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Theory & Practice of Physical Culture

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

Criteria for the formation of an athlete's social intelligence

In our understanding, social intelligence is a phenomenon based on a person's psychological competencies, which provide the ability to understand, interpret and respond to the behavior of other people.

The main criterion for development is a person's ability to establish and maintain productive relationships with others.

Pedagogical influence on the development of social intelligence involves identifying criteria for the level of its formation in the coach and athlete. One of the significant parameters is the level of emotional intelligence, expressed in the ability to recognize and understand one's own emotions, as well as the emotions of other people. Also includes the ability to control behavioral acts.

The ability to communicate effectively with other people, demonstrate listening skills, and express one's thoughts and feelings is a criterion for assessing the development of communication skills.

Conflict situations arise in any sports team. In this regard, conflictological competence becomes an important indicator of conflict resolution and finding compromises between warring parties.

In conditions of sports activity, leadership qualities play a paramount role in achieving high sports results. It is known that sports victories in team sports are largely due to the presence of a strong leader. Leadership skills, as the ability to lead and inspire other people, form teams and manage the training process, determine the effectiveness of the formation of social intelligence.

In the structure of the criteria, there is an indicator of social adaptability, which characterizes the skills of adaptation to various social situations and interaction with people of different psychological types.

Assessment of social intelligence can be carried out based on the use of standardized diagnostic and psychological testing tools, self-assessment, expert assessment, and also taking into account the opinions of other people, for example, colleagues or managers. It is important to consider that the assessment of social intelligence is relative depending on the context and situation.

We invite scientists to publish the results of scientific research aimed at finding and studying the value meanings of physical culture and sports.

Editor-in-Chief of TPPC, Honored Worker of Physical Culture of the Russian Federation
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Contents

Influence of the method of postactivation stimulation on the performance of ski jumping from springboards of various capacities by highly qualified athletes

UDC 796.015.134

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Abstract

Objective of the study was to evaluate the impact of exercises performed by highly qualified female athletes within the framework of the post-activation stimulation method on the performance of ski jumping from springboards of various powers.

Methods and structure of the study. The pedagogical experiment was conducted with the participation of six representatives of the Russian national ski jumping team (4 masters of sports, 1 international master of sports and 1 honored master of sports). The experiment was carried out in the 2023-2024 season (preparatory period). The effectiveness of performing jumps from springboards of various power was assessed by the method of control tests (ski jump from a springboard). The final score included a range score and a technique score.

The influence of three sets of exercises performed within the framework of the post-activation stimulation method on the performance of jumping from springboards of various power was assessed using the Spearman pair correlation method.

Results and conclusions. In the process of preparing to perform low-power springboard jumps (K-60), it is advisable to use exercises performed using the post-activation stimulation method, aimed at increasing the power of muscle contraction (in this case, the jump distance increases) and aimed at improving the biodynamics of movement (technique scores increase).

In the process of preparing for performing medium-power springboard jumps (K-90), it is advisable to use any variants of the post-activation stimulation method (they have a positive effect on both the jump distance and marks for technique), and for performing high-power springboard jumps (K-120) it is advisable to use exercises performed by the method of post-activation stimulation, aimed at improving technique (in this case, the jump distance increases) and aimed at improving the biodynamics of movement (scores for technique increase).

Exercises performed by the post-activation stimulation method have different effects on the performance of highly qualified female athletes ski jumping from springboards of varying power.

Keywords: *ski jumping, post-activation stimulation method, ski jumping technique, jump distance.*

Introduction. Technical training using springboards of various powers has its own periodization within the preparatory period: from June to October, athletes successively move from training on the K-60 springboard to training on the K-90 springboard, after which it is time to train on the K-120 springboard. Taking into account the fact that strength training in this period is often accompanied by a temporary decrease in the functional capabilities of the athlete's neuromuscular system in the phase of acute and delayed adaptation lasting from 24 to 72 hours [3, 4, 6], and training on springboards within the microcycles of the preparatory period are carried out almost daily, a contradiction arises between the need, on the one hand, to expand the working capabilities of the jumper's neuromuscular system through strength exercises, and on the other hand, the increasing risks of reducing the effectiveness of performing a jump and consolidating in the memory erroneous variants of the technique of performing it, caused by reduced functionality skeletal

muscles. To resolve this contradiction, it is advisable to include in the training microcycle such exercises and methods of their implementation that would level out the negative functional "background" of delayed recovery after strength exercises and ensure the operational readiness of the neuromuscular system for the demands of the springboard. Experts call one of these methods the method of post-activation stimulation, which, depending on the form of movements and the mode of muscle work, provides for the updating of motor images (muscle-joint sensations along the leading variables of movement) in the athlete's memory, accelerates the formation of a motor program for muscle activation and forms advanced readiness neuromuscular system to the manifestation of high power of working efforts. In addition, strength exercises performed using the post-activation stimulation method can enhance the positive effects of "traditional" strength exercises in the delayed recovery phase on ski jumping technique and motor performance [2, 5]. The use of this method in sports practice is limited by the lack of scientific information about its differentiated effect on the technique and distance of jumps performed from springboards of various powers by highly qualified athletes, which makes this research relevant.

Objective of the study was to evaluate the impact of exercises performed by highly qualified female athletes within the framework of the post-activation stimulation method on the performance of ski jumping from springboards of various powers.

