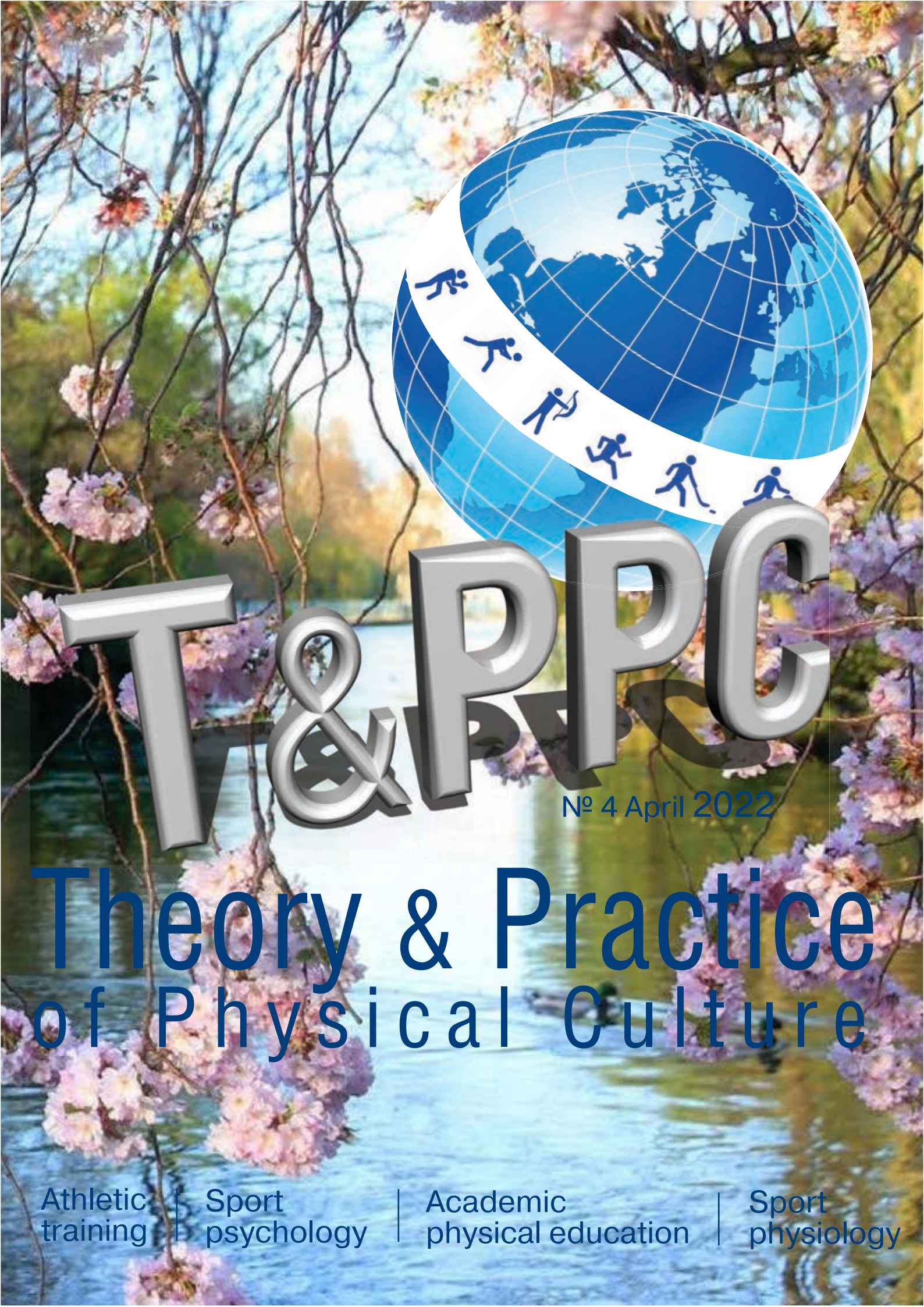

T&PPC

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Theory & Practice of Physical Culture

Athletic training | Sport psychology | Academic physical education | Sport physiology

EDITORIAL

Key issues of the modern sports science for discussion

Online education: state and prospects

Obtaining higher education in an online format is becoming increasingly popular among both students and teachers. It so happened that during the COVID-19 pandemic, the learning process was organized remotely. For many participants in the educational process, this form of education was unexpected and unacceptable. However, at the moment it is already difficult to imagine the educational environment of a university without the use of remote technologies.

Educational practice has proved the advantages of distance learning primarily for students:

- the opportunity to study at a university in any city and country;
- low financial cost of training;
- saving time and the possibility of rational planning of the school day;
- combining studies with the possibility of work or part-time work;
- expanding opportunities for individual consultation and contact with the teacher during extracurricular time;
- simultaneous training in different specialties.

For teachers, the distance learning format allowed them to find new methods for solving familiar learning tasks and revealed such advantages as:

- saving time on the way to the workplace;
- expansion of opportunities for demonstration of visual educational materials and their storage;
- availability of electronic teaching materials;
- expansion of educational communication with students;
- professional self-improvement, creativity, creativity in mastering new electronic teaching methods.

Along with the positive aspects of distance learning, its negative side should be noted, which leads to a deterioration in the quality of education. The distance format revealed a low motivation of students to independently acquire knowledge, low self-discipline, lack of opportunities to master practical sections of academic disciplines related to professional and applied orientation, changes in the forms of interpersonal communication with classmates.

For teachers, the transition to a remote educational form has caused the need to master new electronic platforms and programs, a different format for transmitting knowledge through electronic technical means, searching and selecting suitable equipment for conducting classes; restructuring the logic of teaching, which is fundamentally different from full-time.

Nevertheless, new educational solutions, convenient tools and platforms are emerging, and more and more the structure and content of e-learning materials are being developed in such a way that it is clear to the participants of the educational process that it is pleasant and promising to study remotely. It should be noted that the distance learning infrastructure meets the needs of the modern generation of young people in the use of electronic gadgets in obtaining information, increasing their motivation for learning and self-education. The informational lifestyle for young people is prestigious and fashionable. The distance learning format for modern youth is gradually becoming an important attribute of educational activity, which is combined with their need to master new information technologies and technical means in obtaining preferential rights in the labor market.

Distance learning methods are still at the stage of formation, therefore, their further development requires teachers to be creative in developing teaching materials, organizing interaction with students, contributing to the formation of their motivation for active learning.

It should be noted that at the present stage of development of distance learning technologies, the effectiveness of the educational process can be achieved in a mixed format of knowledge acquisition, when online learning is used along with the traditional form.

We invite scientists to publish articles that are aimed at finding new approaches in the development of the Olympic movement and large-scale sports events.

Editor-in-Chief, Honored Worker of Physical Culture of the Russian Federation, Ph.D., Professor L.I. Lubysheva

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Contents

Assessment of sports talent children basis of individual typological approach

UDC

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Abstract

Objective of the study was to develop and scientifically substantiate a model for assessing sports talent during sports orientation and selection based on an individual typological approach.

Methods and structure of the study. The scientific experiment was carried out on the basis of the Center for testing, selection and support of sports gifted children of the Lesgaft National State University of Physical Education, Sports and Health, St. Petersburg. In the course of the study, a comprehensive assessment of general and special sports predisposition was used, consisting of genetic, morphofunctional, psychological and motor criteria.

Results and conclusions. A model for assessing sports talent during sports orientation and selection based on an individual typological approach has been developed, which includes three main blocks: medical and biological, psychological and sports and pedagogical. The model was tested on various contingents of the examined - children of preschool and school age and athletes. The results of its experimental verification confirmed the effectiveness of this approach to assessing sports abilities and their originality.

Keywords: *sports orientation, sports selection, sports talent, typology of sports abilities.*

Introduction. The steady growth of sports achievements in many sports increases the material costs of society for the training of highly qualified athletes, the effectiveness of which depends on the mass inclusion and selection of the most gifted children. Until now, there is a large dropout of those involved in sports sections and schools. Most often, leaving sports is a consequence of shortcomings made in assessing and predicting the sports predisposition of children.

The Concept for the preparation of a sports reserve in the Russian Federation until 2025 contains a very important section “Improving the system for selecting sports gifted children based on federal standards” [5]. At the same time, existing regulatory documents contradict scientific data on how to conduct selection. Now there are two main views on the assessment of abilities in sports orientation and selection. Some authors immediately recommend assessing abilities for a particular sport [6]. Others believe that it is necessary to start work with the selection of motor-gifted children [2, 4, 8, 9]. This approach serves as a guarantee against mistakes in the choice of sports specialization and avoids dropping out of children at the stage of introduction to sports.

So, T.S. Timakova points out that when recognizing the predisposition of children to engage in a certain sport, it is important to pay attention to the study of the athlete’s typology in the context of their individual characteristics [7]. V.B. Issurin, when recognizing sports talent, suggests focusing on the criteria for predisposition to a number of sports, such as water endurance sports, team and pair sports, martial arts, and others [3].

It is quite obvious that there is a need for a technology for typifying sports abilities when choosing a sports specialization, which would take into account the typological features of the child’s personality and their impact on psychophysical development.

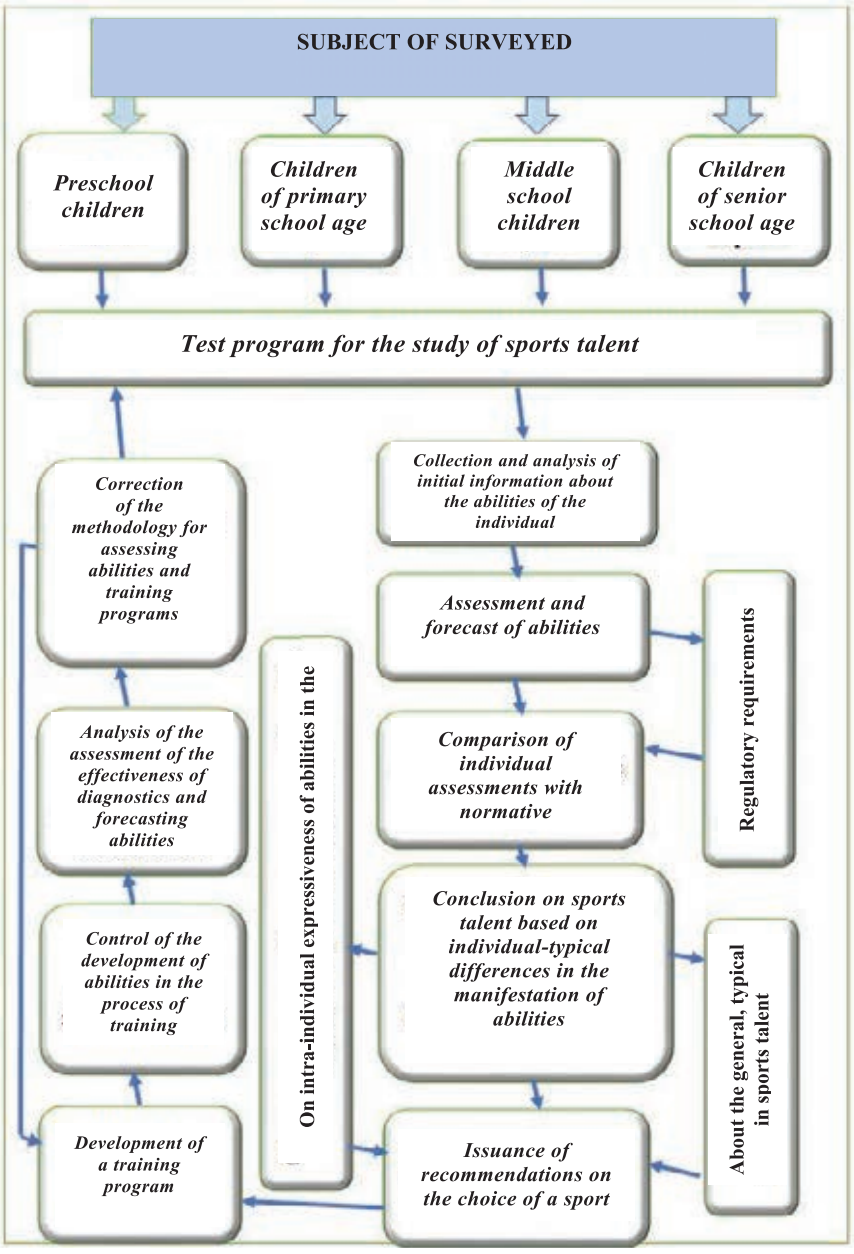
Objective of the study was to develop and scientifically substantiate a model for assessing sports tal-

ent during sports orientation and selection based on an individual typological approach.

Methods and structure of the study. To achieve this goal, a set of research methods was used: theoretical analysis and generalization of scientific and methodological literature, anthropometry, functional, psychological and pedagogical testing, DNA typing. Scientific work was carried out on the basis of the Center for testing, selection and support of sports gifted children of Lesgaft National State University of Physical Education, Sports and Health, St. Petersburg.

Results of the study and their discussion. The figure shows a structural-functional model for diagnosing the sports predisposition of children with sports orientation and selection, based on the consideration of typical and individual differences in the manifestation of individual abilities. The test program includes three main blocks: medical-biological, psychological, and sports-pedagogical [9].

The biomedical block included: measuring biological age, total body size, body proportions, assessing the type of physical development, predicting body length, assessing the functional state of the respiratory system using Stange, Genchi tests, spirometry; assessment of physical performance based on the determination of PWC170 using a bicycle ergometer, measurement of hand strength and back strength; as-



Structural-functional model for diagnosing and predicting the sports predisposition of children during orientation and selection

Conclusion based on the results of the survey of the potential opportunities of I-va S. (age 7 years)

Components of sports abilities and characteristics of sports opportunities
Genetic. The ratio of types: muscle fibers 60% - fast / 40% - slow. Has a tendency to anaerobic load. Low propensity to traumatism of bones, tendons and cartilages, medium - to traumatism of ligaments. Good tendency to regenerate bone tissue, average - ligaments. Good propensity for the manifestation of strength, very high - quick strength. Medium - to the manifestation of endurance, high - muscle endurance. High propensity to display kinetic and passive static flexibility, medium - active static. The average tendency of muscle tissue to hypertrophy. Good intermuscular coordination. High speed of passage of nerve impulses and speed of recovery of muscle tissue. Low propensity to gain and lose weight. The influence of fats on weight gain is average, carbohydrates are reduced. Increased fluid retention in the body.
Body features. Height forecast: 181.1-185.5 cm. Physical development: Macrosomatic type - disharmonious. The length of the thigh prevails over the length of the lower leg.
Psychological. Psychomotor sphere: high speed of sensorimotor reaction; very low accuracy in the selection reaction and medium accuracy in the reaction to a moving object; the predominance of the inhibitory process in combination with low psychomotor control and improvement in the quality of the balance function in difficult conditions, which can be considered as a resource. Approximately medium-weak type of nervous system. The predominance of the «trio» of motives of self-affirmation / effective motives, motives and motives of the team and procedural motives.
Motor. Above age norms in the results of tests for coordination. Within normal limits, the results of tests for speed, strength and speed-strength abilities, balance and flexibility.
Functional. Spirometry indicators (VC) are much higher than the age norm. Higher than normal indicators of hypoxemic test on inhalation and exhalation - a high ability to overcome the desire to resume breathing with the accumulation of decay products in the blood.

sessment of the genetic predisposition of the organism of the examined for sports profiling and individualization of the training process. Buccal epithelium was used as a material for genetic research.

The psychological block included an assessment of the psychomotor, cognitive and motivational spheres (according to a stabilographic test, a reaction to a moving object (RMO), a dosed tapping test, a corrective Bourdon test, a Wexlerr subtest ("Cryphering" and "Labyrinth", "Repetition of numbers"). With their help, vestibular stability, reaction speed, type of nervous system, hand-eye coordination, indicators of attention and operative memory, and the degree of severity of sports activity motives were determined.

The sports and pedagogical block included a list of tests to measure basic physical abilities.

Based on the results of the survey for each block, a step-by-step comparison of individual indicators with normative (model) characteristics is carried out, which are recommended to be used as criteria for sports selection in various sports. Depending on the genetic predisposition and the degree of manifestation in the manifestation of morphological, functional, psychological qualities, motor abilities, a conclusion is made about the predominant type of the child's sports talent - power, speed, speed-strength, coordination, etc., and a conclusion is made about the predisposition of each child for practicing a particular sport (see table).

An important component of the model is the support of sports gifted children. For a more accurate definition of sports specialization, it is desirable to offer a program of training sessions for a particular sport. In the course of practicing this sport, the correctness of the diagnosis made about sports abilities is checked and, if necessary, the children are reoriented to other sports that are more suitable for them.

In order to effectively diagnose and predict children's sports capabilities when choosing a subject of sports specialization, taking into account one or another type of giftedness, it is necessary to create automated control systems at regional, municipal centers for sports orientation and selection and sports training centers for sports teams.

Conclusions. Accounting for the types of giftedness makes it possible to more adequately determine sports specialization in accordance with the type of sports talent. Developed and tested at the Center for Sports Selection and Support of Sports Gifted Children of Lesgaft National State University of Physical Education, Sports and Health model of sports talent based on an individual typological approach using genetic, morphofunctional, psychological and motor criteria allows a child to choose the kind of sport that best suits his desires, predispositions and abilities.

The article was carried out as part of the terms of reference for the provision of services for genetic test-

ing, as well as scientific and methodological support for the federal experimental (innovative) project "BECOME A CHAMPION" (contract No. TsT-01/19 dated May 14, 2019 between ANO "Become a Champion" (Moscow) and Lesgaft National State University of Physical Education, Sports and Health, St. Petersburg).

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Effect of magnetic muscles stimulation on the biomechanical structure of sambo throws

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Abstract

Objective of the study was to improvement of the biomechanical structure of throws in sambo when using magnetic stimulation of the quadriceps muscles of the thighs of athletes in the isokinetic mode of their functioning.

Methods and structure of the study. Four wrestlers of the 1st category, three candidates for the master of sports and three masters of sports participated in the experiment. The average age of the subjects was 18.5±3.5 years. All subjects are students of Russian State University of Physical Education, Sports, Youth and Tourism, active athletes. The methodology of the experiment was as follows: against the background of planned training work, the subjects were exposed to magnetic stimulation in the mode for 10 consecutive days. Stimulation was given when performing an oscillatory movement of the lower leg in the isokinetic mode on Biodex.

Results and conclusions. The conducted cycle of magnetic stimulation led to a predominant shift of the characteristic frequencies of the spectrum of the integrated electromyogram to a higher frequency part of the spectrum. An analysis of the phase composition of throws in wrestlers subjected to magnetic stimulation showed that after the experiment, the time of the second phase decreased and the total time for performing each of the throws decreased. Quantitative values of the parameters of dynamograms, such as the maximum repulsion force, the rate of increase in force during the vertical jump showed a significant increase in their values ($p<0.05$ and $p<0.01$) in wrestlers who underwent a course of magnetic stimulation. They also showed a significant ($p<0.05$) decrease in the time to reach the maximum force.

Keywords: *sambo wrestling, magnetic stimulation, quadriceps femoris, isokinetic mode, electromyogram spectrum, speed-strength indicators, phase composition, biomechanical parameters.*

Introduction. In the types of wrestling, throws are essential technical actions. They are quite diverse, but there are some common biomechanical patterns. Naturally, the search for ways to improve throws in wrestling is an urgent task.

Throws in their structure have a three-phase division [2]. The technical actions that an athlete must carry out are distributed in such a way that the second phase of the throws is the leading one [2].

