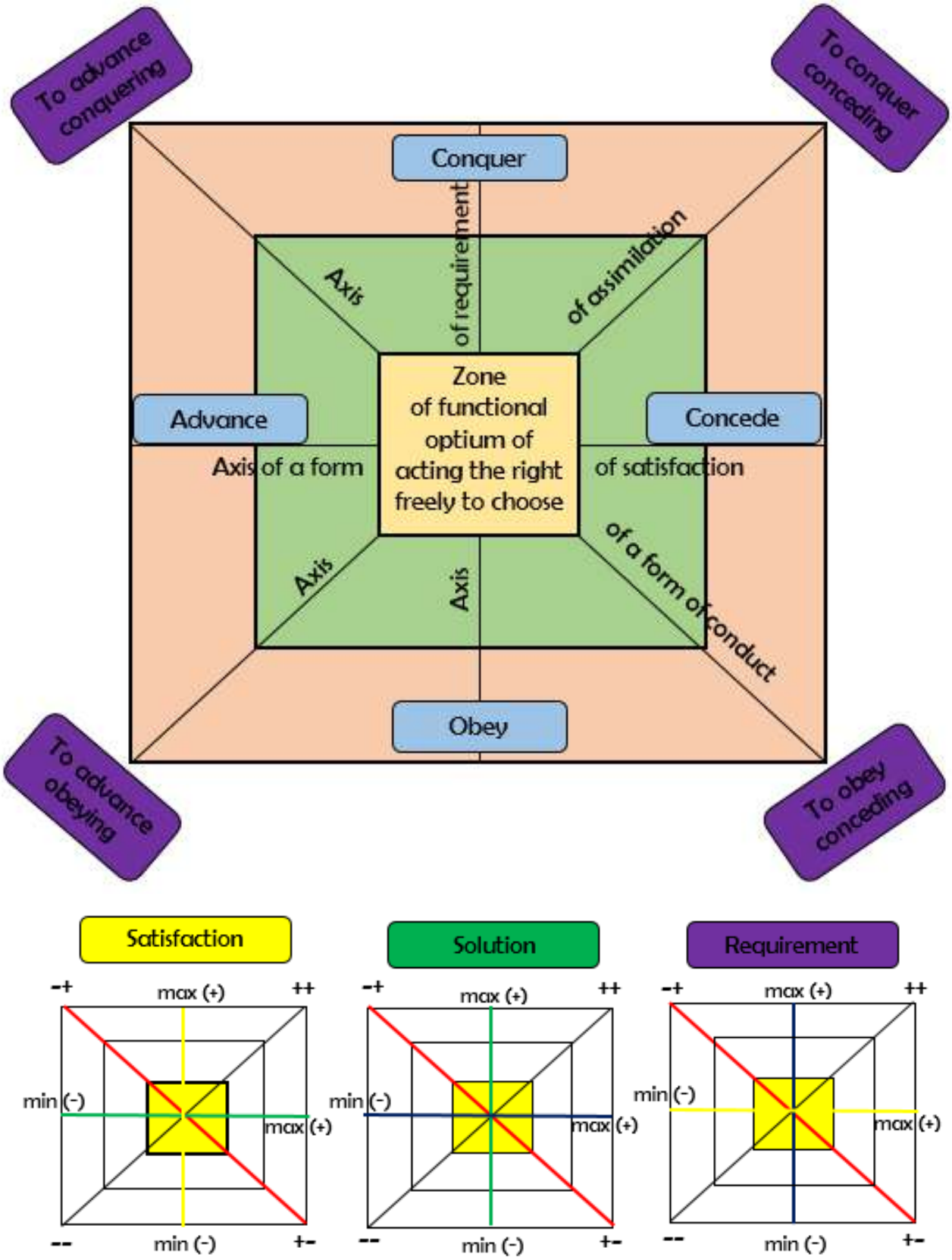

Figure 1. *The space of legal regulation of social conflicts*

In two unit squares, representing the areas of legal regulation of behaviour, the three formative characteristics are involved. The representation of the third area is inexpedient, since, firstly, it has a completely analogous construction, and secondly, it is based on the three independent formative characteristics already used and is a derivative of the space. The necessity of its usage is determined by the fact that the three unit squares representing the fields of legal regulation of behaviour, based on the combination of independent formative characteristics in pairs: «needs», «resolution capability» and «satisfaction measures» in organizing joint behaviour, present two options for constructing three-dimensional spaces for the full expression of various forms, the organization of interdependent relations, reflecting the nature of social conflicts.

Discussion. Sport represents an integral part of the life of the society. Therefore, both: common features, characteristic of any social conflict, as well as specific features are inherent to the conflicts that arise in this area. Like any other social conflict, conflicts in the sphere of physical culture and sport are characterized by certain spatial and temporal frameworks, participants, subject, object, stages of development and types [6; 13]. However, according to O. Zalizko [8], social conflicts in sports may have their own classification.

Until the present, social conflicts have been investigated in terms of various sciences. In terms of psychology – by L.O. Kotlova [10], in terms of sociology – by I. Z. Tanchin [16], Yu.O.Krohina [11], from the perspective of legal science – by G. B. Vlasova [5], M Sh. Gunybsky [7]. Scientific discussion on the issue of the investigation testifies that the study of the essence of social conflicts is a complex phenomenon of legal reality which requires further in-depth study.

Scientific interest in literature is also caused by conflicts and justice in sports. The notion and types of conflicts are considered by V. V. Galkin [6], O. Zalizko [8]. The legal characteristic and the system of sports arbitration courts (CAS – Court of Arbitration for Sport) in the international sports are considered by N. V. Miliakov [14], V. V. Kuzin, M. E. Kutiepov, D. G. Kholodniak [12], V. Lukashuk [13]. The resolution of interpersonal conflicts in a sports team was considered by N. I. Alekseieva [1], N. L. Holt, C. J. Knight & P. Zukiwski, [18], Kyle F. Paradis, Albert V. Carron & Luc J. Martin [19], S. Hamm-Kerwin & A. Doherty [17]. Conflicts in sports and socio-psychological training as a means of their resolving were studied by S. I. Petrov [15]. The results of our research supplement the results of scientific research, presented in the above-mentioned works on the characterization of social conflicts in sports.

Conclusions and directions for future research. It has been revealed that conflicts in physical culture and sports belong to social types of conflicts characterized by the framework, participants, subject, object, stages of development and type. It has been established that there are various kinds of social conflicts of a legal in nature in the real practice of development of the sphere of physical culture and sports. They are resolved with legal means and considered by such legal institutions as, for example, sports arbitration.

The constructed model reflects the space of legal regulation of social conflicts, based on the three component characteristics: «needs», «resolution capability» and «satisfaction measures». They form three two-dimensional spaces in which the diagonals make up a coordinate system.

Directions for future research are associated with the need to review the regulatory framework and experience of the International Court of Arbitration for Sport.

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FORMING HEALTH CULTURE AS A PART OF YOUTH EDUCATION

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Abstracts

Igor Sukhenko. ***Topicality.*** The formation of a health culture is a topic that requires a comprehensive in-depth study, in which scientists from many fields of science should take part. The health of the nation directly affects the working capacity and productivity of labor, the country's economy, the moral climate in society, the education of the younger generation, reflects the image and quality of life. ***The purpose of the research*** is to identify the conditions and factors, which are necessary for a health culture formation of younger generation. ***Research methods*** – analysis of sources, system-structural analysis. ***The Results of the Study.*** An important preventive factor in strengthening human health is a healthy lifestyle. It is argued that the formation of a culture of health for the younger generation should be a priority area in public policy. The practical side of providing health is the creation of the necessary economic, social and spiritual conditions. Health as a cognitive problem arises in connection with the need to bring into line previous preconceptions about human health with the current level of science and practice (i.e, on the new methodological, theoretical and empirical levels). In our opinion, the culture of personal health is a comprehensive program that functions on the basis of obtaining and understanding knowledge about heath, with the aim of improving the functioning of vital functions and the state of human organs, continuing its physical and creative longevity. The harmony of physical development, as a combination of morphological and functional characteristics, is one of the most important indicators of human health. ***Conclusions.*** The factors affecting the formation of a culture of youth health, namely: the environment, ecology and personality are considered. It is argued that the following forms contribute to the process of shaping a culture of youth health: the availability of a theoretical basis, a practical component, including illustrative example, self-improvement motivation, heredity and ecology. Present its own views of the forms and factors of forming a culture of health of young people.

Key words: physical education, valeology, healthy lifestyle, environment, life safety.

Ігор Сухенко. Формування культури здоров'я – необхідний компонент виховання молоді. ***Актуальність.*** Формування культури здоров'я – це тематика, що потребує комплексного глибокого дослідження, у якому повинні брати участь науковці з багатьох галузей науки. Здоров'я нації безпосередньо впливає на працездатність і продуктивність праці, економіку країни, моральний клімат у суспільстві, виховання молодого покоління, відображає образ і якість життя. ***Мета дослідження*** – виявити умови та фактори, необхідні для формування культури здоров'я підростаючого покоління. ***Методи дослідження*** – аналіз й узагальнення літературних джерел, системно-структурний аналіз. ***Результати роботи.*** Важливим профілактичним фактором у зміцненні здоров'я людини є здоровий спосіб життя. Стверджується, що формування культури здоров'я підростаючого покоління повинно бути пріоритетним напрямом у державній політиці. Практичною стороною забезпечення здоров'я є створення необхідних економічних, соціальних і духовних умов. Здоров'я як пізнавальна проблема постає у зв'язку з потребою привести у відповідність сформовані раніше уявлення про здоров'я людини із сучасним рівнем науки й практики (тобто на новому методологічному, теоретичному та емпіричному рівнях). На нашу думку, культура здоров'я особистості – це комплексна програма, яка функціонує на основі отримання й усвідомлення знань про здоров'я, із метою покращення роботи функцій життєдіяльності та стану органів людини, продовження його фізичного й творчого довголіття. Гармонійність фізичного розвитку як сукупність морфологічних і функціональних ознак є одним із найважливіших показників здоров'я людини. ***Висновки.*** Розглянуто фактори, які впливають на формування культури здоров'я молоді, а саме: середовища, екології та особистості. Стверджується, що на процес формування культури здоров'я молоді сприяють такі форми: наявність теоретичної бази, практична складова, уключаючи наочні приклади, мотивація самовдосконалення, спадковість й екологія. Наведено власне бачення форм і факторів формування культури здоров'я молоді.

Ключові слова: фізична культура, валеологія, здоровий спосіб життя, навколишнє середовище, безпека життєдіяльності.

Игорь Сухенко. Формирование культуры здоровья – необходимый компонент воспитания молодежи. ***Актуальность.*** Формирование культуры здоровья – это тема, которая требует комплексного глубокого исследо- вания с участием в нем ученых многих областей науки. Здоровье нации напрямую влияет на работоспособность и производительность труда, экономику страны, моральный климат в обществе, воспитание молодого поколения, отражает образ и качество жизни. ***Цель исследования*** – выявить условия и факторы, необходимые для формирования культуры здоровья подрастающего поколения. ***Методы исследования*** – анализ и обобщение литературных источников, системно-структурный анализ. ***Результаты работы.*** Важным профилактическим фактором в укреплении здоровья человека является здоровый образ жизни. Утверждается, что формирование культуры здоровья подрастающего поколения должно быть приоритетным направлением в государственной политике. Практической стороной обеспечения здоровья является создание необходимых экономических, социальных и духовных условий. Здоровье как познавательная проблема возникает в связи с необходимостью привести в соответствие сложившиеся ранее представления о здоровье человека с современным уровнем науки и практики (т.е. на новом методологическом, теоретическом и эмпирическом уровнях). По нашему мнению, культура здоровья личности – это комплексная программа, которая функционирует на основе получения и осознания знаний о здоровье с целью улучшения работы функций жизнедеятельности и состояния органов человека, продолжения его физического и творческого долголетия. Гармоничность физического развития как совокупность морфологических и функциональных признаков является одним из важнейших показателей здоровья человека. ***Выводы.*** Рассмотрены факторы, влияющие на формирование культуры здоровья молодежи, а именно: среды, экологии и личности. Утверждается, что процессу формирования культуры здоровья молодежи способствуют следующие формы: наличие теоретической базы, практическая составляющая, включая наглядные примеры, мотивация самосовершенствования, наследственность и экология. Наводятся собственные представления форм и факторов формирования культуры здоровья молодежи.

Ключевые слова: физическая культура, валеология, здоровый образ жизни, окружающая среда, безопасность жизнедеятельности.

Introduction. According to the Constitution of Ukraine, a person, their life and health are the highest social values of the state. A healthy child, a healthy teenager, a healthy young man is a complex state task. The problem of the health development of the younger generation appears to us as a medical, psychological and pedagogical one, because health is manifested at the physical, mental, spiritual, and moral levels [1]. It is necessary to realize that the health of young people is the main problem of our country, because all state potential – economic and creative, all prospects of social and economic development, defense, high standard of living, science, culture – can be provided by only due to the education of a healthy young generation. A person has the right to live a healthy and full life in harmony with nature. Implementation of this requires the change in value stereotypes, the humanization of society, the revitalization of social policy and the provision of social guarantees to the population. On this purpose it is necessary to educate the population, especially young people, and cultivate careful attitude to their health and health of others, to promote a healthy lifestyle, to intensify the control of smoking, drinking and fight against other harmful habits, to support the development of physical culture and sports, and hygiene services.

The current problem of modern life is the health preservation of the younger generation, the formation of their outlook aimed at its preservation, the acquisition of a healthy lifestyle and safe behavior skills, the creation of conditions for the harmonious development of the soul and body, that is, the conditions for mental health and work of youth in the future [2].

A number of researches are devoted to the development of a culture of health among the younger generation. The problems of the person have been studied by scholars (R. I. Ayzman, G. L. Apanasenko, O. A. Ahkverdova, I. I. Brekhman, S. Y. Lebedchenko, V. O. Magin, L. A. Popova, S. E. Tolmacheva etc.) [1; 3; 4; 5; 6; 7]. Among the schoolchildren, this issue has been solved by (V. M. Babych, V. P. Goraschuk, O. D. Dubohai, S. V. Kyrylenko, Y. Tsiupak etc.) [8; 9; 10; 11; 12], Scientists have offered models of health

culture development for a modern school. This problem has been discussed among students (E. N.Vainer, J. Buklov, N.N. Zavydivska, O.A. Ishchuk, A.V. Kabatska, A.P. Konokh, G. L. Kryvosheyeva, O. V. Kubovych, O. Mitchyk, L.S. Sokolenko, A.V. Tsos, S.M. Tsymbaliuk, etc.) [13; 14; 15; 16; 17; 18; 19; 20; 21; 22].

The purpose of the study is to identify the conditions and factors necessary for the development of the health culture of the younger generation.

Research methods. The following methods have been used in the research: the analysis and synthesis of literary sources in order to determine the state of the issue, to formulate understanding of the main factors necessary for the development of the health culture of the younger generation; the systemic and structural analysis as methodological means used to determine the factors affecting the health of the younger generation that arise in the system of «youth – living environment» or at the level of its element constituent, and their impact on the health culture and education of young people.

Research results. Philosophy considers the health problem as an urgent practical problem of society at the present stage of its development and highlights its practical and epistemological aspects. As for our society, the practical aspect of supporting health is the creation of the necessary economic, social and spiritual conditions.

Health as a cognitive problem arises in connection with the need to harmonize previously formed ideas about human health with the current level of science and practice (i.e. at the new methodological, theoretical and empirical levels) [23].

According to the World Health Organization (WHO), the term health is seen as a state of complete physical, spiritual and social well-being, and not just the absence of illness or physical defects. Specialists of the organization insist that the health of the population is determined mainly by four groups of factors:

- lifestyle (50 %);
- habitat (20 %);
- heredity (20 %);
- quality of health care (10 %).

Let’s try to consider some of these factors more specifically, and their impact on the youth health culture:

The factor of the environment in which a person lives is multi-component, it determines the way of life and hereditary trends of population. The state of the environment depends on human health. There are many examples of the dependence of the quality of health on the quality of the environment.

Anthropogenic impact on nature violates the dynamic balance, exceeds its restorative potential, which, in turn, causes irreversible changes in the natural environment and, as a consequence, affects humans adversely.

The factor of ecology with its adverse effect on human health, which is the development of non-specific changes in the metabolic and immune systems, and in mutagenic and carcinogenic effects, demands the improving of the environmental conditions for the development of a health culture. This is due to the low public awareness of the degree of danger to health, the presence of anthropogenic factors in the environment, and the almost complete insecurity of people living in adverse environmental conditions.

The factor of a personality in modern philosophical, sociological, psychological and pedagogical studies is considered as a special system of accumulation and generalization of individual experience, which dialectically includes all natural resources of man (temperament, ability, physiological features, etc.). These resources are reflected in life [16].

Along with the term «human health», in modern pedagogical research a concept of health culture has appeared. It is an important component of the general culture of a person, determining the formation, preservation and strengthening of the person’s health. A cultural person is not only a «consumer» of health,

but also its «producer». A high level of culture of human health implies the person's harmonious communication with nature and other people [9].

The phenomenon of health culture should be viewed as an integrative education of a personality, which is an expression of the harmony of wealth and integrity of the person, the universality of their relations with the surrounding world and people, as well as the ability for creative and active life [5].

In our opinion, the culture of a personality's health is a comprehensive program that functions on the basis of obtaining and realizing knowledge about health, in order to improve the functions of life and the state of human organs, the continuation of the person's physical and creative longevity.

The development of youth health culture gets basis on the knowledge and trends in valeology, pedagogy, psychology, sociology and other sciences.

The first knowledge about the formation of health culture a person receives in preschool age. This is the knowledge in the field of personal hygiene.

The formation of a culture of health at school age involves, first of all, mastering relevant knowledge on health issues by means of which a child develops a certain understanding of the importance of health in the life of every person, a responsible attitude towards its preservation, as well as knowledge of certain health-improving technologies and their application in practice, and maintaining a healthy lifestyle.

«A schoolchild's health culture is an integrated accomplishment of the personality which is manifested in the motivational, theoretical and practical preparation for the formation, preservation and strengthening of health in all its aspects (spiritual, mental and physical), and the understanding of health as a value» [8].

Students' youth in the process of acquiring systemic knowledge in the field of formation, preservation and strengthening of the culture of health acquire general competencies, such as:

- the ability to program recreational activities;
- the ability to organize and self-assess life;
- the ability to implement preventive measures of mental fatigue by keeping health hygiene;
- the ability to apply means of psychological self-regulation;
- the ability to assess the level of recreation culture;
- the ability to provide conditions for optimal intellectual work capacity;
- the ability to prevent (correct) harmful habits;
- the ability to find the optimal toughening up means for their physiological constitution in everyday life;
- the ability to model professional activity on the basis of health-saving technologies;
- the ability to model professional activities in the development and implementation of health practices [24].

The process of youth culture formation is facilitated by the following forms:

- availability of theoretical basis;
- practical component, including vivid examples;
- motivation for self-improvement;
- heredity;
- ecology.

The theoretical basis is provided by the pedagogical conditions of an educational institution, including the providing of knowledge in the field of valeological education: the use of a healthy lifestyle and health-saving technologies.

Practical knowledge of young people can be obtained by having classes in specialized sections, circles, and optional classes, with the help of trainers' guidance. A significant example of health culture is public events which involve prominent athletes and individuals in the field of physical education. For example, in our university there is a tradition of conducting the «Olympic» lesson, where the Olympic champions and prize-winners, prize-winners of European World Champions come to students. Three years

ago, in 2016, the Olympic medalist Iryna Yanovych, introduced the «Setting-up exercises with the Champions» among the youth. This event involves the participation of not only students but also schoolchildren.

The event takes place in a large square, and is conducted by highly qualified athletes, champions and prizewinners of various levels, and of various sports, with the participation of the journalists and television.

Motivational self-work is a way of self-improvement. Whatever level of knowledge a person receives, it needs to be increased and improved. Young people need to create targeted attitudes and motivations to strengthen their health and acquire relevant knowledge, competence, and skills.

Human heredity is characterized by a number of integrative biomedical indicators to which we refer: the level and harmony of physical and mental development, physical and mental performance, non-specific resistance, moral and volitional qualities.

The ecology in which a person acts is changing faster than human adaptability and has a negative effect on the process of the formation of a health culture. The ecology is one of the most important causes of mutations' accumulation in the body that affects the human genotype and health.

The development of a health culture of youth as the most active representatives of the future of the country can also be considered in the format of their physical, spiritual, mental and social development.

The physical component is characterized by the interdependence between physical development and the state of a person's health, the degree of self-regulation of organs and systems, the ability to adapt the body to the action of various factors and the availability of reserve capability of the body. The harmony of physical development, as a combination of morphological and functional characteristics, is one of the most important conditions for the formation of a culture of human health.

The spiritual world of the personality, the perception of the spiritual culture of mankind, consciousness of the man, the mentality, attitude to the meaning of life, to nature and society belong to the spiritual component of health.

Mental component is expressed by individual peculiarities of mental processes and human properties, the degree of regulation of emotional-volitional sphere, which provides adequate regulation of behavior. Favorable conditions for the formation of the psyche are in particular a special autogenic training and sport, which temper the will and at the same time reliably control one's emotions.

Social component is characterized by the degree of social adaptation of a man in society, the availability of prerequisites for its comprehensive and long-term activity. The development of social health is influenced by economic, political and legal factors.

Discussion. Based on the results of scientific research [9; 10; 12; 17] and our own conclusions, it has been determined that the improvement of health of the population of Ukraine depends largely on biomedical problems, but they now have to go to the background, and the social ones come to the first. The process of health culture formation has been analyzed in time, from the moment of birth, the basis of which falls into school age. The consolidation of the acquired knowledge, skills and habits for health culture formation takes place at the institutions of higher education.

In the process of health culture formation of youth the following means have been offered:

• the change of stereotypes, establishing of a new system of values, starting from preschool age, taking into account the intrinsic value of nature and man as a part of nature;

• the formation of an educated, creative personality, the formation of their physical and moral health, creation of state and public systems providing information necessary for environmental education and upbringing of the population;

• ecologization of the educational process, the upbringing from the first years of a humane, socially active person, able to understand and love nature, and to treat it carefully.

The given interpretation of the definition of a human health culture as a complex and multidimensional dynamic state which has been developing in the process of implementation of genetic

potential in a specific social environment coincides with the assertions of the authors [1; 3; 4; 5; 17; 25; 26] and has been supplemented with the aim of improving the functions of life and the state of human organs, the continuation of a person's physical and creative longevity, the health culture of youth, the development of methodical bases for their further realization.

Conclusions. The factors which influence the formation of health culture of youth, namely: environment, ecology and personality have been analyzed. The most important factor is the factor of personality, the basis of which has been formed at school age and has been fixed in the university.

The «culture of personality health» has been defined as a complex program that functions on the basis of obtaining and realizing knowledge about health, in order to improve the functions of life and the state of human organs, the continuation of a person's physical and creative longevity.

It has been argued that the following forms contribute to the process of the youth's health culture formation: the theoretical basis, the practical component, including visual examples, the motivation for self-improvement, heredity, and ecology. We believe that the promising direction of the health culture formation is the application of innovative methods. One of them is a vivid example: conducting the «Olympic lesson», «Setting-up exercises with the Champions».

The author has presented his vision of forms and factors of the health culture formation of youth. The health culture formation of youth as the most active representatives of the future of the country has been analyzed in the format of their physical, spiritual, mental and social development, which has allowed the author to determine their role in younger generation upbringing.

It has been proposed to explore methods for popularization of a healthy lifestyle and health-saving technologies among young people.

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THE METHOD OF FORMING A HEALTHY LIFESTYLE OF STUDENTS IN THE HEALTH FUNDAMENTALS LEARNING PROCESS

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Abstracts

Relevance of the Theme. Educational reform requires to introduce innovative teaching methods into pedagogical process that would stimulate and motivate students to personal development. The use of modern techniques in the health fundamentals learning process enables to create health preserving competence among students, increase their interest in heath preserving subjects and change their attitude towards their own health and the health of others. The method of forming a healthy lifestyle of students in the health fundamentals learning process is aimed at the acknowledgement and development of personal qualities, as well as the disclosure of the creative and physical potential of the individual. ***The objective of the work*** is to develop a method of forming a healthy lifestyle of students in the health fundamentals learning process. ***Methods.*** Analysis of scientific publications, interviews, questionnaires, pedagogical experiment. ***Results.*** The work explores and identifies the differences and features of applying the «healthy lifestyle» and «healthy way of life» categories. The author considers the purpose and tasks of the method of forming a healthy lifestyle of students in the health fundamentals learning process, as well as defines the methods of teaching, theoretical and methodological approaches to the formation of a healthy lifestyle, the results of the formation of the students' healthy lifestyle, and the criteria and indicators: motivational and value, cognitive-theoretical, operational- technological, reflexive-estimating. The method of forming a healthy lifestyle of students in the health fundamentals learning process in creases students' cognitive and creative activity, stimulates the development of physical, moral and intellectual potential, helps to identify individual typological features of the person and forms new behavioral skills. ***Conclusions.*** The implementation of this method can increase the students' interest in health problems, master the culture of health, realize the unique value of the very phenomenon of «health» and form their own healthy lifestyle.

Key words: individual typological features, health, personality, youth, educational process, behavior, techniques.

Марія Гончаренко, Тетяна Парфіненко. Методика формування здорового стилю життя студентів у процесі навчання основ здоров'я. ***Актуальність теми.*** Реформування системи освіти потребує впровадження інноваційних методів навчання в педагогічний процес, які б стимулювали й мотивували студентів до особистісного розвитку. Використання сучасних методик під час навчання основ здоров'я дає змогу сформувати здоров'язберігальні компетентності в студентів, підвищити інтерес до предметів здоров'язберігального спрямування та змінити їхнє ставлення до власного здоров'я й здоров'я навколишніх. Методика формування здорового способу життя студентів у процесі навчання основ здоров'я націлена на пізнання та розвиток особистісних якостей, а також на розкриття творчого та фізичного потенціалів особистості. ***Мета роботи*** – розробка методики формування здорового стилю життя сту- дентів у процесі навчання основ здоров'я. ***Методи*** – аналіз наукових публікацій, бесіда, анкетування***. Результати.*** У роботі експліковано та визначено відмінності й особливості застосування категорій «здоровий стиль життя» та «здоровий спосіб життя». Розглянуто мету й завдання методики формування здорового стилю життя студентів у процесі навчання основ здоров'я, визначено методи навчання, обґрунтовано теоретико-методологічні підходи до формування здорового стилю життя, установлено результати сформованості здорового стилю життя студентів

та уточнено критерії й показники: мотиваційно-ціннісний, когнітивно-теоретичний, операційно-технологічний, рефлексивно-оцінний. Методика формування здорового стилю життя студентів у процесі навчання основ здоров'я підвищує в студентів пізнавальну й творчу активність, стимулює розвиток фізичного, морального та інтелектуального потенціалів, допомагає визначити стильові особливості особистості й формує нові поведінкові навички. ***Висновки.*** Реалізація цієї методики сприяє зростанню зацікавленості студентів проблемами здоров'я, дає змогу оволодіти культурою здоров'я, усвідомити неповторну цінність самого феномену «здоров'я» та сформу- вати власний здоровий стильжиття.

Ключові слова: індивідуальні особливості, здоров'я, особистість, молодь, освітній процес, поведінка, методи.

Мария Гончаренко, Татьяна Парфиненко. Методика формирования здорового стиля жизни студентов в процессе обучения основам здоровья. ***Актуальность темы.*** Реформирование системы образования требует внедрения инновационных методов обучения в учебный процес, которые бы стимулировали и мотивировали студентов к личностному развитию. Использование современных методик при обучении основам здоровья позволяет сформировать здоровьясберегающие компетентности у студентов, повысить интерес к предметам здоровьясберегающего направления и изменить их отношение к собственному здоровью и здоровью окружающих. Методика формирования здорового стиля жизни студентов в процессе обучения основам здоровья нацелена на познание и развитие личностных качеств, а также на раскрытие творческого и физического потенциалов личности. ***Цель работы*** – разработка методики формирования здорового стиля жизни студентов в процессе обучения основам здоровья. ***Методы*** – анализ научных публикаций, беседа, анкетирование, педагогический эксперимент. ***Результаты.*** В работе эксплицируются и определяются различия и особенности применения категорий «здоровый образ жизни» и «здоровый стиль жизни». Рассматриваются цели и задачи, методика формирования здорового стиля жизни студентов в процессе обучения основам здоровья, определяються методы обучения, обосновываются теоретико-методологические подходы к формированию здорового стиля жизни, устанавливаются результаты сформированности здорового стиля жизни студентов и уточняются критерии и показатели: мотивационно-ценностный, когнитивно-теоретический, операционно-технологический, рефлексивно-оценочный. Методика формирования здорового стиля жизни студентов в процессе обучения основам здоровья повышает у студентов познавательную и творческую активность, стимулирует развитие физического, нравственного и интеллектуального потенциалов, помогает определить стилевые особенности личности и формирует новые поведенческие навыки. ***Выводы.*** Реализация данной методики способствует росту заинтересованности студентов проблемами здоровья, позволяет овладеть культурой здоровья, осознать неповторимую ценность самого феномена «здоровье» и сформировать собственный здоровый стиль жизни.

Ключевые слова: индивидуальные особенности, здоровье, личность, молодежь, образовательный процесс, поведение, методы.

Introduction. The main goals of the national strategy of the development of education are increasing the availability of high-quality, competitive education for Ukrainian citizens and ensuring the development of personality according to their individual desires, abilities and needs [4]. Achievement of the former is possible in the context of the modernization of educational institutions with a view to more efficient use of material, technical, human as well as financial and managerial resources. Implementation of the latter goal requires introducing innovative, modern pedagogical systems in the educational process [4]. Accordingly, the development of pedagogical science should be reflected in the content, methods, means and forms of learning. Such approach to the educational process allows not only to form a highly skilled specialist in a certain area of activity, but also helps to develop creative abilities of the individual, who will be ready for self-knowledge, self-realization, which is impossible without keeping and strengthening one's health.