Methods and structure of the study. The pedagogical experiment was conducted with the participation of six representatives of the Russian national ski jumping team (4 masters of sports, 1 international master of sports and 1 honored master of sports). The experiment was carried out in the 2023-2024 season (preparatory period).

At three educational and training events within the framework of the general preparatory and special preparatory stages, the method of post-activation stimulation was used using three options for specially designed sets of strength exercises, differing in the form of movements and the mode of muscle work:

1. as a method aimed at correcting errors in technique - in this case, they imitated the working poses of a jumper with an explosive isometric type of muscle contraction, after which they moved on to performing jumps from springboards of varying power;

2. as a method aimed at increasing the power of muscle contraction - in this case, a combination of strength exercises with significant external resistance (80% of 1 RM) and a non-specific jumping exercise was used, and training on the springboard began after 4 - 5 hours;

3. as a method aimed at improving the biodynamics of movement, in this case one of two options was used:

- performed a combination of two jumps, the first of which was performed with a rubber shock absorber pulling the athlete upward (with an artificial increase in vertical speed), and the second from an isometric "start" position without an artificial "accelerator";

- performed a combination of two speed-strength exercises (a squat with a barbell on the shoulders (weight 20 - 30% of 1 RM), performed in the reactive mode of muscle work, and a jump simulating the repulsion phase from the table on a springboard from an isometric "start" position). The time interval between two exercises in combinations was minimal, and springboard jumping was started 5–10 minutes later, after using the post-activation stimulation method [1, 2].

All three sets of strength exercises were used 3 times at each of the three training events.

In addition to the post-activation stimulation method, other ("traditional") methods of strength training were used according to the training plan: at the first training events, strength exercises were performed in the hypertrophy and maximum strength mode; on the second training events - in the explosive force mode, on the third training events - in the mode of maximum and explosive force.

During the study, 24 training sessions on the diving board were analyzed and 180 human examinations were performed.

The influence of modifications of the post-activation stimulation method on the performance of ski jumping from springboards of various powers in highly qualified athletes

Springboard power	Direction of the post-activation stimulation method					
	To correct errors in technology		To increase the power of muscle contraction		To improve the biodynamics of movement	
	Distance	Technique	Distance	Technique	Distance	Technique
K-60	0,61	0,65	**0,82***	**0,74***	0,56	**0,72***
K-90	**0,78***	**0,72***	**0,82***	0,68	**0,89***	**0,86***
K-120	**0,7***	0,64	0,62	0,55	0,68	**0,74***
Direction of "traditional" power loads	For hypertrophy and development of maximum strength		To develop explosive strength		To develop maximum and explosive strength	

*Note: * statistically significant Spearman rank correlation coefficients at α=0.05.*

The effectiveness of performing jumps from springboards of various power was assessed by the method of control tests (ski jump from a springboard). The final score included a range score and a technique score.

The influence of three sets of exercises performed within the framework of the post-activation stimulation method on the performance of jumping from springboards of various power was assessed using the Spearman pair correlation method.

Results of the study and discussion. It was revealed that the use of the post-activation stimulation method has a different effect on the performance of highly qualified athletes performing ski jumps from springboards of various powers (see table).

It was found that exercises performed by the method of post-activation stimulation, aimed at correcting errors in technique, help to increase the distance of jumps performed on springboards of medium and high power (K-90 and K-120, respectively), and have a positive effect on the technique of jumps performed from a springboard K-90 and do not affect the performance of a low-power ski jump (K-60).

It was found that exercises performed by the method of post-activation stimulation, aimed at increasing the power of muscle contraction, help increase the distance of jumps performed on springboards of low and medium power (K-60 and K-90, respectively), and have a positive effect on the technique of jumping performed from a springboard K-60 and do not affect the performance of a high-power ski jump (K-120).

It was determined that exercises performed by the method of post-activation stimulation, aimed at improving the biodynamics of movement, contribute to an increase in marks for the technique of jumps performed on springboards of any power (K-60, K-90 and K-120) and have a positive effect on the distance of the jump performed with springboard K-90.

Conclusions.

Exercises performed using the post-activation stimulation method have different effects on the performance of highly qualified female athletes performing ski jumps from springboards of varying power.

In the process of preparing to perform low-power springboard jumps (K-60), it is advisable to use exercises performed using the post-activation stimulation method, aimed at increasing the power of muscle contraction (in this case, the jump distance increases) and aimed at improving the biodynamics of movement (scores for technique increase).

In the process of preparing to perform medium-power springboard jumps (K-90), it is advisable to use any variants of the post-activation stimulation method (they have a positive effect on both the jump distance and marks for technique). The maximum correlation values were recorded in the case when the post-activation stimulation method was aimed at improving the biodynamics of movement.

In the process of preparing to perform high-power springboard jumps (K-120), it is advisable to use exercises performed using the post-activation stimulation method, aimed at improving technique (in this case, the jump distance increases) and aimed at improving the biodynamics of movement (scores for technique increase).

The maximum response (positive changes in both technique and jump distance) to the use of various modifications of the post-activation stimulation method is observed in medium-power springboard jumps (K-90); minimal – in high power ski jumping (K-120).