The approaches to the research that we have chosen are connected with the inclusion of new methods and means of influencing the neuromuscular apparatus of athletes into the training process of wrestlers. Such means with good reason include magnetic stimulation. Technical means for conducting magnetic stimulation were developed and entered the medical services market [1, 3].

Objective of the study was to improvement of the biomechanical structure of throws in sambo when using magnetic stimulation of the quadriceps muscles of the thighs of athletes in the isokinetic mode of their functioning.

Methods and structure of the study. The following equipment was used in the study: Magstim Rapid 2 magnetic stimulator (Magstim Company Ltd Spring Gardens, UK), Biodex System Pro-4 inertial dynamometer (Biodex Medical Systems, NY, USA), ME6000 professional 16-channel electromyograph (MEGA Electronics Ltd, Kuopio, Finland), AMTI BF 1200 1200 dynamometer platform (AMTI Force Plate, NY, USA), Qualisys eight-chamber optoelectronic system, Ag/AgCl electrodes, self-adhesive Sensor type, diameter 50 mm (Pirrone and Co, Milano, Italy). To conduct magnetic stimulation, it is necessary to set

the frequency of the electromagnetic signal that affects the muscles on the stimulator coil. To do this, it is necessary to obtain an interference electromyogram of a working muscle, and then conduct a spectral analysis on it in order to identify the existing maxima in the spectrum corresponding to the excitation of various motor units. It is at the frequency of one of these maxima that the electromagnetic signal should be applied.

Measurement technique. Magnetic stimulation of the quadriceps muscles of the thighs was carried out on an electronic Biodex dynamometer, when the subjects in the sitting position of one of the legs overcame the resistance created by the device. The coil of the magnetic stimulator was installed on the thigh in such a way that at least two heads of the quadriceps muscle were captured by the magnetic flux. The bipolar skin electrodes were positioned in such a way that edge-to-edge lead-off electrodes were placed on the muscle abdomen. The ground electrode was located distal to the study site. Self-adhesive electrodes, which did not require additional fixation with an adhesive plaster, were installed after treating the skin with a special abrasive paste for cleaning the skin EVERY (Kendall Meditec, Mirandola (MO), Italy). At the experimenter's command, the subject performed oscillatory movements of the lower leg in the isokinetic mode, and at that moment a magnetic signal was applied. The exposure duration was 10 s. The maximum moment of forces was fixed on Biodex with the specified method of muscle activation. Measurements were taken for the right and left legs. The power spectrum was calculated from the interference EMG.

Four wrestlers of the 1st category, three candidates for the master of sports and three masters of sports participated in the experiment. The average age of the subjects was 18.5±3.5 years. All subjects are students of Russian State University of Physical Education, Sports, Youth and Tourism, active athletes. Informed consent was obtained from all subjects. The program of experiments was submitted to the Ethics Commission of Russian State University of Physical Education, Sports, Youth and Tourism and approved. Before the start of the stimulation cycle and at the end of it, biomechanical testing of athletes was carried out in the jump up test with two legs, hands on the belt. The jump was carried out on a dynamographic platform from the starting position with an angle in the knee joint of 90 degrees. The biomechanical characteristics of the wrestlers' motor actions were calculated from the recordings of the dummy athletes' throwing movements obtained using the Qualisys system.

Experimental technique. Against the background of planned training work, the subjects were exposed to magnetic stimulation for ten days in a row in the following mode: 10 sets of 10 seconds, with a minute interval for each of the legs. Stimulation was given when performing an oscillatory movement of the lower leg in the isokinetic mode on Biodex. The angular velocity of oscillatory movements of the lower leg was 150 deg/s. When testing (background and final), the wrestlers made throws of a dummy, the weight of which was 32.4 kg.

Results of the study and their discussion. During muscle contraction, the order of recruitment of motor units is important, which is generally predetermined [4]. The gradual increase in strength to perform a motor task is based on the gradual recruitment of large motor units. However, the size of a motor unit does not strictly increase with its type. Therefore, there

Table 1. *The frequency of magnetic stimulation and the magnitude of the maximum in the spectrum before and after the experiment*

Test subject	Left leg			Right leg		
	Maximum in the spectrum		Stimulation frequency	Maximum in the spectrum		Stimulation frequency
	Before	After		Before	After	
Bi-or	42, 50	42, 76	40	52, 61	42, 62	50
Ko-in	50, 62	56, 67	60	54, 77	53, 77	50
Sv-ov	37, 67	57, 67	50	37, 61	47, 66	50
Pa-ov	37, 82	38, 80	40	37, 72	38, 78	40
Ma-yan	33, 78	41, 106	50	46, 80	64, 92	50
Gl-ov	52, 72	57, 76	50	66, 90	62, 87	60
Sm-ov	27, 61	41, 73	50	56, 66	67, 73	60
Sm-ov	53, 67	57, 80	60	41, 56	43, 80	50

Table 2. *The time of execution of the phases of throws and throws in general for the members of the experimental group before and after the experiment*

t, c	Through the thigh		p	Through the back		p	Through the chest		p
	X±σ			X±σ			X±σ		
	Before	After		Before	After		Before	After	
First phase	0,46±0,09	0,43±0,1	>0,11	0,50±0,09	0,50±0,13	>0,26	0,62±0,14	0,55±0,1	<0,02
Second phase	0,52±0,07	0,40±0,09	<0,05	0,52±0,08	0,40±0,07	<0,05	0,52±0,1	0,41±0,09	<0,05
Third phase	0,58±0,09	0,58±0,06	>0,89	0,58±0,1	0,58±0,08	>0,55	0,61±0,04	0,61±0,05	>0,64
General	1,56±0,17	1,42±0,21	<0,01	1,60±0,19	1,47±0,22	<0,05	1,73±0,18	1,57±0,18	<0,05

is some mutual "overlap" between type S and FR and type FR and FF in terms of the size and order of recruitment. That is why it is impossible to selectively activate slow- or fast-twitch motor units. When the frequency of electromagnetic impact on the muscle through the "coil" of the magnetic stimulator was set at the level of the frequency S of the motor unit, this not only affected the amplitude of this unit, but also led to an increase in the amplitude and frequency of the spectral component of the FR unit, and vice versa. This fact is reflected in Table 1. The frequency of spectral maxima of motor units S and FR increased in more than 80% of cases after a cycle of stimulation. An individual reaction of individual subjects was also observed, when the frequencies of spectral types practically did not change or even decreased. This is typical mainly for type S motor units.

The main factor that provides the strength of voluntary contraction of skeletal muscles is the recruitment of fast motor units and an increase in the frequency of their impulses. These motor units have a high threshold of excitability. And because these motor units contain a large number of muscle fibers, they contribute more to muscle tension than other, low-threshold (slow) units. By analogy with electrical stimulation, motor units under the action of magnetic stimulation will be activated with a slight stimulation, which means that high-threshold motor units will be involved in contraction, as well as low-threshold ones. Their activity provides an additional increase in the strength capabilities of the muscles, which will have a trace physiological effect.The results of biomechanical measurements and test tests at the beginning and at the end of the experiment are presented in tables 2, 3, 4. The phase composition of the dummy throws is presented in table 2.

The results of the time of the phases of throws and throws in general before and after the experiment in the members of the experimental group were compared by the nonparametric Wilcoxon T-test. At a significance level of 0.05, the following phase parameters improved: the time to complete the first phase of a chest throw, the time to complete the second phase of all throws, and the total time to complete all throws. There is one very important point - the execution time of the second phase for all types of throws has significantly decreased. Since it is in the second phases of the throws that the main power actions of the confrontation take place, which determine the result of the throw, reducing the duration of the second phase is very important. The wrestler conducting the throw must deprive the opponent of the opportunity to counter the attack. And this is possible when the enemy has less time to carry out counterattacks. A significant decrease in the total time of all throws also works for this.

The experiment showed the following:

1 Increasing the speed-strength indicators of the quadriceps muscles of the thighs. In tests on "Biodex" with instructions to achieve the maximum peak torque, the subjects showed large peaks after the end of the experiment (Table 3). This indicates that, as a result of magnetic stimulation, it was possible to achieve greater activation of the FR muscle fibers during the motor action.

2 The analysis of dynamograms in the biomechanical jump test revealed positive trends in the growth of the main indicators that are used in sports biome-

Table 3. *Peak values of the moments of force of the anterior surface of the thighs in the members of the experimental group before and after the experiment*

Indicator	Right leg		p<	Left leg		p<
(Peak torque N*M)	Before	After		Before	After	
	284,1±66,7	351,4±55,5	0,05	318±73,5	392,5±64,5	0,05

Table 4. *Calculated values of the parameters of dynamometers when performing a vertical jump by members of the experimental group before and after the experiment*

Parameter	Before	After	p<
	X±σ		
Maximum repulsion force, H	2105±85	2925±92	0,05
Time to reach maximum strength, s	0,539±0,09	0,410±0,08	0,05
Force increase rate, H/s	3905±171	7134,1±194	0,01

chanics for the analysis of dynamograms (Table 4). All gains are valid.

Conclusions. The frequency of the spectral maxima of the S and FR motor units after a cycle of stimulation in the isokinetic mode of muscle work increases in more than 80% of cases, regardless of whether magnetic stimulation is performed at the frequency of the spectral peak maximum corresponding to the S motor unit or the spectral maximum corresponding to the motor unit FR.

The conducted cycle of magnetic stimulation leads to a preferential shift of the characteristic frequencies of the spectrum of the integrated electromyogram to a higher frequency part of the spectrum.

An analysis of the phase composition of throws in wrestlers subjected to magnetic stimulation showed that after the experiment, the time of the second phase decreased and the total time for performing each of the throws decreased.

Quantitative values of the parameters of dynamograms, such as the maximum repulsion force, the rate of increase in force during the vertical jump showed a significant increase in their values ($p<0.05$ and $p<0.01$) in wrestlers who underwent a course of magnetic stimulation. They also showed a significant ($p<0.05$) decrease in the time to reach the maximum force.

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Ranking of national teams in the men's 50 km cross-country skiing based on the analysis of team and individual achievements at the olympic winter games and world championships

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Abstract

Objective of the study was to determine the rating of national teams in the ski race 50 km in men based on the analysis of team and personal achievements at the Olympic Winter Games and World Championships.

Methods and structure of the study. Analysis, generalization and comparison was attached to the achievement of the winners in a 50 km race at all major tournaments held in the entire history of ski racing.

Results and conclusions. It has been established that out of 136 skiers who became winners of title tournaments, only 25 managed to do it twice or more, which confirms the fact about the specificity of the preparation and complexity of the ski marathon. The research results revealed that among national teams two-thirds awards (68%) on the account of Skiers of Sweden, Norway and Finland. Racers from the USSR and Russia occupy the fourth place in this list (12.5%). Achievements of domestic athletes on the last Ozl and the World Cup are a reason to believe that at the present stage of the development of ski racing, Russian skiers will remain the main competitors in the struggle for prizes in a 50 km race with riders from Northern Europe and other countries.

Keywords: *ski race for 50 km (ski marathon) on the World Cup and Ozi, personal and team copper offset, achieve Soviet and Russian skiers, racing format.*

Introduction. Currently, cross-country skiing is one of the medal winter sports - 12 sets of medals are played at the title tournaments: six each for men and women. And only the ski marathon or 50 km race for men is the only one that was held at all the Olympic Winter Games (OWG) and the World Ski Championships (WCH).

Objective of the study was to determine the rating of national teams in the ski race 50 km in men based on the analysis of team and personal achievements at the Olympic Winter Games and World Championships.

Methods and structure of the study. Within the framework of scientific work, the analysis and generalization of the protocols of competitions, special and scientific and methodological literature on the history and development of cross-country skiing were carried out.

Results of the study and their discussion. Currently, unofficial medal counts at OWG and WCH are considered by specialists as the most objective indicator of the rating of national teams and individual athletes [1, 2]. The team medal standings in the 50 km cross-country skiing at the OWG and WCH are presented Table 1.

The data in Table 1 testifies to the undeniable advantage of the riders from Sweden, Norway and Finland. Until 1984, title tournaments were held in even years, alternating one after the other. In addition to representatives of northern Europe, champions and prize-winners in the ski marathon from 1924 to 1984. Athletes from six more countries became athletes (USSR, Switzerland, East Germany, Czechoslovakia, Italy and France), and they were able to win 21 medals out of 105 (20%) at the first 14 OWG and 21 World Championships.

Since 1985, the World Cup began to be held in odd years. By this time, plastic skis had completely replaced wooden ones, and the skating or free style of movement became popular. In the late 80s, the socialist camp ceased to exist, and in 1991 the USSR collapsed. These events led to an increase in the number of countries whose skiers began to win prizes in competitions of the highest rank [1, 2]. Riders from twelve countries have already competed with northern Europeans and have won 40 of the 84 medals (48%) contested at the next 9 OWGs and 19 WCHs.

An analysis of personal achievements revealed that 21 athletes became the winners of the OWG in the 50 km cross-country ski race, 21 and 23 riders became silver and bronze medalists. At the World Championships, these figures are as follows - 34, 35 and 38. The total number of medalists at the OWG is 62, and at the World Championships - 95. 25 athletes managed to win two or more awards at the OWG and the World Championships, which are presented in Table 2.

Soviet skiers first took part in the World Cup in 1954 (ChM-54), where Vladimir Kuzin won the 50 km race. Our athletes still cannot repeat this achievement. Nikolai Zimyatov became the champion of the OWG-80, and Fedor Terentiev, Vyacheslav Vedenin and Alexander Zavyalov became the winners of the OWG. Vyacheslav Vedenin, Evgeny Belyaev, Yury Burlakov and Alexey Prokurorov became the winners of the World Championship. Total from 1954 to 1992. Soviet skiers took part in 22 title tournaments, in which eight athletes won 10 awards (15%) in the 50 km race.

Since 1993, our athletes began to compete under the flag of the Russian Federation, and Sergey Kryanin became the first winner in the ski marathon at the World Cup-01. Also, the winners of the World Cup were: Maxim Vylegzhanin, Sergey Ustyugov and Alexander Bolshunov; OWG champions - Mikhail Ivanov and Alexander Legkov; the winners of the OWG are Evgeny Dementiev, Maxim Vylegzhanin, Ilya Chernousov and Andrey Larkov. Thus, nine Russian skiers in 24 tournaments from 1993 to 2021. won 13 medals (18%) in the 50 km race.

In the 21st century, television [4] began to play a huge role in the development of any sport, the requirements of which changed the program of cross-country skiing competitions at the OWG and World Championships [1, 2]. There have been changes in the format of the 50 km ski race. At all title tournaments before World Cup 03, the start was separate with an interval of 30 seconds. Starting from the World Cup 05, the start became general (mass start), which led to significant changes in the tactics of passing the distance. Now the winner and prize-winners are determined in a direct struggle between the athletes of the leading group, and most often it is not the most enduring racer who wins, but the one who managed to tactically competently conduct the race and save strength for the final spurt [3].

Conclusions. The 50 km cross-country ski race is the only one that was included in the program of all OWG and World Championships. The rating of national teams in this discipline is headed by the teams of Sweden (52 medals or 27.5% of all awards), Norway (39; 20.5%) and Finland (37; 20%). Skiers

Table 1. *Team medal standings in 50 km cross-country skiing at OWG and WCH*

Country	OWG				WCH				TOTAL	
	gold	silver	bronze	∑	gold	silver	bronze	∑	∑	%
Sweden	7	6	5	18	15	9	10	34	52	27,5
Norway	7	2	5	14	9	6	10	25	39	20,5
Finland	4	6	3	13	8	9	7	24	37	20
Russia	2	3	2	7	---	5	1	6	13	7
Italy	1	2	1	4	2	1	2	5	9	5
the USSR	1	1	3	5	1	3	1	5	10	5,5
Kazakhstan	1	---	---	1	---	---	2	2	3	1,5
GDR	---	1	---	1	1	---	1	2	3	1,5
Germany	---	1	---	1	---	1	2	3	4	2
Estonia	---	1	---	1	---	1	---	1	2	1
Switzerland	---	---	2	2	---	1	---	1	3	1,5
Austria	---	---	2	2	---	---	1	1	3	1,5
Czechoslovakia	---	---	---	---	1	2	2	5	5	2,5
Spain	---	---	---	---	1	---	---	1	1	0,5
Czech	---	---	---	---	1	1	---	2	2	1
Canada	---	---	---	---	1	---	---	1	1	0,5
France	---	---	---	---	---	1	1	2	2	1
Total:	**23**	**23**	**23**	**69**	**40**	**40**	**40**	**120**	**189**	**100**

Table 2. *Winners of two or more medals in the 50 km race at OWG and WCH*

№	Sportsman	Country	Years of winning awards	OWG			WCH			Σ
				1	2	3	1	2	3	
1	Bjorn Delhi	NOR	1992-1998	2	-	-	-	1	2	5
2	Veiko Hakkulinen	FIN	1952-1960	1	2	-	-	2	-	5
3	Gunde Swan	SWE	1984-1991	1	1	-	2	1	-	5
4	Maurilio de Solt	ITA	1985-1992	-	2	-	1	1	1	5
5	Sixten Ernberg	SWE	1956-1964	2	-	-	2	-	-	4
6	Petter Northug	NOR	2010-2015	1	-	-	3	-	-	4
7	Torgny Mogren	SWE	1987-1993	-	-	-	2	1	1	4
8	Welli Saarinen	FIN	1929-1933	1	-	-	1	1	-	3
9	Thomas Wassberg	SWE	1982-1987	1	-	-	1	1	-	3
10	Vyacheslav Vedenin	URS	1968-1972	-	1	1	-	1	-	3
11	Mikka Mullela	FIN	1997-1999	-	1	-	2	-	-	3
12	Maxim Vylegzhanin	RUS	2009-2014	-	1	-	-	2	-	3
13	Alexander Bolshunov	RUS	2018-2021	-	1	-	-	2	-	3
14	Niels Englund	SWE	1934-1936	-	-	1	1	1	-	3
15	Od-Bjorn Helmeset	NOR	2002-2007	-	-	1	1	-	1	3
16	Johan Olsson	SWE	2010-2015	-	-	1	1	-	1	3
17	Claes Karppinen	FIN	1935-1939	-	-	-	-	3	-	3
18	Alice Wiklund	SWE	1934-1936	1	-	-	1	-	-	2
19	Nils Karlsson	SWE	1948-1950	1	-	-	-	-	1	2
20	Kalevi Hämäläinen	FIN	1960-1962	1	-	-	-	-	1	2
21	Vladimir Smirnov	KAZ	1994-1995	1	-	-	-	-	1	2
22	Andrius Veerpalu	EST	1999-2002	-	1	-	-	1	-	2
23	Mikhail Botvinov	AUT	1999-2006	-	-	1	-	-	1	2
24	Gerhard Grimmer	DDR	1970-1974	-	-	-	1	-	1	2
25	Arvo Viitanen	FIN	1954-1958	-	-	-	-	-	2	2

from these countries have won eighteen OWGs and thirty-two Worlds and won 128 medals out of 189 (68%). Russia, with two OWG wins, is in fourth place (13; 7%).

In the history of cross-country skiing, 136 athletes have won the 50 km race at the OWG and WCH, and only 25 have managed to win two or more medals. The most successful marathon runners - Bjorn Deli, Veiko Hakkulinen, Gunde Swan, Maurilio de Solt and Sixten Ernberg - won 5 awards each; and the most titled ones are Sixten Ernberg and Petter Northug, who each won four 50 km races at the OWG and WCH.