During the years of independence of the Ukrainian state, a number of normative documents («On Higher Education», «National Doctrine of Education Development», etc.) and state programs have appeared, all of which emphasize the need for forming an educated, creative individual and promoting the development of their physical and moral health.

Thus, the main goal of the National Program «Health – 2020: Ukrainian Dimension» is preserving and strengthening health, preventing and reducing the indicators of morbidity, disability and mortality, improving the quality and effectiveness of health care provision, ensuring social justice and protecting the rights of citizens to health care [13]. One of the strategic objectives of the program is putting health care not only on state authorities, but also on a wide range of stakeholders, among which there are educational institutions.

According to the program it is advisable that a strategy on the formation of a conscious and responsible attitude of the population towards their own health and personal security should be worked out. All members

of the society must be involved and all possible measures must be taken to form a conscious attitude towards one's own health in the society and awareness of the need to preserve it and create conditions for a healthy lifestyle [13].

However, according to statistics and scientific studies, a rather tense situation on the health state of the population has emerged in Ukraine, it particularly concerns students, the future elite of the country. Over the last year, indicators of certain classes of diseases have significantly increased, namely, endocrine, nutritional, metabolic, musculoskeletal, and digestional disorders. A rather serious problem of obesity and excess body weight in adolescents and young people is still remaining [19, p. 6]. In most cases, the presence of these violations of health is due to the lack of rational nutrition, physical activity and healthy standards of behavior. At the same time, as the results of the questionnaires and interviews with students conducted by the Valeology Department of V. N. Karazin Kharkiv National University showed, the knowledge on preservation, prevention and health promotion is blurred and unconscious. In order to prevent further development of existing diseases and the emergence of new, non-infectious diseases, it is necessary that young people should be motivated to form their own healthy lifestyles by introducing modern information and communication technologies into the educational process.

During the period of study at higher educational institutions, students almost do not acquire knowledge and skills on prevention, preservation and strengthening their health. The knowledge obtained from the school subject «Fundamentals of Health» is aimed at mastering general knowledge on the basics of health, hygiene and safety and has a more theoretical than practical value and over the time is lost. Also, in most cases, this course does not have a continuation at higher educational institutions.

The disciplines concerning healthcare are selective and students do not always give them preference. Only several faculties include the discipline «Fundamentals of Health» in the curriculum. A compulsory subject for all educational specialities is «Physical Education», but it does not fully disclose the main methods and means of preserving and strengthening health and does not satisfy the need of society in the formation of a healthy , creative and fully developed person.

One way of solving this problem is the formation of healthy lifestyles of students in the process of studying the disciplines of healthcare direction, in particular «Fundamentals of Health». The course «Fundamentals of Health» as an educational discipline reveals a very important for the life of the students range of goals and objectives (educational, cultural, and recreational), and the forms and means of training are aimed not only at the effective solution to educational tasks, but also at the formation of a personality's healthy lifestyle and their adaptation to the environment. The introduction of modern teaching methods in the educational process will contribute to increasing the importance of and students' interest in health care. Taking the above mentioned into consideration, we find the working out methodology for forming students' healthy lifestyles in the process of teaching the fundamentals of health urgent.

The purpose of the study is to develop a methodology for forming students' healthy lifestyles in the process of teaching the fundamentals of health.

Material and methods of research. While doing the research we analyzed and generalized the data of special scientific and methodical literature on the personality development, the innovative teaching methods, the organization of educational process at higher educational institutions, and modern health-saving technologies. We analyzed statistical documentation and processed the Internet sources.

The study of scientific and pedagogical literature has proved the repeated coverage of the problems of forming healthy lifestyles of the students of higher educational institutions. In particular, they are reflected in the works of A. Alekseyenko, H. Apanasenko, O. Babak, V. Voitenko, M. Honcharenko, H. Kovhanych, V. Orzhehovska, N. Panin, O. Pylypenko, L. Sushchenko and others.

The theory and practice of teaching and educating adolescents for a healthy lifestyle was substantiated by classical educators such as Y. Komensky, P. Lesgaft, A. Makarenko, J. Pestalozzi, V. Sukhomlynsky and others.

At the present stage of the development of pedagogical science, scholars are actively exploring the effective methods, technologies and models of forming healthy lifestyles of students. These include V. Bespalko, O. Yezhova, V. Orzhehovska, I. Smolyakova, M. Smirnova and others.

Our review of publications has also proved that the subject of some scientists' research is children's and youth's healthy lifestyles and their formation at all levels of education. The problems of forming a healthy lifestyle as an individual model of a healthy lifestyle were considered by M. Vilensky, G. Zaitsev, V. Kolbanov and others. In the process of studying scientific literature it was clarified that health problems,

and especially students' health problems, not for once became the subject of many studies. But despite this, the issue of forming students' healthy lifestyles in the process of teaching the fundamentals of health remains inadequate.

Research results. In developing the methodology for forming healthy lifestyles of students in the process of teaching the fundamentals of health, such categories as «healthy way of life» and «healthy lifestyle» were specified.

M. Vilensky defines a healthy lifestyle as a reference model, a system of general conditions, principles, measures, a set of similar, but not identical, a product of collective creativity. At the level of an individual its realization is carried out in the form of a healthy lifestyle, a more varied, personality-correlated model [2]. Consequently, in this study, a healthy lifestyle will be considered as an individual request for health, a system of repetitive health practices in everyday behavior, based on spiritual and physical efforts, individual's creative thinking and a means of self-actualization and self-expression.

An important role in shaping students' healthy lifestyles in the process of teaching the fundamentals of health is given precisely to the methodology. The final result of forming students' healthy lifestyles in the process of teaching the fundamentals of health fully depends on the effective use of principles, methods and ways of teaching.

The term «methodology» comes from Greek μέθοδος and is understood as a way, method, recipe, algorithm to achieve a certain goal. In pedagogy, «methodology» has many interpretations, among the most common are: methodology is a combination of teaching methods or a science on teaching methods [11]. The methodology will also be defined as a branch of pedagogy, which examines the methods of teaching academic subjects, bringing somebody up [14]; a branch of pedagogical science, which studies the regularity of teaching a particular subject [10]; concrete implementation of the method [12]; description of specific techniques, methods, ways of pedagogical activity in certain educational processes [7]. In our research, we will use a more classical understanding of the category «methodology», namely: methodology is the teaching of a separate discipline (subject), the branch of pedagogical science, which is a separate theory of learning (private didactics).

Traditionally, the purpose and tasks of teaching methodology of any discipline consists in accumulating the amount of knowledge required for professional activity, which is monitored and evaluated in the learning process. In contrast, the methodology for forming a healthy lifestyle is focused not only on the knowledge, but primarily on the development of the individual, which helps them to creatively transform knowledge and use it in the process of their life activity.

While studying, students master theoretical material, perform test tasks, work independently, and get acquainted with health-saving techniques and diagnostics. With the help of the information received, students determine stylistic features (temperament, age differences, and biorhythmological type), individual needs, abilities and on this basis form their own healthy lifestyles. The methodology for forming a healthy lifestyle in the process of teaching the fundamentals of health allows students to simultaneously acquire theoretical knowledge, identify individual features and turn them into activities that will eventually become an integral part of life. The final indicators of the successful formation of healthy lifestyles of students are:

- the presence of a full-fledged life strategy, rather than short-term survival tactics in the person;
- perception of life in the unity of its past, present and future;
- rational distribution of the motor regime and the mode of work and rest;
- use of various activities: regular recreational activities, ability to productive communication, searching and creative activity;
- harmonious process of socialization and individualization, flexibility in behavior and communication, congruence; the priority of health and self-development values;
- emotional and psychological stability, internal locus control, spontaneity, optimism; the presence of a wide range of cultural contacts and an aesthetic ideal, the ability to withstand the manifestations of anti-culture, reasonable pursuit of fashion;
- high level of self-acceptance and self-esteem, sensitivity to oneself, ability to preserve its uniqueness and creatively implement it.

Implementation of the methodology for forming a healthy lifestyle involves a set of methods that are used in the educational process. Recently, active teaching methods have become popular with educators. The latter are increasingly turning to active forms of teaching that are aimed at increasing students' cognitive

activity, creative approach to solving life and professional problems, and stimulate the development of physical, moral and intellectual potential. The use of active teaching methods in the educational process was considered by A. Balayev, A. Voronova, P. Hrebeniuk, Yu. Yemelianov, G. Ibragimov, S. Petrushyn, V. Podynovsky, V. Platov, V. Rybalsky, A. Smolkin, V. Shyrshov and others.

By active methods of learning A. Smolkin understands the ways of intensifying students' educational and cognitive activity, which induce them to active mental and practical activity in the process of mastering the material, when not only the teacher, but also the student is active [14].

Active learning involves the use of the following methods: projects, simulation of professional situations, role and business games, arranging round table talks, etc. This technology allows directing the educational process at the personality of the student, their active participation in self-development, obtaining qualitative knowledge and professional skills, and creative solving of specific problems.

In the context of studying the methodology for forming students' healthy lifestyles in the process of teaching the fundamentals of health, the methods of active learning were used at different stages of the educational process:

- the first stage (adaptive) – the primary mastering of knowledge concerning a healthy lifestyle and acquaintance with methods of maintaining and promoting health during a problem lecture, heuristic conversation, and educational discussion;
- the second stage (formative) is characterized by the shaping of knowledge, skills and abilities to form their own healthy lifestyles using the lecture-discussion, lecture-conversation, project method, analysis of problematic situations, disputes, and making a schematic outline;
- the third stage (fixing) involves synthesis and systematization of the knowledge gained by the students and the practical consolidation of skills and habits of healthy lifestyles with the help of tests, drawing up their own healthy lifestyle program and its implementation.

The use of active teaching methods while forming healthy lifestyles of students in the process of teaching the fundamentals of health allows to develop their mental abilities, to expand and deepen their knowledge of a healthy lifestyle, to reveal their own individual peculiarities, to develop their practical skills and abilities that contribute to enhancing the educational process and encourage them to creative participation in it. Active teaching methods provide for the development and self-development of a student's personality based on the identification of their individual characteristics and also contribute to the development of their ability to reflect, which helps them to find an individual style of activity, allows them to achieve adequate self-esteem, predict and analyze the results of their activities, which significantly increases the level of their self-organization.

The following methodological approaches were used to create the proposed methodology: systemic, personality-oriented, and activity-oriented. Each of these approaches implies the creation of a health-preserving environment in the process of teaching the fundamentals of health. They have the following characteristics: motivation and aspiration of students for a healthy lifestyle, their creative orientation; methodical and informational support of teaching activities; effective pedagogical interaction between the teacher and the students.

These methodological approaches complement each other and do not contradict each other, providing an appropriate choice of research tactics, proper forms, methods and means of teaching and the content for forming healthy lifestyles of students in the process of teaching the fundamentals of health.

The effectiveness of the teaching methods of any academic discipline completely depends on the didactic principles. The didactic principles are fundamental ideas that permeate all levels and components of education and certify their system integrity [1].

In the context of the given research problem the following principles of teaching were highlighted: an individual approach, systematicity and consistency, activity, environmental compatibility, and the connection between learning and life. These teaching principles fully reflect the social mandate. They correspond to the state of general scientific research (in particular, psychology, philosophy, sociology and the content of some academic subjects) and are determined by practice and by the process of education and upbringing, which not only tries out one or another principle but also searches for new ones that will correspond to the present.

To test the results of the formation of healthy lifestyles of students in the process of teaching the fundamentals of health, the content of the academic discipline should correspond to the tasks that students are being prepared to solve. For this purpose, the goal of the academic discipline should combine the

following units: *motivational and goal-oriented, content-related and operational*, and *evaluative and effective*. This three-component structure of the teaching goal forms a closed cycle of the functioning of knowledge and skills, complements them, and contributes to the mastery of new skills, and the development of abilities.

In the process of developing a methodology for forming healthy lifestyles of students in the process of teaching the fundamentals of health the following components were outlined: cognitive, motivational and axiological, operational, and reflexive.

1. *The cognitive component* includes theoretical knowledge of students about health and healthy lifestyles.
2. *The motivational component* reflects the positive motivation and aspiration of students for forming healthy lifestyles and their need for achieving success in all spheres of life.
3. *The operational component* deals with the skills and ways of activity, which are reflected in behavioral styles, thinking, communication, and activities for the implementation of a healthy lifestyle.
4. *The reflexive component* is an emotional assessment of achievements, satisfaction, perseverance, independence, decisiveness, arbitrariness of actions in the organization of one's own life activity.

In order to determine the changes in attitude, values, understanding of health and readiness to produce a healthy lifestyle, which occurred during the implementation of the methodology for developing healthy lifestyles in students in the process of learning the fundamentals of health, the following criteria and indices were defined: *motivational and axiological* (students have a hierarchy of motives, attitudes, value orientations, life principles, standpoint), *cognitive and theoretical* (students have a system of knowledge and ideas about methods of action, forms and methods of organizing healthy life activity), *operational and technological* (students have the necessary skills for the implementation of health-preserving technologies through the working out of heuristic and problem situations that affect the development of creative thinking), *reflexive and evaluative* (students have self-assessment and self-control skills and are ready to implement healthy lifestyles). On their basis, the levels of formation of healthy lifestyles of students in the process of learning the fundamentals of health are specified, namely: *high*, *medium*, and *low*.

Discussion. The study of scientific and pedagogical literature has shown that the understanding of a healthy lifestyle is a relatively new and under-investigated problem. The notion of «healthy lifestyle» is more familiar and understandable in the educational environment. A healthy lifestyle is a component of a healthy way of life; often these notions are not differentiated and are treated as synonymous. However, according to M. Vilensky, these categories are similar, but not identical. He argues that the difference between a way of life and a lifestyle is in the amount of individual in them, and the distinction between the notions of «healthy way of life» and «healthy lifestyle» allows to bring into accordance the «norm» and «variability», «individuality» and «predetermined outcome», to define the border that separates what is reasonable, justified, appropriate for one person and at the same time not appropriate for another person [2].

«Personality» and «individuality» are the defining characteristics of a healthy lifestyle; this is emphasized in the works of B. Ananiev, M. Vilensky, L. Vygotsky, O. Leontiev, and V. Merlin. The formation of a healthy lifestyle is directly related to persistent individual-typological features (type of constitution, nervous regulation, character traits) and the level of dynamic, physiological, morphological and biochemical parameters of the body that are more variable [20; 16; 17]. Thus, under certain circumstances (environmental impact, physical activity, etc.) indices can change and become a stable characteristic feature of the individual [5].

The study of individual-typological features is mainly the subject of study of physical education, since muscular activity is the main form of active behavior of a person that provides their vital activity. Researchers believe that one and the same muscular activity can cause different adaptive reactions of organs and systems in individuals of different typological categories [8; 9; 18].

It is known that typological features correlate with the type of character and temperament that are inherited or acquired in the process of training and education. At the same time, morphological indices are combined not only with functional indices, but also with the type of character and temperament of a person.

The essence of the proposed methodology for the formation of healthy lifestyles of students is to study the individual differences and to form motives, interests, values, and character traits that would be reflected in actions, thinking and behavior. Mastering theoretical and practical knowledge in the process of learning the fundamentals of health allows students to choose their own healthy lifestyles.

The results of the pedagogical experiment confirmed the reasonability of developing a methodology for the formation of healthy lifestyles of students. In the course of the research, the ideas of M. Vilensky and S. Avchinnikova were confirmed. They argue that lifestyle emerges at the stage when a person attains certain identity and subjectivity and is able to choose a definite lifestyle. Studying personal characteristics of an individual, features of the nervous system, character traits, and temperament, a student becomes a builder of their own health program and, if necessary, can independently correlate it.

In the context of this study, Y. Yevseyev's opinion on the «unconscious choice» of a healthy lifestyle is controversial. The author argues that a healthy lifestyle is a motivated or unconscious choice of behavior depending on the natural environment, socio-economic conditions, gender, age, education, level of intellectual and physical development, and personal qualities of an individual who leads a healthy lifestyle [3]. It was experimentally proved that on the basis of systemic knowledge and practical skills a person makes the conscious choice of their behavior, taking into account their age, gender, level of physical development, etc.

Thus, a study into the methodology for the formation of healthy lifestyles has shown its effectiveness in practice. The main arguments concerning the necessity of forming healthy lifestyles of students in the process of teaching the fundamentals of health were confirmed.

Conclusions and prospects for further research. The methodology for forming healthy lifestyles of students in the process of teaching the fundamentals of health is a preferable combination of general didactic methods, techniques and means used in such forms of education as lectures, seminars, practical classes, students' independent work, and completion of individual tasks.

The academic discipline «Fundamentals of Health» refers to the disciplines of the elective unit and involves the availability of appropriate teaching and learning materials, namely: a curriculum of the discipline; a syllabus of the discipline; a study guide for practical classes; educational materials for students' independent work, and guidance materials for students' individual tasks.

The success of the methodology for forming healthy lifestyles of students in the process of teaching the fundamentals of health is revealed through the subject of study and its connection with other disciplines, such as psychology, sociology, physiology, and philosophy. An effective combination of theoretical and practical knowledge allows the students not only to «memorize» the information received, but to understand its practical significance, which is proved by their own experience. In the methodology for forming healthy lifestyles of students in the process of teaching the fundamentals of health, much of the time is given to tests and diagnostic tasks. With their help, students have an opportunity to identify stylistic features and, based on the results obtained, to design their own healthy lifestyles. The implementation of the methodology for forming healthy lifestyles of students in the process of teaching the fundamentals of health allows the students to increase their interest in health problems, to master the culture of health, to realize the unique value of the phenomenon of health itself and to form their own healthy lifestyles.

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THEORETICAL AND METHODOLOGICAL BASES OF EDUCATION FOR HIGH SCHOOL STUDENTS IN EXTRACURRICULAR ACTIVITIES

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Abstracts

Relevance. The conducted researches only partially touched on questions of development of various types of preparation in a heptathlon, their rational combination during the annual cycle of training. Issues of modeling characteristics and preparedness methods of military-applied heptathlon are still not investigated. ***The purpose of the research*** is to develop and experimentally verify of the education methodology effectiveness of the military-applied heptathlon for high school students in extracurricular activities. ***Methods of research*** are analysis of psychological and pedagogical literature, systematization of information, pedagogical testing, anthropometric measurements, questionnaires, pedagogical experiment, pedagogical observation, mathematical statistics. The definition of the level of motor activity of young people was carried out by the International Physical Activity Questionnaire (IPAQ). 526 boys aged 16– 17 participated in the researches. ***Results.*** Model characteristics of the Ukrainian Spartakiade's participants on the military- sports heptathlon for preliminary military training of youth are characterized by high results in all types of competitions. Average chin-ups indicators make up 17,07 times, overcoming the obstacle course − 02 min 09 s, running 100 m – 13,01 s, running 3000 m − 11 min 31 s, swimming – 41,01 s, throwing grenades – 40,89 m, shooting – 49,27 points. The importance of universal training for all types of military-applied heptathlon is confirmed by the correlation between the types of all-round preparedness and the total amount of received points. Thus, the closest interconnected results are the overcoming of obstacle course and at 100 m running (r = 0,54), overcoming the obstacle course and the obtained points at 100 m running (r = -0,53), overcoming the obstacle course and the points obtained at 3000 m running (r = -0,43). ***Conclusions.*** The results of the study allowed to develop a step-by-step methodology for training military and applied heptathlon of high school students. The direction of motor activity in relation to intensity of classes as well as duration of exercises, duration and character of rest, number of classes during the week, tempo of training loading increase during the week, month are determined.

Key words: military-applied heptathlon, high school students, training methods, physical education, extracurricular activity.

Олег Дикий, Анатолій Цьось. Теоретичні та методичні основи навчання старшокласників семиборства в позаурочній діяльності. ***Актуальність.*** Проведені дослідження лише частково охопили питання розвитку різноманітних видів підготовки в багатоборстві, їх раціонального поєднання протягом річного циклу тренування. Практично не дослідженими залишаються проблеми модельних характеристик та методики підготовки у військово-прикладному семиборстві. ***Мета дослідження*** полягає в розробці й експериментальній перевірці ефективності методики навчання військово-прикладного семиборства старшокласників у позаурочній діяльності. ***Методи дослідження –*** аналіз психолого-педагогічної літератури, систематизація інформації, педагогічне тестування, антропометричні вимірювання, анкетування, педагогічний експеримент, педагогічне спостереження, математична статистика. Визначення рівня рухової активності молоді здійснювали за міжнародним опитувальником «The International Physical Activity Questionnaire» (IPAQ). У дослідженнях узяли участь 526 хлопців віком 16–17 років. ***Результати.*** Модельні характеристики учасників спартакіади України з військово-спортивного семиборства для допризовної молоді характеризуються високими результатами в усіх видах змагань. Середні показники підтягування становлять 17,07 раза, подолання смуги перешкод – 2,09 хв, с, бігу 100 м – 13,01 с, бігу на 3000 м – 11,31 хв, с, плавання – 41,01 с, метання гранати – 40,89 м, стрільби – 49,27 очок. Важливість універсальної підготовки за всіма видами військово-прикладного семиборства підтверджено й кореляційними зв'язками між видами підготовленості та загальною кількістю отриманих балів. Так, найтісніше пов'язані між собою результати подолання смуги перешкод і бігу на 100 м (r = 0,54), подолання смуги перешкод й отриманих балів із бігу на 100 м (r = -0,53) подо- лання смуги перешкод та отриманих балів із бігу 3000 м (r = -0,43). ***Висновки.*** Результати дослідження дали змогу розробити

поетапно-послідовну методику навчання військово-прикладного семиборства учнів старших класів. Визначено спрямованість рухової активності у взаємозв'язку з інтенсивністю занять, тривалістю вправ, трива- лістю й характером відпочинку, кількістю занять протягом тижня, темпами збільшення навантаження протягом тижня, місяця.

Ключові слова: військово-прикладне семиборство, старшокласники, методика, фізична культура, позаурочна діяльність.

Олег Дикий, Анатолий Цесь. Теоретические и методические основы обучения старшеклассников семиборья во внеурочной деятельности. ***Актуальность.*** Проведенные исследования лишь частично затронули вопросы развития различных видов подготовки в многоборье, их рационального сочетания в течение годового цикла тренировки. Практически не исследованными остаются вопросы модельных характеристик и методики подготовки в военно-прикладном семиборье. ***Цель исследования*** заключается в разработке и экспериментальной проверке эффективности методики обучения военно-прикладному семиборью старшеклассников во внеурочной деятельности. ***Методы исследования –*** анализ психолого-педагогической литературы, систематизация информации, педагогическое тестирование, антропометрические измерения, анкетирование, педагогический эксперимент, педагогическое наблюдение, математическая статистика. Определение уровня двигательной активности молодежи осуществляли по международному опроснику «The International Physical Activity Questionnaire» (IPAQ). В исследованиях приняли участие 526 ребят в возрасте 16–17 лет. ***Результаты.*** Модельные характеристики участников спартакиады Украины по военно-спортивному семиборью для допризывной молодежи характеризуются высокими результатами во всех видах соревнований. Средние показатели подтягивания составляют 17,07 раза, преодоление полосы препятствий – 2,09 мин, с, бега 100 м – 13,01 с, бега 3000 г. – 11,31 мин, с, плавания – 41,01 с, метания гранаты – 40,89 м, стрельбы – 49,27 очков. Важность универсальной подготовки по всем видам военно-прикладного семиборье подтверждается и корреляционными связями между видами подготовленности и общим количеством полученных баллов. Так, наиболее тесно связанны между собой результаты преодоления полосы препятствий и бега на 100 м (r = 0,54), преодоление полосы препятствий и полученных баллов в беге на 100 м (r = -0,53), преодоление полосы препятствий и полученных баллов в беге 3000 м (r = -0,43). ***Выводы.*** Результаты исследования позволили разработать поэтапно-последовательную методику обучения военно- прикладного семиборья учеников старших классов. Определяется направленность двигательной активности во взаимосвязи с интенсивностью занятий, продолжительностью упражнений, продолжительностью и характером отдыха, количеством занятий в течение недели, темпам увеличения нагрузки в течение недели, месяца.

Ключевые слова: военно-прикладное семиборье, старшеклассники, методика, физическая культура, внеурочная деятельность.

Introduction. Research results show that a significant part of young people cannot be called up for military service in the Armed Forces of Ukraine for health reasons, and about 70% of recruits do not meet the minimum level of physical fitness [6; 7; 12; 13; 17]. Research papers [3; 9; 10; 11] point out that an important component of preparing young people for service in the Armed Forces is military and physical training, on which the effectiveness of the combat missions performance depends. The purpose of such training is to ensure physical readiness to master weapons and military equipment, to sustained overcoming physical exertion and neuro and psychic overloads. Scientists [1; 4; 5] remark that in the process of physical training, it is necessary to apply exercises that would be close in their structure to the professional actions of servicemen.

Over the years, all regulatory documents noted the great importance of the physical training of military personnel. At the same time in the 70s of the 20th century the concept of «war of machines" was adopted. In accordance with this, the success of combat operations was to be determined primarily by the effectiveness of military equipment. Therefore, the essence of physical training was reduced to the development of stability and concentration of attention, accuracy of movements, motor reaction. However, the results of scientific researches and the experience of participants in military operations and hostilities in the east of Ukraine [9] revealed that the foundation of professional preparedness of military personnel is their physical fitness.

Recently, in all armies, the vast majority of military purchases are aimed at individual protection of military personnel. This, of course, essentially protects the military. At the same time, body armor quite severely restricts the movement, and the process of getting used to it takes time. Today the combat layout, with which the soldier goes into battle, is about 28 kg. Therefore, for effective military service a special

training is required. To get this aim, it is necessary to introduce new standards and physical exercises of applied military character into the pre-draft training of young people.

It was found that for the successful formation of qualities and skills of servicemen important for their combat activities, military and sports all-rounds and, in particular, applied military heptathlon are widely used. The applied military heptathlon for pre-draft youth includes pull-ups, obstacle navigation, 100-meters race and 3,000-meters race, 50 meter swimming, grenade throwing, and shooting.

In sports all-around, according to scientists [1; 4], the effectiveness of the training process depends not only on the amount of physical exertion, but also on the structure of training. The conducted studies only partially addressed the development of peripheral and leading types of training in all-round, their rational combination during the annual training cycle.

In the special literature [2; 8], great attention is paid to the use of means and methods of sports training, providing an increase in physical, technical and tactical training of qualified athletes, but the methodology for developing these qualities in young all-rounders, especially at the initial stages of training, taking into account the characteristics of their physical, mental and mental development, is not studied to full extend. It should be noted that in the system of young all-rounders training, the interrelation between various aspects of optimization of the psychophysical capabilities of their body, namely general physical, technical, tactical and psychological ones, is not investigated yet; the specific content of the development of special skills and the variability of their application with the determination of the specificity of the impact of different in volume, intensity and structure orientation of motor actions when performing physical loads in accordance with different levels of athletic fitness and at different stages of training sessions, is not determined. The items of model characteristics and methodology for teaching the applied military heptathlon remain practically unexplored.

The purpose of the research is to develop and experimentally test the effectiveness of the methodology for teaching applied military heptathlon to senior pupils in extracurricular activities.

Material and methods of research. To solve the tasks of the article, a system of research methods is used. Theoretical methods include the analysis of psychological and pedagogical literature, systematization of information (for confirming the initial positions of the study, summarizing the available data, substantiation of the conceptual and terminological apparatus). Empirical methods are: pedagogical testing, anthropometric measurements, questionnaire (to determine the level of physical condition of students); pedagogical experiment (ascertaining, formative), pedagogical observation (for the development of the methodology for teaching applied military heptathlon to senior pupils in extracurricular activities). The determination of the level of motor activity of young people was carried out according to the international questionnaire The International Physical Activity Questionnaire (IPAQ). Statistical methods were used for processing of the empirical data and checking of the reliability of the results.

The general educational institutions No. 11, 18 and 24 of Lutsk and Volyn Regional Lyceum with enhanced military and physical training became the experimental facilities of the research. The study involved 526 boys aged 16-17.

The results of the study. Analyzing the results of the surveys, we proceeded, first of all, from the fact, that the state of health of high school seniors correlates with the quantitative composition of the main, preparatory and special medical groups and those exempted from exercises. The analysis of the distribution of the senior pupils into medical groups proved the deterioration of health of the young men, as only 47.2 % of the boys aged 16 and 45.21% of the boys aged 17 were included into the main medical group. At the same time half of the senior pupils were included into the preparatory and special medical groups and a group of pupils released from physical training. It is obvious that such a situation is the result of the deterioration of students' health, as well as of greater demands, which are pushed forward to the medical examinations at schools.

When analyzing the medical records of students of senior school age, it was found out, that the most common among schoolchildren are the diseases of the upper respiratory tract and respiratory organs; the diseases and functional deviations of the gastrointestinal tract come next; the problems of the musculoskeletal system rank third, neuropsychological disorders and chronic diseases rank fourth; diseases of the sense organs rank fifth, in particular problems of the organs of sight; endocrine diseases, blood and cardiovascular problems rank sixth, the urinary system and skin diseases round out the list.

The average values of the morphological parameters of the physical development of the surveyed give an idea of its compliance with age standards. The results show that the body length of the 16-year-old boys is 172.73 ± 1.75 cm, and that of 17-year-old boys is 174.16 ± 1.59 cm. In accordance with age standards, these data are within the normal range. In terms of body mass, they slightly exceed the norm of age development, namely: 64.53 ± 2.43 kg is for 16-year-old boys and 65.27 ± 2.64 kg is for 17-year-olds. It should be noted that during this age period the effects of acceleration manifest themselves most of all, when gain in growth outpaces weight gain, and growth in body weight outpaces the growth rate of internal organs. The indicators of the circumference of the chest are also consistent with the age norms of boys aged 16–17. At the same time, it is necessary to ascertain a decrease in the parametres of the chest excursion in schoolchildren (the difference between the indices of the chest circumference during inhalation and exhalation). This figure is 6.83 cm for 16-year-olds and 6.72 cm is for 17-year-olds.