To improve the technique of ski jumping from springboards of various powers, the maximum effect is achieved by using a modification of the post-activation stimulation method aimed at improving the biodynamics of movement; to increase the range of jumps - a modification aimed at increasing the power of muscle contraction.

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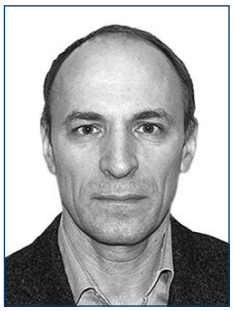
Parameters of training load in mountain runing as a factor of training process management

UDC 796.6



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Abstract

Objective of the study was to increase the efficiency of pre-competition training of mountain running athletes through adaptation to extreme specific factors of competitive activity.

Methods and structure of the study. The parameters of the training activity of eight qualified mountain running athletes aged 26.5±0.5 years were studied. The use of training loads was based on accentuated running uphill with a height gain of 1360 m in one workout. The principle of load specificity in mountain running has been implemented.

Results and conclusions. The use of load indicators allows us to stimulate the deployment of additional reserves for increasing functional readiness in mountain running. The use of a two-peak variant of increasing the mountain running load in the content of a training session makes it possible to maintain the overall magnitude of the impact of the load on the athlete's body while reducing the partial contribution of the total running intensity.

Keywords: *mountain running, mountain running loads, density of climbs, load specificity.*

Introduction. Mountain running, as a dynamic athletics discipline, places high specific demands on the functional preparedness of athletes [3]. The methodological basis for building pre-competition training in long-distance mountain running (26-30 km) is the concentration of high-intensity partial loads when performing training volumes comparable to the duration of the competitive distance, which has an exceptionally stressful effect on the functional systems of the athletes' body [5]. This necessitates an increase in the period of active rest in order to achieve an optimal state of recovery [6].

The magnitude of the total impact on the athletes' body is achieved both by the volume and intensity, and by the specificity of the load [2]. The specific factors of the mountain running load are the height, steepness, length of the climbs, the density of their distribution per distance segment, the nature of the ground support, the angle of the lateral slope of the route sections, the nature and correspondence of the descents and ascents [4, 8].

Varying the emphasis of pre-competition preparation will presumably make it possible to control the resonances of adaptation to the competitive load in mountain running [7]. In particular, updating the impact of the lifting factor will make it possible to reduce the distance volume of an individual workout, shorten breaks for recovery and speed up adaptation to peak specific loads [1].

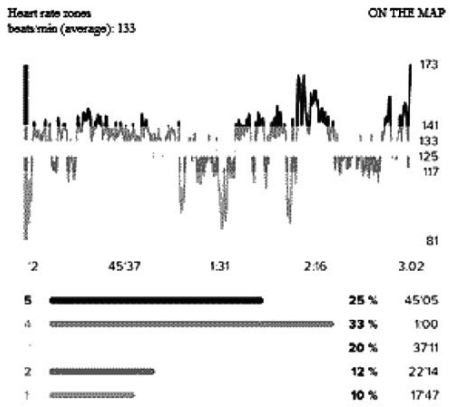
Objective of the study was to increase the efficiency of pre-competition training of mountain running athletes through adaptation to extreme specific factors of competitive activity.

Methods and structure of the study. The parameters of training and competitive activity were screened for eight qualified mountain running athletes aged 26.5±0.5 years with basic training in the classical running disciplines of athletics.

Athletes were trained for the target competition distance of 28500 m (+1545; -1545) under trail running conditions. The fractal application of training loads was based on an accentuated uphill run with

a height gain of 1360 m in one workout, which approximately corresponded to the total height gain in the main competitive exercise. The total length of the training route was about 50% of the competition route. The intensity of the load increased by maintaining the speed of running uphill at the level of running speed on the plain. An example of training parameters is presented in table 1.

An important factor in the content of the training was the passage of two peaks of lifts with an increase in the intensity of the load during the lift; running speed was maintained constant. The density of climbs was 138 m per 1 km of distance, which was 38 meters higher than the density of climbs on competitive routes recommended by the Mountain Running Federation. An increase in load intensity manifested itself in an increase in functional indicators of heart rate (see figure).



Distribution of pulse zones in training content

The structure of the microcycle of the pre-competition training module provided for a two-time training session with a special mountain running focus. The training algorithms included increasing the energy intensity of training stimuli through the use of high-intensity mountain running loads.

Examination of the effectiveness of the two-peak microcycle construction model was assessed using replicators of technical, functional and result indicators. Training and testing of athletes was carried out in mid-mountain areas (1000-1800 m above sea level) in the pre-competition and competitive training module.

Research results and discussion. Based on the results of factor analysis, partial components of development were identified that determine the achievement of peak mountain running performance.

Table 2 presents the dynamics of technical and functional indicators of mountain running readiness within the framework of the pre-competition training module.

According to the results of the study, the most significant factor identified was the specificity of mountain running load during ascent (44.3% of the sample variance), which ensures the occurrence of basic and additional processes of adaptation to the specific load when climbing at high running speeds, as well as maintaining the rhythmic and tempo indicators of running at high density distribution of climbs along the distance. The structure of the factor emphasizes the specific focus of mountain running training on functional changes in the 4th and 5th zones of energy supply to muscle activity. The total amount of time spent working in these zones amounted to more than 50% of the training time. The metabolic profile of mountain running provided a selectively accentuated development of the power of the anaerobic-glycolytic and anaerobic-alactate mechanisms of energy supply.