Domestic skiers successfully compete in the 50 km race. OWG and World Championship winners were Vladimir Kuzin, Nikolai Zimyatov, Mikhail Ivanov and Alexander Legkov; and Vyacheslav Vedenin, Maxim Vylegzhanin and Alexander Bolshunov are three-time winners. As a result: 17 riders from the USSR and Russia won 23 medals (12.5%). But if we take into account only those title tournaments in which our skiers participated, then the relative values will be 17.5%, which is comparable to the leaders.

In recent years, the development of cross-country skiing has been greatly influenced by the commercialization of sports and television, thanks to which, with the World Cup 05, the start in the 50 km race became common (mass start). Russian riders managed to use these changes to their advantage and won 11 medals in these 13 tournaments, which is 28% of the awards played during this period.

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Features of building a yearly training session for kickboxers

UDC 796.89

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Abstract

Objective of the study was to identify features in the structure and content of the annual training cycle of kickboxers, taking into account the patterns of acquisition, preservation and temporary loss of sports form.

Methods and structure of the study. Based on the systematic control of training loads, data were collected on the construction of a one-year training session for kickboxers aged 17-18 (n=20) of the youth kickboxing team of the Republic of Bashkortostan. In the study for accounting, analysis and planning of physical activity, the technique of A.V. Chernyak, G.I. Mokeeva, Yu.B. Nikiforov. The duration and intensity in the groups of exercises performed in the course of a one-year training session, as well as the nature of the distribution of the load volume by intensity zones, the features of planning the load parameters in classes, cycles, and stages were evaluated.

Results and conclusions. When studying the influence of training loads on the effectiveness of training junior kickboxers in the annual training cycle, it was found that it is advisable to manage the process of preparing for the main competitions on the basis of two macrocycles. When planning a two-cycle annual training, it is necessary to take into account the factors that affect the effectiveness of training: indicators of the total load of the annual cycle, the nature of the distribution of load parameters over the stages of the annual cycle, groups of exercises and intensity zones.

Keywords: *kickboxing, annual cycle, sports training.*

Introduction. The level of sportsmanship and sports results are largely related to the ability to build training in long training cycles. In kickboxing, a promising developing sport, there is not enough information about the results of complex studies aimed at identifying the features of training at various stages of an athlete's long-term training, about the magnitude of training effects, the content and nature of their distribution in the annual cycle, which complicates the planning process and reduces the effectiveness of training.

Objective of the study was to identify features in the structure and content of the annual training cycle of kickboxers, taking into account the patterns of acquisition, preservation and temporary loss of sports form.

Methods and structure of the study. Based on the systematic monitoring of training loads, data were collected on the construction of a one-year training session for kickboxers aged 17-18 (n=20) of the youth kickboxing team of the Republic of Bashkortostan.

In the study, for accounting, analysis and planning of physical activity, the technique of A.V. Chernyak, G.I. Mokeeva, Yu.B. Nikiforov [1, 2]. The duration and intensity in the groups of exercises performed in a one-year training session, as well as the nature of the distribution of the load volume by intensity zones, and the features of planning the load parameters in classes, cycles, and stages were evaluated [2]. As a result of the study, quantitative indicators of the main parameters of the training load of the annual cycle and

its structural components (periods, stages, cycles and classes) were obtained.

To assess the changes in the state of athletes, a complex control was used [3], including a set of tests in which preparedness was assessed according to the following indicators: physical performance (PWC170); functional state of the cardiovascular and respiratory systems (Genche test); psychomotor qualities (time of a simple and complex reaction, reaction to a moving object, sense of time); special preparedness (number of strokes on the shock platform for 10 s., 60 s. and three rounds of 2 minutes); effectiveness of competitive activity (according to the method of O.P. Frolov, 1966); subjective sensations of athletes (questionnaire of physical condition, activity and mood, R. Matthesius).

Results of the study and their discussion. The structure of a one-year training for a given qualification level of athletes (17-18 years old) was built in the form of two macrocycles, taking into account the competition calendar.

In the first macrocycle (preparatory period) the tasks of forming the optimal sports form of athletes were solved, and in the second (competitive) - the realization of individual potential in the main competitions of the year. In each period, stages (mesocycles) were distinguished, the structure and content of which was planned taking into account the tasks set.

The analysis of the training process in the annual cycle made it possible to identify the main training (pedagogical) factors that ensure the success of the preparation of athletes for the main competitions.

Among the leading factors that ensure successful training, one can single out the annual volume and intensity of the load. Their values largely determine the degree of optimal formation of an athlete's fitness indicators. The results of the research showed that the most successful athletes performed in the main competitions in the case of the implementation of the annual volume of load equal to 9400-9600 min. The average intensity of the annual training load is 60%. The ratio of the volume of special and general training was 48 to 52%.

The formation of a sports form is influenced by the distribution of the total training load over the stages of the annual cycle. A feature of the preparatory period (1st macrocycle) of a yearly training is a large total volume of the training load, the largest part (57%) of which is performed in the group of general training exercises. In this period, lasting five months, the means of special training are aimed at the formation of the main components of the optimal readiness of athletes. In the preparatory period, the athletes took part in three competitions with a characteristic limited liability, having a training orientation.

In the competitive period (the 2nd macrocycle lasting four months), in order to create conditions for the implementation of the acquired sports form in the main competitions, special training means are more often used, of which: special preparatory exercises (24%), exercises to improve technical and tactical skills with a partner (14%), apparatus exercises (12%), competitive exercises (5%).

When analyzing the structure and content of training loads in the annual cycle of qualified kickboxers - juniors, it was revealed that with successful preparation for the main competitions, the ratio of the volume of partial loads to the value of the total volume is: general physical exercises - 52%; special preparatory exercises - 23%; apparatus exercises - 9%; exercises to improve technical and tactical skills - 12%; competitive exercises - 4%. The average intensity of private loads at the stages of the annual cycle varies in a wide range and is on average equal to: general developmental exercises - 45-60%; special preparatory exercises - 60-65%; projectile exercises -62-70%; exercises to improve technical and tactical skills -70-72%; competitive exercises -80-95%.

In the annual cycle, the intensity of the training load depends on the direction of the stages of preparation. The general developmental part of the annual load of junior kickboxers is performed mainly with low and medium intensity, and the specialized part is performed with high and maximum intensity (4th and 5th zones). The distribution of the annual volume of the training load by intensity zones in the ratios: 1st zone -12%, 2nd zone - 23%, 3rd zone -30%, 4th zone -21%, 5th zone - 14%.

Conclusions. When studying the influence of training loads on the effectiveness of training junior kickboxers in a training annual cycle, it was found that it is advisable to manage the process of preparing for the main competitions on the basis of two macrocycles. When planning a two-cycle annual training, it is necessary to take into account the factors that affect the effectiveness of training: indicators of the total load of the annual cycle, the nature of the distribution of load parameters over the stages of the annual cycle, groups of exercises and intensity zones.

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Substantiation of training loads in the annual training cycle of young football players

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Abstract

Objective of the study was to reveal the rational ratio of specific and non-specific means of training in the annual training cycle of 6–7-year-old football players.

Methods and structure of the study. As part of the experiment, a one-year pedagogical experiment was organized, in which two groups of 6–7-year-old football players participated, 16 people each. The experimental factor was the ratio of specific and non-specific means of training in the annual training cycle: group 1 - 25:75%; group 2 - 30:70%. In accordance with traditional approaches, exercises aimed at teaching the technique and tactics of the game, as well as bilateral games, were considered specific means. At the same time, exercises related to the development of motor qualities, exercises from other sports, outdoor games and relay races were classified as non-specific means.

Results and conclusions. The characteristics of indicators of physical, technical and psycho-physiological readiness of beginner football players are obtained, which must be relied upon when planning means of training in the annual cycle, and used to control various aspects of the preparedness of beginner football players.

Keywords: *annual cycle, loads, specific and non-specific, football players.*

Introduction. Football, as the most popular and spectacular among all sports on the planet, continues to be the focus of many researchers. At the same time, most of these studies are related to the development of leading provisions for the training of qualified and young football players. At the present stage, there is not enough evidence-based work that deals with the development of optimal approaches to building the training process of beginner players [1, 2]. On the one hand, the need to find effective training schemes for qualified and young football players is not denied, and on the other hand, one of the ways to optimize such training is to substantiate the effective structure of the training process for novice football players.

Objective of the study was to reveal the rational ratio of specific and non-specific means of training in the annual training cycle of 6–7-year-old football players.

Methods and structure of the study. As part of the study, a one-year pedagogical experiment was organized, in which two groups of 6–7-year-old football players participated, each of which included 16 people. At the beginning of the experiment, there were no significant differences between the indicators of physical, technical and psychophysiological readiness of beginner football players of the two groups.

The experimental factor was the following ratio of specific and non-specific means of training in the annual cycle of training: group 1 - 25:75%; group 2 - 30:70%. Such ratios of funds were due to the recommendations of specialists [1, 2]. In accordance with traditional approaches, exercises aimed at teaching the technique and tactics of the game, as well as bilateral games, were considered specific means. At the same time, exercises related to the development of motor qualities, exercises from other sports, outdoor games and relay races were classified as non-specific means.

Testing the level of motor qualities and technical readiness was carried out on the basis of control ex-

Indicators of physical, technical and psycho-physiological readiness of football players aged 6-7 at the end of a one-year experiment

Tests	Group 1 (n=16)		p	Group 2 (n=16)	
	$\bar{x}$	m		$\bar{x}$	m
Running 30 m from a high start, s	5,97	0,03	<0,05	6,21	0,02
Jump up from a place, see	26,92	0,49	<0,05	24,18	0,47
Shuttle run 4×9 m, with 3×10 m	10,82	0,04	<0,05	11,42	0,05
Brush strength (right), kg	12,14	0,04	<0,05	9,47	0,05
Hand strength (left), kg	11,08	0,05	<0,05	9,19	0,05
600 m run, min	2.58,8	0,51	<0,05	3.01,5	0,50
Balance test, s	6,75	0,04	<0,05	4,11	0,05
Juggling with a ball, times·min^{-1}	10,52	0,06	>0,05	10,81	0,06
Strikes at a distance, m	21,15	0,06	>0,05	20,87	0,07
Latent period of a simple visual-motor reaction, ms	294,5	4,18	<0,05	306,8	4,21
Latent period of the reaction of choosing one of the three stimuli, ms	449,2	5,02	<0,05	463,6	5,13
Latent period of the reaction of choosing two of three stimuli, ms	543,3	5,08	>0,05	554,8	5,15
Functional mobility of nervous processes, s	77,3	0,46	<0,05	79,4	0,49
The strength of nervous processes, signs in 5 minutes.	489,6	7,01	<0,05	468,9	6,98

ercises: 30 m run from a high start; jump up from a place; shuttle run 4×9 m; hand strength (right and left hand); 600 m run; balance test; latent period of a simple visual-motor reaction; latent period of the reaction of choosing one of three and two of three stimuli; functional mobility of nervous processes; strength of nervous processes.

Results of the study and their discussion. Testing the indicators of physical, technical and psycho-physiological readiness of beginner football players of two groups five months after the start of the year-long experiment showed an improvement in the studied characteristics in both groups. At the same time, there were no statistically significant differences between the indicators of the two groups. According to the testing, which was carried out at the end of the one-year experiment (see table), a significant advantage was recorded for the athletes of group 1, in which the ratio of specific and non-specific loads in the annual cycle was used, equal to 25:75%. Football players aged 6-7 from group 1 outperformed ($p<0.05$) their peers from group 2 in the following tests: 30-meter run from a high start; jump up from a place; shuttle run 4×9 m; hand strength (right and left hand); 600 m run; strikes at a distance; balance test; latent period of a simple visual-motor reaction; latent period of the reaction of choosing one of three and two of three stimuli; functional mobility of nervous processes; strength of nervous processes.

Conclusions. The ratio of specific and non-specific loads was substantiated experimentally, which is 25:75% in the annual macrocycle of training of 6–7-year-old football players.

In the course of the experiment, the characteristics of the indicators of physical, technical and psycho-physiological readiness of beginner football players were obtained, which must be relied upon in this planning of funds in the annual cycle, including those used to control various aspects of the preparedness of beginner football players.

Prospects for further research in this direction are related to the search for rational schemes for constructing annual training cycles for 8–10-year-old football players.

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Features of prevention of deviant behavior of students by means of sports and recreational activities

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Abstract

Objective of the study was to revealing the features of the prevention of deviant behavior of students in a professional educational organization and university students by means of sports and recreational activities.

Methods and structure of the study. The work used a multilevel personality questionnaire "Adaptiveness" (MPQ) (A.G. Maklakov and S.V. Chermyanin), the Spielberger-Khanin test; a questionnaire by A. Bass and A. Darki to determine the index of aggressiveness or hostility; monitoring the activities of teachers and students, questioning, pedagogical experiment, methods of mathematical processing of the results of the study. The survey involved 475 students in professional educational organizations and 2145 first-year students of Belgorod State National Research University; in the experiment - 90 students in professional educational organizations and 90 students of Belgorod State National Research University

Results and conclusions. The results of the study showed the necessity and effectiveness of the use of means of physical culture and recreational activities in the prevention of students' deviant behavior. In the process of use of means of physical culture and recreational activities, attention was focused on getting pleasure from students in order to interrupt their destructive and stereotypical behavioral behavior programs, for which all forms of physical exercises were used aimed at emotionally active rest, entertainment, getting satisfaction from motor activity and comfortable psycho-emotional environment in the classroom.

Keywords: *Keywords: physical culture and recreational activities, prevention of deviant behavior, students studying in professional educational organizations.*

Introduction. In recent years, negative phenomena associated with deviant behavior (manifestations of aggressiveness, various kinds of addictions, self-destructive, immoral and immoral behavior, etc.) have been developing in the educational environment of Russian youth [1]. Physical culture and recreational activities has the potential not only for prevention, but also, in some cases, correction of the negative personal state of students. Of scientific interest is the identification of manifestation features, the degree of deviance among students in a professional educational organization and university students of the same age; the originality of the use of sports and recreational activity funds to solve the identified socio-pedagogical problem and the rationale for methodological recommendations in the process of working with this category of young students.

Objective of the study was to revealing the features of the prevention of deviant behavior of students in a professional educational organization and university students by means of physical culture and recreational activities.

Methods and structure of the study. The study was conducted in 2019-2021. on the basis of the Belgorod College of Public Catering, the Belgorod Construction College and the Belgorod State National Re-

search University. In the work, the analysis of scientific sources on the problem of research, physical culture and recreational activities and the results of students' activities was carried out; a multilevel personality questionnaire "Adaptiveness" (MPQ) (A.G. Maklakov and S.V. Chermyanin), the Spielberger-Khanin test was used; a questionnaire by A. Bass and A. Darki to determine the index of aggressiveness or hostility; monitoring the activities of teachers and students, questioning, pedagogical experiment, methods of mathematical processing of the results of the study. The survey involved 475 students in professional educational organizations and 2145 first-year students of the Belgorod State National Research University; in the experiment - 90 students in secondary vocational education and 90 students of the Belgorod State National Research University.

Results of the study and their discussion. The work on the prevention of deviant behavior of students by means of physical culture and health-improving activities included three successive stages: diagnostic and design; the stage of implementation of the prevention program and the reflexive stage (analysis of performance results). The results of the survey (MPQ "Adaptiveness") of 1st year students of the Belgorod State National Research University showed that the risk group is 348 people (18%). These students require constant supervision. The risk group includes students with average moral normativity (71%), low communicative potential (64%) and very low behavioral regulation (97% of risk group students).

According to the results of psychological and pedagogical diagnostics in the first year of the Belgorod Construction College, it was revealed with a low (31%, 62 people) level of adaptive potential, the lowest values in terms of "moral normativity" (14%, 28 people), this indicates that that they may commit immoral acts. The risk group consisted of 43 people (21.5%).

A similar situation is in the Belgorod College of Public Catering, where 34% (94 people) were found to have a low level of adaptive potential, the lowest values in terms of “behavioral regulation” were 24% (66 people), which indicates the inability of first-year students to control their behavior. The risk group consisted of 63 people (23%). Students of professional educational organizations and universities were conditionally distributed according to the levels of manifestation of deviant behavior:

- low level (the process of adaptation of students can be difficult, but they are able to cope with them on their own, show interest in physical culture and recreational activities and are convinced of the importance of this activity);

- medium level (the process of socialization is complicated, asocial breakdowns, manifestation of aggressiveness and conflict are possible; students sometimes show interest in physical culture and recreational activities, but are not always convinced of the significance of this activity);

- high level (students with a difficult character, which negatively affects their personal emotional state and communication with others; the adaptation process is difficult; neuropsychic breakdowns and conflicts are possible; delinquent acts can be tolerated).

According to a number of scientists [2, 3, 5], the purpose of the physical culture and recreational activities is to obtain constructive pleasure. Consequently, physical recreation contributes to the formation of sanogenic thinking (Yu.M. Orlov), since it carries a powerful healing effect, which can be directly reflected in the improvement of not only physical, but also mental, social health of a person [4]. In this regard, in the process of physical culture and recreational activities, we focused on getting pleasure from students, for which we used all forms of physical exercises aimed at emotionally active rest, getting satisfaction from motor activity, restoring mental and physical strength, etc.

At the implementation stage of the program, the goal was to interrupt the action of destructive and stereotypical behavioral programs in students with deviant behavior by means of the physical culture and recreational activities; encourage them to display high self-control and regulation of behavior; get a positive result of self-regulation; consolidate it in a positive emotional experience; expand the experience of control over their own emotions and behavior.

During the formation of groups, students were differentiated by gender and based on personal preferences. The girls were offered rhythmic gymnastics as the main type of program (various gymnastic, dance exercises and complexes were used), and athleticism was offered to the boys (means from strength sports were used in the construction of classes).

The effective implementation of the experimental program was facilitated by the created organizational, methodological, stimulating pedagogical conditions for the involvement of all participants in the pedagogical process in the physical culture and recreational activities as a means of preventing deviant behavior. During the reflexive stage of the program implementa-

tion, its effectiveness was assessed based on a comparison of the diagnostic results before and after the experiment.

According to the results of the Spielberger-Khanin test, before the start of the experiment, the average level of situational anxiety among students in groups was 2.24; at the end of the experiment, the measurements showed situational anxiety 1.98 and personal anxiety 1.89. Consequently, we observe a significant decrease in the level of both situational and personal anxiety.

In the process of diagnosis, according to the questionnaire of A. Bass and A. Darki, the index of aggressiveness or hostility was determined: physical aggression, indirect, irritation, negativism, resentment, suspicion, verbal aggression, guilt.

Analysis of the results before the start of the experiment showed that the predominant types of reactions in 43% of students were verbal and physical aggression, at the end of the experiment, measurements showed 21% verbal and 16% physical aggression. In general, as the results of the study showed, the level of manifestation of deviant behavior has qualitatively decreased: before the start of the experiment, the average level in the groups was 43%, the high level was 67%; until finished ii experiment high level 11%, average level 34%, low level 55%.

Conclusion. Students with deviant behavior require increased attention, support, including the use of means physical culture and recreational activities tools that help relieve neuropsychic stress and support their socio-psychological adaptation to training in professional educational organizations and at the university.