Assessment of physical development involves the determination of the proportionality of the development of individual somatometric indicators, on the basis of which its harmony is characterized. Analyzing the Quetelet index, it was found that majority of the boys under investigation belong to the group above the average level and this indicator is 40.4% for 16 year-old boys, and 44.8% for 17 year olds. A large number of young men have an average level of physical development, namely: 16-year-old boys – 37.6 % and 17-year-old – 40.6%. Below the average level are 14.3% and 6.5%, respectively. 2.3% of boys aged 16 years have a low level of physical development. A high level was found in 5.4% of boys aged 16 and in 8.1% of boys aged 17.

To assess the functional capabilities of young men, hemodynamic parameters (heart rate and systolic and diastolic blood pressure) were measured using standard methods. The functionality of the respiratory system of the body of high school seniors was investigated by measuring the vital capacity of the lungs (VC), carrying out standard functional tests with conscious breath-holding while inhaling (Stange's test) and exhaling (Genchi's test).

Analyzing the indicators of the cardiovascular system of 16 and 17-year-old boys, we can conclude that blood pressure indicators are within the normal range (16-year-old boys – BP systolic – 114.9 ± 5.42 mm Hg; BP diastolic – 66.9 ± 6.22 mm Hg; 17-year-old boys – BP systolic – 118.1 ± 3.99 mm Hg; BP diastolic – 70.2 ± 3.65 mm Hg). However, it should be noted that for 14.7% of 16 year-old boys and 17.6% of 17 year-old boys an increase in systolic blood pressure was fixed. The average heart rate exceeded the age norm for 16 year-old boys (81.4 ± 3.85 beats per min^{-1}) and for 17 year-old boys (79.9 ± 2.50 beats ·per min^{-1}).

According to the results of the VC study, the indicators of the maximum volume that can be exhaled after taking a deep breath were 3.23 ± 0.11 l for 16-year-old boys, and 3.72 ± 0.08 l for 17 year-olds, which is lower than the age norms, as at the age of 16-17 the VC must reach the indices of an adult. The analysis of the results showed that 37.56% of 16 year-old students and 32.23% of 17-year-old students have low and below average VC indices.

The average values of Stange's test, which characterizes the body's resistance to oxygen deficiency, were for the students of senior classes below the age norms, namely: for 16 year-olds – 44.6 ± 3.22 s, for 17 year-olds – 46.4 ± 3, 68 s. The duration of breath holding on expiration (Genchi's test) also showed a decrease in results: for 16-year-old boys – 20.3 ± 1.97 s, and for 17-year-old boys – 20.8 ± 2.28 s respectively. The above mentioned results of the study show a noticeable tendency towards functional stresses of the respiratory system that must be taken into account when dosing aerobic exercises.

To study the level of physical fitness of students, the tests and standards for assessing the physical fitness of students in accordance with the requirements of the school program were used. The test results show the average level of physical fitness of the boys. The boys of 16 and 17 years of age have the best-developed power qualities, since 65.7% and 77.4% of them have an «average» level of competence based on the results of the pull-up test; 45.3% and 50.2% – in the «sit-up in 60 s» test respectively; 62.3% of boys of 16 years of age and 65.5% of boys of 17 years of age – in the test «standing long jump». The results of the «shuttle run 4 × 9 m», test of determining the agility, 47.9% and 45.6%, and the results of the «100-meters race», test determining the speed, 62.3% and 68.6% for boys of 16 and 17 years of age also correspond to the average level of competence.

A low level of competence had 47.3% of young men of 16 years of age and 42.5% of young men of 17 years of age in the test of defining flexibility – «body bending forward from a sitting position» and 65.7%

and 59.4%, respectively, in the test «uniform run of 1500 m», which provides for requirements for the aerobic capabilities of the body, the state of the cardio-respiratory system of the body, the work of the muscles of the arms, back and abdominals.

In general, the level of development of the physical qualities of high school seniors can be assessed as medium and low, which necessitates special physical training. The results of students' physical fitness must be taken into account when determining the content of physical activity in terms of the predominant influence on the improvement of physical qualities, which are below the norm.

Scientific works [14; 15; 15] state that insufficient physical activity is the main reason for the decline of health and functional capabilities of young people. To confirm this data, the level of motor activity of high school seniors was determined by the International Physical Activity Questionnaire (IPAQ).

The results show that only 6.8% of 16-year-old and 5.2% of 17-year-old respondents have a high level of motor activity. Most of the boys have an average (41.5-42.3%) or low (51.7-52.5%) level of motor activity. Taking into consideration the fact that the training effect has only a high level of physical activity, which includes organized exercises and intensive sports and outdoor games, this level is insufficient and does not fully ensure the proper functioning of the body and the development of physical qualities of students.

The results of the survey show that the interest in physical culture among young men is not high. Only 33.9% of 16-year-olds and 39.5% of 17-year-olds have a high and above average level of interest in physical culture. In 11.4–11.7% of respondents there is no interest in performing physical exercises due to a negative attitude. At the same time, a fairly high motivation to applied military all-round (the first rank position) was revealed, that can be a prerequisite for effective physical training of high school seniors.

To build the target models of all-rounders, the results of The Ukrainian applied military heptathlon contest for the youth undergoing preconscription military training were used. Comparative analysis shows that all-rounders have quite good results in all events (Table 1).

Table 1

Model characteristics of the participants of The Ukrainian applied military heptathlon contest, n = 118

Heptathlon event	Performance results	$\bar{X}$	S	$S\bar{x}$	$\bar{X}$, 95 % ДІ (X_{min})	$\bar{X}$, 95 % ДІ (X_{max})
Pull-up	*times*	17,07	4,260	0,39	16,290	17,840
	times	563,17	116,660	10,74	542,130	584,230
Obstacle navigation	*min, s*	02,09	0,00018	1,635	0,0014	0,0015
	points	575,68	193,910	17,85	540,690	610,660
100-meters race	*s*	13,01	0,610	0,057	12,900	13,120
	points	528,53	145,850	13,43	502,210	554,840
3000-meters race	*min, s*	11,31	1,740	0,16	10,990	11,630
	points	491,48	159,940	14,72	462,630	520,340
50 meter swimming	*s*	41,01	12,480	1,15	38,760	43,270
	points	686,52	247,250	22,76	641,900	731,130
Grenade throwing	*m*	40,89	10,010	0,92	39,090	42,690
	points	298,24	237,960	21,91	255,300	341,170
Shooting	*scores*	49,27	17,910	1,65	46,040	52,500
	points	392,42	243,680	22,43	348,440	436,380
Total	*points*	3536,03	774,850	71,33	3396,230	3675,840

The average pull-up results are 17.07 times, obstacle navigation – 2.09 min, s, 100-meters race – 13.01 s, 3000-meters race – 11.31 min, s, swimming – 41.01 s, grenade throwing – 40.89 m, shooting – 49.27 scores. The average amount of the obtained points is 3536.03.

The conducted studies show that the following results are closely interrelated: the results of the obstacle navigation and 100-meters race (r = 0,54), the results of the obstacle navigation and points for the 100-meters race (r = -0,53), the results of the obstacle navigation and points for the 3000-meters race (r = -0.43) (Table 2).

The following results have the average level of interrelation: the results of pull-ups and the obtained points for 3000-meters race (r = -0,32), the results of 100-meters race and the obtained points for 50 meter swimming (r = -0,31), the results of 100-meters race and points for grenade throwing (r = -0,32). Thus, participants of the applied military heptathlon are characterized by increased requirements for overall training in all sports events. This is confirmed by the correlation between the types of preparedness and the total number of points received.

Table 2

Interrelationships between types of training in applied military heptathlon

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1	99	-21	32	-25	24	-04	25	-01	15	07	13	13	13	46
2		1	-20	31	-25	23	-04	25	-01	14	06	12	14	14	45
3			1	-51	54	-53	21	-43	09	-18	-10	-27	-07	-08	-51
4				1	-43	38	-19	38	-09	15	31	31	08	10	62
5					1	-98	14	-29	18	-31	-20	-32	-08	-07	-61
6						1	-14	29	-19	32	18	30	06	06	59
7							1	-11	21	09	-09	-08	05	01	-09
8								1	-03	17	11	15	14	11	53
9									1	01	-16	-16	09	07	-14
10										1	22	35	11	09	61
11											1	79	10	11	50
12												1	18	19	66
13													1	93	48
14														1	49
15															1

Remarks: zeros and commas are not included;

1 – pull-ups, times; 2 – pull-ups, points; 3 – obstacle navigation, min, s; 4 – obstacle navigation, points; 5 – 100-meters race, s; 6 – 100-meters race, points; 7 – 3000-meters race, min, s; 8 – 3000-meters race, points; 9 – 50 meter swimming, s; 10 – 50 meter swimming, points; 11 – grenade throwing, m; 12 − grenade throwing, points; 13 – shooting, scores; 14 – shooting scores; 15 – the sum total.

The worked out models allow us to assess the conformity of development of physical and technical preparedness in heptathlon, to determine the ways for further improvement, means of individualization and correction of the training process.

Discussion. The method of logistic regression was used to develop a methodology for teaching applied military heptathlon to high school seniors. The results of the analysis show that the greatest impact on the overall result in the heptathlon is carried by 3000-meters race, grenade throwing, pull-ups, and swimming (Table 3).

Table 3

Basic types of training in applied military heptathlon

Performance	***a***	***S***	**Wald criterion**	***P***
3000-meters race, *min, s.*	0,035687	0,0127480	7,8366	0,0051
Grenade throwing, *m*	0,017892	0,0064137	7,7820	0,0053
Pull-ups, *times*	0,027340	0,0095855	8,1350	0,0043
Swimming, *s*	0,017251	0,0075507	5,2199	0,0223

Taking into account the data of the analysis received from the scientific works of well-known scientists [1; 2; 8] and our own research results, a step-by-step methodology for teaching applied military heptathlon to high school seniors was developed. The regularities of the formation of the movement technique for each heptathlon event and the features of the technical and tactical structure for their training and improvement were determined in accordance with the level of functional and motor fitness of the organism and personal psycho-motivational priority for performing physical loads that model the development of certain motor qualities, namely, speed, speed and strength, strength or overall endurance of the organism.

The peculiarity of special preparedness of the senior pupils in the applied military heptathlon is the performance of physical exercises of different types during both training and competitions in the state of physical fatigue, accompanied by a deficiency of oxygen, which is necessary to ensure a high level of both physical and mental performance. Depending on the tasks, special physical exercises were chosen, aimed at a complex or selective action on the systems of the body or some parts of the body. The orientation of motor activity is determined in relation to the intensity of classes, duration of exercises, duration and type of rest, the number of classes during the week, and the rates of increase in loading during the week, and month.

Accordingly, we took into account personal regularities of the development of stages of the formation of special skills and techniques of motor activity peculiar to each event of all-round in order to optimize the overall sport result based on the consideration of individual sensitive periods of their development and the stages of body formation of boys of the senior school age.

The methodology was implemented during three stages. At the first stage (getting involved in training, 4 weeks) the boys were acquainted with the applied military heptathlon, and the technique of training. The classes were 4 times per week. The content of the classes was focused on the gradual bringing of the physical qualities of senior pupils to an optimal level close to the model characteristics. Physical exercises were aimed at evoking young people's interest in motor activity, at creating an optimistic mood and motivation for systematic physical activity.

Besides, it was taken into account that change of the nature and amount of training loads can purposefully influence adaptation processes, thus developing and strengthening various functional systems of the body and simultaneously improving the level of development of physical qualities. Thus, students' performance of physical loads of the applied military heptathlon, geared towards, for example, the development of the overall endurance of the body (3000-meters race), was aimed, first of all, at improving the cardiovascular and respiratory systems, improving metabolism, increasing carbohydrate reserves because of the rapid mobilization of which from the liver, the level of the body's physical performance increased in general. Meanwhile, the use of power loads (pulling-up, grenade throwing) contributed to the performance of physical exercises, which had a positive effect on the development of the muscular system.

The optimal correlation of means and methods of physical exercises of different structure of performance and orientation in different modes of use of volume and intensity of their performance was used at each training activity of applied military heptathlon in order to improve the physiological effect of adapting various organs and systems of the body to the new requirements of loading activity, that is, the adaptation of the functions of various organs to the new conditions of their activity on the basis of manifestation of the most important biological regularity «the work builds an organ». The physiological improvement of the functioning of organs and the improvement of their activity is due to the fact that after physical exertion the expended energy was restored to a higher level compared to the past, that is, to the superrestoration. Thus, it made it possible to plan the use of the means and methods of the following training sessions and, accordingly, to optimize the volume and intensity of the introduction of physical activity against the background of the increased performance of the body, which again contributed to a further level of its improvement.

At the second stage (main, 23 weeks) systematic applied military heptathlon classes were conducted with a total of 5 lessons per week. In the training process, the physical activity aimed at improving the technique of grenade throwing, swimming, 3000-meters race and pulling-up on a crossbar in the air prevailed. The main focus of the types of training was determined by the results of the application of the method of logistic regression. It is these events that make the greatest contribution to the overall athletic performance. Also, in view of the complexity, the techniques of obstacle navigation and shooting were added to the types of training at this stage. Attention was drawn to the development of physical qualities against the background of improving the protective forces and the resistance of the body to adverse environmental factors.

The training process at the third stage of preparation (improvement, 8 weeks) envisaged the expansion of the volume of implementation of various physical activities in accordance with the functional state and level of fitness of the body, depending on its adaptive abilities during 5 lessons per week. On the basis of

maintaining systematic training in grenade throwing, swimming, 3000-meters race, pulling-up, obstacle navigation, shooting, and 100-meters race, the intensity of physical activity gradually increased. Considerable attention of the young men was focused on the methodology of increasing the level of preparedness in the applied military heptathlon by means of individual exercises.

The process of the formation of physical and psycho-emotional efforts in the difficult conditions of multidirectional training activity during the competition was provided by a subjective assessment of their own feelings during the performance of the types of physical activity of the applied military heptathlon, the ability to objectively assess the situation, discipline, responsibility and the ability to make independent decisions, that were also recorded in a three-point assessment in training books. The optimization of the training process in the system of applied military heptathlon training of high school seniors in extracurricular activities was also ensured by the organization and use of a number of pedagogical conditions: effective management, target selection and the direction of the interests of young people to perform physical exercises of a diverse applied military orientation against the backdrop of the formation of the need for personal harmonious perfection of the body.

In order to check the effectiveness of the developed methodology for teaching applied military heptathlon to high school seniors in extracurricular activities, a pedagogical experiment was conducted with high school seniors on the basis of the Volyn Regional Lyceum with enhanced military-physical training.

The consequences of the pedagogical experiment allowed us to assert that in young men the level of special and general physical fitness, functional abilities, and motivation for sports activity statistically improved ($P < 0{,}001$).

The results of the ROK-analysis (percentage of correctly classified cases) according to the obtained data are 95.12%, which is illustrative of a fairly high level of development of high school seniors' fitness for performing events of military-applied heptathlon.

Conclusions. The results of the analysis of theoretical and empirical data imply the necessity of using in the system of preparation of young people for service in the Armed Forces such means that would carry out a complex influence on the development of physical, applied and patriotic qualities. It has been determined that military sports all-round and, in particular, applied military heptathlon is widely used for the successful formation of the qualities and skills important for combat activity in servicemen.

Model characteristics of the participants of The Ukrainian Applied Military Heptathlon Contest for the youth undergoing preconscription military training are characterized by high results in all events. Average pull-up performance is 17.07 times, obstacle navigation – 02 min 09 s, 100-meters race – 13.01 s, 3000-meters race – 11 min 31 s, swimming – 41.01 s, grenade throwing – 40.89 m, shooting – 49.27 scores.

The importance of universal training in all events of applied military heptathlon is confirmed by the correlation between the types of all-round preparedness and the total amount of received points. Thus, the closest interconnected results are the ones of the obstacle navigation and 100-meters race ($r = 0{,}54$), obstacle navigation and the points for 100-meters race ($r = -0{,}53$), obstacle navigation and the points for 3000-meters race ($r = -0.43$). The following results have the average level of interrelation: the results of pull-ups and the obtained points for 3000-meters race ($r = -0{,}32$), the results of 100-meters race and the obtained points for 50 meter swimming ($r = -0{,}31$), the results of 100-meters race and points for grenade throwing ($r = -0{,}32$).

The results of the study allowed us to develop a step-by-step methodology for teaching applied military heptathlon to high school seniors. The direction of motor activity in relation to intensity of classes as well as duration of exercises, duration and character of rest, number of classes during the week, tempo of training loading increase during the week and month is determined. Accordingly, we took into account personal regularities of the development of stages of the formation of special skills and techniques of motor activity peculiar to each event of all-round in order to optimize the overall sport result based on the consideration of individual sensitive periods of their development and the stages of body formation of boys of the senior school age.

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Physical Education of Different Groups

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PECULIARITY AND INDICATORS OF STUDENTS ATTENTION TO INSTITUTE OF INFORMATION TECHNOLOGIES

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Abstracts

Andrii Andres. ***Relevance of Research Topic.*** The high level of development of psychophysical qualities of a specialist promotes high efficiency and good health, professional success. The positive influence of the use of games in the physical education of students on their psychophysical indicators is proved. The existence of the relationship between individual indicators of psychophysical and physical preparedness is proved. However, the lack of information on the degree of interconnection between the level of development of agility and the indicators of attention in the students of the specialty «information technology» inhibit the process of finding effective means of physical education students of computer specialties, although the concentration and stability of attention are professional-significant psychophysical qualities of students of information and logic groups of specialties. The aim of the work was to find out the possibilities of improving the indicators of concentration, stability and switching the attention of the students of the Institute of Information Technologies to the development of agility. ***Methods.*** The experiment was attended by 548 male students of the first year of the Institute of Computer Technologies, Automation and Metrology. Attention was determined using Bourdon's corrective test. The agility was determined by the result of a shuttle run of 4 × 9 m. A correlation analysis was conducted. ***Results of Work.*** Only a small number (5,1 %) of students showed a very high concentration of attention. One third of students had high and very high (36,7 and 3,5 %) levels of sustainability. According to concentration and sustainability indicators, 16,1 and 21,3 % of students need urgent correction because they have low and very low rates; and by indicators of switching the attention of such students is significantly higher (28,2 %). Dexterity has a higher than average impact on the indicators of switching attention. ***Conclusions.*** Students of the Institute of Information Technologies require focused development of attention within the framework of psychophysical training during academic or extra-curricular physical education classes. Effective ones can be tools for developing agility.

Key words: psychophysical training, professional-applied physical training, physical education.

Андрій Андрес. Спритність та показники уваги студентів інституту інформаційних технологій. ***Актуальність теми дослідження.*** Високий рівень розвитку психофізичних якостей фахівця сприяє високій працездатності й міцному здоров'ю, професійному успіху. Доведено позитивний вплив застосування ігор у фізичному вихованні студентів на їхні психофізичні показники. Доведено існування взаємозв'язку між окремими показниками психофізичної та фізичної підготовленості. Проте відсутність інформації про ступінь взаємозв'язків між рівнем розвитку спритності та показниками уваги в студентів спеціальності «Інформаційні технології» гальмують процес добору ефективних засобів фізичного виховання студентів комп'ютерних спеціальностей, хоча концентрація й стійкість уваги є професійно-значущими психофізичними якостями студентів інформаційно- логічної групи спеціальностей. ***Метою*** роботи було з'ясувати можливості покращення показників концентрації, стійкості та переключення уваги студентів Інституту інформаційних технологій засобами з розвитку спритності. ***Методи.*** У констатувальному експерименті взяли участь 548 студентів чоловічої статі першого курсу Інституту комп'ютерних технологій, автоматики та метрології. Увагу визначали із застосуванням коректурної проби Бур- дона, спритність – за результатом човникового бігу 4×9 м. Проводили кореляційний аналіз. ***Результати роботи.*** Лише невелика кількість (5,1 %) студентів продемонструвала дуже високий рівень концентрації уваги. Третина студентів мали високий і дуже високий (36,7 та 3,5 %) рівні

стійкості уваги. За показниками концентрації та стійкості уваги 16,1 і 21,3 % студентів потребують нагальної корекції, позаяк мають низькі й дуже низькі показники; за показниками переключення уваги таких студентів суттєво більше (28,2 %). Спритність має вищий від середнього ступінь впливу на показники переключення уваги. ***Висновки.*** Студенти Інституту інформаційних технологій потребують цілеспрямованого розвитку уваги в рамках психофізичної підготовки під час академічних чи позанавчальних занять із фізичного виховання. Ефективними для цього можуть бути засоби з розвитку спритності.

Ключові слова: психофізична підготовка, професійно-прикладна фізична підготовка, фізичне виховання.

Андрей Андрес. Ловкость и показатели внимания студентов Института информационных технологий. ***Актуальность темы исследования.*** Высокий уровень развития психофизических качеств специалиста способ- ствует высокой работоспособности и крепкому здоровью, профессиональному успеху. Доказывается положитель- ное влияние применения игр в физическом воспитании студентов на их психофизические показатели, существо- вание взаимосвязи между отдельными показателями психофизической и физической подготовленности. Однако отсутствие информации о степени взаимосвязей между уровнем развития ловкости и показателями внимания у студентов специальности «Информационные технологии» тормозят процесс отбора эффективных средств физического воспитания студентов компьютерных специальностей, хотя концентрация и устойчивость внимания являются профессионально-значимыми психофизическими качествами студентов информационно-логической группы специальностей. ***Цель*** работы – выяснить возможности улучшения показателей концентрации, устойчи- вости и переключения внимания студентов института информационных технологий средствами по развитию ловкости. ***Методы.*** В эксперименте приняли участие 548 студентов мужского пола первого курса института компьютерных технологий, автоматики и метрологии. Внимание определяли с применением корректурной пробы Бурдона. Ловкость определяли по результатам челночного бега 4 × 9 м. Проводили корреляционный анализ. ***Результаты работы.*** Лишь небольшое количество (5,1 %) студентов продемонстрировала очень высокий уровень концентрации внимания. Треть студентов имели высокий и очень высокий (36,7 и 3,5 %) уровни устойчивости внимания. По показателям концентрации и устойчивости внимания 16,1 и 21,3 % студентов нуждаются в неотложной коррекции, поскольку имеют низкие и очень низкие показатели; по показателям переключения внимания таких студентов существенно больше (28,2 %). Ловкость имеет выше средней степени влияния на показатели переключение внимания. ***Выводы.*** Студенты института информационных технологий требуют целенаправленного развития внимания в рамках психофизической подготовки во время академических или внеучебных занятий по физическому воспитанию. Эффективными для этого могут быть средства по развитию ловкости.

Ключевые слова: психофизическая подготовка, профессионально-прикладная физическая подготовка, физическое воспитание.

Introduction. Psychophysical training is considered to be an important part of professionally applied physical training, whereas psychophysical abilities are the main components of profesionally important features for specialists in different spheres. The high level peculiar to human psychophysical features development provides preservation of their working capacity and health. That is why the viability to enhance psychophysical qualification among students who master any extreme occupation (rescuers, law enforcement officers, liaison officers) is obvious [1; 2; 7; 13;]. The level of psychophysical features development among students who master any nondefense occupation (railroad men, land surveyors, specialists in energetics and datalogical spheres) [8; 9; 12;] also requires serious improvement.

Physical education and sport contribute greatly to the development of features that provide successful professional activities. The whole set of physical education exercises promotes the increase of psychophysical parameters. Still, the activities to improve agility have the most positive result for psychophysical features development [8]. Using games in students' physical education has a remarkably positive impact on their psychophysical features [5; 10; 11; 14]. Consequently, compiling programmes of physical activity geared at developing agility is treated as a perspective trend in profesionally applied physical training in order to improve students' health and indices of professional readiness. This process is significantly inhibited by the lack of information concerning the real levels of psychophysical indices among students in computer specialities. The issues referring to the degree of interdependence between the level of agility and the indicators of concentration, stability and attention switching among the students of the Institute of Information Technologies remain unsolved despite the fact that attentiveness has been proved to be a professionally significant quality for employees in the datalogic sphere.

The **aim** of the present research is to find out the conditions to improve the levels of concentration, stability and attention switching among the students of the Institute of Information Technologies with the help of the tools to promote agility.

Objectives of the research:
- to find out the conditions to improve psychophysical indicators by means of physical education;
- to record the level of switching, concentration and stability of attention;
- to define the level of interdependence between attention and the level of agility among students.

Material and Methods of Research. 548 male first-year-students of Lviv Polytechnic National University participated in the ascertaining experiment. The students who took part in the experiment studied at the Institute of Computer Technologies, Automation and Metrology, mastering degrees in the fields of Computer Science, Computer Engineering, and Cybernetics. The age of the participants in the study was 17–18. All participants gave informed consent to take part in the experiment. Such parameters concerning attention as concentration, stability and switching were determined byBourdon's corrective test. Agility was fixed by the results of a shuttle run. The Pearson correlation coefficient was estimated on the basis of the arithmetical mean referring to attention and agility.

Results. The analysis of the concentration has revealed the average levels of attention in most students (scheme 1). The average level of attention concentration was typical for 40,1%, 37,7% can be characterized as a high level. (Very) Low ability to maintain focus on the object, in case some obstacles occured, was found out in 16,2% students. Only a small number of students (5,1%) showed a very high level of attention.

The level commenting on the stability of attention was also mostly average – 38,5%. One third of students can demonstrate high and very high (36,7% and 3,5%) levels of attention stability. However, every fifth student (21,3%) had a low level of ability not to distract from the mental activity and to maintain focus on the object of attention, therefore, they require to improve their indices of attention.

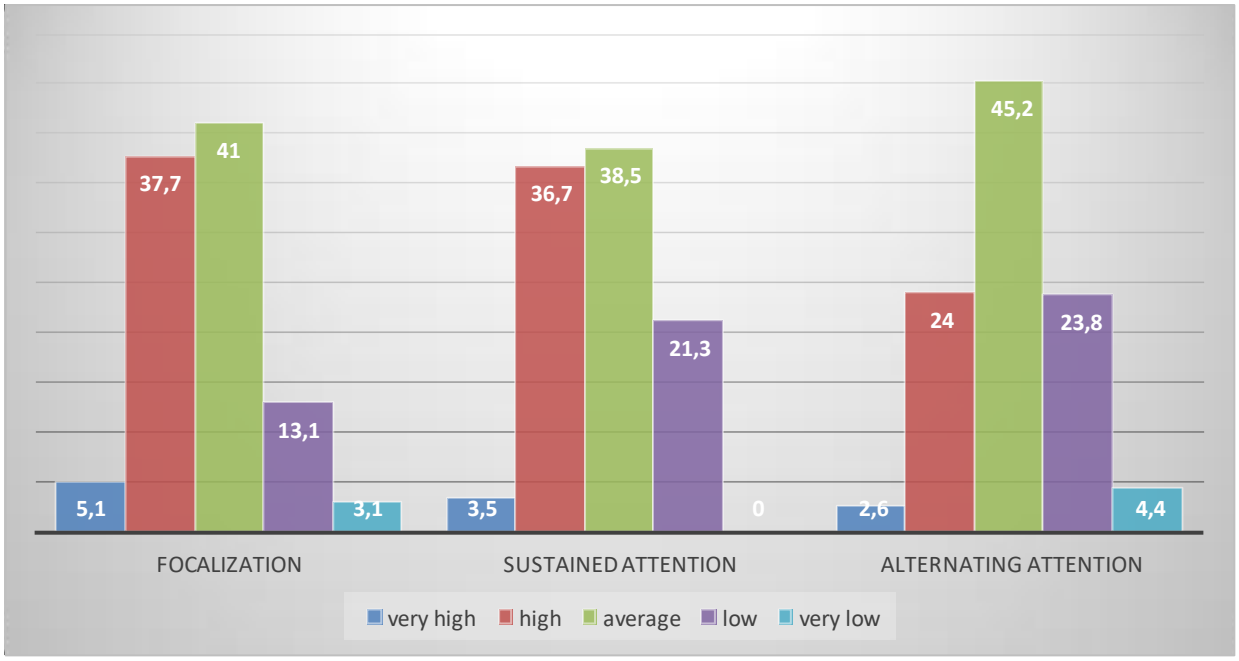

Figure 1. *A Number of Students with Different Levels of Attention*

The analysis of attention switching revealed average results. A small number of students (2,6 %) managed to pass the test successfully. A high level of attention switching was found in 24,0 % students. Every second student got «satisfactory» (45,2 %). A small number of students showed low indices (23,8 %) or failed (4,4 %) the test. Thus, every third of the first-year students at the University of Information Technology (28,2 %) has either a low or very low level of attention switching.

Scheme 1 shows that the ratio of students with different degrees of concentration and the ratio of students with stability of attention are similar to each other. The largest number of students can show average (41,0 % and 38,5 % respectively) or high (37,7 % and 36,7 %) levels, while the number of students with a low level of these parameters can be defined as significantly low (13,1 % and 12,7 % respectively). However, the ratio of students with different levels of attention selectivity differs greatly from two previous parameters. The index of attention switching (by 13,7 % and 12,7 % respectively) gets behind the

concentration and stability levels as far as the group of high level students is concerned. On average, some students (19%) need urgent correction of attention concentration and stability while their indices are low and very low. Still, due to the indices of attention switching the percentage of students increases (28, 2%). This indicates that one third of the students need to promote the level of attention switching.

The level of students' agility at the Institute of Information Technology was mostly lower than average and low (10,4 ± 1,2 s). The ratio of students with different levels of agility is presented in Scheme 2.