A significant increase in the speed of overcoming climbs with a decrease in step frequency and an increase in step length indicates a parametric adjustment of the individual boundaries of the qualitative state of the technique of mountain running athletes.

The content and direction of the factor of transformation of general functional readiness into special mountain running readiness (22.1% of the sample variance) provided several directions for adaptive restructuring of functional and energy systems. The achievement of a higher speed mode for overcoming mountain climbs is due to a change in the standard incentives for increasing the level of fitness through the use of specific mountain running loads.

The operational focus of the replication factor ensured the systematic application of mountain running loads and the associated processes of activating the neurophysiological state of mountain running athletes. Repetition of the peak of a special load in uphill running within the framework of training while maintaining the speed of movement provides parametric regulation of the training effects of prolonged tension of adaptive

Table 1. *Ergometric characteristics of training in mountain running*

13030 m Distance	04.31 min, s/km Average running pace	1:56.44 Total ascent time	1:03.25 Total descent time
3:02.27 Total time	133 beats/min Average heart rate	1234 m Total lift length	1193 m Total descent length
14.00 min, s/km Average running pace	173 beats/min Maximum heart rate	1822 m Highest point of ascent	704 m Lowest point of descent

Table 2. *Technical and functional indicators of athletes' mountain-running readiness*

Index	Stages		t
	Pre-competition	Competitive	
Running speed in the ascent of 5%, m/s	2,6±0,8	2,9±0,5	1,8
Time to climb 100 m, s	39,8±2,7	35,5±0,29	0,6
Step length, cm	189,7±23,6	197,4±18,9	2,3
Cadence, steps/min	59,5+5,3	57,3±6,2	1,7
Reactivity, arb. units	0,64±0,04	0,87±0,04	1,9
Mountain running 28500 m, min	172,6±6,9	165,4±7,8	4,6

mechanisms and regulatory systems. The internal commonality of work at the peak sections of mountain running determines the synergy in the development of high-speed movement capabilities uphill.

A consequential sign of the effectiveness of duplicating peak performance in uphill running segments is an increase in the reactivity of the athletes' body and a significant increase in sports results. A significant improvement in the time to complete the competitive distance in mountain running at 28500 m (+1545; -1545) under trail running conditions was 5%.

The use of load indicators as a factor in project management fixes the connections between the specificity of the load and the dynamics of achieving sports form by mountain running athletes as an object of management. The implementation of the principle of load specificity in mountain running determines the innovative approach to achieving peak indicators of the functional state of mountain athletes.

Conclusions. The use of load indicators allows us to stimulate the deployment of additional reserves for increasing functional readiness in mountain running. An increase in the volume of training aids in uphill running causes tension in the adaptation mechanisms and regulatory systems. The results obtained prove the effectiveness of varying the partial components of the development of athletes' readiness in mountain running.

The use of a two-peak version of increasing the mountain running load in the content of a training session makes it possible to maintain the overall magnitude of the impact of the load on the athlete's body while reducing the partial contribution of the total running intensity. This shortens the recovery periods for athletes and makes it possible to increase the number of impact mountain-running sessions in the structure of the microcycle of the pre-competition training module.

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Training of hip-hop dancers, taking into account the criteria for evaluating performance techniques

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Abstract

Objective of the study is the scientific and methodological substantiation of the means of technical training for hip-hop dancers.

Methods and structure of the study. Pupils of the NaumStyle dance movement school in Surgut, aged 15-17 years, took part in the experiment in the amount of 20 people (10 people each in the experimental group (EG) and control group (CG). Both groups danced five times a week, duration training sessions lasted one hour.

Results and conclusions. During the experiment, the content of the criteria for evaluating performance techniques in the direction of "Hip-hop" was revealed: high-quality execution of movements of all styles, precise targeted movements, original drawings and use of the dance floor, naturalness of movements, originality of the manner of performing each style, coherence, teamwork. Based on the identified criteria, such technical training means as: sequential transitions to each individual style technique, special dance sequences from the basic movements of dance styles, musical accompaniment corresponding to the nature and characteristics of each style, patterns of drawings and movements of the team have been developed and introduced into the training process of dancers. dance floor, "Dance Therapy" training, years of "Hip-hop" direction, which during the experiment proved their effectiveness.

Keywords: *dance direction "Hip-hop", dancers 15-17 years old, evaluation criteria, performance technique, set of means, technical training.*

Introduction. "Hip-hop international" is an international street dance federation that promotes the "Hip-hop" industry at the international level. According to a number of authors, G.A. Manukyan (2019), A.A. Ovechkina (2009), the criterion "Technical execution" requires careful development in order to obtain the highest score in competitions of various levels. The technical training and skill of dancers is an integral part of each dance style, while in the "Hip-hop" direction there is a concept as a movement technique of a certain style [2]. According to the structure of the official HipHopUnite championships, competitions are held in three different categories - "teams", "mega-crew and battles" [6].

The maximum amount for competitions is estimated at 50 points, of which, the "Technical execution" criterion is estimated at a maximum of 10 points, and contains 5 criteria: high-quality execution of movements of all styles, precise targeted movements, original drawings and use of the dance floor, naturalness of movements, originality manners of performing each style, coherence, teamwork, which are taken into account when assigning the final grade [7].