In the process of physical culture and recreational activities, we focused on getting pleasure from students, for which we used all forms of physical exercises aimed at emotionally active rest and creating a comfortable psycho-emotional environment in the classroom. Gender differentiation and taking into account the preferences of students, the use of means from strength sports for boys and rhythmic gymnastics for girls had a positive impact on the process of replacing the pathogenic with sanogenic thinking and behavior.

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Model of physical training for future specialists of thecustoms service

UDC 796.011

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Abstract

Objective of the study was to substantiate the model of physical training of future customs service specialists using elements of fitness programs with an emphasis on the development of professionally important physical qualities, increasing mental performance and psycho-emotional state.

Methods and structure of the study. As part of solving the research problems throughout the entire period of study (from 2016 to 2021), an analysis was made of the dynamics of the level of physical fitness, mental performance and psycho-emotional state of 50 students of the Bobkov Saint Petersburg branch of Russian Customs Academy.

Results and conclusions. As a result of the experiment, a model of physical training of future specialists of the Federal Customs Service of the Russian Federation was developed and tested. The model combines the organizational and pedagogical conditions for its effective functioning, the levels of adaptation to professional activities and directly the means of physical culture, chosen taking into account the professiogram for classes with students of the experimental group. The effectiveness of the developed model is confirmed not only by the data on the increase in the level of physical fitness and the level of psycho-emotional state, but also by the percentage of graduates who remained in the profession.

Keywords: *physical training, basic adaptive attitudes, customs service, students, methodology.*

Introduction. Modern requirements for entering the civil service, as well as the nature and conditions of work, are becoming more intense and complex in content [1, 3]. The profession of a customs inspector makes not only high demands on the level of development of professional qualities, psychophysical characteristics of the individual, but also on a certain level of development of physical abilities. The professional activity of a customs officer who implements organizational and technological functions requires the formation of certain basic adaptive attitudes, sensorimotor coordination, as well as the ability to quickly master new types of technical devices accompanied by non-stereotypical motor actions. As a result, maintaining physical performance and the ability to correct one's emotional stress in difficult service situations acquire an important role [6–7]. In connection with these indicators, one can judge the need to change the requirements for the training of future customs officers. According to the studies of many experts, it is in the classroom in the disciplines "Physical culture and sport" and "Elective courses in physical culture and sport" that the formation of basic adaptive attitudes takes place, which makes it possible to reduce the time for professional adaptation, improve physical fitness as the basis of working capacity due to faster development of professional skills. important motor qualities [1–4, 8, 9].

Objective of the study was to substantiate the model of physical training of future customs service specialists using elements of fitness programs with an emphasis on the development of professionally important physical qualities, increasing mental performance and psycho-emotional state.

Methods and structure of the study. The experiment involved 50 girls who entered the first year in the

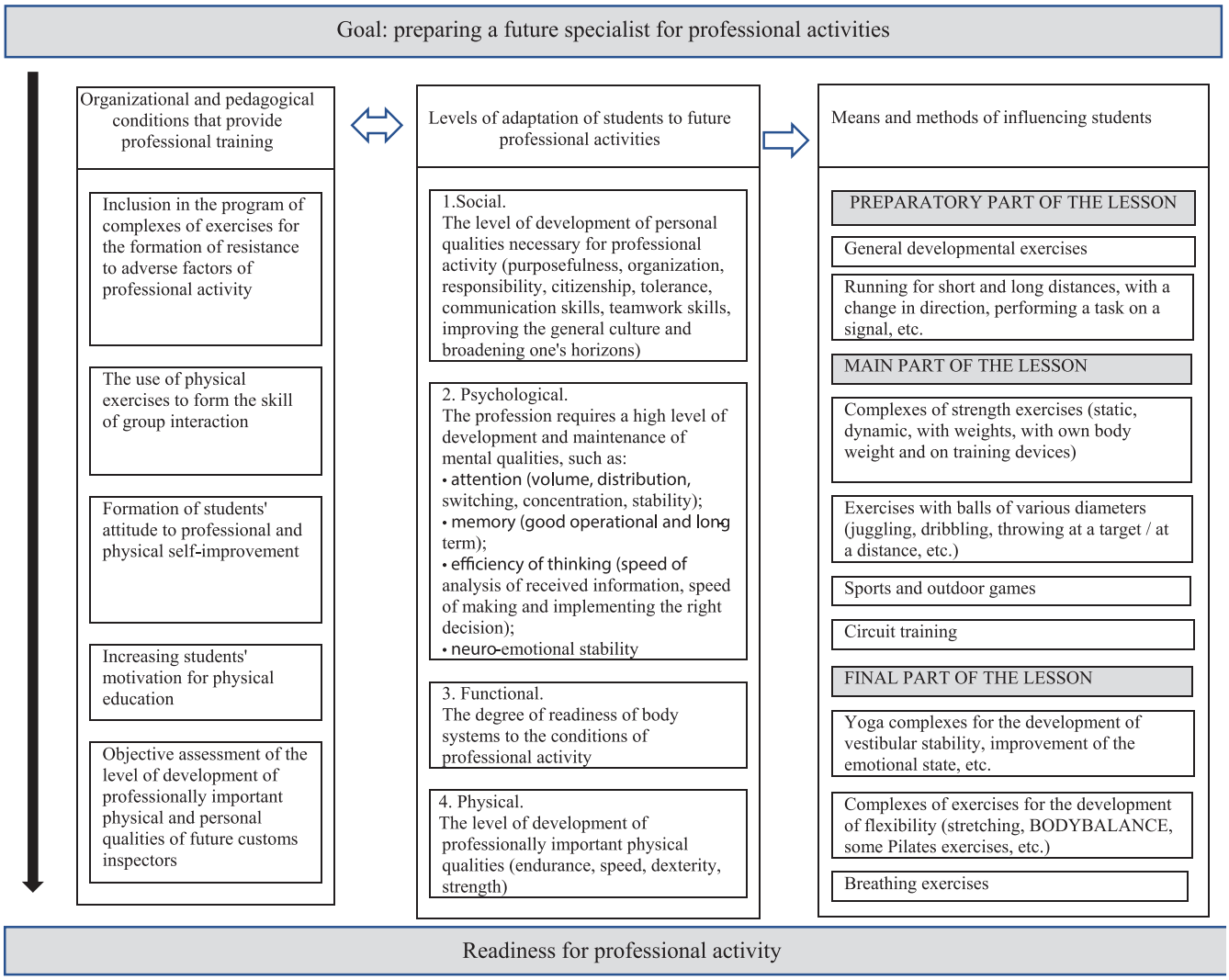
direction of training specialists 05/38/02 - “Customs” (full-time education).

As part of solving the problems of our study, throughout the entire period of study, an analysis was made of the dynamics of the level of physical fitness, mental performance and psycho-emotional state of students of the Bobkov Saint Petersburg branch of Russian Customs Academy. The study involved 50 students of 2016 admission, 25 respondents in the experimental and control groups.

The dynamics of training was traced from 2016 to 2021 in the following indicators: long jump from a place, running 30 and 500 meters, pulling up in the hang with support, throwing the ball from behind the head, static holding a half-squat, leaning forward from a standing position (flexibility), the Harvard step test index, questionnaire on the methodology and diagnosis of well-being, activity and mood and the test for optimism-pessimism (according to R.S. Nemov).

Results of the study and their discussion. When developing a model of physical training for future specialists of the Federal Customs Service of the Russian Federation (see figure), the following were taken into account:

- specificity of the professional activity of a customs inspector (difficulties and dangers in labor activity);
- levels of adaptation to professional activity;
- physical qualities required by the customs inspector according to the professiogram;
- features of organizational and pedagogical conditions in the implementation of the programs of disciplines “Physical culture and sports” and “Elective courses in physical culture and sports” in the Bobkov Saint Petersburg branch of Russian Customs Academy.



Model of physical training of future specialists of the Federal Customs Service of the Russian Federation

Dynamics of the level of physical fitness and mental performance of female students of the experimental (EG) and control (CG) groups

Indicator	1st semester of study		10th semester of study	
	EG	CG	EG	CG
Standing long jump, cm	173,4± 9,9	172,2± 8,5	190,9± 7,4	169,8± 6,3
30 m run, s	5,3±0,4	5,4±0,3	4,93±0,6	5,39±0,3
500 m run, s	120,1±2,6	119,6±2,5	110,7±1,9	115,1±2,2
Hanging pull-ups with support for 10 s, times	5,3±1,4	5,0±1,4	7,25±1,4	4,75±0,8
Ball throw from behind the head (3kg), cm	459±84,3	456±84,3	587,3±89,2	483±82,6
Static hold of a semi-squat, s	38,5±3,2	33±3,4	49±4,3	32±4
Flexibility, cm	10±3	8,4±3,2	13,3±3,9	7,6±2,8
IGST, points	62,4±2,7	57±2,7	74,3±2,3	58,4±2,5

An analysis of the special literature on the research problem showed that the physical training of students should not be reduced only to the development of professionally important physical qualities, it is advisable to influence the psychophysical readiness for future professional activities. The basis of the preparatory and main parts of the lesson were exercises and complexes provided for by the physical training program for employees recommended by the Department of Physical Training of the Federal Customs Service. In addition, part of the exercises were adapted taking into account the professiogram.

According to a survey of students, many wanted to improve flexibility and mobility in the joints, learn how to quickly and effectively relieve muscle and emotional tension, as well as fight fatigue and loss of concentration while working in difficult professional situations. Taking into account the requirements for the final part of the class, elements from fitness yoga, Pilates, stretching, BodyBalance, as well as various breathing practices were chosen. The exercise complexes based on the presented fitness programs were given at least 20-30 minutes at the end of each session. They were recommended for daily implementation at home at the end of the working day.

According to the survey, the most popular were breathing practices, in particular, artificial breath holding in proportions of 1:2:2:2 (less often 1:4:2:2) was often used by girls during classroom sessions and at the workplace during production practice. as a way to regulate psycho-emotional stress. On days without physical education at home, 87% of the surveyed girls from the experimental group regularly performed stretching and fitness yoga complexes, in their opinion, the exercises from these fitness programs allowed them to concentrate on themselves and their feelings, not to focus on experiences and relax, as well as improve physical fitness.

In 2016, in order to determine the initial level of physical fitness of students, primary testing was carried out, control exercises were also performed at the end of each year of study. For greater clarity of the effectiveness of the developed model of physical training of future customs service specialists, the table shows the data obtained in the control (n=25) and experimental (n=25) groups for the first and last years of study.

The results of the analysis of the survey of students of the experimental group according to the method of well-being, activity and mood at the beginning of the first year of study revealed poor health and mood in 68.9% of respondents. They associated this with adaptation to a new team, place of study and the requirements for them. By the end of the first semester, this percentage decreased to 45.7, and the first work practice contributed to a deterioration in well-being and mood, but most of the students who took part in the study noted that the skills of self-regulation of the psycho-emotional state through breathing exercises allowed them to respond less to stressful situations in professional activity. According to the results of the test for optimism, at the beginning of classes, the proportion of optimists was 35%, at the end of the study - 63%, the peak of this indicator was at the end of the 3rd course - 91%. We associate the decrease in the percentage of optimists at the end of the 5th year with worries about the upcoming final state certification, the defense of a diploma, and directly employment. Thus, the psycho-emotional state of a person changes throughout life under the influence of many factors that can be resisted with certain skills.

Conclusions. The level of physical and psycho-emotional preparedness of the future specialist of the Federal Customs Service of the Russian Federation is as important as the level of his special preparedness.

Thus, the consolidation of the organizational and pedagogical conditions of training and the gradual adaptation to professional activities in physical education classes with elements of fitness yoga, Pilates, stretching, BodyBalance and breathing exercises into a model of physical training for future customs service specialists contributed to an undeniable positive effect.

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The impact of holding major sports competitions on the brand of the state (on the example of the olympic games in sochi and the world football cup in russia)

UDC 327.7

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Abstract

Objective of the study was to determine the impact of major sports competitions on the brand of the state on the example of the Olympic Games in Sochi and the World Cup in Russia.

Methods and structure of the study. When writing the article, a comparative analysis of the ratings of state brands, reports of the tourism and investment markets was used, and a case study was conducted based on reports on two major sports competitions in Russia.

Results and conclusions. Noting the improvement in the positions of the Russian Federation in the ranking of national brands after major competitions, the article highlights the following factors for promoting the brand of the state: the visit of the first persons of the states during the competitions and the holding of high-level meetings taking into account the continued sanctions regime and very limited visits by most European leaders to Russia), attracting extrabudgetary investments and economic growth, developing a number of infrastructure elements, adapting the tourism sector in accordance with modern international requirements and standards, as well as a significantly increasing tourist flow, and therefore familiarity with national history, culture and traditions. These criteria are universal for analyzing the successful impact of major sports competitions and can be used to analyze the evolution of the brand of any state.

Keywords: *sports diplomacy, national branding, Olympic Games, World Cup, soft power, spectral power.*

Introduction. Holding major sports competitions, whether it be world championships or the Olympic Games, in the modern world is one of the tools for creating a positive image of the state and promoting the national brand. Such events not only serve the development of sports in the country, but also increase its tourist, investment, business attractiveness, as well as the attitude of foreign audiences towards the state as a whole [3]. The competition for the right to hold such competitions is high, and states are ready to take serious steps in order to obtain this right.

The key theorist of the concept of "national branding", British researcher Simon Anholt, editor of the Place Branding and Public Diplomacy magazine, forming criteria for the annual rating of national brand indices, defines [7] national branding as actions aimed at creating a favorable image of the state through marketing communications.

Objective of the study was to determine the impact of major sports competitions on the brand of the state on the example of the Olympic Games in Sochi and the World Cup in Russia.

Results of the study and their discussion. Before the Olympic Games in Sochi, the Soviet Union (Russia is its successor) hosted the games only once, in 1980. It was important for Russia to declare itself as a continuer of sports traditions, so it was necessary to win the right to host the Olympic Games. Success came in 2007, when the Russian state received this right in Guatemala at the regular session of the International Olympic Committee, bypassing Austrian Salzburg and South Korean Pyongyang. Russia prepared thoroughly for the submis-

sion of the application: the Federal Target Program "Development of the city of Sochi as a mountain climatic resort in 2006-2014" was launched. Russian President Vladimir Putin personally addressed the IOC members during the presentation of Sochi's bid to host the Games.

The very fact of holding the Olympic Games, as Oxford researcher Andrew Foxall notes [10], was perceived as a return of Russia to the status of a superpower. The success of Russian athletes and the first place in the medal standings at the home Olympics demonstrated not only the triumph of Russian sports, but also, according to experts [9], positive changes in the geopolitical position of the Russian Federation.

Even before the Sochi Olympics, Russia had made the decision to compete for the right to host another major competition: the 2018 FIFA World Cup. Unlike the 2014 Olympics, matches were played in 11 Russian cities. The FIFA Council recognized the championship held in Russia as the best in history [12].

However, the triumph of the Winter Olympic Games did not have time to affect the position of Russia in the ranking of national brands in the world. The political divisions that followed the Crimean referendum in 2014 led to Russia's drop in the brand rankings. Undoubtedly, the doping scandal directed against Russia also had negative consequences.

All the more important for the Russian Federation was the flawless holding of the World Cup. The success led to Russia moving up four spots in the 2019 Brandfinance [11] rankings to 14th position, and the value of the Russian brand increased by 16 percent compared to the previous year. Among the reasons that served to strengthen the Russian brand after the 2014 Olympic Games and the 2018 FIFA World Cup, the authors identified and analyzed the following criteria based on the analysis of Nation Brands rating indicators:

1. Visit of world leaders. Major sporting events attract not only fans, but world leaders, making them an informal pretext for holding meetings at the highest level. The Olympic Games in Sochi were visited [1] by more than 40 world leaders, representatives of royal dynasties, the Secretary General of the United Nations.

The list of honored guests of the World Cup has received particular attention: since 2014, a number of world leaders have refrained from visiting the Russian Federation in protest against Russia's policy towards Ukraine. However, only a dozen world leaders were present at the opening ceremony of the 2018 World Cup, with a number of whom Russian President Vladimir Putin held business meetings [5]. Numerical confirmation of the results of holding status meetings at the highest level is the rise by four positions in the ranking of national brands and the rise in price of the national brand by 14% [11]. Consequently, the visit of 10 leaders led to an increase in the price of the country's brand by 14%, respectively, the status of the host country of the summit, even with the participation of one foreign leader during major international sports competitions, leads to a rise in brand prices by 1.4%.

2. Attracting investments. Contrary to popular belief that hosting major sporting events incurs serious expenses for the budget, according to Deputy Prime Minister Dmitry Kozak, the net profit from the Olympic Games in Sochi amounted to 1.5 billion rubles [2]. Over $1.3 billion in partnership investments have been raised. 80% of the games were financed from extrabudgetary funds. Regarding the 2018 World Cup, FIFA noted [8] that the level of organization of the tournament was the best in history and brought the organization $5.375 billion in revenue. The increase in the investment attractiveness of the country, confirmed by multibillion-dollar contracts, is a direct confirmation of the positive impact of holding major sports competitions on the country's brand.

3. Development of the tourism sector and adaptation according to international standards. One of the key advantages of holding the Olympics was the transformation of Sochi into a year-round resort: the construction of modern hotels according to the strict requirements of the IOC and the development of the entire tourism industry in the region had a positive impact on the brand of Russia and Sochi, in particular, as a tourist center.

The FIFA World Cup also contributed to the development of the brand of Russia as a tourist center: the appearance of hotels of world chains in the cities hosting the Championship, the development of gastronomic and entertainment areas, as well as the development of a tourist navigation system in the country's cities. The development of the tourism market is confirmed by the fact that 30 new executive class hotels were opened in Moscow alone for the 2018 World Cup [13].

4. Development of infrastructure. In preparation for the Olympic Games, special attention was paid to the integrated development of the infrastructure of the Krasnodar Territory, from transport infrastructure and telecommunications to the development of energy.

By the 2018 FIFA World Cup, more than 350 billion rubles were allocated for the development of transport infrastructure, which is so necessary for Russia [6]. Particular emphasis was placed on the development of high-speed rail transport, the modernization of a number of airports in the country.

Of course, the development of infrastructure, namely, multibillion-dollar investments [6] in the modernization of telecommunications, the renewal of the transport system, and the emphasis on environmental technologies have become one of the reasons for the growth of the country's position in the ranking of national brands.

5. Promotion of national culture. An integral and probably one of the most important factors influencing the brand of the host country is the foreign fans who come to the competition. The World Cup was visited by more than 3.4 million foreign tourists [4]. Of course, this was important for strengthening the Russian brand in the 2019 ranking. Such an obvious development of tourism, confirmed by specific figures [4], as an integral component of the country's soft power.

All of the above advantages of holding major sports competitions demonstrate a significant contribution to the implementation of public diplomacy programs by the state.

Conclusions. Based on the demonstrated quantitative indicators of the growth of the investment, tourism, infrastructure, environmental attractiveness of the country, as well as the number of high-level diplomatic meetings based on the case study of the impact of major sports competitions on the brand of the state, it should be noted that they directly influenced the rapid growth that took place. country's position in the ranking of national brands. And even despite the challenges associated with politics and doping scandals, holding major competitions restores a stable position for the Russian state on the world stage and promotes the image of the state. Therefore, it can be concluded that major sporting events affect the national brand of Russia, as they improve the following criteria taken into account when compiling the brand rating:

- the number of high-level meetings held in the territory of the state;
- investment attractiveness of the state;
- infrastructural development of the state;
- development of the tourism sector;
- strengthening the soft power of the state.