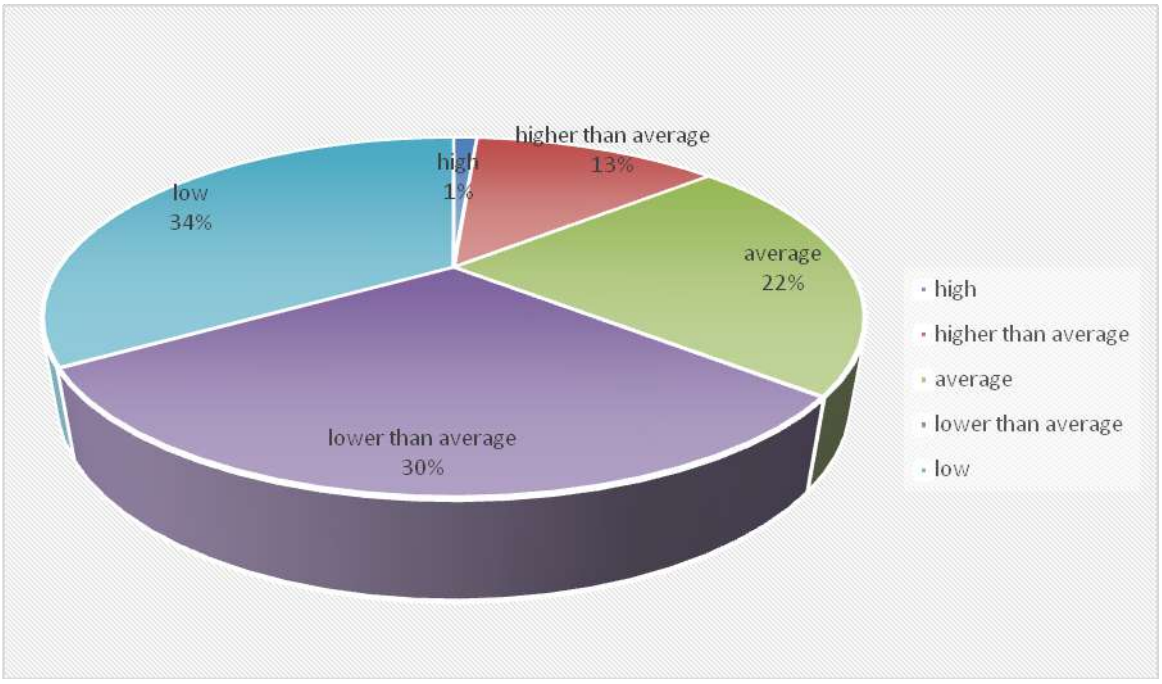

Figure 2. *The Ratio of Students of the Institute of Information Technology with Different Levels of Agility*

The results of the correlation analysis have confirmed that there is a reliable relationship between the indicators of attention (concentration r_1=0,52, stability r_2=0,56 and attention switching r_3= 0,76) and the level of agility. This suggests that the use of methods to improve agility will help promote students' attention. But the closest interaction – above average – has been found out between agility and attention switching.

Discussion. The progress of any professional activity in the sphere of information technology depends on a number of qualities: a high level of mental performance, endurance in case of prolonged, intense physical and mental pressure, the ability to maintain the focus and performance working under difficult conditions; high levels of stress resistance and self-control over emotions and behavior, self-control, the ability to restrain impulsive reactions that spontaneously arise; developed adaptive parameters of the nervous system (strength, balance, mobility, activity, dynamics of the nervous processes); logical thinking: depth, efficiency, latitude, autonomy, productivity, flexibility, criticality, predictability, dynamic thinking; the ability to analyze the situation; advanced imagination, observation, insight, intuition; a proper level of memory development, capacious memory, the ability to quickly update all necessary information; ability to focus, large volume and high concentration of attention, rapid attention distribution and switching from one object to another; the ability to learn new issues (Ostapenko). Thus, attentiveness is considered to be a professionally important quality for the future workers of IT-industry.

The analysis of the data obtained during the research of concentration and attention stability has found out that these parameters are not sufficiently developed among the students. The results with a score of 1 to 4 points (9-point scales) were shown by 75%. The levels of 7 and 8 points were performed by only 5%. And there is no result fixed at the level of 9 points. Female participants have significantly better scores; still, they are not sufficent taking into account their extreme professional importance [9]. To sum up, the results of our research have revealed that the levels of concentration, stability and attention switching are avarage among the students of information technology faculties. Further improvements for promoting control and attention among students are required. Having defined the levels of attention switching, we complimented the data [9] concerning the students in the railway sphere. The results of our students were higher than those of female

students of economic faculties, whose memory speed, mental processes and cognitive operations were recorded at the level below the avarage [10].

Psychophysical indicators and other characteristics have revealed close interconnection. It confirms the possibility of playing sports (futsal and handball) to improve the psychophysiological characteristics of students. It is proved [4] that bodyflex and pilates classes contribute to improvement of psychophysiological capacity. It is outlined that doing agility exercises facilitates an effective physical preparation of students mastering a wide range of modern occupations. Moreover, the right selection of professionally-applied exercises, comprising those designed to enhance agility, has a positive effect on the development of psychophysiological parameters among students belonging to datalogical sphere [8].

The practical methods to develop agility are based on motor exercises in complicated conditions. These are achieved by doing exercises while experiencing deficiency of space and time, possessing insufficient or excessive amount of information. Running across harsh terrain while overcoming natural barriers, skiing, practising ball-throwing and jumping, martial arts, gymnastic and acrobatic exercises, playing sports (especially on reduced playgrounds and with the increase in the number of players) are believed to be effective. Oftentimes, to deal with the problem of students' psychophysical readiness for future work, classes focusing on playing motor games are applied. There are studies [10; 11] that have proved that playing such games as handball, volleyball and futsal helps to develop a set of psychophysical qualities in students.

The accuracy of the relationships between the levels of agility and attention has expanded the data presented in the special literature. The data describe how the means of developing agility can influence the levels of attention. We have found out that agility possesses higher than the average level of influence on attention switching (r_3 = 0,76). This suggests that the improvement of agility is likely to cause some improvement of students' attention. The paramaters of concentration and attention stability are professionally significant psychophysical qualities among students of the datalogic sphere, therefore, the development of activity sets for physical education among students, comprising techniques aimed at the development of agility, is a challenging trend to improve the levels of professional readiness and health.

Agility is a complicated and complex physical parameter of a person. Various types of agility are distinguished and consequently different methods should be used to promote such kinds of agility as the ability to control spatial, spatial and temporal, dynamic parameters of movements; the ability to maintain a stable equilibrium; the ability to feel and absorb the rhythm; the ability to relax the muscles, the ability to coordinate movements in motor action, and the coordination of movements. Although the game is a universal means to develop various manifestations of agility as a whole, it cannot be applied to all of them.

The programmes used by specialists are often not sufficiently detailed that can complicate the possibility of their application. Various psychophysical indicators have been studied, and their huge amount makes it impossible to generalize.

Thus, further studies are required in order to develop methodological approaches for enhancing agility in the structure of psychophysical readiness among future IT specialists.

To improve attention, it is possible to enlist the help of relays, barriers, elements of sports games, dance combinations with musical accompaniment that require simultaneous asymmetric movements of different parts of the body [7].

Further studies should be devoted to clarify the issue of the most efficient methods to develop agility that can contribute to the professional-applied physical training among the students of the Institute of Information Technologies.

Conclusions.

Psychophysical abilities are treated as the main components of the professionally significant qualities among future specialists in different spheres. It has been proved that effective psychophysical training, especially agility exercises, can contribute to the students' professional work in any modern sphere. To improve students' psychophysical readiness for future work, some programmes that mainly comprise movable sport games are often applied.

Students of the Institute of Information Technology have an average level of professionally meaningful levels concerning attention switching, concentration and attention span. However, on average every fifth student (16,1 % and 21,3 %) requires an urgent correction of attention as they have really poor performance referring to concentration and attention span. Every third student needs to improve the level of attention switching (28,2 %).

Agility possesses higher than the midium degree influence on the indicators of attention switching (r=0,76). Agility exercises can be an effective means for students' psychophysical training in the sphere of IT.

Thus, students' attention should be purposefully developed and such training should be conducted at physical education classes or extracurricular sessions. Agility exercises can be considered to be especially effective.

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INFLUENCE OF CROSSFIT TRAINING ON THE MENTAL CONDITION AND QUALITY OF LIFE OF YOUNG PEOPLE

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Abstracts

Topicality*.** Despite significant achievements and a detailed study of the biological, social and behavioral aspects and the importance of motor activity for a person's mental health, open to consideration and discussion remains the question of understanding the mechanisms of the influence of physical activity on the mental health of children and adolescents. The ***purpose was to evaluate the impact of CrossFit training on the mental status and indicators of life quality of adolescents. ***Methods.*** The study involved 14 people aged 14–16 years. CrossFit training lasted 1 hour 3 times a week for two months. The training included multifunctional complex exercises, mainly of strength orientation, which participants performed in the aerobic mode in a zone of high intensity, duration of no more than 20 minutes. The PedsQL™ questionnaire (Generic Core, Ukrainian version for respondents aged 13–18 years) was used to assess the quality of life. Participants perception about themselves (self-concept) was studied by the assessment of the physical self- concept, mood, sports and academic competencies. Dependent nonparametric samples were compared using the Wilcoxon Z-criterion. ***Results.*** After participating in the 8-week program, there was an increase ($p<0,01$) of the level of physical preparedness by the results of the performance of exercise complexes. The average values of all indicators of the self- concept increased after participating in the program. Positive dynamics was observed for indicators «Mood» ($p=0,09$), «Sports Competence» ($p=0,09$), «Academic Competence» ($p=0,10$). At the end of the program, the quality of life indicators increased by 4–10 points and exceeded the value of 75 points. Changes were observed to the indicators of the Physical Functioning Scale (10 %, $p=0,1$), Emotional Functioning Scale (14 %, $p=0,09$) and School Functioning Scale (15 %, $p=0,03$). ***Conclusions.*** Simultaneously with raising in the level of physical preparedness, 8-week CrossFit program was useful for increasing of self-confidence and improving mood. The participants have observed an increase in the quality of life by 10–15 %.

Key words: health-related quality of life, mental health; PedsQL, CrossFit, strength fitness, adolescent.

Юлія Павлова, Олена Заставська. Вплив занять кросфітом на психічний стан та якість життя молоді. ***Актуальність***. Незважаючи на значні напрацювання, детальне вивчення біологічних, соціальних та поведінкових аспектів і значення рухової активності для психічного здоров'я людини, відкритими для розгляду й дискусії залишаються питання розуміння механізмів впливу фізичної активності на психічне здоров'я дітей та підлітків. ***Мета*** статті – оцінити вплив занять кросфітом на психічний стан і показники якості життя осіб підліткового віку. ***Методи.*** У дослідженні взяли участь 14 осіб віком 14–16 років. Тренування з кросфіту тривалістю 1 год відбувалися тричі на тиждень упродовж двох місяців. До складу тренувань входили багатофункціональні комплексні вправи переважно силової спрямованості, які учасники виконували в аеробному режимі в зоні високої інтенсивності, тривалістю не більше ніж 20 хв. Для оцінювання якості життя застосовували анкету PedsQL™ (Generic Core, український варіант для респондентів віком 13–18 років). Уявлення учасників про самого себе («Я»-концепція) вивчали за оцінкою фізичного «Я», настрою, спортивної й академічної компетентностей. Залежні між собою непараметричні вибірки порівнювали за допомогою Z-критерію Вілкоксона. ***Результати.*** Після участі у 8-тижневій програмі спостерігали зростання ($p<0,01$) рівня фізичної підготовленості за результатами виконання комплексів вправ. Середні значення всіх показників «Я»-концепції зростали після участі в про- грамі. Позитивну динаміку спостерігали для показників «Настрій» ($p=0,09$), «Спортивна компетентність» ($p=0,09$), «Академічна компетентність» ($p=0,10$). По завершенню програми показники якості життя зросли на 4–10 балів та перевищували значення 75 балів. Зміни спостерігали щодо показників шкал «Фізичне функціонування» (на 10 %, $p=0,1$), «Емоційне функціонування» (на 14 %, $p=0,09$) і «Функціонування в школі» (на 15%, $p=0,03$). ***Висновки.*** Одночасно зі збільшенням рівня фізичної підготовленості, 8-тижневі тренування з кросфіту сприяли зростанню впевненості в собі, поліпшенню настрою. В учасників програми спостерігали зростання показників якості життя на 10–15 %.

Ключові слова: якість життя, пов'язана зі здоров'ям; психічне здоров'я, PedsQL, CrossFit, силовий фітнес, підлітки.

Юлия Павлова, Елена Заставская. Влияние занятий кросфитом на психическое состояние и качество жизни молодежи. ***Актуальность.*** Несмотря на значительные наработки, детальное изучение биологических, социальных и поведенческих аспектов и значения двигательной активности для психического здоровья человека, открытыми для рассмотрения и дискуссии остаются вопросы понимания механизмов влияния физической активности на психическое здоровье детей и подростков. ***Цель*** статьи – оценить влияние занятий кросфитом на психическое состояние и показатели качества жизни лиц подросткового возраста. ***Методы***. В исследовании приняли участие 14 человек в возрасте 14–16 лет. Тренировки с кросфита продолжительностью 1 час происходили три раза в неделю в течение двух месяцев. В состав тренировок входили многофункциональные комплексные упражнения, преимущественно силовой направленности, которые участники выполняли в аэробном режиме в зоне высокой интенсивности, длительностью не более чем 20 мин. Для оценки качества жизни применяли анкету PedsQL™ (Generic Core, украинский вариант для респондентов в возрасте 13–18 лет). Представление участников о самом себе («Я»-концепция) изучали по оценке физического «Я», настроения, спортивной и академической компетентности. Зависимые между собой непараметрические выборки сравнивали с помощью Z-критерия Вилкоксона. ***Результаты.*** После участия в 8-недельной программе наблюдали рост ($p < 0,01$) уровня физической подготовленности по результатам выполнения комплексов упражнений. Средние значения всех показателей «Я»-концепции росли после участия в программе. Положительную динамику наблюдали для показателей «Настроение» ($p=0,09$), «Спортивная компетентность» ($p=0,09$), «Академическая компетентность» ($p=0,10$). По завершению программы показатели качества жизни выросли на 4–10 баллов и превышали значение 75 баллов. Изменения наблюдали по показателям шкал «Физическое функционирование» (на 10 %, $p=0,1$), «Эмоциональное функционирование» (на 14 %, $p=0,09$) и «Функционирование в школе» (на 15 %, $p=0,03$). ***Выводы.*** Одновременно с увеличением уровня физической подготовленности 8-недельные тренировки с кросфита способствовали росту уверенности в себе, улучшению настроения. В участников программы наблюдали рост показателей качества жизни на 10–15 %.

Ключевые слова: качество жизни, связанное со здоровцем; психическое здоровье, PedsQL, CrossFit, силовой фитнес, подростки.

Introduction. One of six inhabitants of our planet is a person aged 10-19. This category of people is generally considered to have the best health. However, a detailed analysis of the morbidity and the number of years lost due to disability reveals that the health disorders of this age group make up 15% of the total morbidity in the world. In most countries, the main causes of illness are road accidents, iron deficiency anemia, intentional harm to their own health, anxiety and depression. In 2015, in Europe, 1.480 years per 100,000 people aged 10-19 (DAILY index) were lost due to mental health problems, while anemia and road injury accounted for 786 and 445 lost years, respectively [26]. Poor mental health at a young age is particularly dangerous as it becomes a trigger for the development of risky behavior, different dependencies, and deterioration of physical condition [9]. All these in complex continue to contribute to negative changes that have long-term effects and can significantly impair the quality of life in adulthood.

Monitoring various aspects of health and promoting healthy behavior among young people are important not only for early prevention and anticipation, but also an excellent investment in the development and prosperity of the country.

Introduction. Violations of mental health are socially debilitating, they are directly related to suicide, drug abuse, homelessness. 20 % of children and young people have minor mental health problems, and 7–10 % are serious violations that impede normal development [10]. In addition to serious cases, emotional and depressive disorders are very common, a large number of people are negatively assessing their own appearance and ability, suffering from chronic stress, and complaining of hopelessness and anxiety.

Despite the fact that all these phenomena significantly impair the quality of human life, they are usually not clinically diagnosed, and accordingly, the prevalence of such problems is difficult to appreciate. It is proved that the indexes of mental illness are higher among the female population and socially unprotected categories of the population [14].

Despite the developed recommendations, well-developed treatment protocols, the presence of social stigma impedes asking potential patients for help, which in its turn requires the search for alternative approaches to mental health correction.

The results of scientific research suggest that physical education and sports cannot only prevent mental health problems, but also mitigate the development of this group of diseases. In general, physical education and sports are considered in four planes, taking into considaration their direct positive impact on mental health – that is the treatment of mental illness and disorder; prevention of mental illness and disorders; improvement of mental and physical well-being of persons with mental illness; improvement of mental well-being of the population as a whole [2; 10; 12; 18; 19; 20; 22].

Among the common positive effects, scientists name the growth of endorphins, mitochondriogenesis, the production of neurotransmitters, the weakening of the reaction of the hypothalamic-pituitary-adrenal system to stress [13; 16; 25], reduction of inflammatory processes [16], increase of self-efficiancy, etc. [3; 7; 15].

Despite significant developments, a detailed study of the biological, social and behavioral aspects and the importance of motor activity for human mental health, scientists recognize that the accumulated data relate to the adult population. Issues of understanding the mechanisms of the influence of physical activity on the mental health of children and teenagers are open for consideriation and discussion.

The purpose of the work is to assess the impact of CrossFit training on the mental state and life quality indicators of teenagers.

Material and methods of research. The study involved 14 people aged 14-16. All participants received informed consent to participate in the study.

According to the concluded program, an hour training was carried out 3 times a week for two months (total number of occupations – 24). The training included multifunctional complex exercises, mainly of force orientation, which the participants performed in an aerobic mode in a zone of high intensity, lasting no more than 20 minutes. The bulk of the training included various exercise complexes (Table 1).

Table 1

The number of class	**The main part complex of exercises**	**Protocol**
1	**2**	**3**
1, 13	1min – 7 push-ups 2-ra mins –10 squats with free weights 4–5 kg, 3min – 100 м running	EMOM[1], 12 mins
2, 14	1min – squats, 2min – rest, 3min – sit-ups, 4min – rest, 5min – Jumping Jack, 6min – rest	2RFT[2]
3, 15	10 push-ups, 10 dumbbell jerking (3–4 kg), 5 sit-ups with ganteleû (5–6 kg), 5 sit-ups, 50 m running	RFT
4, 16	1min– 10 trasters (2–3 kg), 2min– 12 sit-ups, 3min– 10 push-ups, 4min– 12 Jumping Jacks	EMOM, 12 mins
5, 17	1min– 8–10 push-ups lying (10 kg), 2min – 10 jumping pull-ups from stand 40–50 sm	EMOM, 8 mins
	10 floor push-ups , 10 sit-ups, 10 sit-ups and 30 jumps on the jumping rope	3RFT
6, 18	1–3 min– 8 times the capture of 4 kg weight metball in rack, 4–9 min– 6 times the capture of 4–6 kg weight metball	EMOM, 9 mins
	12 hyperèkstenziâ on the simulator GHD, 30 sec level, 1 min rest	5RFT
7, 19	Trasters with free weights (3–4 kg)	21-15-9[3]
	Sit-ups(20 sec), angle (10se c), fold (20 sec), angle (10 sec), the maximum number of approaches without a break	Табата[4]
8, 20	8–10 dumbbell push-ups (3 kg), 8–10 times the capture of weight metball in rack (4 kg), 8–10 times the capture of weight metbal and push-ups	EMOM, 16 mins
9, 21	Forceful squats with dumbbells (5 approaches with 5 repetitions)	
	15 jumping pull-ups from stand 40–50 sm, angle (30 sec), 10 lunges, 10 sit-ups	3RFT
10, 22	8–10 swings with 8 kg kettlebe, 10 trasters (2–3 kg), 30 jumps on the jumping rope	EMOM, 12 mins

End of the Table 1

1	2	3
11, 23	Jumping on a 40–50 sm stand, dumbbell jerking (4–5 kg)	21-15-9
12, 24	8 burps, 8 4 kg metball throwin, 12 sit-ups 7 push-ups , 7 trasters with 2 kg dumbbells, 7 burps	EMOM, 12 mins

Note. [1] - exercises performed for a certain period of time; the faster the participant fulfilled the task, the more time he had to rest, if there was not enough time for the task, the exercise was stopped; [2] - time exercisising of n rounds; [3] - in the first event exercises were performed 21 times, in the second – 15 times, in the third - 9 times; [4] - maximum number of repetitions without breaking.

Before and after participating in the program, the level of physical fitness of participants, quality of life indicators and the «I» -concept were assessed.

To assess *the level of physical preparedness* complexes that consisted of the following exercises were used:

Complex number 1 -10 press-ups, 10 jerks of dumbbells, 5 strict squats, 5 sit-ups, 50 m run; performed according to 3RFT protocol, the results were measured in seconds;

Complex number 2 - trasters, burp through the dumbbell, jumping with a rope; performed according to the protocol «21-15-9», the result - in seconds;

Complex number 3 - 15 jump pulls, 15 sit-ups, 10 lunges, 10 strict squats; performed according to 3RFT protocol, the result was measured in seconds;

Complex number 4 - 7 trasters, 7 strict tightening exercises with a fitness expander, which compensates 20-50 kg, 7 burps; performed according to the EMOM protocol, the result is the maximum number of rounds, the number of repetitions;

Complex number 5 - sit-ups (20 s), angle (10 s), body upsurge to the feet (20 s), angle (10 s); performed according to the protocol of tabat, the result was measured in seconds.

Additional data on the level of physical fitness were obtained by the following exercises: burps (maximum number of repetitions / ms), jumping (maximum number of repetitions / ms), attendance (maximum number of repetitions / ms), trasters (maximum number of repetitions / ms) , strict stretching from the fitness expander, which compensates for 20-50 kg (maximum number of repetitions), strict pressure (maximum number of repetitions), jump in length (cm), jump in height (cm), force squats (kg), bench press (kg), dumbbell press sitting (kg).

The Pediatric Quality of Life Inventory ™ (PedsQL ™ Generic Core, Ukrainian version for respondents aged 13-18 years) was used to determine the life quality indicators [23; 24]. To use it, the study received permission from the organization Mapi Research Trust. The questionnaire consists of 23 questions relating to daily activity and health problems in the last 7 days. The results were counted in points (the maximum value is 100, the minimum value is 0) on the scale «Physical functioning», «Emotional functioning», «Social functioning», «Functioning in school».

The submission of the participants about themselves (the «I» -concept), namely the assessment of the physical self, mood, sport and academic competence, was determined with the help of a set of positive and negative allegations adapted from the works of S. Harter, U. Skifele, B. Bretsnayder and E. Gerlach [27]. For this purpose, such statements were used as – «I am often sad without a reason», «I rarely laugh», «I often stay at home doing nothing, because I do not want to do anything», «If others have fun, I cannot laugh and have fun with them», « I do not enjoy anything more and nothing brings pleasure to me «; «I have reason to be proud of myself», «In general, I am very pleased with myself», «I do not think so much about myself», etc. The emotional state of the respondent during physical education lessons / sports was used as an indicator of the attitude to physical education («If someone mentions sports, then everything seems to be squeezed inside», «I forget about everything during classes / physical education / sports» , «In my spare time I would be most interested in physical education and sports,» etc.).

Sports competence was studied through questions related to the ability to certain types of motor activity, academic competence - on the ability of respondents to cope with school tasks.

Questions were evaluated on a 4-point scale (the maximum value is 4, the minimum value is 1).

Statistical processing of data. The arithmetic mean (M), the standard error of the mean (SE), the smallest and largest value (Xmin, Xmax), Median (Me), confidence intervals (95% Cl) were determined. Dependent nonparametric samples were compared using the Wilcoxon Z-criterion. The difference was considered to be significant at a level of significance not lower than 95% ($p \leq 0,1$).

Research results. *Changes in the physical preparedness of teenagers.* After participating in the 8-week program, a statistically significant increase in the level of physical preparedness was observed according to the results of the first ($p = 0.03$), second ($p = 0.02$) and fourth ($p = 0.01$) complexes (Table 2).

According to the additional assessment, the results of the following exercises were also improved: jumping with a rope ($p = 0.01$), trasters ($p = 0.01$), strict pressing ($p = 0.01$), jump in height ($p = 0.02$), dynamic squats ($p < 0.001$), bench press ($p < 0.001$), seated dumbbells ($p < 0.001$), tightening with fitness expander ($p = 0.01$).

Changes in the indicators of the «I» -concept of teenagers. Average values of all indicators of the «I» - concept grew after participating in the program (Table 3). Thus, the indicator «Estimation of the physical» I «increased by 0.2 points,» Estimation of appearance «- by 0.1 points,» Self-esteem «- by 0.3 points,» Mood «- by 0.2 points,» Sports competence «- by 0,2 points,» Academic competence «- by 0,3 points,» Attitude to a physical education lesson «- by 0,1 points. Positive dynamics was observed for indicators «Mood» ($p = 0.09$), «Sports Competence» ($p = 0.09$), «Academic Competence» ($p = 0.10$).

Table 2

The dynamics of the physical preparedness of teenagers

Indicator	Before/ After the programme	M ± SE	95% CI	Min	Me	Max	Z	p
Complex 1, c	**Before**	391,1 ± 4,4	381,5; 400,6	362	390	419	2,13	0,03*
	After	379,6 ± 17,3	341,8; 417,4	213	381	510		
Complex 2, c	**Before**	530,5 ± 1,9	526,4; 534,6	518	530	542	2,28	0,02*
	After	521,6 ± 4,4	512,1; 531,2	472	523	533		
Complex 3, c	**Before**	468,9 ± 2,6	463,3; 474,5	450	470	482	1,54	0,12
	After	468,0 ± 5,2	456,7; 479,3	440	468	520		
Complex 4, the number of repetitions	**Before**	30,4 ± 2,5	24,9; 35,9	19	35	41	-2,56	0,01*
	After	35,2 ± 1,5	31,9; 38,4	29	37	41		
Complex 5, c	**Before**	179,3 ± 7,2	163,6; 195,1	120	180	210	-1,54	0,12
	After	189,3 ± 14,4	158,0; 220,6	121	202	223		

Note * – statistically reliable changes ($p \leq 0,1$)

Changes in the quality of teenagers' life. Initial values of quality of life in respondents were in the middle range. For most scales, the quality of life did not exceed 70 points - «Physical functioning» - 69.2 ± 3.4 points, «Emotional functioning» - 63.1 ± 5.5 points, «Functioning in school» - 66.2 ± 4, 0 points (Table 4).

Among the respondents, there were individuals with very low (30-50 points) and high (94-100 points) quality of life indicators, but within the limits of each scale, the spread of data was insignificant, confidence intervals of all scales, except for «Social functioning» (95% Cl - 66.9-89.3 points) were in the range of mean values.

Table 3

The dynamics of the «I»- concept of teenagers (in points)

Indicator	До/ після прог-рами	M ± SE	95% CI	Min	Me	Max	Z	p
Physical «I»	**Before**	2,9 ± 0,3	2,3; 3,6	1,0	3,3	4,0	-0,31	0,76
	After	3,1 ± 0,3	2,5; 3,6	1,0	3,7	4,0		
Appearance evaluation	**Before**	2,5 ± 0,2	2,0; 3,0	1,0	2,8	3,4	-0,24	0,80
	After	2,6 ± 0,2	2,2; 3,1	1,4	2,8	3,6		
Self respect	**Before**	2,9 ± 0,1	2,7; 3,2	2,0	3,0	3,5	-1,39	0,17
	After	3,2 ± 0,1	3,0; 3,4	2,8	3,3	3,8		
Mood	**Before**	3,2 ± 0,1	2,9; 3,5	2,4	3,4	4,0	-1,69	0,09*
	After	3,4 ± 0,1	3,3; 3,6	3,0	3,4	4,0		
Sports Competence	**Before**	3,3 ± 0,1	3,0; 3,6	2,5	3,5	3,8	-1,70	0,09*
	After	3,5 ± 0,1	3,3; 3,8	2,7	3,7	4,0		
Academic Competence	**Before**	2,8 ± 0,2	2,4; 3,2	2,0	2,7	4,0	-1,65	0,10*
	After	3,1 ± 0,1	2,8; 3,4	2,0	3,0	4,0		
Attitude to physical education	**Before**	3,1 ± 0,1	2,8; 3,3	2,3	3,2	3,7	-1,02	0,32
	After	3,2 ± 0,1	2,8; 3,5	2,0	3,3	3,7		

Note * – statistically reliable changes ($p \leq 0,1$)

At the end of the 8-week program, the quality of life scores increased by 4-10 points and exceeded the value of 75 points. Statistically significant changes were observed regarding the indicators of the «Physical functioning» (10%, p = 0.1), «Emotional functioning» (14%, p = 0.09) and «Functioning in school» (by 15%, p = 0.03).

Table 4

Dynamics of indicators of quality of life (in points)

Scale	Before / After programme	M ± SE	95% Cl	X_{min}	Me	X_{max}	Z	p
Physical Functioning	Before	69,2 ± 3,4	61,8; 76,7	46,9	75,0	87,5	-1,65	0,10*
	After	76,2 ± 2,3	71,2; 81,2	62,5	78,1	93,8		
Emotional Functioning	Before	63,1 ± 5,5	51,1; 75,0	30,0	65,0	95,0	-1,69	0,09*
	After	71,9 ± 4,5	62,1; 81,8	30,0	75,0	95,0		
Social Functioning	Before	78,1 ± 5,1	66,9; 89,3	40,0	85,0	95,0	-0,74	0,47
	After	82,7 ± 5,0	71,8; 93,6	45,0	90,0	100,0		
Functioning at school	Before	66,2 ± 4,0	57,3; 75,0	50,0	65,0	100,0	-2,15	0,03*

Note * – statistically reliable changes ($p \leq 0,1$)

Discussion. CrossFit training is aimed at developing endurance, speed and power qualities, coordination, agility and balance. When constructing classes, elements of various types of sports -

gymnastics, heavy and athletics, etc. are used [4]. Classes contain exercises of high intensity, which need to be repeated many times, to be performed quickly, with the restoration between exercises virtually absent or minimal. The proposed 8-week program contributed to the enhancement of training level, in particular, the functional capabilities of the cardiopulmonary bypass system, which can be followed by improvement of the indicators of testing exercises. The obtained results confirm the data of other scientific studies [1; 6; 8], in particular after participating in training of similar duration, statistically significant changes were observed in the body mass index and Shuttle-test results [6].