Objective of the study is the scientific and methodological substantiation of the means of technical training for hip-hop dancers.

Methods and structure of the study. The study involved pupils of the NaumStyle dance movement school in Surgut aged 15-17 years and in the number of 20 people (10 people each in the experimental group (EG) and control group (CG), having the same level of physical and dance preparedness.

Both groups danced five times a week, the duration of the training sessions was one hour.A distinctive feature of the content of the classes was that a set of tools developed by us was introduced into the training process of the EG, taking into account the criteria for assessing performance techniques in the direction of "Hip-hop".

According to A.A. Ovechkina (2009) "... training in each direction of "Hip-hop" is recommended to be carried out separately, paying attention to developing successive transitions to each individual style technique in the program" [4].

Taking into account the recommendations identified in the specialized literature, we have developed training plans.

An example would be the following lesson content: preparatory part (15 min): – explanation of the topic and objectives of the training, repetition of the basics of the chosen style (hip-hop, waacking, locking); – GDE (general developmental exercises) in motion (passing method) – special warm-up, repetition of basic movements of the chosen style – choreographic preparation in the manner of the style; Main part (60 min): – familiarization with changes and transition from one drawing to another; improving the technique of movements of selected styles - improving the technique of the chosen style on the ground – learning, repeating and practicing ligaments in the chosen style – improving the technique of movements in ligaments to music; Final part (15 min): – stretching and muscle relaxation exercises – breathing exercises. Summing up the lesson. Movements in the choreography are performed at least four figure eights, starting with a small amplitude and gradually increasing it.

Table 1. *Fragment of the content of the composition "Street vibe" to improve the requirements of the criterion "originality of the manner of execution of each style - coherence, teamwork"*

Description of the dance "Street vibe" (fragment)
Exit (first improvisation) T1 and T2 stand in a pose
Bars 1-8 - exit, dancers stand in a column 1-3 bars - T2 performs hand movements Bar 4 – T1 enters (picks up the movements)
8-12 bars - changing into one line 1-2 bars - T2 goes into line to T1 3-12 bars - choreography in the style of "Hip-hop"
12-20 bars - formation into a column of two 12-13 – "party dance" right forward 14-15 – "salsa rock" 16-18 – "alpha" 19-20 – "flip-flap" (work with the body, arms and legs)
T1 and T2 - rebuilding into a diagonal (interaction with each other) 20-23 bars - backward movement 24-26 bars - moving forward, stopping in a certain position
Bar 26 – stop pause (Waacking style pose) "Waacking" style (alternating movements T1 and T2) Bar 26 – T1 performs a fall into a drop Bar 27 – T2 performs a drop fall Bars 28-29 – dancing on the ground Bars 30-31 – rise up (slowly, with smooth movements) Bars 32-38 – changing formation with movement forward (performing rolls)
38-40 bars change to diagonal 41-42 bars: 1-2 - "strikes" 3-4 - "circular roll" 5-6 swing right leg forward 7-8 - "left roll" with a turn 43-44 bars: 1-4 - animation

Criterion No. 1. High-quality performance of movements of all styles ("hip-hop"). This criterion requires from each dancer of the team the most complex and precise execution of the technique of all dance styles that are present in the competition number; in connection with this, we have developed special dance sequences from basic movements of dance styles (hip-hop, waacking, locking), which were performed by dancers using weights (250 g on hands, 500 g on legs), with a rest interval between dance sequences of 1 minute (1:1), we music used: (Shoreline Mafia-How We Do it, 50 Cent-Baby me, Yong & Bugsey-Don't Rush) for hip-hop; (Gloria Estefan-Conga, Ida Corr & Fedde Le Grant-Let Me, Block & Crown-100 Percent Pure Love) for wacking; (Gloria Estefan-Conga, Ida Corr & Fedde Le Grant-Let Me, Block & Crown-100 Percent Pure Love) for locking.

Criterion No. 2. Precise, purposeful movements, original drawings and use of the dance floor. This criterion requires dancers to quickly, clearly and harmoniously transition from one pattern to another, without violating the integrity of the composition, as well as the originality of the patterns when using the entire dance floor. In this regard, diagrams of drawings for the team's movements on the dance floor were proposed (see figure). These changes are performed to the musical accompaniment described above, but with different rhythms and tempos, using the dance sequences proposed above.

We share the opinion of L.D. Nazarenko (2016) in the part "...visual images and rearrangements should be provided at the very beginning of the composition, and at the final stage of its composition there is training and their development. It is recommended to con-

duct training on changing formations, combining them with the formation of the ability to sense the distance between team members on the court and navigate in space. Just like the technique of execution, unexpected changes are developed gradually; special attention is paid to them, while work is done on the interaction of team members, coordination, and special attention is paid to proper breathing while using various levels and tricks in the program" [3].

Criterion No. 3. Naturalness of movements. This criterion requires from each dancer of the team naturalness, lightness and freedom when performing the composition, regardless of the style used in the number; the movements of each dancer should not be clamped, constrained, uncertain, this can lead to the loss of the necessary points that can decide the outcome competitions and influence the results.