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Interaction of non-profit organizations and state structures of the region in the field of adaptive physical culture

UDC 796.06

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Abstract

Objective of the study was to identify trends in the development of interaction between government agencies and non-profit organizations whose activities are aimed at working with people with various health disorders.

Methods and structure of the study. In the course of the work, a survey and analytical methods were used: data from open sources on the research problem, official state statistics were analyzed, a content analysis of the content of official sites, regulatory legal documents on the organization of extrabudgetary activities was carried out.

Results and conclusions. The features of the provision of services by state organizations, non-profit organizations within the framework of project activities and grant support in the field of adaptive physical culture and sports are revealed. Based on the results of the analysis of the involvement of non-profit organizations (NPOs) and socially oriented non-profit organizations (SO NPOs) in the scheme of interaction with government agencies, their effectiveness in providing services (works) to the population in the field of adaptive physical culture and sports, a scheme of interaction was developed and proposed to solve the identified problems.

Keywords: *adaptive physical culture, adaptive sports, non-profit organizations, grant, project activities, socially significant services.*

Introduction. Starting from 2009, in order to improve the quality and efficiency of the provision of state and municipal services in the social sphere and to attract the non-state sector, the Address of the President of the Russian Federation to the Federal Assembly of the Russian Federation provided for the introduction of the institution of socially oriented non-profit organizations. The message intensified the improvement of the regulatory framework in the field of facilitating the entry of SO NPOs into the market of services in the social sphere [2].

According to Rudakova O.Yu. in modern conditions, in the structure of the public sector, a significant place is occupied by non-governmental non-profit organizations created to meet the social, cultural, educational, spiritual and other non-material needs of citizens, protect the health of citizens, develop physical culture and sports [6].

The activities of the authorities in the areas of education, healthcare, social protection and social services, culture, physical culture and sports, and, quite often, youth policy are directly related to the substantive activities of NPOs, because quite often they are aimed at solving social problems. Accordingly, they can be and are direct partners of NPOs [7].

Objective of the study was to identify trends in the development of interaction between government agencies and non-profit organizations whose activities are aimed at working with people with various health disorders.

Methods and structure of the study. In the course of the study, a survey and analytical methods were used: data from open sources on the research problem, official state statistics were analyzed, a content analysis of the content of official websites, regulatory legal documents on the or-

ganization of extrabudgetary activities was carried out.

Results of the study and their discussion. As of January 1, 2021, 30 non-profit organizations carry out activities to support people with disabilities in the Belgorod Region, of which 13 NPOs work with children with disabilities, including in the field of physical culture and sports, rehabilitation and habilitation. In 2020, 10 000 applications from all over the country were submitted to the competition of the Presidential Grants Fund. Among the winners are 45 projects from the Belgorod region.

At present, taking into account the experience of project activities for the implementation of socially significant projects, the region is building interaction with non-profit and public organizations in order to improve the quality of socially significant services.

According to the Ministry of Economic Development (report on the activities and development of socially oriented non-profit organizations, 2019), the total amount of funds transferred to the subjects of the Russian Federation by socially oriented NPOs in social sectors in 2018 exceeded 31.3 billion rubles. These funds were distributed among 4.4 thousand SO NPOs, whose services were received by more than 22 million people (in 2017 - more than 24 billion rubles for 4.1 thousand SO NCOs, whose services were received by more than 6 million people).

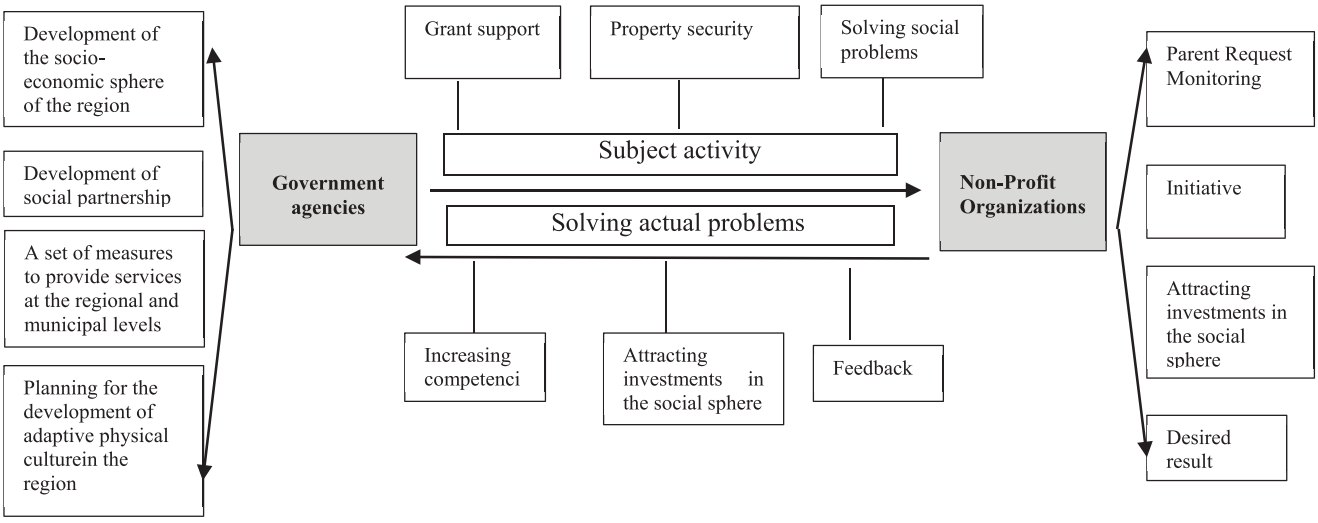
It is fundamentally important that the state has obligations to citizens and society, and tasks for their implementation. NPOs can and do offer solutions to these problems. This is a very important perspective – it allows NPOs to move out of the role of a petitioner and into interaction with the state. It is important, however, to understand that views on problems and their solutions may not coincide between NPOs and state structures.

In addition, NPOs sometimes have to compete with other organizations, because government agencies have a choice with whom to interact. This means, according to K.A. Sulimov, an expert at the GRANI Center for Civil Analysis and Independent Research, that NPOs need to have and be able to use their competitive advantages.

Based on the survey data and practical experience in the interaction of NPOs, SO NPOs with government agencies, we propose a scheme of interaction between NPOs and government agencies of the Belgorod Region.

Conclusions. In order to increase the effectiveness of interaction between non-profit organizations and state structures of the Belgorod region in the field of adaptive physical culture and sports, it is necessary to:

- replicate the best practices and experience of non-profit organizations in interaction with government agencies;
- inform non-profit organizations about the possibility of obtaining grant support with assistance and close cooperation with government organizations;
- develop a set of measures aimed at the quality provision of socially significant services provided by non-profit organizations;
- develop cooperation between state structures and non-profit organizations in the context of munici-



Scheme of interaction between government agencies and non-profit public organizations

pal districts and urban districts of the Belgorod region, based on available resources;

• to build the mechanism of interaction mainly on social partnership.

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Correction of negative attitudes of athletes swimmers

UDC 371; 159.99

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Abstract

Objective of the study was to identifying the specifics of anti-victim attitudes among athletes of non-contact sports (on the example of swimming) and determining ways to correct them.

Methods and structure of the study. The method of expert assessments was used as a method. The current and former swimming coaches, consisting of 20 people, acted as experts. The material of the study was the lists of ineffective and productive psychological attitudes that contribute to overcoming negative factors in sports activities.

Results and conclusions. It was found that, in general, the content of ineffective attitudes among athletes of contact and non-contact sports is the same, especially in terms of their victimological component, when the athlete's feelings are due to unsuccessful performances. A serious factor in the victimization of athletes is the dominance of perfectionist attitudes.

Keywords: *swimmers, victim attitudes, anti-victim attitudes, sport, athlete's personality.*

Introduction. One of the main sources of an athlete's anxiety that affects his sports results, as indicated in the scientific literature, is a non-adaptive behavior pattern based on irrational attitudes, which further, in turn, become the cause of the athlete's suffering [5], that is, victimizing him, since personal suffering in victimology is a characteristic of a victimized person.

At the same time, scientific research in the field of sports psychology, in general, correctly assessing the problem of the significance of the psychological stability of athletes, does not indicate psychological tools for the prevention of victimization, except for trainings in psychoregulation, meditation, correction of the motives of competitive activity, etc., the purpose of which is only a general decrease in the level of anxiety before the competition [1].

We believe that one of the shortcomings of the system of psychological training of athletes is a hidden target setting that any result in a sports competition is considered either as a success or failure of an athlete, which, in case of a low result, forms in him signs of a victim personality, as if guilty of not being good enough. result. Because of this, the athlete develops inefficient attitudes that do not allow him to sufficiently mobilize his personal resources during competitions and relax after them. It is obvious that the means of reducing anxiety in this case is the reformatting of ineffective attitudes and the formation of effective anti-victim attitudes.

Modern research focuses on the fact that the coach must have the skills of psychological assistance to the athlete. Moreover, it is psychological competence that distinguishes elite coaches from others [3]. The essence of this support should be, among other things, the ability to correct non-adaptive patterns of behavior of your ward [4].

In our empirical study, we made an attempt to evaluate the effectiveness of typical attitudes of athletes in terms of the possibility of their victim or anti-victim

A variant of typical answers of trainers of the formulation of attitudes

List of negative and ineffective attitudes to be corrected	List of positive attitudes, alternative to negative and ineffective ones
Perfectionist attitude: I am the best, I have to win	You have to try to be the best, I will do everything in my power to win
Loser is a loser	All great athletes have ever lost, losing is a lesson to be learned
When I lose, I always feel like everyone is judging or pitying me.	Losing should motivate you to train harder, as well as to look for new approaches to them.
After the loss, the coach will again arrange a "debriefing" for me	After the loss, the coach will point out my mistakes so that in the future I would not make them
You have to be aggressive towards the enemy	The enemy must be neutral
Negative emotions in relation to the opponent contribute to calming down	Negative emotions towards an opponent can play against oneself
I can't be the best	You don't have to be the best to win the competition
This opponent with his antics will only bring me down the mood for the game	The opponent's behavior should not affect me in any way.
This year I am the winner of the tournament and now I am afraid that I will not reach such heights again.	I did it once, I'll try to do it again
I don't practice enough, I'll lose	It doesn't matter if you won or lost last time, now you need to do everything to win.

impact and the ability of swimming coaches to correct these attitudes.

Objective of the study was to identifying the specifics of anti-victim attitudes among athletes of non-contact sports (on the example of swimming) and determining ways to correct them.

Methods and structure of the study. The method of expert assessments was used as a method. Participants were asked to evaluate the list of attitudes of swimmers from the point of view of effectiveness and offer their own versions of such attitudes. Below in the table, in the first column, this list is presented. 20 swimming coaches (former and current) participated.

Results of the study and their discussion. In the scientific literature on the problems of sports psychology, it is noted that there are significant differences in the sources of psychological discomfort in athletes representing contact and non-contact sports [2]. The proposed list of inefficient installations was previously allocated by us for table tennis.

The study showed that the majority of coaches recorded almost the entire list of ineffective attitudes in swimmers previously recorded in tennis players, and suggested alternative attitudes (90% of coaches). Only some participants in the study noted that during the competition, since the swimmer does not contact the opponent, there is no need to update negative attitudes towards him (10%). The table below shows a variant of the typical responses of the trainers: the formulations of the attitudes were different, retaining in general the meaning of the direction for the individual.

It should be noted that the first in the list of ineffective attitudes: "I am the best, I must win" in most alternative answers remained the same in meaning: "You need to try to be the best, I will do everything in my power to win"; "I did it before, I can do it now"; "When I am focused, no one and nothing can stand between me and my goal," etc. This is evidence that coaches, despite the generally correct approach to correcting ineffective attitudes, are still oriented towards perfectionism in the future, although they themselves condemn it.

The hidden perfectionist meaning was also expressed in other formulations that the coaches considered effective: "You don't have to be the best to win the competition." It is obvious that the installation is hidden here: "Even if you doubt that you are the best, you are still the best."

As a result, we can conclude that not only athletes, but also their coaches, need to correct individual attitudes that they address to their pupils. Here we can recommend the assimilation of anti-victim attitudes that were formulated by some participants in the study as a result of their coaching experience, in particular: "Never inspire guilt! If you lose, then you are not prepared enough. There is something to work on"; "Win-

ning or losing is not the main thing, the main thing is participation and positive emotions."

Conclusions. In the total mass of activity stimulators, psychological attitudes are a key aspect in the regulation of emotional states in sports. At the same time, the range of inefficient installations as a whole does not depend on the sport. Modern coaches have some positive attitudes to effectively influence athletes. At the same time, the dominance of the perfectionist attitude, the orientation of the athlete to always be the best, can contribute to the victimization of the athlete in cases of sports failures.

Gratitude.

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Readiness of adolescents for self-preservation of health in the information educational space

UDC 796.011.3

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Abstract

Objective of the study was to identifying the level of readiness of schoolchildren to maintain health in the information and educational space.

Methods and structure of the study. Pedagogical research (stating stage) was conducted on the basis of schools in Grodno (Republic of Belarus), which was attended by 324 schoolchildren aged 14-15 years. Research methods: theoretical analysis and generalization of scientific data; empirical methods (survey, questioning); methods of mathematical statistics (correlation analysis).

Results and conclusions. Analysis of self-assessment of the level of readiness of students aged 14-15 for self-preservation of health (cognitive and activity components) in the information and educational space indicates the presence of serious problems. Namely, more than half of adolescents have an insufficient level of knowledge about information hygiene, security, and a healthy speech environment. 2/3 of the respondents confirm that they are not ready to take meaningful actions to use knowledge about maintaining health. At the same time, correlations were established between the cognitive and activity components, which indicate the influence of the level of knowledge in the field of health preservation, information hygiene and security on the further behavior of adolescents in the information educational space.

Keywords: *health, information and educational space, adolescents, readiness, information hygiene, information security.*

Introduction. The modern information space, along with a huge developmental, educational, communicative potential, carries a number of negative influences that contribute to the violation of both mental and physical health. Therefore, the problem of self-preservation of the health of students when immersed in the information educational space requires special attention. A number of modern domestic and foreign studies are devoted to its study [5–7].

In the works of D.A. Bogdanova reveals the problems of the influence of information on young people. In the works of D.A. Bogdanova reveals the problems of the influence of information on young people and offers options for situations of information security support [1]. A.N. Safronova, N.O. Verbitskaya, N.A. Molchanov, considering the problems of self-preservation of the health of students in the digital space, point to the need to create a virtual educational environment in each educational organization [4].

The collective monograph edited by I.F. Kefeli, R.M. Yusupova [2]. In their study, E. Segers and T. Kleemans studied the influence of the digital environment and communication style in the family on the speech behavior and literacy of students [8].

We believe that adolescents' understanding of the social and personal significance of self-preservation of health to a certain extent depends on the totality of knowledge and ideas about the health risks of the digital environment and the ability to apply this knowledge in specific situations.

All this forms the basis of a teenager's readiness to maintain health in the information educational space. In our study, we consider readiness as the ability to productively implement health protection actions based on existing knowledge and skills. Readiness

includes motivational-value, cognitive, activity and reflective components. Earlier, in our studies, we presented the level of formation of the motivational-value component [3].

Objective of the study was to identifying the level of readiness of schoolchildren to maintain health in the information and educational space (cognitive, activity components).

Methods and structure of the study. Pedagogical research was conducted on the basis of city schools. Grodno (Republic of Belarus), which was attended by 324 schoolchildren aged 14-15 years. During the survey, the respondents were asked to give self-assessment of knowledge and skills in the field of health, information hygiene and security on a 3-point scale: the optimal level (3 points) - I have a complete understanding, I have full knowledge in the field of health, information hygiene and security to the extent of their ability to apply in the information and educational space; insufficient level (2 points) - I have partial ideas and knowledge, I do not fully possess the skills to apply them in the information and educational space; low level (1 point) - I do not have knowledge, ideas in the field of health, information hygiene and security, I do not possess the skills of safe behavior in the information and educational space. Next, the sum of the points received was determined, and the level of readiness of students for self-preservation of health in the information space was assessed: 50-60 points - optimal; 35-49 points - insufficient; up to 34 points - low.

Results of the study and their discussion. As the results showed, information hygiene turned out to be a problematic field for modern adolescents aged 14-15 (see table). It can be stated that today it is not realized by schoolchildren. According to self-assessment, only 15.8% of schoolchildren have knowledge of information hygiene. Students are even less interested in information security. When working on the Internet, teenagers do not think about their own safety. Only 10.9% of schoolchildren have knowledge of "information security".

Such concepts as "computer addiction" and "gaming addiction" are familiar to schoolchildren. 28.6%

The level of readiness of adolescents aged 14-15 years to self-preservation of health (cognitive and activity components) in the information and educational space, %

Content of key views and knowledge		Level		
		Optimal	Insufficient	Low
Kognitivnyy komponent	Information hygiene	15,8	34,7	49,5
	Information Security	10,9	24,5	64,6
	Healthy speech environment	18,9	44,7	36,4
	Secure communication	13,2	25,6	61,2
	Information safe space	20,9	20,6	58,5
	Computer addiction	28,6	32,3	39,1
	Gambling addiction	39,8	44,7	15,5
	Ideas about the relationship between information and health	8,2	34,6	57,2
	Ideas about the relationship between information and human behavior	5,8	17,5	76,7
	Ideas about the relationship between network information and human image	21,2	32,2	46,6
Skill Mastery		**Level**		
		Optimal	**Insufficient**	**Low**
Activity Component	Choose the form of speech on the Internet	24,4	27,4	48,2
	Observe information hygiene	11,4	29,8	58,8
	Comply with information security	8,6	20,8	70,6
	Resist computer addiction	20,7	22,2	57,1
	Engage in secure communication	12,3	19,6	68,1
	Fight gambling addiction	25,6	33,6	40,8
	Get out of the conflict created in the social network in the process of communication	24,3	16,5	59,2
	Plan work with information	6,8	28,7	64,5
	Handle the flow of information on the Internet	7,8	23,4	68,8
	Maintain a healthy speech environment	21,3	39,6	39,1

and 39.8% of students have knowledge about these dependencies, respectively. However, 20.7% and 25.6% of students, respectively, cannot resist computer and game addiction. This problem requires new approaches to the education of such personal qualities of adolescents as responsibility for their own health, self-control and self-regulation.

The level of schoolchildren's ideas that information, health and human behavior can be interconnected is low. 8.2% and 5.8% of students have such ideas. However, the relationship between network information and a person's image seems possible to 21.2% of students.

The concept of "healthy speech environment" is not included in the knowledge content of 36.4% of schoolchildren. This can be explained by the lack of positive examples of verbal behavior in society. As a result of this, 13.2% of students have knowledge of safe communication in the information space.

The indicator of the ability to enter into safe communication as a whole does not have high results: 68.1% of students do not possess this ability. 48.2% of adolescents have a low level of the indicator "choose the form of expression on the Internet". Only 24.3% can get out of the conflict that has arisen in the social network in the process of communication. The majority of schoolchildren have not formed such significant indicators as "planning work with information" - 64.5% and "ability to cope with the flow of information on the Internet" - 68.8%.

All these problems are directly related to the readiness for self-preservation of health, its social potential in the information educational space and indicates its low level.