The results of improving mental health as a result of crossFitting are quite ambiguous. In the work of N. Eazera et al. [5] no significant changes were found in the mental health indicators of persons aged 15; however, in the subgroup of participants with an increased risk of mental distress, the rates improved. According to other data of the same group [6], the participants showed completely opposite results.

Interesting is the opinion of scientists that training according to the system of the crossFit is effective for the prevention and treatment of age-related changes (for example, senile dementias), since they stimulate neurogenesis, the development of proteins involved in the differentiation of cells that develop in the hippocampus [17].

Positive statistically significant changes were observed regarding participants' responses to questions related to the ability to certain types of motor activity, understanding of their own school abilities, the success of the lessons, and the effectiveness of the applied efforts to accomplish school tasks. CrossFit training is often offered to young people at risk, including low levels of social support, difficult life situations, etc. [11]. The changes taking place with the participants concern mainly self-esteem and self-confidence growth [21].

The effect of physical exercises on various aspects of quality of life, in particular on social and emotional functioning, is not substantiated enough, but a number of studies have shown that physical education and sports can mitigate the symptoms of depression, promote mood and socialization [27].

After participating in the program, the quality of life of teenagers under the «Physical functioning» scales (76,2 ± 2,3 points), «Functioning at school» (76,2 ± 3,5 points) has changed from medium to high. Such effect can be considered as reliable, as the quality of life associated with health does not improve with the age of the Ukrainian population [27]. Despite the increase in the average indicator of quality of life on the scale of «Social functioning» (assessment of relationships with peers, comparison with oneself), these changes were statistically unreliable, which can be explained by the lack of program duration. According to the literature, positive effects in the mental and social components of quality of life were observed in participants of 3-12 month programs [27].

Conclusion. Alongside with the increase in the level of physical fitness, 8-week crossFit training helped to increase self-confidence (in terms of sports and academic competence) and to improve mood. The participants of the program developed a higher quality of life by 10-15% on the scale of «Physical functioning», «Emotional functioning» and «Functioning in school».

Prospects for further research lie in the development of training programs for the youth at risk.

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SELF-CONFIDENCE AS A PREREQUISITE FOR THE MENTAL HEALTH OF YOUNG MEN IN PHYSICAL EDUCATION CLASSES

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Abstracts

Based on a theoretical analysis, it has been established that self-confidence affects the mental health of students and their emotional well-being. Self-confidence is a positive integrated attitude towards one's own capabilities, which is caused by the peculiarities of personal development, the formation of self-awareness, the overcoming of the dependence of the individual on external determination, the coordination of the I-real and I-ideal. Instead, the reason for the formation of self-doubt and depressive personality disorders is the predominance of inhibition processes over excitation processes, which leads to the formation of a «inhibitory personality», unable to openly express their feelings, desires and needs. The following characteristics of the mentally healthy and self-confident personality are defined: openness, nonverbal communication, faith in own forces, spontaneous expression of feelings, self-realization «here and now». Systematic physical education encourages students not only to maintain a healthy lifestyle, but also develop the ability to adequately assess the capabilities of their personality; form confidence in themselves and their physical and moral strengths; promote the ability to build a positive emotional connection in cooperation with partners in physical culture activities; develop the ability to manage their experiences and negative emotional states. It is established that the majority of respondents have an average level of self-confidence, which manifests itself in moderate expression of determination and perseverance. High school students of this level are quite balanced in defining their goals and the means with which they intend to achieve their goals. It is noted that in the process of physical education students have an interest and habit to systematically perform physical exercises, develop moral and volitional qualities: courage, perseverance, discipline, mutual assistance, self-confidence and their capabilities, and the like.

Key words: self-confidence, mental health, physical culture, self-attitude, emotional well-being.

Ірина Сундукова. Упевненість у собі як умова психічного здоров'я юнаків на уроках фізичної культури. ***Актуальність.*** На основі теоретичного аналізу з'ясовано, що впевненість у собі впливає на психічне здоров'я учнів та їхнє емоційне благополуччя. Упевненість у собі – це позитивне інтегроване ставлення до власних можливостей, що зумовлюється особливостями особистісного розвитку, становленням самосвідомості, подоланням залежності особистості від зовнішньої детермінації, узгодженням Я-реального та Я-ідеального. Натомість причиною формування невпевненості в собі й депресивних розладів особистості є переважання процесів гальмування над процесами збудження, що призводить до формування «гальмівної особистості», не здатної до відкритого вираження своїх почуттів, бажань і потреб. ***Результати.*** Визначено такі характеристики психічно здорової й упевненої в собі особистості: відкритість, невербальне спілкування, віра у власні сили, спонтанне вираження почуттів, самоздійснення «тут і зараз». Систематичні заняття фізичною культурою спонукають учнів не лише до ведення здорового способу життя, а й розвивають здатність адекватно оцінювати можливості своєї особистості; формують упевненість у собі та своїх фізичних і моральних силах; сприяють умінню налагоджувати позитивний емоційний зв'язок у взаємодії з партнерами у фізкультурній діяльності; розвивають здатності управляти своїми переживаннями та негативними емоційними станами. Установлено, що більшість респондентів мають середній рівень упевненості в собі, що виявляється в помірному вираженні цілеспрямованості й наполегливості. Старшокласники цього рівня доволі зважено ставляться до визначення своїх цілей та засобів, якими мають намір досягати поставленої мети. ***Висновки.*** Зазначено, що в процесі занять фізичною культурою в учнів з'являються інтерес і звичка до систематичного виконання фізичних вправ, розвиваються морально-вольові якості: сміливість, наполегливість, дисциплінованість, взаємодопомога, упевненість у собі та своїх можливостях тощо.

Ключові слова: упевненість у собі, психічне здоров'я, фізична культура, самоставлення, емоційне благополуччя.

Ирина Сундукова. Уверенность в себе как условие психического здоровья юношей на уроках физической культуры. ***Актуальность.*** На основе теоретического анализа установлено, что уверенность в себе влияет на психическое здоровье учащихся и их эмоциональное благополучие. Уверенность в себе – это

положительное интегрированное отношение к собственным возможностям, что обусловлено особенностями личностного развития, становлением самосознания, преодолением зависимости личности от внешней детерминации, согласованию Я-реального и Я-идеального. Зато причиной формирования неуверенности в себе и депрессивных расстройств личности является преобладание процессов торможения над процессами возбуждения, что приводит к формированию «тормозной личности», не способной к открытому выражению своих чувств, желаний и потребностей. ***Результаты.*** Определяются следующие характеристики психически здоровой и уверенной в себе личности: открытость, невербальное общение, вера в собственные силы, спонтанное выражение чувств, самореализации «здесь и сейчас». Систематические занятия физической культурой побуждают учеников не только к ведению здорового образа жизни, но и развивают способность адекватно оценивать возможности своей личности; формируют уверенность в себе и своих физических и моральных силах; способствуют умению налаживать позитивную эмоциональную связь во взаимодействии с партнерами в физкультурной деятельности; развивают способности управлять своими переживаниями и негативными эмоциональными состояниями. Установлено, что большинство респондентов имеют средний уровень уверенности в себе, что проявляется в умеренном выражении целеустремленности и настойчивости. Старшеклассники этого уровня достаточно взвешенно относятся к определению своих целей и средств, которыми намерены добиваться поставленной цели. ***Выводы.*** Отмечается, что в процессе занятий физической культурой у учащихся появляются интерес и привычка к систематическому выполнению физических упражнений, развиваются морально-волевые качества: смелость, настойчивость, дисциплинированность, взаимопомощь, уверенность в себе и своих возможностях и т. п.

Ключевые слова: уверенность в себе, психическое здоровье, физическая культура, самоотношение, эмоциональное благополучие.

Introduction. The problem of development and formation of physically and mentally healthy personality is becoming more and more urgent in the modern world. There is a disparity between the importance of physical education and the amount of education workload of students which leads to constant tiredness accumulation and badly affects students' health and emotional state. It provokes psycho-physiological systems overdrive, which can be reduced by constant physical exercising. A key feature of physical education is that in the process of its organization students are forming and upgrading their skills, such physical qualities as strength, quickness, endurance, agility and flexibility, which greatly affects psychological development of a growing personality.

In the process of doing physical exercises, positive attitude to one's health is being formed and stable interest and habit for doing physical exercises appear. By doing sport, such moral and volitional qualities as courage, persistence, discipline, mutuality, self-confidence and confidence about one's abilities in the process of physical activity harnessing are developing.

Analysis of the latest sources and publications. Theoretical analysis of self-confidence reveals that such phenomenon as confidence has been studied as a complex and as personal characteristic (J. Volpe, I. Kon, M. Levitov, V. Romek, and A. Salter). Previous studies cover the specificity of self-confidence in the teenage age (Ye. Kochnieva, M. Seliverstova, O. Fedosenko). Theoretical principles of self-attitude were studied by O.V. Kaminska, V.V. Stolina, V.M. Miasyshchev, etc. Despite the variety of approaches to the phenomenon 'confidence' both in native and foreign psychological studies, self-confidence is considered as a trait of personality. (Y.P. Shcherbakov); as a process of excitation dominating over the process of inhibition (A. Salter); as a psychological state (M.D. Levitov); as self-esteem (O.O. Serebriakova). The idea of this notion is that self-confidence is positive attitude of a personality to his/her own skills, competences, capacities, capabilities and achievements.

The purpose of the study is to reveal the self-confidence level of high-school students in the physical training lessons.

Methods and methodologies that were used for achieving the study purpose: method of theoretical analysis and generalization of data collected from scientific-methodical literature; the method of gathering social information (interviewing); the mathematical statistic's method – Fisher's angular transformation criterion φ*, comparative analysis with the following qualitative interpretation and meaningful generalization. The program Excel for Windows (release 2010) is used for data output of the study in a graphical form (charts, histograms).

Experimental research was conducted at the municipal educational institution named Multiple-Discipline Lyceum – Physics and Mathematics school – General-Education School of I-III Grades № 18 – the Children and Youth Creativity Centre 'Nadiia' in the city Kropyvnytskyi. The total amount of 167 high-school students took part in the experiment. The aim of the questionnaire 'Self-confidence' (Ph. Zimbardo)

was to identify this trait in the high-school students. Its high level characterizes internal perception of strength that manifests itself when it is necessary to do all difficult tasks in the physical education lessons. Medium level is found in appropriate balance of one's efforts and the difficulty of the given task. Low level is connected with the fact that a person with existing abilities and potential doesn't trust himself/herself.

Results of the research. It is known that physical culture is a part of the general social culture which directs personality to formation and development of his/her own physical skills, as well as health promotion in order to improve person's both physical and spiritual capabilities [10]. M.S. Korolchuk considered physical culture to be basic for health promotion of a person. He touched upon the matter of our health in the system of values, the choice of person's ideals and attitudes in an attempt to influence his/her own physical state purposefully. Health can't be brought to ideal and become the main life value without practical physical exercising [3].

Constant physical exercising influences youths' realization of their physical abilities, achieving physical perfection that appears in girl's fit body and boy's physical strength.

A. Salter was the first one who started to study the phenomenon of self-confidence. According to the scientist, the reason for forming self-doubt and depressive disorders is predomination of inhibition over excitation. In his opinion, this causes 'inhibitory personality' that isn't able to openly express feelings, desires and needs. He distinguished such features of mentally healthy and self-confident personality: open-mindedness, non-verbal communication, faith in his/her own efforts, spontaneous expression of feelings, self-fulfillment of 'here and now' [7].

K.A. Abulkhanova-Slavska studied self-confidence in the context of analyzing regulatory mechanisms of the personality's activity. Not finding an appropriate way of activity for external task by a person is expressed in two extremes, such as: underestimated role of 'I', self-doubt, and overestimated role of 'I', that is confirmation of his/her exclusivity. According to the ideas of the scientist, self-doubt serves a basis for differentiating different types of activity, self-regulation process which mediates interconnection between the requirements and achievements of a person. [1, p. 3–18].

V.O. Sukhomlynskyi considered self-confidence of a child to be a thing which forms self-belief. "A person has to learn to see himself/herself and see clearly. The task of adults is to teach a child how to report to himself/herself on his/her success and failures." [11]

As S.K. Melnychuk mentioned, the constant positive attitude of a personality to his/her capacities, abilities, skills, and achievements creates the foundation of his/her self-confidence [5]. V.H. Romek determined personality's self-confidence as the major condition of his/her mental health. He associated it with such peculiarities as the ability of a person to embody his/her plans and achieve goals. It causes the condition of being satisfied with one's life and with self. Such emotional experience displaces negative emotions and positively affects person's attitude to himself/herself and others [8]. Among the destructive emotions which are the barrier for reaching self-confidence in adolescence, J. Volpe distinguished anxiety. He said 'anxiety and self-doubt can be overcome if fear in social situation is replaced with another emotion or behavior not compatible with fear [16, p. 24-25]. Such 'replacers' can be the emotions that appear during a sport game (e. g. football or volleyball) or a performance of some difficult for high-school students elements of gymnastics.

The development of self-confidence is conditioned by the peculiarities of personal and professional self-determination, the development of self-understanding, overcoming of the dependence of a personality on external determination, the agreement between 'Real I' and 'Ideal I' and the increase of the ability for self-determination and self-development. [5].

V.H. Romek mentioned that a self-confident person expresses his/her feelings directly and without fear, achieves goals, is self-content, and speaks freely about his/her wishes without causing negative emotions [8].

According to the views of T.V. Shypelyk, self-confidence, purposefulness and persistence correlate with personality's feeling of responsibility for the way he/she fulfils himself/herself in life [14]. In this respect, A.O. Rean noted that the more positive image a personality has about himself/herself, the more optimistic his/her attitude to life is. First and foremost task is to form subjective and positive image about self [6]. N.Ya. Chyrenko mentioned that valuable attitude to self is a systemic personality formation, product of individual self-development which reveals an active subjective orientation of a person. The latter is related to values of his/her conscience and behavior [12].

According to A. Lazarus, a confident person should be able to speak about his/her wishes and requirements directly, to say 'no'; to speak about both positive and negative feelings; to develop contacts, to

start and finish conversation. Self-doubt appears as a result of incompetence and defectiveness of at least one of these abilities [15].

In her research I.V. Sundukova proved that the physical training lessons motivate high-school students to keep healthy lifestyle; develop the youths' ability to evaluate the abilities of their personalities in correlation with given tasks; form confidence in their selves as well as in their physical and moral strengths; contribute to capacity of adjusting their positive emotional connection to work together with partners during physical activities; develop students' abilities to cope with their worries and override negative emotional states [9].

By studying self-confidence one should stress the role of self-respect of a young person which suggests satisfaction by his/her personality, self-acceptance, positive self-attitude, the agreement of both 'Real I' and 'Ideal I'. Psychological researches prove that high-school students, who have high level of self-respect, believe in themselves and in their ability to cope with their own imperfections. Students with low self-respect feel inferiority. It negatively affects emotional well-being and mental health of a personality. Regarding the views of V.M. Chernokozova, the meaning of students' valuable self-attitude consists primarily in their self-respect, recognition of self-esteem, development of individuality, finding the right place in the world and taking care about their physical, mental and moral development [13].

In general, positive self-attitude contributes to emotional comfort of young people. It correlates with the teachers', parents', and peers' estimation and with the level of academic success. In the empirical research of S.M. Labinska it is determined that such things as motivation for achieving the success, the medium ability for taking risks, low index of personal anxiety and the lack of fears connected with the situations of contact with teachers, parents and peers, cognitive motive of learning activities, the proper level of demand, self-confidence and self-respect can help to develop individual's positive self-estimation in this period [4]. Mentioned features are activated in the physical training lessons, namely the motivation for achieving success is being encouraged (when students receive a task to do some exercises and achieve some results), the student's desire to take a chance and raise the bar of their own physical abilities, to overcome unnecessary excitement and overcome fear of inability to cope with the given task are being revealed, etc.

The aforementioned things enable us to determine the following traits of self-doubt in the physical education lessons:

- Passive behavior in the physical education lessons;
- Inadequate reaction to teacher's remarks;
- Complete conformity to other people's points of view about themselves and everything that is happening;
- Undesirability to be in the center of events (competitions);
- The fear to refuse numerous requests of peers;
- comparing themselves with others and forming low self-esteem;
- constant anxiety that turns into chronic neuroses.

Discussion. For the purpose of revealing the level of self-confidence among students in the physical training lessons, we used a questionnaire 'Self-confidence' (Ph. Zimbardo) [2].

As the table 1 shows, the medium level of self-confidence dominates among high-school students (52% in the students of the 10^{th} grade and 46,7% in the students of the 11^{th} grade). It comes out in abstemious expression of the investigated purposefulness and persistence. High-school students with this level are quite balanced in determining of their targets and ways to achieve them. They usually adequately correlate their strength with complexity of the task to be done.

26,6% of 10^{th} grade students and 35,8 % of 11^{th} grade students (φ*emp=1,27) demonstrated high level of self-confidence. The respondents possess such traits as persistence and purposefulness, the ability to take responsibility for their actions and results of activity. They are ready to make their own decisions, to implement them and organize others in the same situations. This belief in their own personality is driven from valuable attitude to themselves.

21,3 % students of 10^{th} grade and 17,3 % students of 11^{th} grade showed low level of self-confidence. They are distinctive for their getting off track after having set goals, as well as their not showing persistence in overcoming both external and internal obstacles.

While having extremely nice physical skills, they don't actually believe in the possibility to put them into practice or exhibit them in the physical education lessons. They are timid in making important decisions. High-school students of this level don't risk taking responsibility for their decisions as well as are not ready

to take any responsibility for others. The state of being closed and unconfident doesn't bring high-school students psychological well-being. Moreover, it creates negative emotional background in which it is even harder to find the solution to the problem of achieving mental health.

Table 1

Quantitative index of self-confidence of high-school students n = 167

The level of self-confidence	10th grade n = 75		11th grade n = 92		Fisher's criterion φ*
	absolute	in %	absolute	in %	
High	20	26,6	33	35,8	1,27*
Medium	39	52	43	46,7	0,68*
Low	16	21,3	16	17,3	0,64*
Total	75	100,0	92	100,0	

Notatio conventions: * – φ*empirical < φ*criterion

Conclusions. The results of theoretical and experimental research showed that self-confidence influences students' mental and emotional well-being. Self-confidence is shown through positive self-esteem, self-respect and recognition of their own dignity.

It was established that a majority of respondents have medium level of self-confidence which comes out in moderate expression of purposefulness and persistence. High-school students of such a level are quite balanced in determining their targets and ways for achieving them. Constant physical exercising motivates students not just to keep healthy lifestyle but to evaluate their individual abilities in a proper way, build confidence in self as well as in their physical and moral strengths; it helps to learn how to develop positive emotional connection with their partners during physical activity.

Further studies will concern the increase of students' self-confidence and harmonious development of personality in the physical education lessons.

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INTERCONNECTIONS OF STRENGTH PREPAREDNESS AND MORPHOFUNCTIONAL STATE OF YOUTH

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Abstracts

The Topicality of our Research is determined by the need to increase the strength of youth preparedness as a means of diversifying the health-improving effect on the body of youth. ***The purpose of the research*** is to define the interconnections between the strength preparedness and the morphofunctional state of youth. ***Methods of the research –*** theoretical (the analysis of psychological and pedagogical and special literature, comparison, systematization of information), empirical (anthropometric measurements, pedagogical testing, medical-biological methods), statistical methods. A correlation analysis was performed in order to study possible functional interconnections between the indicators of strength`s development and components of physical condition. ***Results of the Work.*** The data of flexion and extension of the hands in the emphasis are positively correlated with the circumference of the chest (r = 0,34), shoulder (0,47), forearm (0,37), wrist (0,34) and are negative with body length (-0,32), thickness of skin and fat folds at triceps (- 0,36), under ilium bone (-0,37), the gastrocnemius muscle (-0,43). The results of arm-pumping exercises in push-up position have separate connections with other strength`s indications of youth. In particular, the obtained results are related to the data on the bent suspension (0,57), pull-up (0,62), lift up from the lying position per min (0,32), the deadlift (0,34). The deadlift is positively connected with dynamometry (0,31), the standing long jump (0,30), inclining forward from the sitting position; the bent suspension with pulling (0,64). The dynamometry of the wrist is connected with the weight of the body (0,35) and the circumference of a lower leg (0,36); the standing long jump with body length (0,31). ***Conclusions.*** The results of the study indicate that there are positive and negative connections between the strength`s preparedness, physical development and youth's functional capabilities. The revealed patterns should be taken into account in the process of planning of training classes on physical education in academic institutions.

Key words: strength preparedness, morphofunctional state, interconnections, youth.

Актуальність дослідження зумовлена потребою підвищення силової підготовленості молоді як засобу різнобічного оздоровчого впливу на організм молоді. ***Мета дослідження*** – визначити взаємозв'язки силової підготовленості та морфофункціонального стану молоді. ***Методи дослідження*** – теоретичні (аналіз психолого-педагогічної та спеціальної літератури, порівняння, систематизація інформації), емпіричні (антропометричні вимірювання, педагогічне тестування, медико-біологічні методи), статистичні. Із метою вивчення можливих функціональних взаємозв'язків між показниками розвитку сили й складниками фізичного стану проведено кореляційний аналіз. ***Результати роботи.*** Дані згинання й розгинання рук в упорі лежачи позитивно взаємопов'язані з окружністю грудної клітки (r = 0,34), плеча (0,47), передпліччя (0,37), зап'ястя (0,34) і від'ємно – із довжиною тіла (-0,32), товщиною шкірно-жирових складок трицепса (-0,36), над клубовою кісткою (-0,37), гомілкового м'яза (-0,43) Результати згинання й розгинання рук в упорі лежачи мають окремі зв'язки з іншими силовими показниками молоді. Зокрема, отримані результати пов'язані з даними вису на зігнутих руках (0,57), підтягування у висі (0,62), підйому в сід із положення лежачи за 1 хв (0,32), становою силою (0,34). Станова сила позитивно пов'язана з динамометрією (0,31), стрибком у довжину з місця (0,30), нахилом уперед із положення сидячи; вис на зігнутих руках – із підтягуванням (0,64). Динамометрія кисті пов'язана з масою тіла (0,35) та окружністю гомілки (0,36); стрибок у довжину з місця – із довжиною тіла (0,31). ***Висновки.*** Результати дослід- ження свідчать про наявність позитивних і негативних зв'язків між силовою підготовленістю, фізичним розвитком і функціональними можливостями молоді. Виявлені закономірності потрібно враховувати в процесі планування навчально-тренувальних занять із фізичного виховання в навчальних закладах.

Ключові слова: силова підготовленість, морфофункціональний стан, взаємозв'язки, молодь.

Людмила Черкашина, Роман Черкашин. Взаимосвязи силовой подготовленности и морфофункционального состояния молодежи. ***Актуальность*** исследования обусловлена необходимостью повышения силовой подготовленности молодежи как средства разностороннего оздоровительного воздействия на ее организм. ***Цель исследования*** – определить взаимосвязи силовой подготовленности и морфофункционального

состояния молодежи. ***Методы исследования*** – теоретические (анализ психолого-педагогической и специальной литературы, сравнение, систематизация информации), эмпирические (антропометрические измерения, педагогическое тестирование, медико-биологические методы), статистические. С целью изучения возможных функциональных взаимосвязей между показателями развития силы и составляющими физического состояния проведен корреля- ционный анализ. ***Результаты работы.*** Данные сгибания и разгибания рук в упоре лежа положительно взаимосвязаны с окружностью грудной клетки (r = 0,34), плеча (0,47), предплечья (0,37), запястьи (0,34) и отрицательно – с длиной тела (-0,32), толщиной кожно-жировых складок трицепса (-0,36), надподвздошной костью (-0,37), берцевой мышцей (-0,43). Результаты сгибания и разгибания рук в упоре лежа имеют отдельные связи с другими силовыми показателями молодежи. В частности, полученные результаты связаны с данными веса на согнутых руках (0,57), подтягивания в висе (0,62), подъема в сид из положения лежа за 1 мин (0,32), становой силой (0,34). Становая сила положительно связана с динамометрией (0,31), прыжком в длину с места (0,30), наклоном вперед из положения сидя; вис на согнутых руках – с подтягиванием (0,64). Динамометрия кисти связана с массой тела (0,35) и окружностью голени (0,36), прыжок в длину с места – с длиной тела (0,31). ***Выводы.*** Результаты исследо- вания свидетельствуют о наличии положительных и отрицательных связей между силовой подготовленностью, физическим развитием и функциональными возможностями молодежи. Выявленные закономерности нужно учи- тывать при планировании учебно-тренировочных занятий по физическому воспитанию в учебных заведениях.

Ключевые слова: силовая подготовленность, морфофункциональное состояние, взаимосвязи, молодежь.

Introduction. Research studies have proved that systematic physical exercises strengthen health, improve neuro-psychological resistance to emotional stress, support physical and mental working efficiency of children and young people [4; 6; 9; 10; 11]. The primary role in health-improving training belongs to vigorous exercises that build up the physique which functionally provides not only body movements but also energy production. Muscular system provides the corset function of all body organs and systems. Insufficient amount of muscle tissue leads to the development of metabolic diseases: diabetes, obesity, atherosclerosis, hypertrophy. Strength training have a positive effect on health, working efficiency, endurance, agility, speed [1; 3; 8]. Therefore, the optimal level of strength development is an effective factor in preventing diseases and providing locomotor and energy producing functions of the body.

The second equally important reason for the use of vigorous exercises is the desire of young people to have a perfect body build. It is this aesthetic motive that is a much more effective incentive for individual and systematic physical exercises than sound health [2; 7]. At the same time, for the implementation of health-improving training it is necessary to study the interconnections between strength development and morphofunctional state of the youth, which requires further research.

The purpose of the research is to find out the interconnections between strength preparedness and morphofunctional state of the youth.

Material and methods of the research. Theoretical (the analysis of psychological, pedagogical and special literature, comparison, systematization of information), empirical (anthropometric measurements, pedagogical testing, medical-biological methods) and statistical methods of research have been applied. The dynamometry of right and left hands, lifting force, bent suspension, pull-ups, push-ups, sit up from the lying position in 30 seconds, sit up from the lying position in 1 minute, standing long jump have been defined to assess strength development. Physical preparedness is determined by the level of development of physical qualities: endurance (3000 meters race), speed (100 meters race), agility (shuttle run 4x9 m), and dorsal spine mobility (bent forward from the sitting position). Physical development has been identified by the indicators of body length, body weight, the circumferences of chest, neck, shoulder, forearm, waist, hips, thigh, lower leg and wrist, the thickness of skin and fat folds of biceps, triceps, under the shoulder blade, over the ilium bone, of the gastrocnemius muscle. The systolic and diastolic blood pressure, heart rate, inspiratory hold (Shtange test), expiratory hold (Genchi test), and lung capacity have been measured to determine the state of the cardiovascular and respiratory systems of the body. Correlation analysis has been performed to study possible functional interconnections between the indicators of strength development and components of physical fitness.

Experiment involved 237 17-year-old boys, the students of Lutsk comprehensive secondary schools № 11 and № 18, and first year students of Lesia Ukrainka Eastern European National University.

Research results. The obtained data indicate that body weight is closely correlated with body length (r = 0.56), the circumferences of chest (0.75), forearm (0.61), hips (0.66), thigh (0.66), lower leg (0.61), wrist (0.64) and the thickness of skin and fat folds of biceps (0.60) and over the ilium bone (0.52) (Table 1).

Table 1

Correlation of the Indicators of Physical Development of the Youth

(zeros and commas are not specified)

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	56	63	57	29	39	51	34	47	54	20	-01	14	17	18
2		77	49	34	61	66	66	61	64	60	34	47	52	42
3			59	38	59	72	61	49	58	31	30	40	39	39
4				32	49	42	38	37	45	23	11	24	21	30
5					16	32	40	19	25	10	15	15	18	-05
6						52	54	38	62	46	24	40	40	34
7							60	37	53	35	22	35	34	36
8								59	53	47	36	49	49	29
9									40	50	31	42	51	29
10										45	15	36	38	35
11											47	53	53	32
12												30	33	41
13													71	41
14														58

Notes:

1. Body length;
2. Body weight;
3. Chest circumference at rest;
4. Neck circumference;
5. Shoulder circumference;
6. Forearm circumference;
7. Hips circumference;
8. Thigh circumference;
9. Lower leg circumference;
10. Wrist circumference;
11. Biceps skin and fat fold thickness;
12. Triceps skin and fat fold thickness;
13. The thickness of skin and fat fold under the shoulder blade;
14. The thickness of skin and fat fold over the ilium bone;
15. The thickness of skin and fat fold of the gastrocnemius muscle .

The average correlation between body weight and the circumferences of neck (0.49), shoulder (0.34), the thickness of skin and fat folds of triceps (0.34), under the shoulder blade (0.47), of lower leg (0.42); the systolic (0.36) and diastolic (0.34) arterial blood pressure has been found out. It should be noted that body weight negatively correlates with the long-distance running (-0.31), that is, an increase in the body weight leads to a decrease in the results in these events. Overall, body weight has the highest number of reliable ($p < 0,05$) interconnections – 22.

Body length also has a large number of interconnections. The highest correlation coefficient has been found out between body length and chest circumference (0,63); the circumferences of neck (0,57), hips (0,51) and wrist (0,54). The average correlation is observed with the circumferences of forearm (0,39), waist (0,38), thigh (0,34), lower leg (0,42).