In order to avoid such disadvantages, we conducted the "Dance Therapy" training, authored by Joan Smallwood, a Jungian analyst and dance therapist. This training contains many different dance exercises that promote the development of plastic movements, eliminate stiffness, help you feel every part of your own body, and cultivate naturalness in the dancer's movements.

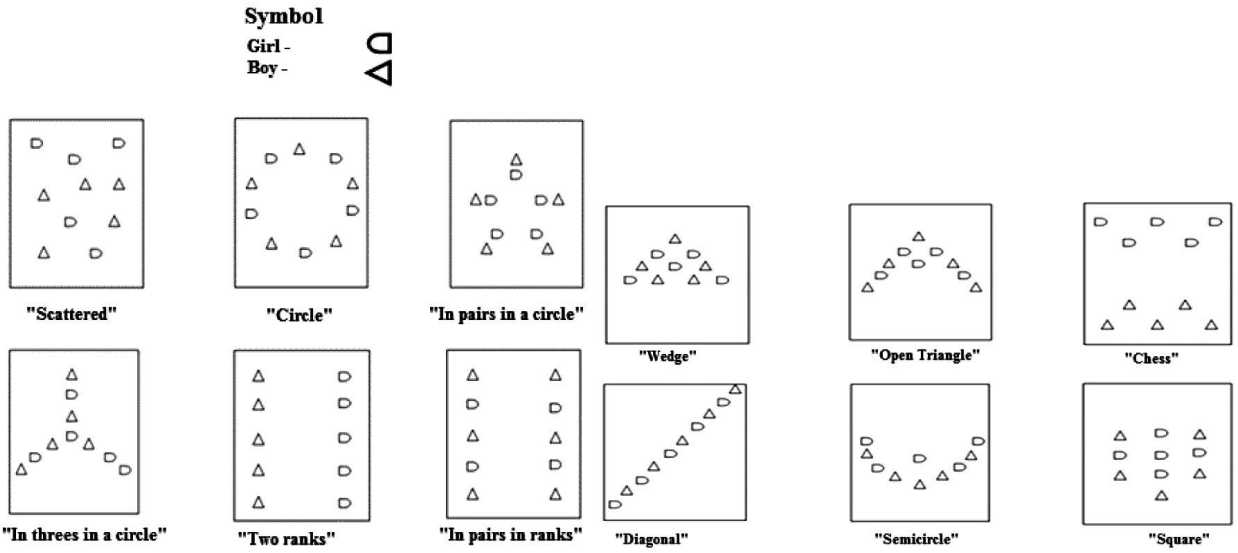
Criteria No. 4, 5. Originality of the manner of execution of each style - coherence, teamwork. Each dance style has its own character and original manner of presentation, which the dancer must be able to distinguish and confidently move from one image to another (Table 1).

Results of the study and discussion. To assess the level of technical preparedness of hip-hop dancers, before and after the experiment, a point system was used in accordance with the competition rules. We used the method of expert assessments to determine the measure of consistency of expert opinions. Experts appreciated the dance composition "I will survive." The following musical compositions were used as musical accompaniment: Shoreline Mafia-How We Do it, 50 Cent-Baby me, Yong & Bugsey-Don't Rush for hip-hop; Gloria Estefan-Conga, Ida Corr & Fedde Le Grant-Let Me, Block & Crown-100 Percent Pure Love for wacking; Gloria Estefan-Conga, Ida Corr & Fedde Le Grant-Let Me, Block & Crown-100 Percent Pure Love for locking. The musical time signature of each composition is 4/4. To determine the measure of agreement between experts' opinions on the issue under study, we used the concordance coefficient (Table 2).

Table 2. *Coefficient of concordance between EG and CG before and after the experiment*

Before the experiment 0≤ W ≤1	After the experiment 0≤ W ≤1
EG W=0,72	W=0,77
CG W=0,74	W=0,75

During the calculation, we obtained data that in the EG and CG after the experiment, the coefficient indicators prove a high degree and quality of consistency of expert opinions in the given marks for the technical performance of the dance composition.



Scheme of changes according to the criterion "Precise, purposeful movements, original drawings and use of the dance floor"

Thus, considering the dynamics of indicators of technical readiness of dancers during the pedagogical experiment, it was established: in the EG, with the initial data of performing the dance number "I will survive", in criterion No. 1 (high-quality performance of movements of all styles) the score was 3.72 points, after the experiment it increased to 4.52 points; in criterion No. 2 (precise, targeted movements, original drawings and use of the dance floor) the score was 3.66 points, changed to 4.47 points; in criterion No. 3 (naturalness of movements) before the experiment the score was 3.68 points, after the experiment the indicators improved to 4.35 points; in criterion No. 4 (originality of the manner of performing each style) - 3.66 points, after the experiment it changed to 4.47 points; in criterion No. 5 (coherence, teamwork) from 3.72 points to 4.52 points, respectively, with $p<0.05$. In the CG, with the initial data of performing the dance number "I will survive", in criterion No. 1, before the experiment the indicator was 3.68 points, at the end of the experiment – 3.77 points; in criterion No. 2 – 3.69 points, after the experiment – 3.78 points; in criterion No. 3, the result before was 3.61 points, after it improved to 3.73 points; in criterion No. 4 – 3.68 points before the experiment, after – 3.77 points, respectively. Analyzing the data obtained, the most significant changes occurred in criterion No. 2 in the EG, the increase was 16.3%; in criterion No. 4 in the EG the increase was 16.2%. Thus, on average, at the end of the experiment, the increase in the results of the EG exceeded the results of the dancers from the CG by 9.6% with a significant difference ($p <0.05$), therefore, it can be argued that the set of tools we proposed, taking into account the criteria for evaluating performance techniques, for training dancers 15-17 years of the "Hip-hop" direction is effective.