To identify the relationship between the cognitive and activity components, a correlation analysis was carried out. Strong relationships were found between most of the studied parameters. This confirms our assumption that the low level of knowledge in the field of maintaining health, information hygiene and safety in the information and educational space (cognitive component) inevitably leads to a low level of formation of the activity component.

The results obtained are compared with other studies. So, for example, Millan Ghisleri E., & Caro Samada C. in their study analyze some personal development strategies for adolescents aimed at eliminating the phenomena of virtual aggressiveness. Online aggressiveness, in their opinion, arises from a combination of individual and environmental factors. The latter include the family environment, the environment in which a teenager acquires the skills necessary for socialization and personal maturity [7]. This once again emphasizes the relevance of the search for effective educational influences.

Conclusions. Analysis of self-assessment of the level of readiness of students aged 14-15 for self-preservation of health (cognitive and activity components) in the information and educational space indicates the presence of serious problems. Namely, more than half of adolescents have an insufficient level of knowledge about information hygiene, security, and a healthy speech environment.

2/3 of the respondents confirm that they are not ready to take meaningful actions to use knowledge about maintaining health.

At the same time, correlations were established between the cognitive and activity components, which indicate the influence of the level of knowledge in the field of health preservation, information hygiene and security on the further behavior of adolescents in the information educational space.

All of the above indicates the need to build a pedagogical system of interaction "children-parents-teachers", which ensures the harmonization of the processes of education, the upbringing of informatization and the preservation of the health of the younger generation.

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Features of eating behavior of students-athletes with different levels of will development

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Abstract

Objective of the study was to determine the specifics of the eating behavior of student-athletes with different levels of will development.

Methods and structure of the study. 60 student-athletes aged 20 to 23 took part in the pedagogical experiment. To collect empirical material, we used: a block of methods for diagnosing willpower (test for determining willpower by R.S. Nemov; self-assessment test of willpower by N.N. Obozova) and a block of methods for diagnosing eating behavior (questionnaire "Eating behavior" by I.A. Savenkov (QEB); Eating Behavior questionnaire (EBQ); Dutch Eating Behavior questionnaire (GEBQ); Eating Attitude Test (EAT).

Results and conclusions. The study found that student-athletes with a higher indicator of will development are characterized by harmonious eating behavior, accompanied by the ability to control themselves, their actions and the external manifestation of emotions, the ability to control their eating behavior in a social environment, and even in the most severe stressful situations. Student-athletes with a lower indicator of will development are characterized by the presence of disorders in eating behavior, accompanied by an increased reaction to external stimuli (external eating behavior), overeating in order to get rid of negative emotions (emotional eating behavior), as well as excessive food self-restriction and unsystematic strict diets (restrictive eating behavior).

Keywords: *will, restrictive eating behavior, eating behavior, external eating behavior, emotional eating behavior.*

Introduction. Eating behavior is individual for each person and socially conditioned (because a person does not always eat when he wants to, sometimes for company). Eating behavior is associated not only with food intake, but also with the attitude to food [1, 2].

Willpower plays a huge role in eating behavior, influencing eating habits. Eating habits of a person and their transformation, self-control before food directly depend on volitional efforts [4, 6].

Objective of the study was to determine the relationship between the characteristics of eating behavior and the level of development of the will of student athletes.

Methods and structure of the study. The experiment involved 60 student-athletes aged 20 to 23 years. To collect empirical material, we used: a block of methods for diagnosing willpower (test for determining willpower by R.S. Nemov; self-assessment test of willpower by N.N. Obozova) and a block of methods for diagnosing eating behavior (questionnaire “Eating behavior” by I.A. Savenkov (QEB); Eating Behavior questionnaire (EBQ); Dutch Eating Behavior questionnaire (GEBQ); Eating Attitude Test (EAT).

Results of the study and their discussion. Using these research methods, mathematical calculations of correlations were carried out using the Spearman rank correlation coefficient. The results of the relationship between indicators of eating behavior and willpower are presented in the table.

The results obtained indicate that:

1) there is an inverse relationship between emotional eating behavior and the level of willpower. That is, for people with a low level of will, it is typical to process emotions by resorting to food, “eating stress”, they often have a desire to eat in response to negative

The relationship between the characteristics of eating behavior and indicators of willpower in student-athletes

Abbreviations of methods for diagnosing eating behavior and scales of corresponding methods		Methodology «Self-Assessment of Willpower»	Methodology «Determination of willpower»
QEB	Binge eating	**- 0,028***	0,259
	Night eating syndrome	0,332	**-0,035***
	Cleansing Behavior	0,583	0,588
	Obesity	**- 0,028***	**-0,007****
	Emotional behavior	0,233	0,171
	Concerns about nutrition and weight loss	0,059	**0,043***
	Family eating behavior	0,249	0,166
EBQ	Extrinsic conditioned food intake	0,318	**-0,007****
	Restriction in food	0,448	0,491
	Emotional behavior	0,212	**-0,026***
GEBQ	Emotional eating behavior	**-0,016***	-0,14
	External eating behavior	**-0,029***	**-0,044***
	Restrictive eating behavior	0,279	**0,016***
EAT	Diet Scale	0,496	0,093
	Bulimia and Food Anxiety Scale	0,274	0,207
	Oral Control Scale	0,062	0,15

* – $p<0,05$; ** – $p<0,01$.

Note: QEB - questionnaire "Eating behavior" I.A. Savenkov; EBQ - eating behavior questionnaire; GEBQ - Dutch Eating Behavior Questionnaire; EAT- eating attitude test.

emotional states, depression, stress, various experiences, fear;

2) external eating behavior is inversely correlated with willpower. Willful athletes act according to individual characteristics and are not subject to environmental influences on eating behavior - they are less likely to overeat in social situations or when food is available. Athletes with lower willpower scores are more consistent in eating behavior. It is difficult for them to resist the sight of food, they eat more in the company than alone, often they are characterized by food breakdowns, sharp fluctuations in weight, the desire to eat is stimulated not by hunger, but by external factors (the type of food, its smell, people eating);

3) restrictive eating behavior is interconnected with willpower. The tendency to restrict food, following new diets is more typical for athletes with high willpower;

4) an inverse relationship was found between overeating and the level of will, which means that people with a lower level of will are more susceptible to uncontrolled eating under the influence of emotions and external circumstances;

5) there is an inverse relationship between night overeating and willpower;

6) an inverse relationship between obesity and willpower has been proven. People with less volitional control are less likely to control food intake (leading to weight gain) and expend less energy;

7) concern about nutrition in general and weight loss in particular is more typical for people with a high level of will.

Human eating behavior is a complex biological, physiological and psychological process [3]. Nutrition in modern research is often considered as one of the ways to maintain physical health [5]. From a psychological point of view, food can be a means of obtaining pleasure (food as an opportunity to pamper yourself); discharge during stress; satisfaction of the need for aesthetics (then it is not so much food that is important for a person, but how it is served, beautiful serving); self-assertion when food should correspond to the status; maintaining certain religious, national or family traditions; communication, when food is associated with the environment in which the person is located; compensation for unmet needs (for example, the need for pleasure, care, communication, etc.).

Conclusions. Will and eating behavior are interconnected. In eating behavior, willpower is manifested

in determination, endurance and self-control. Thus, harmonious eating behavior is more characteristic of athletes with a high willpower index. For student-athletes with a higher indicator of will development, harmonious eating behavior is characteristic, accompanied by the ability to control oneself, one's actions and external manifestations of emotions, the ability to control one's eating behavior in a social environment, and even in the most severe stressful situations. Student-athletes with a lower indicator of will development are characterized by the presence of disorders in eating behavior of one of three types: dependent on external stimuli (external), designed to get rid of negative emotions (emotional) or characterized by food self-restriction and strict uncontrolled diets (restrictive).

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Wave simulators as a means of preventing covid-19

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Abstract

Objective of the study was to scientific substantiation of physical culture means for the prevention of the incidence of covid-19 in children and youth. Methods and structure of the study. The experiment involved children aged six to ten who attended elementary school and kindergarten No. 1604. Pedagogical impact was aimed at identifying the results of classes with wave simulators. Indicators of pulse, arterial pressure, physical development and physical fitness were determined.

Results and conclusions. As the study showed, physical activity with children aged 6-10 years using wave simulators has a positive effect on hemodynamics, which is expressed in a significant ($p<0.05$) decrease in heart rate and systolic pressure at rest, within the age norm; unreliable increase in indicators of physical development ($p>0.05$); a significant increase in the development of physical qualities ($p<0.05$).

The results of the study testify to the health-improving effect of training with wave simulators, the economization of the indicators of the cardiovascular system, as well as the development of the basic physical qualities of children from 6 to 10 years old.

Keywords: *wave simulators, training effect, prevention and rehabilitation of covid-19.*

Introduction. Recently, children have been increasingly exposed to infection with the omicron strain, and so far, studies have not been disseminated in the literature that answer the question: what means can be used to reduce the risk of infection with this disease in the population of our country and will contribute to recovery after the disease?

Many scientists have proven that the means of physical activity and sports are effective for improving health and reducing the incidence of the population [3].

Objective of the study was to scientific substantiation of the effectiveness of the application of wave biomechanics technology for the prevention of the incidence of covid-19 in children and youth.

Methods and structure of the study. As a means of wave biomechanics, the Agashin simulator was used [1]. It is known that when performing exercises with wave simulators, a so-called biomechanical wave is created, the essence of which is the alternation of tension and relaxation of the muscles involved in the movement. The consequence of this alternation is the emergence of biomechanical resonance, when under the influence of an external stimulus, which is the Agashin simulator, there is an effect of consistency in the activity of all functional systems of the body of the practitioner [2]. The technique of training with the Agashin simulator is described in the monograph [4, p. 108-113].

The pedagogical experiment involved 130 children attending kindergarten and primary school, who were divided into control and experimental groups (Table 1).

The study studied the dynamics of indicators of the cardiovascular system, the level of physical development of the participants in the experiment.

Results of the study and their discussion. As

Table 1. *Characteristics of the composition of the participants in the pedagogical experiment*

List of participants	Control group	Experimental group
Preparatory group	21	21
1st class	22	22
2nd class	22	22

Table 2. *Indicators of the cardiovascular system of children of preschool and primary school age*

Group, class	Date of measurement	heart rate at rest	Upper resting blood pressure	Lower resting blood pressure
Preparatory group	Start of PE	87±6,2	89±5	59±5,6
	End of PE	82±5,1	85±3,7	57±5,3
	p	<0,05	<0,01	>0,05
1st class	Start of PE	86±4,7	90±6,3	56±4,2
	End of PE	80±5,5	84±4,2	53,9±5,8
	p	<0,01	<0,01	>0,05
2nd class	Start of PE	81±6,1	89±6,4	56±4,6
	End of PE	77±5,3	86±5,3	58±3,9
	p	<0,01	<0,05	>0,05

*PE - pedagogical experiment lasting 9 months.

Table 3. *Indicators of physical development of the surveyed children of preschool and primary school age*

Group, class	Date of measurement	Height, cm	Weight, kg	Strength of the right hand, kg	Strength of the left hand, kg
Preparatory group	Start of PE	119.0±4,7	24.0±5,3	6,2±1,5	5,7±1,5
	End of PE	122,1±4,9	25,7±5,9	7,6±1,5	7,1±1,6
	p	>0,05	>0,05	<0,01	<0,01
1st class	Start of PE	126.0±4,3	26,3±3,9	9,3±2,4	7,8±2,1
	End of PE	128,8±4,3	28,8±4,8	11.0±2,3	9,5±2,2
	p	>0,05	>0,05	<0,05	<0,05
2nd class	Start of PE	133,9±6,1	29,9±6,2	10,2±2,6	9,5±2,5
	End of PE	136,2±6,3	32,5±6,9	11,5±2,6	9,9±2,4
	p	>0,05	>0,05	>0,05	>0,05

the study showed, the average values of heart rate and blood pressure, measured at rest, significantly decrease in both preschoolers and primary school students by the end of the school year. The indicators of systolic blood pressure also significantly decrease ($p<0.01$, $p<0.05$). However, the indicators of diastolic blood pressure decrease during the academic year, but do not reach the boundaries of significant differences ($p>0.05$). The values of these indicators are within the age limits for children of this age. But a decrease in heart rate and systolic pressure confirms the trend towards economization of the work of the cardiovascular system, which is probably associated with the propagation of a biomechanical wave, which leads to a change in the lumen of blood vessels in working muscles.

During one three-minute session with the simulator, this clearance value changes from 180 to 300 times, depending on the characteristics of the simulator used and the rhythm of movements chosen by the child. Such training significantly increases the elasticity of the walls of blood vessels, the child's ability to quickly adapt to changing external conditions is trained.

In table 3 presents data on the indicators of physical development in children participating in the pedagogical experiment. It turned out that the growth of the participants in the experiment did not change signifi-

Table 4. *Indicators of the development of physical qualities of the examined children of preschool and primary school age*

Group, class	Date of measurement	Run 30 m, s	Standing long jump, cm	Raising the body in a sitting position for 30 s, times
Preparatory group	Start of PE	7,1±0,20	109,3±3,4	15±1,1
	End of PE	6,6±0,10	120,7±4,2	19±1,5
	p	<0,05	<0,05	<0,05
1st class	Start of PE	6,7±0,13	122,6±2,6	18±1,2
	End of PE	6,3±0,12	130,0±2,0	22±1,4
	p	<0,05	<0,05	<0,05
2nd class	Start of PE	6,5±0,14	127,8±3,6	14±2,0
	End of PE	6,1±0,11	137,0±2,4	20±2,1
	p	<0,05	<0,05	<0,05

Table 5. *The number of children classified by the level of physical development in groups with low, medium and high levels of development of physical qualities*

Preparatory group	Human gender	Pedagogical experiment					
		Start			End		
		Low	Medium	High	Low	Medium	High
	Boy	-	2	8	1	2	7
	Girl	3	1	5	-	4	5
1st class	Boy	1	3	6	1	2	6
	Girl	1	6	6		5	8
2nd class	Boy	5	5	4		2	11
	Girl	3	4	4	2	2	5

cantly (p 0.05). Although the average growth in children of the preparatory group increases by an average of 3.0 cm over the analyzed period, and weight - by 1.7 kg. The picture is similar for students of the first and second grades (Table 3). Therefore, we can conclude that the indicators of physical development in children of this age increase relatively evenly.

On the contrary, the indicators of carpal dynamometry significantly increase during the pedagogical experiment. At the same time, the increase was higher in preschoolers ($p<0.01$) than in elementary school students ($p<0.05$).

During the pedagogical experiment, data on the development of physical qualities in children of the studied age were recorded (Table 4).

The presented data indicate that the inclusion of exercises with wave simulators makes it possible to achieve a significant increase in the absolute values of indicators characterizing the development of speed, speed-strength qualities and strength endurance in children participating in the experiment ($p<0.05$).

This trend is also confirmed by the data on the number of children assigned to a certain level of development of physical qualities, presented in Table 5.

Significantly from 4 to 11, the number of boys of the 2nd grade, demonstrating a high level of development of physical qualities, increased. On the contrary, guys appeared in the preparatory group, the results of which decreased. Probably, this decrease is explained by the fact that they were sick the day before and did not have time to recover from the illness.

Conclusions. Physical activity with children aged 6-10 years using wave simulators has a positive effect on hemodynamics, which is expressed in a significant ($p<0.05$) decrease in heart rate and systolic pressure at rest, within the age norm; unreliable increase in indicators of physical development ($p>0.05$); a significant increase in the development of physical qualities ($p<0.05$).

The advantage of exercising with the Agashin simulator is that a large room is not required, since the area for exercising with a wave simulator does not exceed 2 m2 per person. Significant range of motion: within five minutes, a person can perform up to 600 muscle

contractions at a frequency of 2 Hz / min and up to 900 muscle contractions at a frequency of 3 Hz / min.

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Features of physical training of students of a special medical group in the conditions of a streaming form of education

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Abstract

Objective of the study was to develop and test the methodology of physical training of students of a special medical group, taking into account their characteristics in the conditions of streaming training.

Methods and structure of the study. During the experiment, the proportion of SHG students from the total number of students was determined. The diseases of students were identified, and then grouped according to nosological groups (dis-eases of the cardiovascular system, musculoskeletal system, etc.). On the basis of the data obtained, a methodological approach was developed for working with students of the SMG. The study was conducted at the department of "Physical Education" of the Bauman Moscow State Technical University.

Results and conclusions. A methodology for practicing health-improving swim-ming with students with musculoskeletal disorders, cardiovascular diseases and eye diseases (more than 70% of the total SMG contingent) has been developed and tested, which is based on swimming with phased training. The technique consists in fifteen weeks of swimming training, with a gradual soft increase in loads and a phased learning of swimming techniques. The optimal intervals of rest and work in the water were determined separately for students with diseases of the cardiovascular system, separately for those studying with diseases of the musculoskeletal system, and separately for students with eye diseases.

Keywords: *special medical group, physical education, health-improving swimming, swimming for SMG, students' diseases, students' contingent.*

Introduction. Physical education classes are contraindicated for people assigned to a special medical group of type “B”, but students of type “A” SMG undergo a full course of physical education at their university. The contingent of students assigned to a special medical group (SMG), as noted by many authors [1, 3, 4], is growing, including our data allow us to draw the same conclusion. Obviously, when working with students of this category, a careful approach is required in choosing the means and methods of work. In this case, it is important to maintain a balance between the load, which can be harmful due to too high requirements for a conditionally unhealthy organism, and reducing the load to a level that does not positively affect the body of young people.

Another of the main problems in working with students of the special medical group (SMG) is the flow of education. Under the conditions of the modern system of physical education, it is practically impossible to unite students according to nosological groups for physical education, to work with each group of diseases pointwise. The main obstacles to this are: the university schedule (different academic groups have a different number of students with a particular disease), different incidence of diseases by nosological groups (the predominance of some groups of diseases over others). The question arises about the search and development of approaches when working with SHG students that allow combining methods and tools that have a healing effect for the largest possible number of SMG students with the most common diseases, without the need to form separate nosological groups.

Objective of the study was to develop and test the methodology of physical training of students of a special medical group, taking into account their characteristics in the conditions of streaming training.

Methods and structure of the study. At the first stages of the experiment, the collection and analysis of data on diseases of students of a special medical group was carried out. The proportion of SMG students from the total number of students was determined. Students' diseases were identified, and then grouped according to nosological groups (diseases of the cardiovascular system, musculoskeletal system, etc.). Students with concomitant diseases, in addition to the main one, were identified, they were also referred to the nosological group.

In the course of the study, an analysis of scientific and methodological works was carried out on the issues of improving the health of students with deviations in the state of health [3, 4, 5], and we also considered various methods of health-improving swimming [1, 2]. Based on the data obtained, a methodological approach was developed for working with SMG students. The pedagogical experiment was carried out at the department of "Physical Education" of the Bauman Moscow State Technical University.

Results of the study and their discussion. The data on the ratio of SMG students to the general contingent of 1st-3rd year students of the Bauman Moscow State Technical University from 2015-2016 to 2017-18 academic year. So, in 2015-2016 11969 students accounted for 1523 students of the SMG, which amounted to 12.7%, and in 2017-18 there are already 2708 SMG students out of 15507, which is 17.5%. As we can see, there is a certain increase (by 4.8 percentage points), mainly, the growth was facilitated by those who entered the 1st year in 2016 and 2017, it is worth noting that an increase of 4.8 percentage points cannot be considered significant. Nevertheless, there is obviously no positive dynamics. The main task when working with this contingent is not a medical, but a general health-improving orientation of classes.