Chest circumference is a rather informative indicator, which is associated with many others. The results of correlation analysis show that, in addition to the already mentioned connections, chest circumference correlates with the circumferences of neck (0.59), shoulder (0.38), forearm (0.59), waist (0.54), hips (0.72), thigh (0.61), lower leg (0.49), wrist (0.58); with the thickness of skin and fat folds of biceps (0.31), triceps (0.30), under the shoulder blade (0.40), over the ilium bone (0.39), of the gastrocnemius muscle (0.39); with systolic arterial blood pressure (0.31), the duration of bent suspension (-0.31), a number of pull-ups (-0.32). Similar tendency of correlation connections is observed in other circumferences of body parts and the thickness of skin and fat folds.

Correlation analysis shows positive and negative connections between physical preparedness, physical development and functional capabilities of the youth (Table 2). Shuttle run 9 x 4 meters has interconnections with the thickness of skin and fat folds of triceps (0.31) and the gastrocnemius muscle (0.38); 100 meters race has interconnections with systolic arterial blood pressure (0.38). Negative correlation is found out between 3000 meters race (endurance) and body weight (-0.31), the thickness of skin and fat folds of triceps (-0.33), and over the ilium bone (-0.31).

Table 2

Correlation of the Indicators of Physical Development and Physical Preparedness of the Youth

(zeros and commas are not specified)

	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	15	15	19	26	02	21	05	02	21	-01	-37	31	-31	-32
2	10	19	36	34	09	-05	35	-01	-36	18	-15	22	25	-18
3	13	26	31	25	11	-14	26	-09	-33	18	33	13	02	34
4	20	25	08	08	16	-07	18	-08	-34	14	-19	05	-01	-15
5	08	11	08	06	12	-11	20	11	-22	20	48	15	02	47
6	15	28	29	16	03	01	19	-11	-49	13	37	23	05	37
7	04	13	32	15	09	01	14	01	-42	04	-20	25	22	-18
8	10	20	40	13	09	-03	24	01	-39	02	-34	27	17	-25
9	-03	16	23	30	-02	07	36	-05	-36	09	-25	17	15	-21
10	12	27	26	19	-01	04	21	05	-26	25	39	16	09	39
11	-05	15	22	23	-10	04	25	-22	-34	02	-19	25	28	-12
12	-17	04	20	10	07	-19	07	08	-16	-16	-13	04	31	-36
13	09	16	27	06	04	01	29	-08	-25	04	-21	30	17	-15
14	07	15	43	18	11	06	20	-07	-34	-04	-34	34	21	-37
15	04	05	27	10	18	-11	12	05	-28	-16	-31	17	38	-43
16		64	06	-13	14	-10	19	04	-02	14	09	07	04	09
17			63	25	04	-15	23	03	-10	10	-15	09	-03	16
18				45	02	10	-03	12	-30	01	-11	12	07	05
19					-16	04	02	-01	-25	08	-18	02	-07	12
20						39	11	02	04	-11	07	-12	21	08
21							02	-09	-01	12	41	18	08	32
22								31	-01	17	42	06	21	31
23									28	30	-03	-17	-07	34
24										17	65	-35	-01	57
25											09	06	-18	21
26												-14	14	62
27													11	08
28														25

Notes: 1–15 – See Table 1;

16. Inspiratory hold;
17. Expiratory hold;
18. Systolic arterial blood pressure;
19. Diastolic arterial blood pressure;
20. Heart rate at rest;
21. Dynamometry of the right handt;
22. Dynamometry of the left hand;
23. Lifting force;
24. Bent suspension;
25. Standing long jump;
26. Pull-ups;
27. Balance stand ("Flamingo" test);
28. Shuttle run 9 x 4 meters;
29. Push-ups;

The results of push-ups are positively **interconnected** with chest circumference (r = 0.34), shoulder circumference (0.47), forearm circumference (0.37), wrist circumference (0.34) and negatively – with body length (r = -0.32), the thickness of skin and fat folds of triceps (-0.36), under the ilium bone (-0.37), and of the gastrocnemius muscle (-0.43) (fig. 1).

The data on push-ups have some connections with other physical qualities of boys. In particular, the obtained results are related to the data on bent suspension (0.57), pull-ups (0.62), sit up from the lying position in a minute (0.32), lifting force (0.34).

Similar tendency is observed in the results of pull-ups (Fig. 2). They are also negatively **correlated with** body length and the thickness of skin and fat folds and positively - with physical tests (dynamometry of the hand, bent suspension, push-ups).

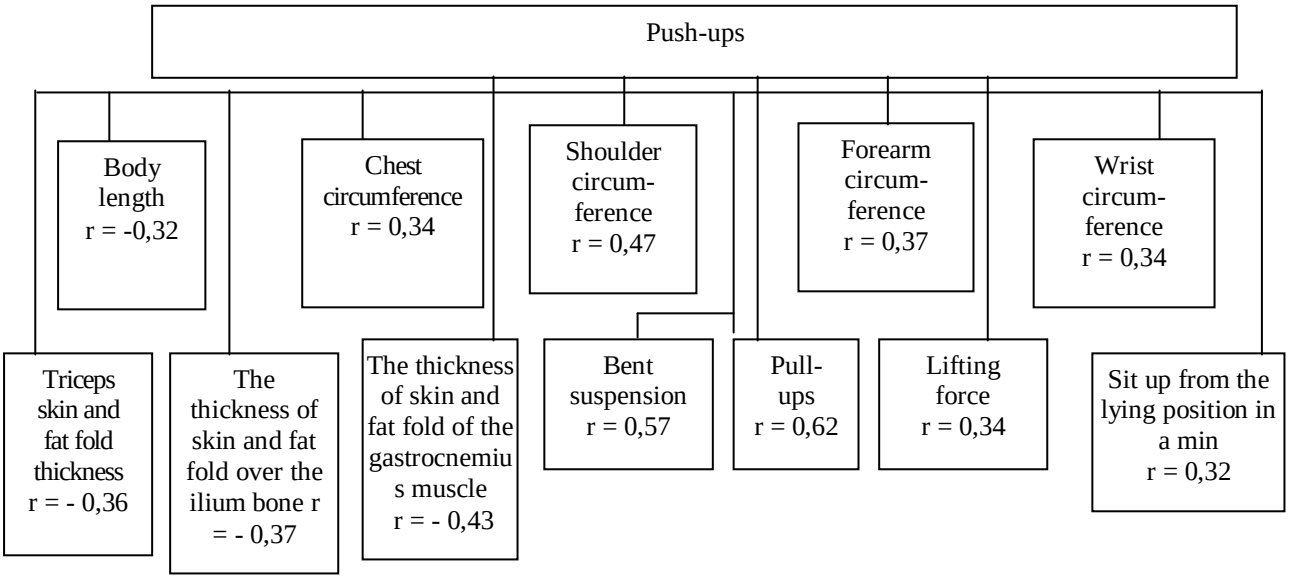

Fig. 1. *Correlation between the results of push-ups and the indicators of physical fitness*

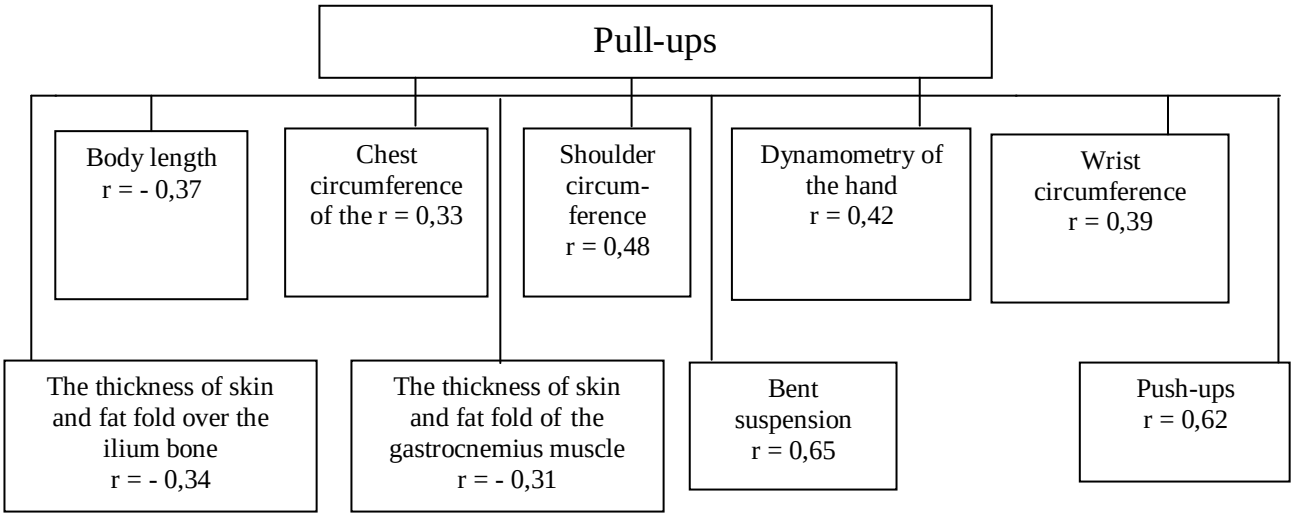

Fig. 2. C*orrelation between the results of high pull-ups and the indicators of physical fitness*

Discussion. Correlation analysis made it possible to find out functional interconnections between the indicators of physical fitness of the youth. Our research is based on the biological law of integration of body structures and body functions[5]. According to this law, integration of body parts is transformed into a coordinated organization, in which all these parts to a certain degree depend on each other. The indication of correlation is an instrument to determine the integration of organules, tissues, organs and organ systems.

37 indicators which showed boys' physical development, physical preparedness, physical efficiency and functional capabilities have been analyzed in total.

The results of correlation analysis have proved that the majority of veracious interconnections are observed between the indicators of physical development. Anthropometric indicators of a human being are closely interrelated. Body weight and length, the circumferences of chest, shoulder, forearm, hips, thigh, lower leg, wrist, the thickness of skin and fat folds of biceps and over the ilium bone are most closely interconnected.

Our research focused on the interconnections between strength development and morphofunctional indicators of boys. Correlation analysis shows positive and negative connections between strength preparedness, physical development and functional capabilities of the youth .

It should be noted that the tendency of negative correlation between body weight and strength preparedness of the youth is observed. It is established that the lifting force is positively connected with dynamometry (0.31), standing long jump (0.30), bent forward from the sitting position; bent suspension – with pull-ups (0.64). Dynamometry of the hand is connected with body weight (0.35) and lower leg circumference (0.36); standing long jump – with body length (0.31).

Negative correlation is found out between the duration of bent suspension and body height (-0.38), body weight (-0.36), chest circumference (-0.33), the circumferences of neck (-0.34), forearm (-0.49), waist (-0.31), hips (-0.42), thigh (0.39), lower leg (-0.36), the thickness of the skin and fat folds of biceps (-0.34), under the ilium bone (-0 , 34), systolic blood pressure (-0.30). Pull-ups – with body height (-0.31), chest circumference on exhalation (-0.31), on inhalation (-0.33) and at rest (-0.32), forearm circumference (-0.34). Sit up from the lying position – with weight (-0.42), waist circumference (-0.38), the thickness of skin and fat fold of biceps (-0.33), under the shoulder blade (-0.35), over the ilium bone (-0.40). 100-meters race and dynamometry (-0.31); balance stand (“Flamingo” test) and bent suspension (-0.35); running with increasing speed (endurance) and 100-meters race (-0.63) are negatively interconnected.

The results of correlation analysis show the interconnection and interdependence of physical preparedness, physical development and body structure of the youth. This should be taken into consideration while planning training classes in physical education in higher educational establishments.

Conclusion. Correlation analysis has been performed to study possible functional interconnections between the indicators of strength development and the components of physical fitness. The obtained data on push-ups are positively interconnected with the circumferences of chest (r = 0.34), shoulder (0.47), forearm (0.37), wrist (0.34) and negatively – with body length (-0.32), the thickness of skin and fat folds of triceps (-0.36), over the ilium bone (-0.37), of the gastrocnemius muscle (-0.43) The results of push-ups have some connections with other strength indicators of boys. In particular, the obtained results are related to the data on bent suspension (0.57), pull-ups (0.62), sit up from the lying position in a minute (0.32), lifting force (0.34). Lifting force is positively connected with dynamometry (0.31), standing long jump (0.30), bent forward from the sitting position; bent suspension – with pull-ups (0.64). Dynamometry of the hand is connected with body weight (0.35) and lower leg circumference (0.36); standing long jump – with body length (0.31).

The results of the study show positive and negative connections between strength preparedness, physical development and functional capabilities of the youth. These regularities should be taken into account while planning training classes in physical education in higher educational establishments.

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PHYSICAL PREPAREDNESS OF PAWERLIFTERS WITH MUSCULOSKELETAL LESION AS A FACTOR OF EFFICIENCY OF TRAINING PROGRAM

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Abstracts

Topicality. Considering the possibility of negative influence on the health of athletes with disabilities, the mechanical transfer of approaches to the training of healthy powerlifters into the practice of adaptive sports, there is a need to develop and substantiate programs for the training of athletes with disabilities. ***The purpose*** of the study is to substantiate the effectiveness of the training program on the basis of analysis of indicators of physical preparedness of powerlifters with musculoskeletal lesion at the stage of initial training. ***Method and Methodology.*** To solve this goal the analysis and generalization of scientific and methodical literature, pedagogical testing, pedagogical experiment, methods of mathematical statistics was used. ***Results.*** On the basis of the analysis of scientific and methodological literature and best practices in sport practice a program of training of powerlifters with musculoskeletal lesion was developed at the stage of initial training. As a result of the experimental implementation of the program in the practice of sport, the degree of influence of powerlifting exercises on the physical preparedness of powerlifters was detected. Significant differences were found ($p < 0.01$) in tests for manual muscle testing, running at 30 m, cooper's 12- minute test, shoulder flexibility test, throwing a ball at the target in sitting position before and after the experiment in powerlifters at the initial training stage. ***Conclusions.*** A statistically significant increase in the indicators of physical preparedness can indicate the possibility of reducing the impact of lost functions on the lives of athletes with disabilities through the use of powerlifting. The scientific results obtained during the experimental verification allow us to conclude about the positive impact of powerlifting exercises on the physical preparedness of athletes with musculoskeletal lesion.

Key words: powerlifting, the stage of initial training, musculoskeletal lesion, physical qualities, rehabilitation.

Марія Розторгуй. Фізична підготовленість пауерліфтерів з інвалідністю як чинник ефективності програми підготовки. ***Актуальність.*** Ураховуючи можливість негативного впливу на здоров'я спортсменів з інвалідністю механічного перенесення підходів до підготовки здорових пауерліфтерів у практику адаптивного спорту, постає необхідність розробки й обґрунтування програм підготовки спортсменів з інвалідністю. ***Мета дослідження*** – обґрунтування ефективності програми підготовки на основі аналізу показників фізичної підготовленості пауерліфтерів із пошкодженнями опорно-рухового апарату на етапі початкової підготовки. ***Метод та методологія проведення роботи.*** Для досягнення поставленої мети використано аналіз й узагальнення науково-методичної літератури; педагогічне тестування; педагогічний експеримент; методи математичної статистики. ***Результати роботи.*** На основі аналізу науково-методичної літератури та передового досвіду практики спорту розроблено програму підготовки пауерліфтерів із пошкодженнями опорно-рухового апарату на етапі початкової підготовки. У результаті експериментального впровадження програми в практику спорту виявлено ступінь впливу занять пауерліфтингом на фізичну підготовленість пауерліфтерів із пошкодженнями опорно-рухового апарату. Виявлено достовірні відмінності ($p<0,01$) у показниках за тестами «біг на 30 м», «12-хвилинний тест Купера на ручному велотренажері», «викрут із гімнастичною палицею з положення "гімнастична палиця хватом двох рук зверху вперед-униз"», «метання м'яча з положення сидячи в ціль» та мануально-м'язового тестування за всіма тестовими позиціями до початку й після експерименту в пауерліфтерів на етапі початкової підготовки. ***Висновки.*** Статистично достовірний приріст показників фізичної підготовленості може свідчити про можливості зменшення впливу втрачених функцій на життя спортсменів з

інвалідністю за допомогою занять пауерліфтингом і про ефективність програми підготовки пауерліфтерів на етапі початкової підготовки. Наукові результати, отримані в ході експериментальної перевірки, дають підставу для висновку про позитивний вплив занять із пауерліфтингу на фізичну підготовленість спортсменів із пошкодженнями опорно-рухового апарату на етапі початкової підготовки.

Ключові слова: пауерліфтинг, етап початкової підготовки, пошкодження опорно-рухового апарату, фізичні якості, реабілітація.

Мария Розторгуй. **Физическая подготовленность пауэрлифтеров-инвалидов как фактор эффективности программы подготовки.** ***Актуальность.*** Учитывая возможность негативного влияния на здоровье спортсменов-инвалидов механического переноса подходов к подготовке здоровых пауэрлифтеров в практику адаптивного спорта возникает необходимость разработки и обоснования программ подготовки для спортсменов-инвалидов. ***Цель*** исследования – обоснование эффективности программы подготовки на основе анализа показателей физической подготовленности пауэрлифтеров с поражениями опорно-двигательного аппарата на этапе начальной подготовки. ***Метод и методология проведения работы.*** Для решения поставленной цели использован анализ и обобщение научно-методической литературы; педагогическое тестирование; педагоги- ческий эксперимент; методы математической статистики. ***Результаты работы.*** На основе анализа научно-мето- дической литературы и передового опыта практики спорта разработана программа подготовки пауэрлифтеров с поражениями опорно-двигательного аппарата на этапе начальной подготовки. В результате экспериментального внедрения программы в практику спорта выявлена степень влияния занятий пауэрлифтингом на физическую подготовленность пауэрлифтеров. Наблюдаются достоверные различия ($p < 0,01$) в показателях по тестам «бег на 30 м», «12-минутный тест Купера на ручном велотренажере», «прокручивание гимнастической палки назад из положения «гимнастическая палка хватом двух рук сверху», «метание мяча из положения сидя в цель» и мануально-мышечное тестирование по всем тестовым позициям до начала и после эксперимента у пауэрлифтеров на этапе начальной подготовки. ***Выводы.*** Статистически достоверный прирост показателей физической подготов- ленности может свидетельствовать о возможности уменьшения влияния утраченных функций на жизнь спорт- сменов с инвалидностью с помощью занятий пауэрлифтингом и об эффективности программы подготовки пауэр- лифтеров на этапе начальной подготовки. Научные результаты, полученные в ходе экспериментальной проверки, позволяют сделать вывод о положительном влиянии занятий пауэрлифтингом на физическую подготовленность спортсменов с поражениями опорно-двигательного аппарата на этапе начальной подготовки.

Ключевые слова: пауэрлифтинг, этап начальной подготовки, поражения опорно-двигательного аппарата, физические качества, реабилитация.

Introduction. Adaptive sport is socially significant phenomenon that helps to overcome the lack of confidence in own abilities, defeat disability, achieve the highest possible sport result and demonstrate human capabilities to create conditions for social adaptation and integration of people with disabilities [1; 3; 4; 9; 12]. At the present stage of development, adaptive sport is directed towards achieving the highest result that promotes the formation of such social values as victory, record, prestige, spectacle, empathy. Sense of self-realization, personal growth and personal contribution to the development of society are formed on the basis of the demonstration of such a sport result, which has a great social significance [6; 7; 9].

Despite the positive aspects of the goal-oriented focus of adaptive sport, the desire to set records and to win medals causes numerous problems in adaptive sport, which are inherent to the Olympic sport [5; 6; 7; 11]. One of the most acute problems is the mechanical transfer of the methodological provisions for the training of athletes in the Olympic sport into the system of training athletes in adaptive sport, without taking into account the specifics of motor activity and the functional capabilities of athletes with disabilities [8; 10; 13]. Excessive intensity of training and competitive activities hinders the full realization of recreational and rehabilitative functions of adaptive sport.

This problem is particularly acute in the early stages of multiple years of preparation, which causes the forcing of preparation process and the occurrence of numerous sports injuries and associated diseases in persons with disabilities, which substantiates the need to find ways to adapt approaches to preparation and existing training programs for athletes with disabilities [2]. The solution to this problem in the practice of adaptive sports occurs within the framework of preparation of groups of initial training, which corresponds to the second stage of multiple years of preparation of athletes in adaptive sports. Thus, there is an important scientific and practical task of improving the structure and content of training programmes for athletes with disabilities in sport at the initial stage of training.

The goal of research is to substantiate the efficiency of the training programme, analyzing indicators of physical preparation of powerlifters with musculoskeletal lesion at the initial stage of training..

Material and methods of research. Participants: 28 athletes from the initial stage training group (first year of study) participated in the examination, including 6 athletes with cerebral palsy, 6 sportsmen with spinal injury and spinal cord injury, 8 athletes with amputations and 8 athletes with other musculoskeletal lesion. The average age of the subjects was 24.50 ± 8.31 years. All subjects had not engaged in sports sections before the experiment. Due to impossibility of forming equivalent control and experimental groups because of the large number of diseases and their courses, the experiment was of an absolute nature and provided for comparison of powerlifters' indicators before and after the experiment.

Organization of research. In order to determine the level of physical strength of powerlifters with damaged musculoskeletal system, determination of indicators of development of the basic physical qualities of these powerlifters by means of tests was carried out (table 1). The selection of tests was taking into account nosological peculiarities, features of athletes' motor activity and technical simplicity in the training process. Testing of physical fitness of athletes with osteo-muscular disorders was conducted before and after the experiment. To avoid the influence of external factors on the indicators of athletes' physical fitness, testing before and after the experiment was held at the same time. Before testing, athletes fulfilled a complex of combined developing exercises.

Table 1

A list of tests for determining physical fitness in powerlifters with osteo-muscular disorders

№ п/п	Name of the test	Physical quality
1.	Manual-muscle testing using dynamometer, kGs	Strength
2.	30-meters race (with a wheelchair / without a wheelchair), sec	Speed
3.	12-minute Cooper's test on a manual exercise bike, m	Stamina
4.	Shift with a broomstick from the position the broomstick with the grip of two hands from the top forward and down, cm	Agile
5.	Ball throwing from the sitting position to the target, the number of hits	Coordinating qualities

The process of defining the strength development level of powerlifters, who have their musculoskeletal system damaged, was based on the results of manual muscle testing, which was carried out using the dynamometer Microfet 2. The choice of test positions was done in accordance with the International Standards for the Classification of Spinal Cord Injury of American Spinal Injury Association [9]. The selection of tests and determination of their optimal number was done taking into account the nosological features and the level of the preserved locomotor capabilities of the athletes. Considering the level of the preserved locomotor capabilities of the athletes, who have taken part in the research, test positions for the assessment of the strength of the deltoid muscle, biceps, triceps, pectoralis and torso extension muscles were chosen.

The process of defining the level of the agility of the athletes, who have their musculoskeletal system damaged, was based on the results of 30-meter race test. Depending on the preserved locomotor capabilities, athletes took the test in a wheelchair or without it from the position of an elongated start. The 30-meter race test was carried out on treadmills of stadiums. Casio stopwatch, with an accuracy of 0.01 seconds, was used to track the results.

The level of endurance development was determined on the basis of the 12-minute Cooper test on the Matrix KRANKcycle Hand Exercise Bike. Wheelchair athletes took this test in their wheelchairs, which were fixed on special platforms. In case of necessity, the athletes were also fixed by means of belts to keep the torso still. In the course of the exercise, the starting position of the athletes included sitting and keeping their hands on the pedals. On the trainer's command athletes began to pedal for 12 minutes.

Examining the flexibility was carried out on the basis of the test of rotation with a broomstick from the starting sitting position on the chair, grabbing broomstick with two hands from top to bottom. Before performing the test, athletes with damaged musculoskeletal system must be fixed to the chair with the use of

special straps. A special marking on the broomstick was used to determine the distance between the thumbs of the left and right hands of the athletes.

Ball throwing at the target was carried out from the sitting position on the chair, holding the ball with two hands in front of you. There were used a 57-gramme tennis ball for throwing and a 1x1 metres target, which was placed on a wall at an altitude of 2 metres from the floor. The distance between the chair and the wall was 6 metres. At the team's coach command, the athlete did a pre-flight behind his head and threw a shot forward trying to hit the target. Athletes had to make five throws.

Statistical analysis. The obtained results were analyzed using the IBM SPSS Statistics 20 software. The criterion of Shapiro-Wilka was used to determine the normality of distribution in indicators of physical training. The Student's criterion was used in cases of a normal distribution in order to determine the authenticity of the differences in the indicators of athletes' physical training before and after the experiment. In the absence of normal distribution, the Wilcoxon criterion was used to estimate the value of statistical differences before and after the experiment.

Research results. The participants were engaged in the training programme with the norm of the weekly training routine that equals 6 hours, which corresponded to the first year of training in the initial training groups of powerlifting. The quantitative characteristics for the participants of the experiment at the initial training stage was 312 hours / year (table 2).

Table 2

General distribution of programme material for powerlifters, who have their musculoskeletal system damaged at the initial stage training

No	Section of program material	Number of hours
1.	Academic training	29
2.	Acquisition of the skills self-mobility and physical self-maintenance	3
3.	Physical training	115
4.	Technical training	88
5.	Mental training	48
6.	Competitive activities	2
7.	Control	4
8.	Recreation measures	22
Total:		312

The structure of the training programme for athletes is described in detail in our previous studies [11]. The theoretical part of the training programme for sportsmen, who have their musculoskeletal system damaged, in the initial training groups provided for the solving the problems of theoretical and mental training. The practical component of the training program for persons, who have their musculoskeletal system damaged, provided the implementation of the tasks of technical training, physical training, control, competitive activities, restoration measures, Acquisition of the skills self-mobility and physical self-maintenance.

Testing was conducted before and after the experiment in order to determine the degree of influence of the training program at the initial training stage on the physical preparation of powerlifters, who have their musculoskeletal system damaged (Table 3).

Analysis of the results of determining the powerlifters' physical fitness level, as a result of training in initial stage training groups, has shown that there was a significant increase in the indexes for all tests in all test subjects. Indicators for 30-meters race test, 12-minute Cooper's test on a manual exercise bike, shift with a broomstick from the position the broomstick with the grip of two hands from the top forward and down

from the top forward and down, ball throwing from the sitting position to the target and manual muscle testing for all test positions before and after the experiment, differ with the reliability level p <0.01.

Table 3

Physical preparation indices of powerlifters with musculoskeletal lesion before and after the experiment

Tests	Before experiment	After experiment	%	*p*
	$\bar{x} \pm SD$	$\bar{x} \pm SD$		
30-meter race test (with a wheelchair / without a wheelchair), s	14.00±1.41	12.78±1.16	8.70	< 0.01
12-minute Cooper's test on a manual exercise bike, m	3222.29±1281.76	3884.86±1199.57	20.56	< 0.01
Shift with a broomstick from the position the broomstick with the grip of two hands from the top forward and down from the top forward and down, cm	100.75±7.45	86.64±6.24	14.00	< 0.01
Ball throwing from the sitting position to the target, the number of hits	2.54±1.07	3.14±0.89	23.94	< 0.01
Manual-muscle testing				
Shoulder flexion, right arm, kgf	12.00±2.78	13.91±2.39	15.96	< 0.01
Shoulder abduction, right arm, kgf	12.03±2.77	13.99±2.25	16.36	< 0.01
Shoulder extension, right arm, kgf	11.56±2.81	13.63±2.43	17.82	< 0.01
Bending forearm, right arm , kgf	12.31±2.79	14.22±2.52	15.52	< 0.01
Forearm extension, right arm, kgf	10.70±2.87	12.46±2.60	16.42	< 0.01
Horizontal shoulder alignment, right arm kgf	10.41±3.29	12.27±2.92	17.90	< 0.01
Horizontal shoulder abduction, right arm , kgf	9.96±3.11	11.93±2.53	19.80	< 0.01
Shoulder flexion, left arm, kgf	11.33±2.81	13.52±2.45	19.29	< 0.01
Shoulder abduction, left arm, kgf	11.24±2.76	13.42±2.48	19.38	< 0.01
Shoulder extension, left arm, kgf	10.78±2.70	13.15±2.62	22.03	< 0.01
Bending forearm, left arm, kgf	11.74±2.76	13.98±2.57	19.11	< 0.01
Forearm extension, left arm, kgf	10.33±2.58	12.37±2.65	19.79	< 0.01
Horizontal shoulder alignment, left arm, kgf	9.92±2.98	12.00±2.76	20.99	< 0.01
Horizontal shoulder abduction, left arm, kgf	9.39±3.11	11.71±2.53	24.81	< 0.01

* $\bar{x}$ –average value, SD – quadratic deviation, % –percentage increase; p – authenticity.

Discussion. The highest increase in physical fitness indicators as a result of the experiment has been detected by tests of ball throwing from the sitting position to the target and manual muscle testing, indicating that powerlifting exercises have a significant impact on the level of development of coordination qualities and strength. The increase in the indicators of the test of ball throwing from the sitting position to the target, which characterizes the level of development of coordination qualities, was 23.94%, and indicators of the

results of manual muscle testing - from 11.71% to 14.22%.Indicators of the power growth capabilities by the test manual muscle testing of the right and left hands are different. Indicators of the power growth capabilities of the right hand in powerlifters are somewhat higher, which may be explained by a predominantly larger number of right-handed test subjects. At the same time, the growth indices for all tests significantly differ from the initial level of development of physical qualities ($p < 0.01$), which indicates the complex impact of the training programme at the stage of initial training on the physical preparation of powerlifters with damaged musculoskeletal system.

Numerous studies in the field of medicine show that the level of saved motor ability is the most significant factor influencing physical fitness in athletes with disabilities [3; 7; 12]. The key to increasing the physical fitness of athletes with damage to the musculoskeletal system is to restore lost functions, to increase the level of development of physical qualities and to create mechanisms that allow adapting the existing level of saved motor capabilities to the environment [3; 8; 10]. The results obtained during the study confirm the assertion that the classes of adaptive sports positively affect the physical fitness of people with disabilities. A statistically significant increase in the indicators of physical fitness can indicate the possibility of reducing the impact of lost functions of the athletes with disabilities using powerlifting and the effectiveness of the programme of training powerlifters at the initial stage training.