Conclusions. In the training process, technical training tools were tested, such as: sequential transitions to each individual technique of the style (transitions were complicated with the help of various interactions between the team dancers, supports and acrobatic elements that are valued in the composition); special dance sequences from basic movements of dance styles (hip-hop, waacking, locking); musical accompaniment corresponding to the character and characteristics of each style; diagrams of drawings and movements of the team on the dance floor (originality in drawing up drawings when using the entire dance floor and transitions from one drawing to another without violating the integrity of the composition); "Dance Therapy" training (author Joan Smallwood (2003) to develop naturalness in movements. Complexes of technical training tools for dancers 15-17 years old in the "Hip-hop" direction, developed and implemented in the training process, taking into account the criteria for assessing technical performance, have proven their effectiveness effectiveness, which is confirmed by the research results obtained during the experimental work.

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Conditions of training activity and health in complex coordination sports

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Abstract

Objective of the study was to identify the conditions of training activity and the health status of high-class athletes in complex coordination sports in order to justify appropriate measures to monitor their health and complete medical rehabilitation.

Methods and structure of the study. An analysis of the hygienic indicators of the conditions of training activities in complex coordination sports was carried out using the example of gymnastics classes by high-class athletes from the School of Higher Sports Excellence of the Republic of Bashkortostan. The state of health and functional disorders of women, representatives of artistic gymnastics, was analyzed based on the results of an in-depth medical examination performed by specialists of the Republican Medical and Physical Education Dispensary of the Republic of Bashkortostan.

Results and conclusions. Analysis of scientific literature and the authors' own research indicates that in the process of sports activity, athletes are or can be influenced by a complex set of factors in the working environment and the labor (training) process, similar to those when working in harmful and/or dangerous working conditions. According to the authors, the systematic impact of unfavorable factors in sports activity against the background of chronic fatigue, characteristic of highly qualified athletes, is accompanied by cumulative effects in the form of functional changes of both an adaptive and maladaptive nature, and can cause the occurrence of somatic pathology.

Keywords: *high achievement sport, increased physical activity, body adaptation, chronic fatigue.*

Introduction. With the recognition of the status of professional sports, the Federal Agency for Physical Culture and Sports in the Russian Federation has formed the foundations of the regulatory framework for sports activities in elite sports at the level of federal laws, but this mainly applies only to athletes of elite professional clubs [1]. Certain types of social protection and social assistance are recognized in case of damage to the health of athletes and loss of their professional ability to work [4]. However, there is practically no corresponding system of by-laws that fully guarantees the rights of athletes who are not representatives of elite clubs.

Characteristics of the professional sports activity of high-class athletes according to the principles of the occupational medicine system, first of all, should include an assessment of the severity of the professional activity of athletes, characteristic of various sports. Determining the level of severity of the training process and its possible impact on the body of athletes in complex coordination sports can fully justify the appropriate measures for the social protection of athletes, their recovery in cases of disability, which will significantly optimize the medical and biological support for the training of various categories of athletes, both in The federal center and in the regions, with the aim of preventing any professional or professionally caused pathology [3].

Objective of the study was to identify the conditions of training activity and the health status of high-class athletes in complex coordination sports in order to justify appropriate measures to monitor their health and complete medical rehabilitation.

Methods and structure of the study. A study was carried out of the hygienic conditions of training sessions in the gyms for aerobics and gymnas-

tics of the School of Higher Sports Excellence of the Republic of Bashkortostan (SHSE RB). Indicators of microclimate, illumination, and microbial contamination were determined. The features of the training process and the severity of physical activity in complex coordination sports were studied using the example of artistic gymnastics when performing various types of exercises and working on apparatus [2]. Some psychological characteristics were determined in female athletes of complex coordination sports, indicating the level of anxiety, fatigue, stress resistance, which are indicators of stress of any etiology - mental, physical, etc., using standard methods of Luscher and Cattell [5].

Based on the results of an in-depth medical examination performed by specialists of the Republican Medical and Physical Education Dispensary of the Republic of Bashkortostan, an analysis was carried out of the health status and functional disorders of 33 women, representatives of artistic gymnastics, who had the high titles of "Master of Sports", "Honored Master of Sports", "Master of Sports of International Class".

Results of the study and discussion. In the process of conducting hygienic research when studying the conditions of training activities for complex coordination sports, the gymnastic halls of the School of Higher Sports Excellence of the Republic of Bashkortostan were examined (Table 1).

It was found that for all hygienic indicators in accordance with Sanitary Rules and Standards (SanPiN) 2.2.4.548-96, the premises for practicing complex coordination sports at the School of Higher Sports Excellence complied with accepted standards (Table 1).