In his study, Ivanov K.V. [1] gives the following data: deviations in the state of the cardiovascular system - 56%, CNS (central nervous system) - 61%, musculoskeletal system - 69%, and the digestive system - 56%. We also analyzed the data on the diseases of students of the SMG groups of the Bauman Moscow State Technical University. The study involved 1523 people (2015-2016) and 2708 (2017-2018) students of the SMG 1-3 courses.

In table 1 shows the statistics of diseases among students in different years of study:

When counting, students with a number of diseases from different groups were taken into account exactly as many times as they have diseases (for example, if 1 student has diseases associated with musculoskeletal system and cardiovascular system, then in the table it

Table 1. *Diseases of SMG students*

Disease groups	2015-2016 academic year	2017-2018 academic year
Eye diseases	19,7%	21,8%
Respiratory diseases	8,8%	10,54%
Urinary system disease	5,4%	3,16%
Diseases of the digestive system	6,7%	5,27%
Cardiovascular diseases	31,2%	26,05%
Diseases and injuries of the musculoskeletal system	18%	37,65%
Hearing loss	8,1%	3,16%
Other diseases	2-3%	10,5%
Total number of students (persons)	1523	2708

Table 2. *Students with one, two or three or more diseases in the SMG*

Total number of SMGs (students)	1 disease	2 or more diseases	3 or more diseases
2708	60,88%	31,03%	8,09%

Table 3. *Exhalations into the water and rest intervals by nosological groups*

Disease	Number of breaths (times)	Rest intervals (min.)
Cardiovascular system	15-20	5-8
Musculoskeletal system	7-8	3-4
Vision	10-15	4-6

is reflected twice and in the column musculoskeletal system and cardiovascular system).

Table 2 presents the data with the differentiation of students by the number of diseases according to the data for the 2017-18 academic year.

These data point to the urgent need to find approaches when working with SMG students with diseases of the cardiovascular system, musculoskeletal system and eyes. Also, based on the data presented in Table 2, more than 30% of SMG students cannot be attributed to a specific nosological group, which, in turn, also sets us the task of developing methods suitable for the majority of students with a special medical health group. For this purpose, we have developed and tested a swimming methodology with stage-by-stage training as one of the approaches that allows us to cover the largest contingent of SMGs. Of course, it is worth noting that for a number of diseases this approach will be contraindicated (mostly students with diseases of the respiratory and genitourinary systems, as well as those who are allergic to bleach, etc.), however, the proportion of such students in SHG groups in general not high (13-15%).

In his dissertation work, O.A. Melnikova [4] showed the effectiveness of swimming for students with connective tissue dysplasia. At the same time, we believe that swimming can be useful not only for students with connective tissue dysplasia, but also for the majority of SHG students admitted to classes in the pool. In order to improve the quality of work in the development of a methodology as an approach when working with SMG, we paid special attention to the following points:

1. Choice of starting positions;
2. Gradual load increase with heart rate control;
3. Individualization of rest intervals according to nosological groups;
4. Repeatability, pace and rhythm and amplitude of movements;
5. Accuracy of movements;
6. The degree of effort when performing physical exercises;
7. Use of breathing exercises.

The method of step-by-step training in swimming consisted of three stages, at each of which specific tasks were set and solved, depending on which the means, methods and methods of training were chosen.

The total duration of swimming lessons was 72 practical lessons during the year, twice a week, in compliance with the generally accepted structure of the lesson (preparatory, main and final part). Exercises were selected for mastering the techniques of sports swimming.

At the first, preparatory stage, during three lessons, the main features, the type of their constitution, the “bouquet” of diseases, the level of the students’ ability to swim were determined. Based on the collected data, the swimming style that is most suitable for a particular student was determined.

Swimming technique training was carried out on the basis of three main groups of physical exercises:

- preparatory exercises designed to help at the initial stages of training to get used to the mode of operation, prepare for learning swimming techniques and adapt to work in the aquatic environment;
- general developmental physical exercises aimed at improving the coordination of movements, increasing the functionality of the cardiovascular system and the overall development of the musculoskeletal system (skeletal muscles, increasing the elasticity of ligaments and tendons, etc.);
- special exercises aimed, here, mainly at the correct setting of breathing, teaching the technique and methodology of breathing exercises in water.

Research N.N. Kardamonova [2] proved that the use of such exercises can increase the functionality of the body, as well as improve special endurance. For students, especially students of a special medical group, such exercises at the initial stage are an additional burden on the cardiovascular system. Under these conditions, it was necessary to choose the intervals of rest between the work performed, so that the subsequent work took place against the backdrop of favorable changes after the previous work. Based on our experience, analysis of the literature [1, 4] and data obtained while working with students, it is certain that the number of exhalations into the water can vary from 5 to 15, depending on the level of preparedness of students and their diseases. Thus, students with cardiovascular system problems must perform more breaths to recover, and university students with problems with the musculoskeletal system need only seven or eight breaths into the water (Table 3).

The main task that was solved when using these exercises was to reduce heart rate by 30% or more. In subsequent sessions, rest intervals remained at the same level, while the duration of work in each segment gradually increased.

Conclusions. According to the results of the study, it was revealed that more than 90% of students studying according to the developed methodology noted a general improvement in their physical condition. 96% of those involved improved their results in terms of the amount of distance they swam without stopping. On

average, the increase was 110-120% (from 400-500 m to 900-1000 m).

The approved method of staged swimming for SMG students with diseases of the cardiovascular system, musculoskeletal system and vision has shown its effectiveness.

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Assessing the importance of pedagogical abilities of table tennis coaches in the context of achieving high results of PRC sportsmen

UDC 796.386

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Abstract

Objective of the study was to assess the level of significance of pedagogical abilities, the manifestation of which allows table tennis coaches to achieve high results in the preparation of Chinese athletes.

Methods and structure of the study. The work was attended by 100 table tennis coaches, each of whom acted as an expert. The examination was aimed at identifying the opinions of coaches on assessing the significance of the types of pedagogical abilities that affect the athletic performance of the trainees. The experts were asked to note at what level of significance a particular pedagogical ability is manifested in the training of athletes.

Results and conclusions. The results of the expert survey allow us to state that in order to achieve high results in the preparation of athletes, coaches must be endowed with certain pedagogical abilities. The respondents named didactic, personal and authoritarian abilities as especially important ("very significant"). Constructive, expressive, organizational, communicative and special abilities are distinguished as no less significant ("more significant than less"). It should be noted that a third of the experts do not believe that academic abilities affect the effectiveness of training athletes, since they singled out these abilities as "less significant than more" and "little significant".

Keywords: *pedagogical abilities, level of significance, coaching skills, effectiveness of training athletes.*

Introduction. In sports, success is the result of the joint work of a coach and an athlete, which is formed through mutual social and personal "penetration" of each over many years. The coach is the main figure in the preparation of an athlete, since it is he who reveals and develops the qualities of the trainees, determines their "sports path" and directs them to achieve high results. The coach, like a sculptor, "sculpts" his athletes, putting his knowledge, skills and abilities into them [4]. The coach is both an educator, and a teacher, and a psychologist, and a doctor, and sometimes his authority becomes higher than the authority of parents. Coaching activity is multifaceted, and the main prerequisite for the skill of a coach is the level of manifestation of his pedagogical abilities [3].

Objective of the study was to assess the level of significance of pedagogical abilities, the manifestation of which allows table tennis coaches to achieve high results in the preparation of Chinese athletes.

Methods and structure of the study. The work was attended by 100 table tennis coaches, each of whom acted as an expert. Summary information about the contingent of participants in the expert survey is presented in the table. Most of the respondents are represented by male trainers (64 people), the age of most experts was over 30 years old and their coaching experience is quite long (11-20 years - 42 people; more than 20 years - 26 people), which allows us to judge about the professionalism of the interviewed coaches.

The examination was aimed at identifying the opinions of coaches on assessing the significance of the types of pedagogical abilities that affect the athletic performance of the trainees. The experts were asked

Information about the contingent of study participants

Parameters		Number of people
Gender attribute	Men	64
	Women	36
Age	25-29 years old	16
	30-40years old	31
	41-55 years old	44
	Over 55 years old	9
Experience of coaching	3-5 years	3
	6-10 years	29
	11-20 years	42
	Over 20 years	26
Stage of sports training of trainees	Stage of initial training	84
	Stage training (sports specialization)	94
	Stage of improvement of sportsmanship	46
	Stage of higher sportsmanship	37

Note: Some coaches practice with athletes at various stages of training.

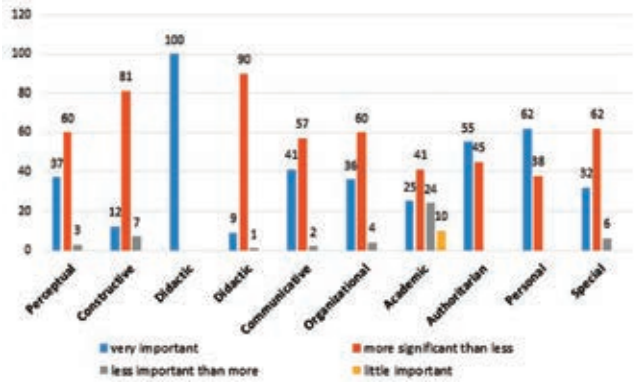
to note at what level of significance a particular pedagogical ability is manifested in the training of athletes. Experts singled out the most significant among the types of pedagogical abilities. For these purposes, a rating scale was developed that allows to differentiate the opinions of experts: 5 - very significant; 4 - more significant than less; 3 - less significant than more; 2 - little significant; 1 - not significant.

The degree of agreement between experts' opinions was assessed by the value of the concordance coefficient (W). The statistical significance of the concordance coefficient was assessed using the – criterion. Comparison of the obtained value with the tabular one made it possible to make sure that the found concordance coefficient differs significantly from zero. When evaluating the data obtained, the concordance coefficients were set at a significant level ($p<0.01$), which confirms an approximately identical view of the significance of a particular ability and the objectivity of the results obtained.

Results of the study and their discussion. Pedagogical mastery can be achieved only if pedagogical abilities are formed and improved. Among the pedagogical abilities, the following types are distinguished: perceptual, constructive, didactic, expressive, communicative, organizational, academic, authoritarian and personal [1, 2]. Often we observe that not all coaches show their pedagogical abilities to the full extent, and some abilities are completely absent. Pedagogical abilities, with all their diversity, can be interconnected and at the same time, some of them can compensate for the missing abilities.

Perceptual abilities are manifested in pedagogical observation, which allows you to "penetrate" inside, understand the state and influence changes in the personality of those involved, identify what they are interested in and what they are inclined to, in order to manage pedagogical situations for the purposeful formation of the personality of the trainees. In our study, the majority of coaches (60%) responded that these abilities are “more important than less”, and 37% of the experts indicated that they are “very important” (see figure).

The results of an expert survey on the importance in working with athletes of pedagogical abilities that affect the effectiveness of the training process.



Constructive abilities are necessary for the successful construction of the training process and the formation of the personality of young athletes, thanks to which the coach can foresee the development of pedagogical situations and choose the right means of influencing the personality of those involved. 81% of

trainers rated these abilities as “more important than less”, 12% rated them as “very important”, and only 7% considered them “less important than more”.

Didactic abilities provide an intelligible presentation of the transmitted material, constructing and adapting it, taking into account the personality characteristics of those involved. These abilities are manifested when trainees are stimulated to mental search and mobilization of thinking, memory and attention. The significance of these abilities for achieving high results in the training of athletes was unanimously emphasized by all coaches (“very significant” - 100%).

Expressive abilities are manifested in the effective presentation of program material, the expression of one's thoughts and knowledge through speech, facial expressions, and motor abilities. The ability to competently build phrases, emotionally convey information, demonstrate movements beautifully from the point of view of technology, competently explain the tactics of their application - all this in the aggregate is determined by expressive abilities. These abilities were identified as "very significant" by 9% of coaches, and 90% of experts identified them as "more important than less."

Communication skills allow the coach to build relationships with trainees that are aimed at successfully building the training process, when pedagogical situations are built on the basis of a mutual trusting relationship between the coach and the trainees, when the coach does not allow conflicts not only with the trainees, but also between them. The importance of these abilities for the successful construction of the training process was indicated by 41% of coaches (“very significant”), and 57% of the respondents considered them “more important than less”.

Organizational skills are manifested in the rational distribution of training and competitive events combined with the training and leisure activities of trainees. It is also important to organize relationships within the team, an accurate assessment of the situation and adequate solutions aimed at achieving the set training objectives. This is possible under the condition of manifestation of such personal qualities of a coach as quickness and flexibility of thinking, perseverance, determination, exactingness, endurance, responsibility, etc. 36% of trainers rated them as “very important” and 60% rated them as “more important than less”.

Academic abilities are manifested in the need and interest in scientific research, a critical assessment of their own positive and negative results of practical activities. This allows you to constantly improve in coaching skills, focusing on the results of scientific research. Only 25% of experts emphasized the high importance of these abilities (“very significant”), and 41% of coaches answered that they are “more significant than less”. At the same time, 24% of respondents considered these abilities “less significant than more”, and 10% - “little significant”, which means that not all coaches are interested and do not focus on new results of scientific research.

Authoritarian abilities are manifested in the ability to gain authority among pupils, due to the fact that the coach influences them, being an example of a serious attitude to their work, interest in its results. These abilities were identified by 55% of coaches as “very significant” and 45% as “more significant than less”, which emphasizes the importance of the authority of the coach for the successful construction of the process of sports training and effective interaction between the teacher and students.

Personal abilities (pedagogical tact) consist in maintaining a sense of proportion in relationships with those involved, and, most importantly, when demanding, which is combined with the endurance and poise of the coach, but with respect for the athletes. The importance of pedagogical tact in the interaction between the coach and athletes was emphasized by all experts, and 62% marked them as “very significant”, and 38% - “more significant than less”.

Special abilities are the abilities that the coach is endowed with in addition to pedagogical ones, the ability to music, painting, poetry, etc. If the coach is gifted with special abilities and uses them in practice, then he enriches the pedagogical abilities. He, including them in his activities, expands the range of his own influence on the minds of the trainees. They were identified as “very significant” by 32% of respondents, and 62% indicated that they were “more significant than less”.

Conclusions. The results of the expert survey allow us to state that in order to achieve high results in the preparation of athletes, coaches must be endowed with certain pedagogical abilities. The respondents named didactic, personal and authoritarian abilities as especially important (“very significant”). Constructive, expressive, organizational, communicative and special abilities are distinguished as no less significant (“more significant than less”). It should be noted that a third of the experts do not believe that academic abilities affect the effectiveness of training athletes, since

they singled out these abilities as “less significant than more” and “little significant”.

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Stages of emergence and development of freestyle wrestling in the West Kazakhstan region of the Republic of Kazakhstan

UDC 796.01

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Abstract

Objective of the study was to substantiate the stages of development of freestyle wrestling in the West Kazakhstan region of the Republic of Kazakhstan.

Methods and structure of the study. The work was carried out on the basis of the Belgorod State University and the West Kazakhstan Innovation and Technology University in 2018-2022. We used historical and culturological-acmeological approaches, analysis and generalization of data from special literature, electronic sources, archive documents of the West Kazakhstan region, a survey of trainers, a study of the reporting materials of the department of physical culture and sports of the West Kazakhstan region.

Results and conclusions. The most important factors that determine the periodization of the development of freestyle wrestling in the region of the West Kazakhstan region are identified: the effectiveness of the activities of coaches and athletes, the nature of the expansion of the scope of freestyle wrestling in the region, the quantitative composition of coaching staff and their qualifications, scientific, methodological and logistical support, social historical changes in the region, economic provision, demographic dynamics, organizational and managerial activities. As a result of the study, four stages in the development of freestyle wrestling in the region were identified: the stage of the origin and initial development of freestyle wrestling in the West Kazakhstan region; the stage of the spread of freestyle wrestling in the region; stage of intensive development of freestyle wrestling; the stage of reaching the maximum achievements of athletes of the region in freestyle wrestling. The established time periods and the main trends of the stages show the progressive nature of the development of freestyle wrestling in the region.

Keywords: *freestyle wrestling, stages, sports history, Kazakhstan, region.*

Introduction. One of the areas of research in the theory and methodology of sports is the history of a separate sport. Currently, there is evidence of scientific research in such sports as skiing, athletics, cycling, fencing, gymnastics, hockey, Greco-Roman wrestling, archery, football, orienteering, tourism, and some others. [4, 5].

Among them there are studies devoted to different types of martial arts: Tajik folk (sports) wrestling, Azerbaijani wrestling “gulesh”, Armenian wrestling, Uzbek wrestling “kurash”, volumes of aikido [4, 5]. At the same time, little research has been done on the history of the development of certain types of sports and national wrestling in Kazakhstan [1-3]. The problem lies in the fact that at present, research is very rarely conducted on the history of martial arts in Kazakhstan, at the same time, there are actually no works on the history of the development of freestyle wrestling in the Republic of Kazakhstan.

The relevance of this study is determined by the need to analyze and summarize the history of the emergence and development of the Olympic sport in Kazakhstan - freestyle wrestling on the example of the region of the West Kazakhstan region. The scientific data obtained in this direction will make a certain contribution to the development of the history of sports and wrestling in the Republic of Kazakhstan.

Objective of the study was to substantiate the stages of development of freestyle wrestling in the West Kazakhstan region of the Republic of Kazakhstan.

Methods and structure of the study. In the course of the study, analysis and generalization of data from special literature on the research problem (about 126 sources) were used. In addition, a survey of freestyle wrestling coaches in the region (n=12) was conducted, materials from the Archive of the West Kazakhstan region were used in the form of separate documents, as well as articles in magazines and newspapers published in the Ural (then - West Kazakhstan) region of the Republic Kazakhstan, reporting materials of the Regional Sports Committee of the West Kazakhstan region. In addition, cultural-acmeological, historical approaches were used, which made it possible to reveal the mechanisms of the sports and historical development of freestyle wrestling in the region.

Results of the study and their discussion. Freestyle wrestling in Kazakhstan appeared later than many other sports. There is evidence that it first arose in England, then in the USA. Since 1904, freestyle wrestling has become an Olympic sport, systematically included in the program of the Summer Olympic Games, although there were historical facts when it was temporarily removed from the Olympic disciplines.

In pre-revolutionary Russia, freestyle wrestling appeared later than in Europe and the USA. In Kazakhstan, where the national wrestling "Kazakhsha-kures" has long been cultivated, freestyle wrestling began to appear in Soviet times since 1955. There is every reason to believe that this type of wrestling spread across the republic heterochronously and each region of Kazakhstan had its own beginning of the history of the emergence and development of freestyle wrestling, although there may be historical periods that partially coincide in time.

The course of the study led to the need to identify the leading factors that could determine the stages of the origin and development of freestyle wrestling in the region of the West Kazakhstan region. Among them, the most important factors were:

- the results of the activities of coaches and their students in freestyle wrestling;
- the nature of the spread of freestyle wrestling across the territory in the region of the Ural (West Kazakhstan) region;
- the number of trainers and their qualifications;
- scientific, methodological, logistical support;
- socio-historical processes in the region;
- demographic dynamics;
- economic support of the region;
- organizational and managerial activities.

The action of these factors determined the emergence and dynamics of the development of freestyle wrestling in the region. Based on the analysis of these factors, the sequence of stages in the development of freestyle wrestling and its main characteristics were determined (see table).