Conclusions. The testing results before and after the experiment proved the positive dynamics of the physical preparation of powerlifters who have damaged the musculoskeletal system at the initial stage of training. Comparison of indicators of physical fitness testing of athletes with musculoskeletal lesions has shown significant differences ($p < 0.01$) in these indices before and after the experiment. As a consequence, the highest growth rates have been identified at the development level of coordination qualities and strength.

As a result, the positive influence of the powerlifters' training programme on the physical training of athletes with damaged musculoskeletal system has been confirmed at the initial stage training stage. This indicates the possibility of improving athletes' level of social integration, restoration of lost functions, increase of the level of physical qualities development and motor activity with the help of powerlifting system in powerlifters with musculoskeletal lesions.

Prospects for further research are related to the development of training programs at various stages of multi-year training for athletes of different nosological groups in strength sports.

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RESULTS OF THE USE OF INTEGRATED PROGRAM OF PHYSICAL REHABILITATION OF SPORTSMEN AFTER DAMAGES OF ANKLE JOINT

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Abstracts

The aim of work was an improvement of results of physical rehabilitation of sportsmen of playing types of sport (on the example of football) with the intra-articular damages of ankle joint on the ambulatory stage by optimization and increase of efficiency of the differentiated application of rehabilitation measures, computer-integrated in a training process. In basis of this work was the fixed results of watching 36 sportsmen of 18–24, which engage in football, which got the inwardly-arthral damages of ankle joint, and are on the ambulatory stage of treatment. Researches were conducted in the clinic of the Medical center of «Mir Majid Erslan» of Beirut (Lebanon) on the base of cabinet of physical therapy. The trauma sportsmen of control group got the complex of rehabilitation measures on the traditional program of physical rehabilitation, accepted in this clinic. Injured basic group there was the offered complex of rehabilitation measures according to worked out by us programs, which included for itself the use of integrated in a training process medical gymnastics by the use of procedures of the modified ethnic Arabic bath-house by the successive use of procedures with the elements of the ethnic Arabic massage. For the estimation of efficiency of measures of physical rehabilitation of sportsmen we used the 100-levels scale of estimation of results of treatment of NEER (Neer - Grantham - Shelton (1967) in modification of D. Cherkes-Zade, M. Monesi, A. Causero, M. Marcolini (2003)). For the study of dynamics of change of quality of life of sportsmen and level of professional rehabilitation we used medic and sociological methodologies, namely: visual analog scale (Visual Analog Scale, VAS) and questionnaire of EuroQol-5D. The analysis of results of the conducted physical rehabilitation showed that at the positive dynamics of changes of the functional state of injured both clinical groups more expressed and for certain the best results were got in a victim basic group, which conducted a physical rehabilitation in obedience to the program offered byus.

Key words: ankle joint, physical rehabilitation, east massage, east bath-house, ambulatory stage.

Юсеф Шарбель. Результати використання інтегрованої програми фізичної реабілітації спортсменів після ушкоджень гомілково-ступневого суглоба. ***Мета*** роботи – покращення результатів фізичної реабілітації спортсменів-футболістів із внутрішньо-суглобовими пошкодженнями гомілково-ступневого суглоба на амбулаторному етапі за допомогою оптимізації та підвищення ефективності комплексного застосування реабілітаційних заходів, які інтегровано в тренувальний процес. ***Результати роботи.*** В основу роботи покладено результати спостереження за 36 спортсменами 18–24 років, котрі займаються футболом й отримали внутрішньосуглобові пошкодження гомілково-ступневого суглоба та перебувають на амбулаторному етапі лікування. Дослідження проводили в клініці Медичного центру «MirMajidErslan» м. Бейрут (Ліван) на базі кабінету фізичної терапії. Травмовані спортсмени контрольної групи отримали комплекс реабілітаційних заходів за традиційною програмою фізичної реабілітації, прийнятою в цій клініці. Постраждалим основної групи запропоновано комплекс реабілітаційних заходів згідно з розробленою нами програмою, що включав використання інтегрованої в тренувальний процес лікувальної гімнастики й процедур модифікованої етнічної арабської лазні та послідовне застосування процедур з елементами етнічного арабського масажу. ***Методи дослідження.*** Для оцінки ефективності заходів фізичної реабілітації травмованих спортсменів використано 100-бальную шкалу оцінки результатів лікування NEER (Neer-Grantham-Shelton (1967) у модифікації D. Cherkes-Zade, M. Monesi, A. Causero, M. Marcolini (2003)). Для вивчення динаміки зміни якості життя травмованих спортсменів та рівня професійної реабілітації застосовано медико-соціологічні методики, а саме: візуальну аналогову шкалу (Visual Analog Scale, VAS) й анкету EuroQol-5D. ***Висновки.*** Аналіз результатів проведеної фізичної реабілітації засвідчив, що за позитивної динаміки змін функціонального стану постраждалих обох клінічних груп більш виражені та достовірно кращі результати отримано в постраждалих основної групи, яким проведено фізичну реабілітацію згідно із запропонованою нами програмою.

Ключові слова: гомілково-ступневий суглоб, фізична реабілітація, східний масаж, східна лазня, амбулаторний етап.

Юсеф Шарбель. Результаты использования интегрированной программы физической реабилитации спортсменов после повреждений голеностопного сустава. ***Цель работы*** – улучшение результатов

физической реабилитации спортсменов-футболистов с внутрисуставными повреждениями голеностопного сустава на амбулаторном этапе путем оптимизации и повышения эффективности комплексного применения реабилитационных мероприятий, которые интегрированы в тренировочный процесс. ***Результаты работы.*** Основой данной работы были результаты наблюдения за 36 спортсменами, занимающимися футболом в клинике Медицинского центра «MirMajidErslan» г. Бейрут (Ливан) на базе кабинета физической терапии. Пострадавшие контрольной группы получили комплекс реабилитационных мероприятий по традиционной программе физической реабилитации, принятой в данной клинике. ***Методы исследования.*** Пострадавшим основной группы предложен комплекс реабилитационных мероприятий разработанной нами программы, который включал использование интегрированной в тренировочный процесс лечебной гимнастики, а также процедур модифицированной этнической арабской бани и этнического арабского массажа. ***Выводы.*** При позитивной динамике изменений функционального состояния пострадавших обеих клинических групп более выраженные и достоверно лучшие результаты получены у пострадавших основной группы, которым проводилась физическая реабилитация по предложенной нами программе.

Ключевые слова: голеностопный сустав, физическая реабилитация, восточный массаж, восточная баня, амбулаторный этап.

Introduction. The ankle joint injuries account for up to 15% of all joint injuries. The main contingent of people with this pathology is people of the most working age, namely athletes [4; 14].

The talocrural joint is a complex joint that carries considerable load, especially in sports, and is therefore often prones to traumatic injuries. The complexity of the anatomical structure and feeble protection of the soft tissues at systematic high loads and frequent traumatic actions leads to the fact that the mechanical strength of its elements is insufficient [3; 5; 12].

From 30 to 50% of all talocrural joint injuries and up to 12% among all pathologies of the musculoskeletal system are dislocations and fractures. Damage of the ligamentous-capsule apparatus of the talocrural joint is at the second place after pathology of the meniscus and makes up to 15% among all injuries of the joints. Intra-joint fractures of the talocrural joint are 1.5-4.0% among all skeletal bone fractures and 5-7% of all intra-joint fractures. Most victims with such injuries require prolonged treatment [7; 9; 11].

A large percentage of getting disability at open injuries of the talocrural joint is from 9.3% to 17.4%, which indicates the presence of unresolved issues in the treatment of such injuries [12].

At present, it is advisable to further improve, search and introduction into the process of rehabilitation after intra-joint injuries of the talocrural joints of the most advanced and scientifically educated technologies. Their use should be complex and provide a differentiated approach to the choice of forms and means, depending on the nature of damage to both the bone and cartilage structures of the joint and the soft tissues that surround it [2; 8; 12].

The necessity to return skilled athletes to active training and competitive activities require high demands not only on their health care, but also on the further restoration of their health. It is necessary to take into account the possible material costs and aim at reducing them, including by improving the range of rehabilitation measures at all stages and, in particular, the outpatient one [10].

The main purpose of physical rehabilitation, as an integral part of the medical rehabilitation process, is a comprehensive process of restoring the health, physical condition and employability of the victims with the use of physical exercises and natural factors for therapeutic and prophylactic purposes [1; 13].

The purpose of the research is to substantiate the structure and content of the program of physical rehabilitation of athletes of playing sports (for example football) with internal joint injuries of the talocrural joint at the outpatient stage.

The research methods. In the performance of comprehensive medical examinations with the participation of athletes, the World Medical Association Declaration of Helsinki on Ethical Principles of Medical Research with human participation as the object of the research was followed. The content of maximum test loads and procedures for measuring physiological parameters was being in accordance with International Rules and Requirements for Biomedical Research with human participation. Tested people were acquainted with the content of the tests, measurement procedures and agreed with its conduction 36 victim athletes (male players), who received intra-joint injuries of the talocrural joint, took part in the pedagogical experiment presented in this research.

Injured athletes who participated in the study ranged in age from 18 to 24 years. The mean age was (22.8 ± 1.3) years in the main group and (21.7 ± 2.1) years in the control group.

The study was conducted at the MirMajidErslan Medical Center, Beirut (Lebanon), at a physical rehabilitation office. The vast majority of the victims were residents of Beirut. The study involved traumatized athletes with closed talocrural joint injuries A1, A2, C1 and C2 types according to the AO / ASIF classification [4].

All traumatized athletes were divided into two equal clinical groups – the main and the control group (18 victims each). Trauma limitation ranged from 5 weeks to 2 months, moreover traumatized athletes of both clinical groups had undergone rehabilitation treatment for the first time.

All the traumatized athletes of both groups had undergone a primary and re-examination immediately before rehabilitation treatment and at its completion in 30 days after its initiation, which allowed assessing the dynamics of changes in the organism's indices.

To evaluate the effectiveness of physical rehabilitation measures for traumatized athletes, we used a 100-point Neer-Grantham-Shelton treatment score in D. Cherkes-Zade [6; 12].

We used medical and sociological methods, namely: VisualAnalogScale (VAS) and questionnaire EuroQol - 5D for study the dynamics of changes in the quality of life of traumatized athletes and the level of vocational rehabilitation [8].

The digital material obtained in research was processed using the Statisticafor Windows 6.0 general software package. The significance of the differences between the groups (comparing the mean values for each group) was determined using the Student's t test (t). The probability level was assumed to be 95%.

The results of the research. Injured athletes of the 1st (control) group have received a set of rehabilitation measures according to the traditional program of physical rehabilitation, adopted at the clinic of the MirMajidErslan Medical Center in Beirut. The injured group I athletes were assigned 3 sessions of magneto therapy with a magnetic field induction up to 30mT per week. Laser therapy in this phase was used by patients 3 times, taking into account the type of radiation monochrome on the talocrural joint and reflex zones, but usually in a constant mode with a power of up to 25 mW for 15 - 30 seconds each. The total time of the procedure was 3 minutes. Magneto therapy was assigned to all injured athletes of group I – 3 sessions (with previous characteristics), laser therapy – 3 sessions with identical capacity.

For the victims of group II the complex of rehabilitation measures was prescribed according to our program of complex application of the means of physical rehabilitation of the injured athletes, which included the use of therapeutic gymnastics, which was integrated into the training process, and massage with elements of ethnic Arab massage using the procedures of modified Arabic bath.

A set of physical rehabilitation measures, which consisted of the combined use of the traditional Arabic bath procedure and the massage procedure in combination with oriental massage techniques, integrated into the training process, has been developed by us. Choosing the oriental bath as a mean of physiotherapy for the victim athletes with consequences of intra-joint injuries of the talocrural joint, we took into consideration the following reasons:

1. The traditional popularity of visiting the oriental bath in Lebanon and its use as a preventive and therapeutic agent.

2. The authenticity of the bath used and the historical ethnic and cultural traditions of the Lebanon nation.

3. Injured athletes who participated in the research, had domestic experience of using the oriental bath and had the basics of the steaming method.

We supplemented the method of steaming in the oriental bath, which had some differences from the traditional, in particular:

1. Limiting the procedure time 100-120 minutes;

2. The number of procedures per week – three (Monday, Wednesday and Friday);

3. Control of the patient's condition and degree of action of each procedure, which was expressed in the monitoring by the doctor of blood pressure and heart rate before and after the procedure, as well as self-examination of physical condition by the patient;

4. Application at the end of the warm shower and air cooling procedure;

5. Absence of traditional peeling Kese (bath glove) and foam massage. We modified the procedure of oriental massage with the emphasis on the injured limb.

6. The control of the condition of the injured athletes was carried out on the survey of deterioration of health at appearance of uncomfortable subjective sensations, by external signs of changes of a state, measurement of blood pressure and heart rate during the procedure.

For each part of the program of oriental massage and ethnic bath procedure, the purpose and tasks of physical rehabilitation were determined, as well as the methodical sequence of their implementation.

The features of the rehabilitation period, as well as quantitative and qualitative clinical parameters (questioning, somatoscopy, anthropometry, goniometry, pulsometry, arterial tonometry, etc.) were taken into account.

The procedures we have developed for the athletes-footballers with intra-joint injuries of the talocrural joint of the program of complex application of the means of physical rehabilitation, integrated into the training process, were assigned differently in each individual case and were applied individually.

That is, the program of complex application of the means of physical rehabilitation is based on the quantitative indicators of the functional capabilities of the musculoskeletal system of the injured athlete as a whole, the correct selection of recovery modes taking into account the individual features, the degree of clinical and functional disorders.

The results of using the traditional NEER program of physical rehabilitation of the I (control) group after treatment slightly improved, namely, the number of unsatisfactory results decreased by 5.6%, the proportion of satisfactory results decreased by 22.2%, due to a two-fold increase in the proportion of good results – up to 55.6% (see table 1).

Table 1

Results of physical rehabilitation of injured athletes of the I (control) group according to the NEER methods

The results of treatment	Observation period			
	before treatment		after treatment	
	abs.	%	abs.	%
Good	5	27,8	10	55,6
Satisfied	9	50	5	27,8
Unsatisfied	4	22,2	3	16,6
Total	18	100	18	100

After a course of comprehensive use of physical rehabilitation tools under our proposed program, the results of the II (main) group improved significantly, namely – the number of good results increased by 50% due to a significant decrease in the number of satisfactory results by 27.8%, and the lack of unsatisfactory results after conducted rehabilitation treatment (see table. 2).

Table 2

Results of physical rehabilitation of injured athletes of the II (control) group according to the NEER methods

The results of treatment	Observation period			
	before treatment		after treatment	
	abs.	%	abs.	%
Good	4	22,2	13	72,2
Satisfied	10	55,6	5	27,8
Unsatisfied	4	22,2	-	-
Total	18	100	18	100

According to the EuroQol – 5D questionnaire, at the beginning of rehabilitation activities under the traditional program in the I (control) group, the number of good results increased unessentially – by 5.6%, obviously due to the same decrease in the number of unsatisfactory results as the number of satisfactory results remained unchanged – 33 , 3% (see table 3).

The use of the program of comprehensive application of physical rehabilitation according our proposed program significantly improved the results of the control group, namely – the number of good results doubled

to 88.9%, satisfactory – decreased 3.5 times and amounted to 11.1%, and unsatisfactory results not found at all (see table 4).

Table 3

Results of physical rehabilitation of injured athletes of the I (control) group according to the EuroQol - 5D questionnaire

The results of treatment	Observation period			
	before treatment		after treatment	
	abs.	%	abs.	%
Good	9	50	10	55,6
Satisfied	6	33,3	6	33,3
Unsatisfied	3	16,7	2	11,1
Total	18	100	18	100

Table 4

Results of physical rehabilitation of injured athletes of the II (control) group according to the EuroQol - 5D questionnaire

The results of treatment	Observation period			
	before treatment		after treatment	
	abs.	%	abs.	%
Good	8	44,4	16	88,9
Satisfied	7	38,9	2	11,1
Unsatisfied	3	16,7	-	-
Total	18	100	18	100

In the Ist (control) group, VAS indicator has being improved for the first week after the beginning of rehabilitation and was 6.2 ± 0.41. In the second and third weeks it was further improved (5.3 ± 0.37 and 4, 4 ± 0.28, respectively), and the maximum subjective improvement occurred within 4 weeks (2.9 ± 0.22), in particular at the end of treatment ($p < 0.05$).

In the II (main) group victims, VAS indicator has improved since the 1 week of rehabilitation (5.7 ± 0.38). It was observing a clear reduction of pain within 2 and 3 weeks, which corresponds to 4.3 ± 0.23 and 2.8 ± 0.24 points, respectively, and reaches its best value of 1.3 ± 0.18 in 4 weeks from the beginning of rehabilitation ($p < 0,05$), (see table 5).

Table 5

VAS indicators of both clinical groups depending on the observation terms

Observation period	VAS	
	I (control) group	II (control) group
Initial level	8,4±0,36	8,4±0,21
1 week	6,2±0,41	5,7±0,38
2 week	5,3±0,37	4,3±0,23
3 week	4,4±0,28	2,8±0,24
4 week	2,9±0,22	1,3±0,18

*–$p<0,05$

The sequence of implementation of measures of the rehabilitation process, involves the selection of adequate methods of examination of traumatized athletes for identifing the existing limitations of their functional capacities. The tasks and selected means of physical rehabilitation were determined.

The proposed rehabilitation of program provides an individual approach to prescribing recovering treatment techniques, which depends on the degree of functional impairments and the general condition of the victim. In addition, it allows assessment and timely necessary correction of rehabilitation measures.

The developed program of physical rehabilitation also allows to influence certain links of pathological process of the injured joint. Optimization of the muscular tone of the affected limb, improvement of its macro- and microcirculation processes, general stimulation of regenerative processes contribute to the restoration of the functional capacity of the talocrural joint, improve the quality of life of the affected athletes and speed up their return to sports activities.

Injured athletes clearly track the improvement of clinical and functional indicators of the effectiveness of the rehabilitation treatment, which indicates the presence of the effect and a pronounced positive dynamics after the program of complex application of the proposed combination of physical rehabilitation. This is the reason to recommend it for use in the practical work of the medical-prophylactic and sports-physical establishments of the respective profile.

Prospects for further study are presented in the development of physical rehabilitation programs that can be integrated into the training process, using ethnic physiological means of influencing the damaged segment and the body as a whole.

Conclusions and prospects for further researches. Analytical processing of the obtained results of the study indicates the positive dynamics of changes in the functional status of victims of both clinical groups more. But more precise and significantly better results were obtained in the victims of the II (main) group, who was rehabbed by physical rehabilitation according to our proposed program using an integral program the process of therapeutic gymnastics, procedures of modified ethnic Arabian bath and the consistent use of procedures with elements of ethnic Arabian massage.

The use of techniques for assessing the effectiveness of physical rehabilitation measures for traumatized athletes NEER (Neer-Grantham-Shelton), the VAS (visual analogue scale), and the EuroQol – 5D questionnaire to study the dynamics of changes in athletes' quality of life and vocational rehabilitation allowed objectively determine the reduction in the number of a satisfactory and an unsatisfactory results, and the increase in the number of good results in the control group. The athletes of the main group have been allowed determining significantly more good and satisfactory results, in the absence of unsatisfactory results proving superiority of the proposed program of physical rehabilitation.

The injured athletes of the second (main) group demonstrated significantly better than the control group indicators of the applied methods and scales of evaluation of results in the same terms of observation, which indicates the presence of the obtained effect and the precise positive dynamics in the condition of the affected athletes after the physical rehabilitation program.

The proposed program of physical rehabilitation of traumatized athletes after intra-joint injuries of the talocrural joint at the outpatient stage, which is integrated into the training process, is effective and can be recommended for general professional use.

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THE RELATIVE COMPOSITION OF THE BODY MASS OF HIGHLY SKILLED ROWERS AND THEIR RELATIONSHIP WITH SPORTS RESULTS

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Abstracts

Topicality. The definition of body composition is important in sports and is used by coaches and sports doctors in the selection and optimization of the training regime in the preparation for the competition. ***The purpose of the work*** is to study the components of the body weight of highly skilled kayak rowers and the relationship of measurement data with the results of performances. ***Materials and Methods.*** A total of 76 sportsmen were examined, including 44 men and 32 women. To determine fat, muscle and bone mass, the formulas of Y. Matejka and E. G. Martirosov. ***Results.*** When comparing the indicators, it was found that the group of MSMC and ZMS have better results than the group of MS and KMS, both in terms of the time of passage of the 200- meter distance, and in terms of body weight composition. The indices of relative muscle mass between a group of ZMS and MSIC and a group of MS and MMR differences are significantly significant ($p<0,05$). Reliably significant correlation coefficients between competition result women videocnet group of ZMS and MSIC. At the 500-meter distance, athletes of the group of PMS and MSMC showed significant differences between the relative muscle mass and sports results ($p<0,05$). At the same distance in female kayakers differences are statistically significant in terms of relative fat and muscle mass ($p<0,05$). At a distance of 1000 m athletes of the group of ZMS and MSMC on all indicators exceed the group of MS and KMS, but the differences are not reliable ($p>0,05$). A similar trend is in men, performing at a distance of 5000 m, where athletes of the group of ZMS and MSMC in all indicators exceed the group of MS and KMS, but the differences are not significant ($p>0,05$). At a distance of 5000 m, there were differences in the relative body fat, muscle and bone mass of women of both groups, but no statistically significant differences were found ($p>0,05$). ***Conclusions.*** It is noted that the group of MSMC and ZMS, both in men and women at a distance of 200 m, in all components of the body mass composition exceed the group of MS and CMC. Statistically significant correlation coefficient was revealed. It is revealed that at a distance of 500 m the best indicators are athletes of msmk group and ZMS, both in men and women. Correlation coefficients are reliable between the sports result and bone mass index in the same group. At a distance of 1000 m the best values have athletes group msmk and ZMS, but the values are not statistically reliable. The correlation coefficient is reliable only between the sports result and the fat mass index. It is revealed that the group of MSMC and ZMS, both in men and women, have better results than the group of MS and KMS, both in terms of the passage of the 5000-meter distance and in terms of body weight composition. The differences are not reliable.

Key words: rowing, kayak, fat and muscle mass, distance.

Володимир Давидов, Володимир Шантарович, Дмитро Пригодич. Відносні показники складу маси тіла висококваліфікованих веслярів на байдарках і їх взаємозв'язок зі спортивним результатом. ***Актуальність.*** Визначення складу тіла має важливе значення в спорті й використовується тренерами та спортивними лікарями під час відбору та для оптимізації тренувального режиму в процесі підготовки до змагань. ***Мета роботи*** – дослідити компоненти складу маси тіла висококваліфікованих веслярів на байдарках і взаємозв'язок цих вимірювань із результатами виступів. ***Матеріали й методи дослідження***. Усього обстежено 76 спортсменів, із них 44 чоловіки та 32 жінки. Для визначення жирової, м'язової й кісткової мас використано формули Я. Матейки і Є. Г. Мартіросова. ***Результати.*** При зіставленні показників виявлено, що група МСМК

та ЗМС показує кращі результати, ніж МС і КМС, як за часом проходження 200-метрової дистанції, так і за показниками складу маси тіла. У показниках відносної м'язової маси між групами ЗМС та МСМК і МС та КМС відмінності достовірно значимі (p <0,05). Достовірно значимі коефіцієнти кореляції між змагальним результатом у жінок-байдарочниць групи ЗМС і МСМК. На 500-метровій дистанції в спортсменів групи ЗМС і МСМК відзначено достовірно значимі відмінності між показниками відносної м'язової маси й спортивним результатом (p <0,05). На цій же дистанції в жінок-байдарочниць відмінності статистично достовірні в показниках відносної жирової та м'язової маси тіла (p <0,05). На дистанції 1000 м спортсмени групи ЗМС і МСМК за всіма показниками перевершують групу МС і КМС, однак ці відмінності не достовірні (p> 0,05). Аналогічна тенденція й у чоловіків, які виступають на дистанції 5000 м, де спортсмени групи ЗМС і МСМК за всіма показниками кращі, порівняно з МС та КМС, але ці відмінності не достовірні (p> 0,05). На дистанції 5000 м у показниках відносної жирової, м'язової й кісткової маси тіла жінок обох груп простежено відмінності, проте статистично достовірної різниці не виявлено (p> 0,05). ***Висновки.*** Відзначено, що група МСМК і ЗМС, як чоловіки, так і жінки, на дистанції 200 м за всіма компонентами складу маси тіла перевершують групу МС та КМС. Виявлено статистично достовірний коефіцієнт кореляції. Установлено, що на дистанції 500 м кращими показниками володіють спортсмени групи МСМК і ЗМС як чоловіки, так і жінки. Коефіцієнти кореляції достовірні між спортивним результатом та показником кісткової маси в цій же групі. На дистанції 1000 м найкращими значеннями володіють спортсмени групи МСМК і ЗМС, але значення статистично не достовірні. Коефіцієнт кореляції достовірний лише між спортивним результатом та показником жирової маси. Виявлено, що група МСМК і ЗМС, як чоловіки, так і жінки, мають кращі результати, ніж МС та КМС, як за часом проходження 5000-метрової дистанції, так і за показниками складу маси тіла. Відмін- ності не достовірні.

Ключові слова: веслування, байдарка, жирова й м'язова маса, дистанція.

Владимир Давыдов, Владимир Шантарович, Дмитрий Пригодич. Относительные показатели состава массы тела высококвалифицированных гребцов на байдарках и их взаимосвязь со спортивным результатом. ***Актуальность.*** Определение состава тела имеет важное значение в спорте и используется тренерами и спортивными врачами при отборе и для оптимизации тренировочного режима в процессе подготовки к соревнованиям. ***Цель работы*** – исследовать компоненты состава массы тела высококвалифицированных гребцов на байдарках и взаимосвязь данных измерений с результатами выступлений. ***Материалы и методы исследования.*** Всего обследовано 76 спортсменов, из них – 44 мужчин и 32 женщины. Для определения жировой, мышечной и костной масс использовались формулы Я. Матейки и Э. Г. Мартиросова. ***Результаты.*** При сопоставлении показателей наблюдалось, что группы МСМК и ЗМС имеют лучшие результаты, чем МС и КМС как по времени прохождения 200-метровой дистанции, так и по показателям состава массы тела. В показателях относительной мышечной массы между группами ЗМС и МСМК и МС и КМС различия достоверно значимы (p<0,05). Достоверно значимы коэффициенты корреляции между соревновательным результатом у женщин-байдарочниц группы ЗМС и МСМК. На 500-метровой дистанции у спортсменов группы ЗМС и МСМК отмечаются достоверно значимые различия между показателями относительной мышечной массы и спортивным результатом (p<0,05). На этой же дистанции у женщин-байдарочниц различия статистически достоверны в показателях относительной жировой и мышечной массы тела (p<0,05). На дистанции 1000 м спортсмены группы ЗМС и МСМК по всем показателям превосходят группу МС и КМС, однако различия не достоверны (p>0,05). Аналогичная тенденция и у мужчин, выступающих на дистанции 5000 м, где спортсмены группы ЗМС и МСМК по всем показателям превосходят группу МС и КМС, но эти различия недостоверны (p>0,05). На дистанции 5000 м в показателях относительной жировой, мышечной и костной массы тела женщин обеих групп имелись различия, однако статистически достоверных различий не наблюдали (p>0,05). ***Выводы.*** Отмечается, что группа МСМК и ЗМС как у мужчин, так и у женщин на дистанции 200 м, по всем компонентам состава массы тела превосходят группу МС и КМС. Выявлен статистически достоверный коэффициент корреляции. Определено, что на дистанции 500 м лучшими показателями обладают спортсмены группы МСМК и ЗМС, как мужчины, так и женщины. Коэффициенты корреляции достоверны между спортивным результатом и показателем костной массы в этой же группе. На дистанции 1000 м наилучшими значениями обладают спортсмены группы МСМК и ЗМС, но значения статистически не достоверны. Коэффициент корреляции достоверен лишь между спортивным результатом и показателем жировой массы. Установлено, что группа МСМК и ЗМС, как мужчины, так и женщины, показывает лучшие результаты, по сравнению с МС и КМС как по времени прохождения 5000-метровой дистанции, так и по показателям состава массы тела. Различия не достоверны.

Ключевые слова: гребля, байдарка, жировая и мышечная масса, дистанция.

Introduction. People have been interested in the studying of the body composition throughout the human history. As it is claimed by the archaeological discoveries of the Stone Age figurines, the prerequisites for the development of a scientific approach to the study of the body composition were created

in those distant times. The investigations of the composition of human body mass have importantly increased in the recent years [3; 4].

The results of some studies [1; 2] reveal that the body composition is essentially interconnected with indexes of a person's physical ability, with their adaptation to environmental conditions, as well as with professional and sports activities. In clinical, health and sports medicine, the significant issue is the monitoring of the body composition. The scope and possibilities of methods for determining body composition are constantly expanding.

Different ratios of body composition indexes are directly related to the state of athletes' physical ability [5; 6]; they closely correlate with the biochemical and functional indexes of the body, widely used in sport.

The purpose of the work is to investigate the body mass composition components of highly skilled kayakers and the interrelation of the measurement data with the performance results.

Methods and objects of study. Highly skilled kayakers of both sexes performing at different distances (200, 500, 1000, and 5000 meters) were examined. A total of 76 athletes were examined, among them there were 44 men and 32 women.

In order to determine the fat, muscle and bone mass, the formulas of J. Mateyka [1921] and E. G. Martirosov [1982] were used. The relation between body composition indexes and sports result was established by determining the correlation coefficient (r) by means of statistical processing [Buriakin, 2015].

The tables 1–7 present the correlation of measurement data with the results of highly skilled performances of athletes.