The first and main fact that began the whole history of the emergence and development of freestyle wrestling in the West Kazakhstan region was the appearance of coach A. Zulkashev, who returned to his native village after graduating from the Karaganda College of Physical Education and military service.

For this reason, the beginning of the development of freestyle wrestling at the first stage was not in the center of the region, but on the periphery. However, the activities of this wonderful coach provided a stable basis for the spread and popularization of freestyle wrestling in the region.

At the second stage, the spread of freestyle wrestling, the emergence of new sections in different

Stages of development of freestyle wrestling in the West Kazakhstan region

Stages	Name of stages	Time period	Brief description of the stages
First	The origin and initial development of freestyle wrestling	Early 60s to 70s of the XX century	The emergence of freestyle wrestling as a sport, the formation of the first school of freestyle wrestling by A. Zulkashev
Second	The spread of freestyle wrestling on the scale of the West Kazakhstan region	70-80s XX century	Expansion of freestyle wrestling cultivation in the region, first competitions, sports achievements, formation of the regional freestyle wrestling federation
Third	Intensive development of freestyle wrestling in the region	80-90s XX century	The growth of sporting achievements in freestyle wrestling, the formation of the composition of coaching staff, improving their qualifications, the beginning of work in the new conditions of autonomy of the Republic of Kazakhstan
Fourth	Achieving the highest sporting achievements	From 2000 to 2022	Reorganization of the freestyle wrestling management system, high achievements of men and women, generational change among coaches and athletes

parts of the region, as well as the special attention of management structures to the development of the next Olympic sport in the region, made it possible to achieve the first sports achievements and create a regional freestyle wrestling federation that organized comprehensive work to develop the sport.

The third stage is characterized by a numerical increase in the coaching staff, the accumulation of pedagogical experience, the growth of sports qualifications in changing socio-historical, economic, demographic conditions and the collapse of the Soviet Union, which affected sports competition inside and outside of Kazakhstan.

The fourth stage is distinguished by the continuation of the emerging trends and factors that have formed at the previous stages of the development of freestyle wrestling, the transition of quantity to a new quality and reaching the level of high sports results, the emergence of women's freestyle wrestling in the region, the preparation of the first highly qualified athlete in the West Kazakhstan region - Ekaterina Larionova, who won a bronze medal at the 2016 Summer Olympics in Rio de Janeiro.

Conclusions. As a result of the study, the factors that determined the sequence and content of the stages of formation and development of freestyle wrestling in the region of the West Kazakhstan region were identified: the effectiveness of the activities of coaches and athletes, the expansion of freestyle wrestling in the region, the number of coaches and their qualifications, scientific, methodological and material -technical support, socio-historical changes, demographic dynamics, economic support, organizational and managerial activities.

In the course of the study, four stages of the development of freestyle wrestling in the West Kazakhstan region of Kazakhstan were substantiated and determined: the stage of origin and initial development of freestyle wrestling in the region (60-70s of the 20th century), the stage of spreading freestyle wrestling in the West Kazakhstan region (70 -80s of the XX century), the stage of intensive development of freestyle wrestling in the region (80-90s of the XX century), the stage of reaching the highest sports achievements (from 2000 to 2022).

The data obtained can be used in the theory and practice of special and non-specialized physical education, in theoretical training and educational work with athletes, in further scientific study of the history of certain sports on the example of freestyle wrestling in the West Kazakhstan region of Kazakhstan.

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Justification of the effectiveness of the online course for sports judges on the example of kyokushin karate

UDC 378.2

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Abstract

Objective of the study was to evaluate the effectiveness of the use of online training in the preparation of judging for sports competitions using the example of Kyokushin karate.

Methods and structure of the study. To prepare referees for work at sports competitions, an online course "KWU Kyokushin Competition Rules (Kumite)" was created and implemented. This course was used in the preparation of sports referees for the 2019 KWU Kyokushin World Championship and the 2021 KWU Kyokushin European Championship. The control group of participants studied at seminars in person, the experimental group - in a mixed format with an online course. In the course of the study, a comparative analysis of the results of testing in the CG and the EG was carried out based on the results of training, as well as the evaluation of the work of refereeing at competitions.

Results and conclusions. The results of the judges passing the online course on the rules of KWU Kyokushin karate, as well as the final testing before the tournament and the assessment of the work of judges at competitions, showed that the mixed format of advanced training programs for sports judges before competitions using online training gives the same effectiveness as face-to-face seminars that require longer time and additional costs.

Keywords: *online education, digitalization, educational content, physical culture and sports.*

Introduction. In order to ensure objective refereeing in full compliance with the rules of the competition, the international sports federation provides a number of training events for referees. Classes are held in full-time format and judges should arrive a day or two before the start of the competition.

Nowadays, there is a sharp development of online education. The need for it has been confirmed in studies [4], and high-quality implementation makes it possible to carry out the educational process in theoretical and practical disciplines [1, 2]. The inclusion of online courses in the educational process leads to significant cost optimization [10].

An analysis of the literature and a search in Internet resources showed the absence of full-fledged online courses on the rules of competitions in various sports [6-7].

Objective of the study was to evaluate the effectiveness of the use of online training in the preparation of judging for sports competitions using the example of Kyokushin karate.

Methods and structure of the study. To train judges, an online course “KWU Kyokushin Competition Rules (Kumite)” was created and implemented [9]. This course was used in the preparation of sports judges for the 2019 KWU Kyokushin World Championship and the 2021 KWU Kyokushin European Championship. The control group of participants studied at seminars in person, the experimental group - in a mixed format using an online course. In the course of the study, a comparative analysis of the results of testing in the CG and the EG was carried out based on the results of training, as well as the assessment of the work of refereeing at competitions.

In the online training course, the rules of the competition were detailed. At the end of each section, a block of self-test questions was created. Video clips

of the competitions were used to demonstrate allowed and prohibited techniques, as well as situations in fights that require the response of judges. The total course time is 4 hours. The test results of each judge were available for verification by the moderator. The text is presented in Russian and English.

The use of English has made it possible to expand the reach of the audience of judges, since the provision of simultaneous translation for judges from different countries often causes organizational difficulties. With consecutive interpreting, the time of seminars is lengthened and the effectiveness of training judges is reduced.

Results of the study and their discussion. In table 1, 2 show the results of the final testing based on the results of training and the assessment of refereeing at the competitions.

From the data given in both tables, it follows that the results of both the final testing and the judging scores for the competitions are almost the same. This indicates that the mixed format of training using online courses does not reduce the quality of training of judges, and watching video clips with allowed and prohibited techniques serves as additional ideomotor training [3, 5].

Conclusions. It is impossible to fully replace face-to-face sports referee seminars due to the practical component. However, the results of the judges completing the KWU Kyokushin Karate online course, as well as the final testing before the tournament and the assessment of the work of judges at competitions, show that the mixed format of professional development programs for sports judges before competitions using online training gives the same effectiveness as face-to-face seminars requiring longer time and additional costs.

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Table 1. *The results of the final testing of judges based on the results of seminars in points*

Total number of judges	Groups	Points / number of person					
		0-6	7	8	9	10	Average points per person
World Cup 2019							
77	Experimental (37)	0	1	3	13	20	9,41
	Control (40)	0	2	4	16	18	9,25
European Championship 2021							
30	Experimental (13)	0	1	1	4	7	9,31
	Control (17)	0	0	1	7	9	9,47

Table 2. *Marks for refereeing at competitions*

Total number of judges	Groups	Points / number of person			
		3	4	5	Average points per person
World Cup 2019					
77	Experimental (37)	1	11	25	4,65
	Contro (40)	2	11	27	4,63
European Championship 2021					
30	Experimental (13)	0	2	11	4,85
	Control (17)	1	4	12	4,65

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SmartPower technology for the formation of martial arts shok actions

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Abstract

Objective of the study was to substantiation of the effectiveness of SmartPower technology in percussion martial arts.

Methods and structure of the study. SmartPower technology is based on load analysis, manifested in the form of vector forces. Its main task is to develop the power of sports movement through a system of exercises. The innovative technology of forming vector forces is based on an information database obtained using a computer program from the inertialess simulator KIT-70, trackers HYKSO, BIODEX, dynamic bag Kicktest-100. To evaluate the effectiveness of the technology, an experiment was conducted in the city of Chaikovsky on the basis of USK "Burevestnik". The participants were 38 thaiboxers aged 14-15, divided into two equal groups CG and EG, 19 athletes in each. The EG studied according to the proposed technology, the CG according to the program for the Youth Sports School.

Results and conclusions. Training in the EG under the control of exercises that maximally simulate shock actions using KIT-70 contributed to significantly significant changes in all the studied parameters. The technology, built on interconnected sets of exercises with an optimal effect on the vector effort, will allow achieving the planned sports result not only in martial arts, but also in other speed-strength sports.

Keywords: *SmartPower technology, vector effort, control and measuring simulator (KIT-70), Hykso tracker, dynamic boxing bag (Kicktest-100), heart rate variability, Polar H-10 heart monitor.*

Introduction. The modern technological process of training athletes should be based on constantly updated knowledge of anatomy, histology, biochemistry, physiology, biomechanics, psychology, adaptation mechanisms, sports and pedagogical principles. Within the framework of new scientific directions, many empirical pedagogical provisions have become outdated, such as, for example, the development of physical qualities, an adaptive reserve, a cumulative effect (V.N. Seluyanov, 2008), the problem of training transfer (A.P. Bondarchuk, 2007).

To form the shock actions of combatants, taking into account the positive transfer of fitness, SmartPower technology was proposed. SmartPower technology is an interconnected ordered system of exercises with an optimal effect on the vector effort to ensure the planned sports result.

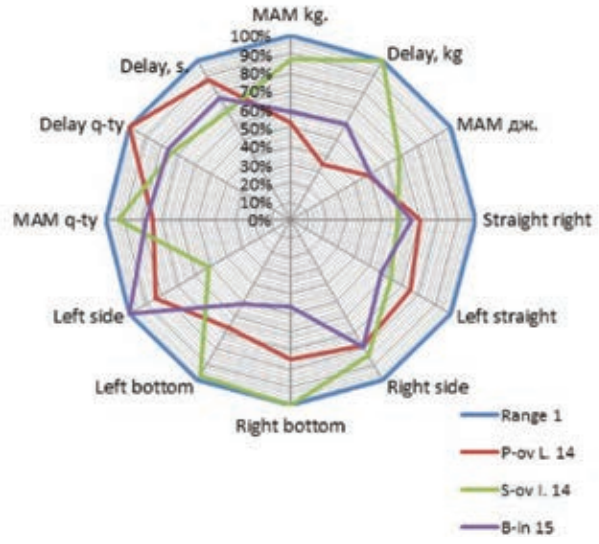
Objective of the study was to substantiation of the effectiveness of SmartPower technology in percussion martial arts.

Methods and structure of the study. The theoretical basis of the technology for the formation of shock actions SmartPower was the provisions of the sports adaptology of V.N. Seluyanov, block periodization by V.B. Issurin, artificial control environment I.P. Ratov, the principle of conjugate training effects proposed by Yu.V. Menkhin and modified by A.P. Bondarchuk.

The innovative technology for generating vector forces is based on an information database obtained using a computer program from the inertialess simulator KIT-70 (patent No. 2607310), trackers HYKSO, BIODEX, dynamic bag Kicktest-100 [3]. The information base includes: the magnitude of the force to be overcome, the angular velocity, acceleration, movement speed, power, pace, amplitude, force and sharpness of the strike. Dynamic assessment of vector efforts allows you to purposefully influence the training process depending on its stage, and the individual profile of an athlete to assess his strengths and weaknesses.

To assess the effectiveness of the technology, an experiment was conducted in the city of Chaikovsky on the basis of the USC "Burevestnik" from 09/01/2021 to 02/01/2022. The participants were 38 Thai boxers aged 14-15, divided into two equal groups - CG and EG, 19 athletes in each. The EG studied according to the proposed technology, the CG - according to the program for the Youth Sports School.

Picture 1 shows the punching profile of three 14-15 year old Thai boxers.



Picture 1. *Individual punching profile of three Thai boxers aged 14-15*

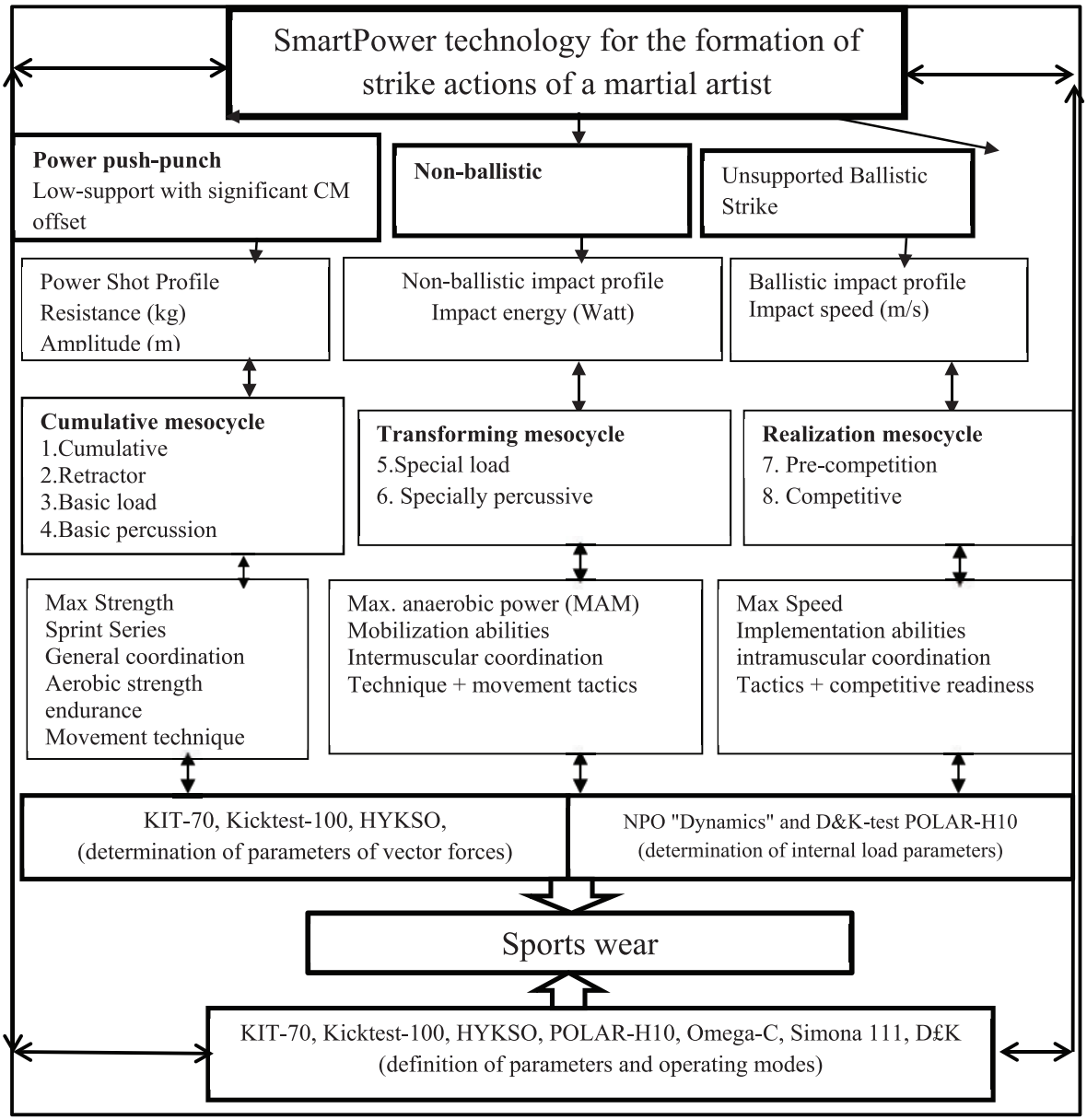
The first row in the form of a diagram perimeter is built on the basis of the maximum data shown by a group of Thai boxers aged 14-15, consisting of 67 people, and it is accepted as a model. In the presented individual profile, the following athletes achieved model characteristics (Picture 1). The athlete (P-ov L. 14) performed 110 strokes while holding his breath. The athlete (S-ov I. 14) did 17984 kg of work while holding his breath, and the right one from below amounted to 318 kg. The athlete (B-in 15) had the strongest left side kick of 279 kg. The other indicators of the athletes were below the model. The indicators of the power of percussion actions with both hands were obtained using the KIT-70, the strength and power of single punches with the hands, as well as their number and strength while holding the breath using the dynamic bag Kicktest-100.

At the same time, control over the external manifestation of vector efforts was carried out taking into account the internal reaction of the athlete's body. Assessment and analysis of the body's response to the load were recorded using Polar-H10 heart monitors, with the Polar Team software, the NPO «Dynamics» software and hardware complex, and D&K-test multifactorial express diagnostics. These tools made it possible to record the following indicators: average heart rate and maximum heart rate (taking into account their distribution by intensity zones), heart rate variability (HRV) is represented by indicators of TI (tension index), TR, VLF, LF and HF (wave spectrum power), indicators delta ECG according to Dushanin. Internal control over the external manifestation of vector forces allows you to optimally dose the load in the microcycle.

SmartPower technology consists of three mesocycles: accumulation, implementation and transformation (Picture 2). Mesocycles should be divided into power-jogging, accentuated and high-speed. The proposed scheme of mesocycle blocks, aimed at achieving specific goals, whether it be strength, sharpness, strike speed, speed of decision-making, expressed in specific quantities (kg, m/s, sec.), allows using the principle of training transfer and conjugation of training effects with taking into account residual training effects and motor asymmetry. A correctly set task allows you to dose training exercises according to the athlete's individual motor profile, purposefully managing the process of adaptation to loads, developing "strong" or compensating for "weak" sides of martial arts preparedness.

Indicators of biomechanical characteristics of punching actions of boxers from the CG and the EG after the experiment

№ п/п	Indicators	Study Groups		p
		KG (M ± m)	EG (M ± m)	
1.	Direct shock MAM (watt/s)	13,24±0,62	23,53±0,57	**<0,05**
2.	Direct impact speed (m/s)	3,69±0,06	7,08±0,08	**<0,05**
3.	Side impact MAM (watt/s)	17,97±0,10	27,19±0,10	**<0,05**
4.	Side impact speed (m/s)	3,19±0,02	5,90±0,02	**<0,05**
5.	MAM kick (Watt/s)	3,24±0,07	6,11±0,07	**<0,05**
6.	MAM direct impact sitting on a chair (watt / s)	6,12±0,02	12,01±0,02	**<0,05**
7.	Direct impact speed while sitting on a chair (m/s)	2,77±0,08	4,41±0,02	**<0,05**



Picture 2. *Technology of formation of shock actions in martial arts*

The software allows you to solve a wide range of tasks related to the control, measurement and analysis of data in real time. With the help of KIT-70, the power profile of all competitive movements is estimated. The stage of preparation and the functional state of the athlete will determine the mode of the selected resistance when working with KIT-70 [4]. The main task of training is to increase the power of competitive movement with various resistances [3].

Results of the study and their discussion. At the end of the experiment, the athletes were tested for the biomechanical characteristics of impact actions (see table).

Conclusions. Training in the EG under the control of exercises that maximally simulate shock actions using KIT-70 contributed to significantly significant changes in all the studied parameters. The technology, built on interconnected sets of exercises with an optimal effect on the vector effort, will allow achieving the planned sports result not only in martial arts, but also in other speed-strength sports.

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