The tables contain average arithmetic values ($\overline{X}$) of selected characteristics for the two groups of highly skilled kayakers, absolute (σ) and relative (V%) indexes of variations and also correlation coefficients with sports result.

Results and their discussion. Table 1 presents the statistical results of the body composition of kayak rowers, majoring in a competitive distance of 200 meters.

Table 1

The indexes of body mass composition of kayak rowers and their interrelation with sports result (K–1, 200 m, men)

Indexes	Athlete qualification							
	HMS, WCA n=18				MS, CMS n=26			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass , %	7,70	2,61	4,72	0,783	9,69	2,57	4,94	-0,835
Muscle mass, %	54,92*	2,73	3,42	0,342	50,18*	2,26	7,31	-0,506
Bone mass, %	15,38	2,19	4,73	0,639	14,62	3,47	6,25	-0,738
Rowing 200 m, s	38,83*	2,35	5,61	-	42,84*	3,48	3,57	-

Note: t – Student's test, * - p<0,05; correlation coefficients are credible at r<0,390 for 5% of significance level

The analysis of the received data revealed better results of the group WCA and HMS than results of MS and CMS group (picture 1). 3,91s is an average difference of 200 m distance covering.

Herewith correlation coefficients of kayak rowers' body mass indexes are closely connected with the results of 200 m distance covering. The connection of muscle mass indexes with 200 m covering time is statistically significant, where correlation coefficient was 3,42, at r<0,390 for 5% of level significance.

According to the index of women' relative bone mass (Table 2), a statistically significant correlation coefficient was 0.368 with r <0.390 for the 5% level of significance. There were also certain differences between the results of the 200-meter distance covering (p <0.05) in single kayaks, where female kayakers of the first group were 5.38 seconds ahead of the second group kayakers (Fig. 2). Other correlation coefficients of the investigated indexes of the kayakers' body mass have a fairly strong connection with the result of the 200-meter competitive distance. However, this connection is not statistically significant (p> 0.05).

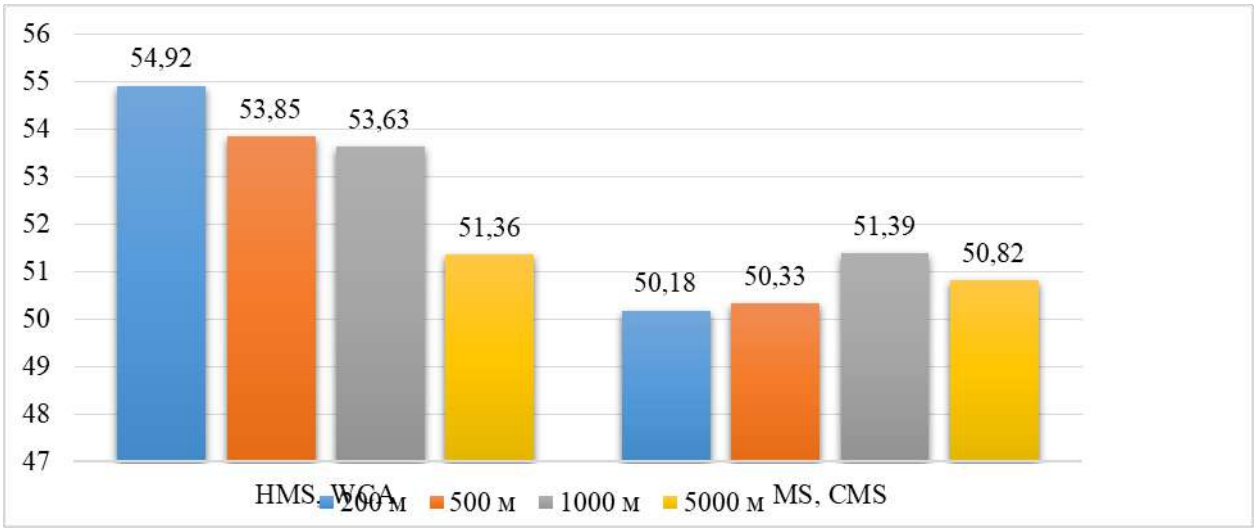

Fig. 1. *Relative muscle mass (%) of athletes of various qualifications majoring in rowing*

Table 2

The indexes of body mass composition of highly qualified kayak rowers and their interrelation with sports result (K – 1, 200 m, women)

Indexes	Athlete qualification							
	Honored Master of Sports, World-class athlete n=12				Master of Sports, Candidate Master of Sports n=20			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass, %	11,27	2,31	5,71	0,649	16,04	2,51	6,84	-0,582
Muscle mass, %	53,62	2,73	6,42	0,542	48,23	1,87	5,65	-0,438
Bone mass, %	13,38	3,69	5,73	0,368*	14,56	4,52	6,74	-0,627
Rowing 200 m, s	41,56*	2,68	5,94	-	46,84*	3,83	5,68	-

Notes: t – Student's test, * - p<0,05; correlation coefficients are statistically significant with r <0.390 for the 5% level of significance.

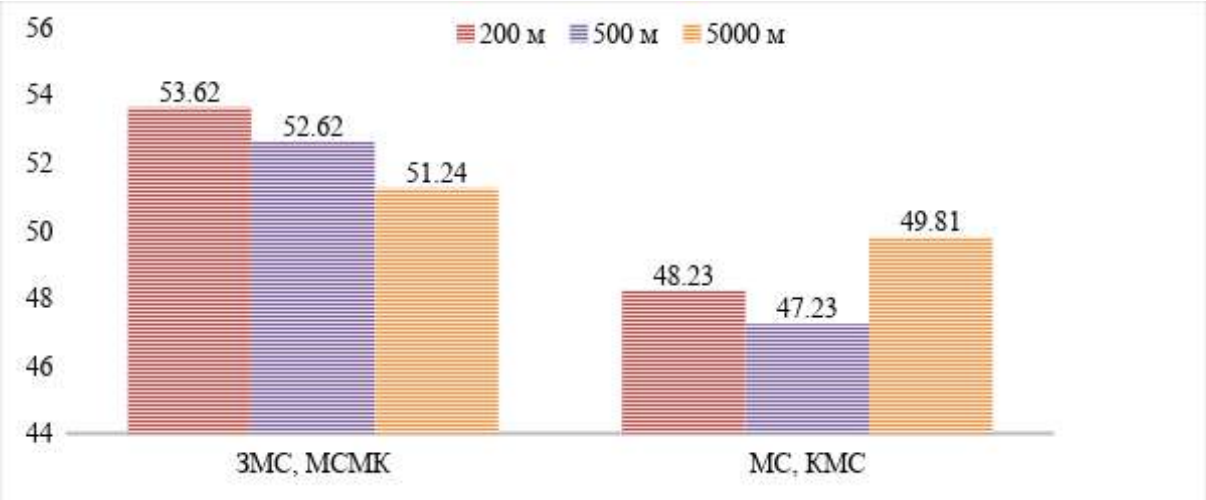

Fig. 2. *Relative muscle mass (%) of female athletes of various qualifications majoring in rowing*

Table 3 represents the results of kayakers specializing in 500-meter sprint rowing.

Table 3

The indexes of body mass composition of highly qualified kayak rowers and their interrelation with sports result (K – 1, 500 m, men)

Indexes	Athlete qualification							
	Honored Master of Sports, World-class athlete n=18				Master of Sports, Candidate Master of Sports n=26			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass, %	6,70	2,61	4,72	0,479	10,85	2,57	4,94	-0,539
Muscle mass, %	53,85*	2,73	3,42	0,328	50,33*	2,26	7,31	-0,584
Bone mass, %	14,38	2,19	4,73	0,725	14,12	3,47	6,25	-0,673
Rowing 500 m, s	1:47,29	3,46	3,59	-	1:52,45	3,24	5,63	-

Notes: t – Student's test, * - p<0,05; correlation coefficients are statistically significant with r <0.390 for the 5% level of significance

Since we were interested only in the result of the covering of a competitive 500-meter distance by both groups and its correlation with the body mass composition, we will not repeat the analysis of body mass indexes, as it remained unchanged. From the table, we see that the male kayak rowers of the group WCA and HMS are ahead of the group MS, CMS on the average in 4.16 s. (Fig. 3).

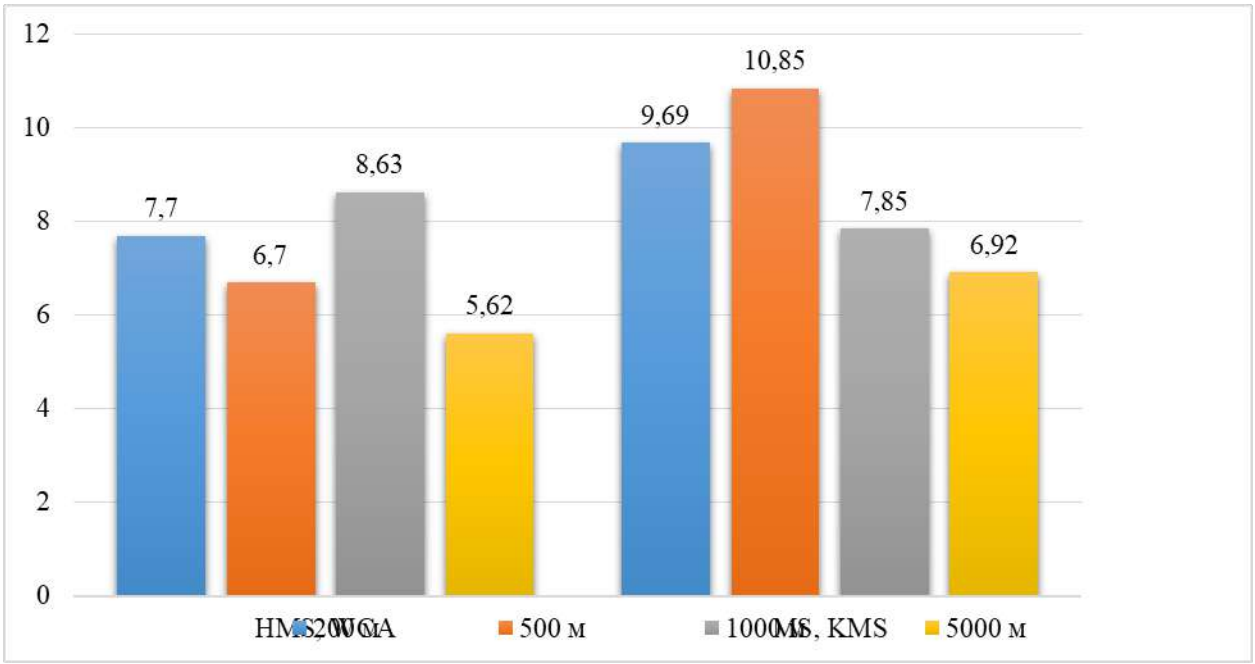

Fig. 3. *Relative fat mass (%) of athletes of various qualifications majoring in rowing*

There are statistical results of the indexes of body mass composition of female rowers in kayak singles specializing in the 500-meter competitive distance presented in Table 4. It is also revealed that the groups of HMS and WCA have better results than the MS and CMS groups, both in the time of the covering of 500-meter distance and in body mass composition. The differences between the results for all the investigated indexes of both groups of rowers are on the average: 5.47%, 4.67%, 1.12% and 4.65 seconds.

Table 4

The indexes of body mass composition of highly qualified kayak rowers and their interrelation with sports result (K – 1, 500 m, women)

Indexes	Athlete qualification							
	HMS, WCA n=12				MS, CMS n=20			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass, %	10,27*	2,31	5,71	0,485	15,04*	2,51	6,84	-0,382
Muscle mass, %	52,62*	2,73	6,42	0,542	47,23*	1,87	5,65	-0,438
Bone mass, %	13,18	3,69	5,73	0,284	14,16	4,52	6,74	-0,572
Rowing 500 m, s	1:56,64	2,93	6,23	-	2:03,83	3,91	7,14	-

Notes: t – Student's test, * - $p < 0.05$; correlation coefficients are reliable at $r < 0.390$ for 5% significance level.

The correlation of body mass indexes with sports result is quite close. However, the correlation coefficients are reliable only between the sports result and the relative bone mass index in the HMS, WCA group, where $r = 0.284$.

Table 5 summarizes the statistical results of the body mass indexes of male rowers in single kayaks, specializing in a competitive distance of 1000 meters.

According to the findings, the examined groups have some differences, both in the time of the 1000-meter competition, and in the body mass indexes. The differences between the results of the indexes of fat, muscle and bone mass in rowers of both groups are on the average, respectively: 2.22%, 2.24%, 0.74% and 4.01 s. The differences between the body mass indexes are not statistically significant ($p > 0.05$). However, the correlation coefficients are reliable only between the sports result and the fat mass index in the HMS, WCA groups, with $r = 0.352$, $r < 0.390$ for 5% of the significance level with respect to the Student's t-test.

Table 5

The body mass indexes of highly qualified kayak rowers and their interrelation with sports results (K – 1, 1000 m, men)

Indexes	Athlete qualification							
	HMS, WCA n=18				MS, CMS n=26			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass, %	8,63	2,05	6,13	0,352	7,85	2,57	4,94	-0,469
Muscle mass, %	53,63	2,14	5,31	0,482	51,39	1,93	6,02	0,624
Bone mass, %	13,38	2,46	5,62	0,628	12,64	3,52	5,43	-0,462
Rowing 1000 m, min / s	3:31,82	3,65	5,67	-	3:35,83	4,38	3,58	-

Note: the correlation coefficients are reliable with $r < 0.390$ for 5% level of significance with respect to the Student's t-test.

Table 6 summarizes the statistical results of the body mass indexes for men who specialize in 5000-meter competition distance rowing. When analyzing the obtained data, it is revealed that the groups of WCA and HMS have better results than the group of MS and CMS, both in the time of the 5000-meter distance, and in terms of the body mass indexes. The differences in the covering of the competitive distance of 5000 meters averaged 16.09 seconds. There were differences in the percentages of fat, muscle and bone mass of kayak rowers of both groups, but they were not statistically significant. At the same time, the

correlation coefficients of the rowers' body mass indexes has a strong connection with the result of covering the 5000-meter distance. And the relationship between body fat and bone mass of athletes and the time of the competitive distance is statistically significant, where the correlation coefficients were 0.379 and 0.268, respectively, with r <0.390 for 5% of the significance level with respect to the Student's t-test.

Table 6

The indexes of body mass composition of highly skilled kayak rowers and their interrelation with sports results (C–1, 5000 m, men)

Indexes	Athlete qualification							
	HMS, WCA n=18				MS, CMS n=26			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass, %	5,62	2,59	3,46	0,379	6,92	2,49	3,42	0,736
Muscle mass, %	51,36	2,79	3,94	0,526	50,82	2,36	5,62	-0,349
Bone mass, %	13,41	3,14	5,89	0,268	12,36	2,41	4,82	-0,348
Rowing 5000 m, min/sec	20:58,51	10,8	5,63	-	21:14,53	12,2	3,53	-

Note: correlation coefficients are reliable at r <0.390 for 5% of the level of significance with respect to t – Student's test

The statistical results of the indexes of the body mass composition of women specializing in kayak rowing at a competitive distance of 5000 meters are shown in table 7.

When analyzing the obtained data, it was revealed that the group of HMS, WCA and the group of MS, CMS have differences both in the time of the covering of competitive distance and in the indexes of body mass composition (Fig. 4).

Differences during the covering of the competitive distance of 5000 meters by kayakers averaged 17.16 seconds.

Table 7

The indexes of body mass composition of highly skilled kayak rowers and their interrelation with sports results (C–1, 5000 m, women)

Indexes	Athlete qualification							
	HMS, WCA n=18				MS, CMS n=26			
	Statistical results							
	$\overline{X}$	σ	V%	r	$\overline{X}$	σ	V%	r
Fat mass, %	9,76	2,89	4,93	0,638	13,87	2,38	5,84	-0,582
Muscle mass, %	51,24	2,53	3,64	0,346	49,81	3,47	4,36	-0,289
Bone mass, %	12,36	2,74	5,64	0,573	12,68	2,73	5,48	0,635
Rowing 5000 m, min/sec	23:29,42	4,62	5,46	-	23:46,26	4,73	3,47	-

Note: correlation coefficients are reliable at r <0.390 for 5% the level of significance with respect to t – Student's test

At the same time, the correlation coefficients of the body mass indexes of the rowers had a strong connection with the result of a 5000-meter distance covering.

And the relationship of muscle mass indexes with the performance time of the competitive distance was statistically significant, where the correlation coefficients were 0.346 and -0.289 at r <0.390 for 5% the level of the significance with respect to the t-Student's test.

Conclusions. It is noted that the group of MS, CMS, both among men and women at a distance of 200 m in all components of body mass composition are superior to the group of HMS, WCA. A statistically significant correlation coefficient was found.

It was revealed that at the distance of 500 m the athletes of the MS, CMS have the best performance, both among men and women. The correlation coefficients are reliable between the sporting result and the bone mass index in the same group.

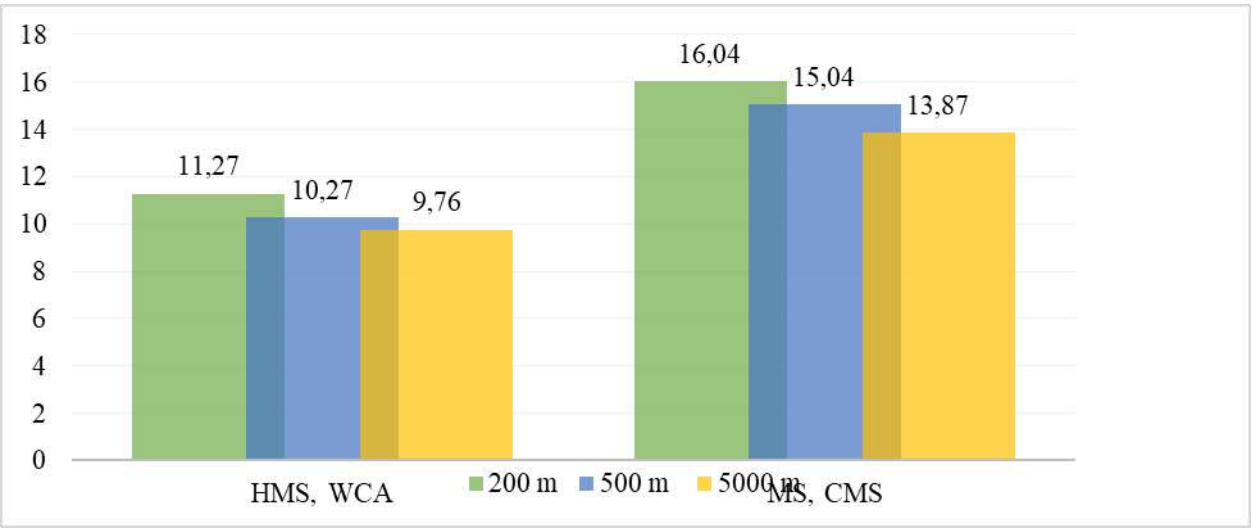

Fig. 4. *The relative fat mass (%) of female athletes of various qualifications majoring in rowing*

At a distance of 1000 m, the athletes of the MS, CMS have the best values, but the values are not statistically significant. The correlation coefficient is reliable only between the sports result and the index of fat mass.

It was revealed that the MS, CMS group, both among men and women, have better results than the HMS, WCA group, both in the time of covering the 5000-meter distance, and in terms of the body mass composition. Differences are not reliable. For men, a significant correlation coefficient between the indexes of adipose and bone body mass within the distance time is obvious. For women, the relationship is reliable in terms of muscle mass with the time of 5000 m.

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Reviews, Chronicles and Personals

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Polessky State University (Belarus)

Dear ladies and gentlemen!

We are inviting you to participate in the 3d International scientific practical conference «PHYSICAL ACTIVITY AND QUALITY OF A PERSON'S LIFE»

that will be held on **June 11–13rd, 2019** at the Lesya Ukrainka Eastern European National University and at the university recreation camp ***«Hart» (lake Svitiaz, Shatsk district, Volyn oblast, Ukraine).***

Mission of the conference is to involve scientists and researchers into the studies of the meaning and importance of physical activity in the processes of the improvement of the quality of human's life.

Fields of discussion:

1. The genesis of the notions of «physical activity» and «quality of human's life».
2. Components of the quality of human's life.
3. Physical activity and health.
4. Physical activity and a lifestyle of a person.
5. Programs of physical activity.
6. Physical activity as a parameter of the quality of human's life.
7. Physical activity in the physical rehabilitation and social adaptation.

The program of the conference includes plenary and sectional meetings, discussions of reports, master classes, and excursions.

Terms of participation:

By May 26, 2019 the participants must register and submit the thesis of their reports (in Ukrainian, Polish, English or Russian) to the site at http://conferences.eenu.edu.ua or send these documents to the email: olena.tomaschuk@eenu.edu.ua (a sample is added). The file name must include the author's surname and the number of the desired field of the conference discussions (see the above list of the fields of discussions). *Example*: Shevchenko_3.

By June 1, 2019 p. the participants must send their articles in the original language to the following address: sport@eenu.edu.ua. After positive reviews (the information will be given individually) the participants must submit the articles in English.

By May 26, 2019 p. the participants must transfer the participation fee 150 $ to pay for the meals and accommodation, abstracts compilation and the articles publication.

Working languages of the conference are all European languages.

Publication of the conference works

Abstracts of scientific reports will be published in the electronic collection of the materials which will be posted at: http://conferences.eenu.edu.ua

Abstracts length is 1 page, 2000-2500 printed characters without spaces. Texts should be typed in the editor *Microsoft Word* for Windows; text font – Times New Roman, 12 pt, space – 1. Page parameters: left margin – 30 mm, right – 15 mm, top margin – 20 mm, bottom – 20 mm.

Structure: The first line is the title (in capital letters, bold font, centered alignment). The second line is the name and surname of the author (authors) (bold font, centered alignment). The third line is the scientific degree, academic rank, position of the author, full name of the higher educational institution (scientific institution) where the participant of the conference works (studies), e-mail address (italic font, page width alignment). The text below is aligned with the width of the page (paragraph - 0.75 cm), which should contain the following elements: *introduction, research methods, results of the research, conclusions.*

The authors are responsible for the content of the submitted materials. The Organizing Committee reserves the right to reject the theses that do not meet the specified requirements.

Articles will be published in the magazines «Physical education, sports and culture of health in modern society» http://sport.eenu.edu.ua (Ukraine); «Physical Activity Review» http://www.physactiv.ajd.czest.pl (Poland) and «Sport i Turystyka» http://wp.ujd.edu.pl/kultura-fizyczna (Poland). ***Requirements for articles (guidelines for authors) are provided on the websites of the magazines.***

After reviewing the articles, the message of acceptance (or rejection) will be sent to the author ***only to the e-mail address***. Under the condition of a positive review of the article, the author ***pays the publication fee and sends a copy of the receipt*** to the e-mail address: olena.tomaschuk@eenu.edu.ua

Financial aspects

For the attention of foreign participants! The following transfer systems are operating in Ukraine:

1. Transfer method: Western Union to Svitlana Indyka (the transfer code and surname, the name of the person who paid must be sent to the e-mail: olena.tomaschuk@eenu.edu.ua)

2. Bank Transaction (Bank transfer charges are paid by authors only)

Payment details receiving SWIFT in US dollars (USD)

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BANK OF BENEFICIARY:	PRIVATBANK, 1D HRUSHEVSKOHO STR., KYIV, 01001, UKRAINE SWIFT CODE/BIC: PBANUA2X
CORRESPONDENT ACCOUNT:	0011000080
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APPLICATION FORM
to participate in the 3^{d} International Scientific and Practical Conference
«Physical Activity and Quality of a Person's Life»

Country _____
Full name of an educational institution _____
Surname, name, scientific degree, academic rank _____
Year of studying (for masters' candidates and postgraduate students) _____
Title of the report _____
Field of discussions _____
Contact telephones _____
E-mail **(A MUST !)** _____

The Organizing Committee wishes you great success!

INFORMATION FOR OUR AUTHORS

The edition "Physical education, sport and health culture in modern society"contains the following headings:

- ✓ Historical, legal and personnel issues of physical culture.
- ✓ Physical culture educational technologies.
- ✓ Physical culture, physical education of different groups of population.
- ✓ Curative physical culture, sports medicine and physical rehabilitation.
- ✓ Olympic and professional sport.

In order to submit your manuscript for publishing in the edition and check its current status, you should register at the website (http://sport.eenu.edu.ua).

For publication we admit only previously unpblished works (including in other languages in the very same form) that were not sent for consideration of editorial staffs of other editions. Authors are responsible for accuracy of citation and scientific facts in the article, figures and other information.

By submitting articles authors:

– agree to publish their full text on the Internet;

– agree with recommendations of The World Association of Medical Editors and **COPE** standards (http://publicationethics.org/) according to the ethical principles of scientific publications.

Authors give consent to collection and processing of personal data for inclusion into a database according to the Law of Ukraine № 2297-VI "About personal data protection" from 01.06.2010. Names and emails which are indicated by users of this website of the edition will be used only for implementation of internal technical tasks; they won't be spread and transferred to the third parties.

Scientific works are reviewed by members of the editorial board of the edition or outside independent experts according to the principle of objectivity and positions of higher international academic quality standards.

1. While writing an article ***it is obligatory to follow these rules:***

- ✓ article title should be concise, clear, reflect its content, be without abbreviations (up to 10 words);
- ✓ avoid styles of scientific report or scientific-popular article;
- ✓ it is not expedient to put rhetorical questions; give preference to narrative sentences;
- ✓ all references are presented at the beginning of the article; its main content contains presentation of own opinions;
- ✓ the article should have simple structure (without division into sections and subsections!).

2. ***Article structure:*** UDC (Universal Decimal Classification) index; in the right corner of the page – name and surname of the author, email; in the middle – name of the article, name of the educational establishment, city; annotations and key words **in Ukrainian, Russian and English** (annotation volume – 240-250 words).

In the text of the annotation simple sentences, syntactic constructions peculiar to scientific style should be used. There should be no acronyms, abbreviations, general phrases and repetitions of the article title. At the beginning of sentences the following phrases are desirable to be used: i*t is examined, it is established, it is displayed, it is analyzed, it is carried out, it is proven,* etc.

The annotation should function as an independent from the article source of information and enable establishment of its main content.

Annotations should be prepared according to international standards and include the following subheadings:

✓ name, surname of the author, article title, name of the organization;

✓ topicality;

✓ tasks of the paper;

✓ method or methodology of work conducting *(are described in case when they differ in novelty or are of interest from the perspective of the scientific work; in experimental works data sources and character of their processing should be indicated)*;

✓ results of the work *(the main theoretical and experimental results, found interconnections and regularities are presented)*;

✓ conclusions *(may be accompanied by recommendations, assessments, proposals, hypotheses that are described in the article);*

✓ key words: (5-6) *(reflect the main content of the article, scientific scope, topic are given in nominative case). (With the help of key words scientific articles are searched in databases).*

In the **English annotation** it is presented the following information: name of the author (transliteration); name of the article (translation); address information of the author (name of an establishment/institution, address of an organization, city, country); annotation (about 240-250 words) with keeping chronology of the article and subheadings as in the Ukrainian annotation; key words.

The English annotation should be written in high quality English language. The use of machine translation is not allowed.

Authors of foreign countries present annotations in Russian and English.

3. ***The main text of the article***

The editorial board accepts for publication only those scientific articles (it should contain results of theoretical or experimental study) which **include the following elements**:

✓ **Introduction** *(setting of a problem and its connection with important scientific or practical tasks, analysis of latest researches; separation of previously unsolved parts of the general problem of the article).*

✓ **Objective of the study** *(The objective of the study is oriented at its final result, tasks are formed by questions answers to which should be given for realization of the study objective. For formation of the objective it is preferably to use such words as* ***to establish, to discover, to develop, to prove****, etc.*

✓ **Material and methods of the study** *(number, age, sports qualification of the examined, conditions, duration and succession of experiment conduction are indicated, choice of methods which are used in the study are briefly grounded).*

✓ **Results of the study. Discussion.** Introduction of the main material of the study with full grounding of the obtained scientific results *(results of studies with obligatory statistic data process should be presented in the form of tables, graphs, diagrams. Data reflected in tables should be substantial, complete, accurate. Title of the table, name of the graph or diagram should correspond to their content. It is unacceptable to repeat data of tables and graphs in words. Results of the study should necessarily be analyzed. It is necessary to draw parallels between obtained data, other foreign and native scientists).*

✓ **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).

Detailed rules of Reference List formation are on the website of the edition http://sport.eenu.edu.ua.

4. ***While preparing articles, please, stick to the following requirements:***

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.

Margins: left – 3 cm, right – 1 cm, top and bottom – 2 cm, alignment – horizontal.

You should differentiate dash (–) and hyphen (-).

Text elements that require highlighting are underlined; meaning of words are put in double quotes.

Amount of table material and illustrations should be appropriate. Figure material is presented in a table and has a sequence number, right-side alignment (for example, *Table 1*) and a name (printed over the table in the middle in bold, for example: **Division of students according to the level of their physical activity**). Text of the table is printed with Times New Roman font, 1 line spacing; portrait orientation.

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.

Article requirements, latest issues of the edition, archives and various information – at the webpage of the edition: http://physicaledu-journal.org.ua and http://sport.eenu.edu.ua.

If the article doesn't correspond with the mentioned above requirements or its scientific level is insufficient – the editorial board doesn't accept the work for publishing.

With other questions and for more detailed information, please, contact the executive secretary Indyka Svitlana (work phone +380332-24-21-78; mobile phone +38066-48-30-600).

For timely information we ask you to send the Author's Information (look below), and a digital picture of an author (authors) for publication in the column "Our Authors".

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Title of the article _ _____

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CONTENT

Наукове видання

PHYSICAL EDUCATION, SPORTS AND HEALTH CULTURE IN MODERN SOCIETY

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

Збірник наукових праць

Східноєвропейського національного університету імені Лесі Українки

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