According to the level of exposure to dust during training sessions in complex coordination sports, working conditions (training activities) can be classified, according to the Guidelines for the hygienic assessment of working environment factors and the labor process (G 2.2.2006-05), to class 2.0. The level of pollution is quite low: before training it was 1.5±0.5 mg/m3, after training – 2.6±0.5 mg/m3, which allows us to classify them as "clean" [6].

To assess the severity of work in complex coordination sports, the training process in artistic gymnastics was analyzed. In general, from 4 to 5.5 hours a day, athletes perform a series of exercises included in their personal program of sports performance on gymnastic apparatus, with the development of coordination and technique of movements associated with lifting their own body. That is, the weight of the load being lifted, on average, can be 60-70 kg with a total number of lifts on average from 60 to 90 times.

It was determined that the average total value of the dynamic load (with regional load with the predominant participation of the muscles of the arms and shoulder girdle and moving the load over a distance of up to 1 m) was 14205.0 kg*m (working conditions class 3.2). The magnitude of the static load, involving the muscles of the body and legs and an uncomfortable working posture, was 300-150 kgf*s (class 3.2). Taken together, this determines the classification of the training activities of athletes in complex coordination sports in terms of severity to the class of working conditions 3.3 (Table 3).

Training sessions both in the warm and cold periods of the year, in complex coordination sports, were classified as category III, as work with an energy intensity of more than 250 kcal/h (more than 290 W), associated with constant movements, moving and carrying significant (over 10 kg) heavy and requiring great physical effort [SanPiN 2.2.4.548-96].

Analysis of psycho-physiological indicators in female athletes according to the Luscher and Cattell test revealed the following levels of the studied qualities: in most cases, the studied indicators (anxiety, conflict, emotional instability, self-control) corresponded to an average and below average level. However, the indicators of anxiety and conflict according to the Luscher

Table 1. Indicators of the microclimate of gyms for aerobics and gymnastics

Complex coordination types (gyms for aerobics and gymnastics SHSE RB)		
Cold period of the year	Air temperature, °C	18,7±1,3
	Relative humidity, %	43,0±1,1
	Surface temperature, °C	17,2±1,2
	Air speed, m/s,	0,3
	Illumination, lux	200
Warm period of the year	Air temperature, °C	23,5±1,2
	Relative humidity, %	52,7±1,1
	Surface temperature, °C	0,3
	Air speed, m/s,	21,2±1,5
	Illumination, lux	200

Table 2. Microbial contamination of the air in sports halls of SHSE RB

Kind of sport and sports structures	Number of microorganisms in 1 m³				
	Total	of them:			
		Staphylococci	β-hemolyte. streptococcus	Yeast-like mushrooms	Mold mushrooms
Difficult coordination (gyms, aerobics, gymnastics)	841,3 ±73,7 2024,8±312,3	0 0	25,7±8,4 7,1± 16,3	45,6±13,4 20,6± 3,4	61,1±24,6 50,3±10,6

Note. The numerator is the warm period, the denominator is the cold period of the year.

Table 3. Assessment of the severity of work (training process) of high-class athletes in complex coordination sports

Ergometric assessment of operations				
Type of operation (physical exercise)	**Weight cargo, kg (average weight of female athletes)**	**Travel distance, m**	**Number operations per shift**	**Physical activity, kg*m**
Exercises on the «horse» (the average weight of the athlete)	66,7	2	30	4002
Crossbar exercises (average weight of an athlete)	66,7	2	15	2001
Exercises on bars and rings (average weight of an athlete)	66,7	2	30	4002
Squats with a barbell	50	2	15	1500
Working on a hand simulator	20	2	30	1200
Working on a hand simulator	50	2	15	1500
Total	320,1	12	135	14205
Lifting your own body during floor exercises	66,7	25	2 hours in a day	1667,5
Assessing the severity of work				
Physical dynamic load (units of external mechanical work per shift, kg*m)				
Indicators of the severity of the labor process according to G 2.2.22006-05	Magnitude indicator		Class of working conditions according to G 2.2.2006-05	
With regional load (with the predominant participation of the muscles of the arms and shoulder girdle) when moving the load over a distance of up to 1 m (class 3.2 >7000 kg*m)	14205,0		3.2	
Static load (static load value per shift when holding a load, applying force, kgf*s)				
Involving the core and leg muscles (class 3.2. >200000 kg*s)	300150 kgf*s (weight 66.7; 75 operations of 60 s)		3.2	
Working posture				
Periodically, more than 50% of the shift time, being in an uncomfortable and/or fixed position; being in a forced position (kneeling, squatting, etc.) for more than 25% of the shift time. Being in a standing position for more than 80% of the shift time.			3.2	
General assessment of working conditions by severity			**3.3**	

test were significantly different from the indicators in the control group ($p < 0.05$). The indicators of self-control and tension also differed, and the indicators of tension had statistically significant differences with the control ($p < 0.05$).

The prevalence of chronic pathology and functional disorders was analyzed based on the results of an in-depth medical examination performed by specialists of the Republican Medical and Physical Education Dispensary of the Republic of Bashkortostan in 33

Table 4. Level of psycho-physiological indicators of female athletes in complex coordination sports

Kinds of sports	Indicators in the walls (M±m)					
	Luscher color selection test			Cattell Questionnaire		
	Performance	Anxiety	Conflict	Emotional stability	Self-control	Tension
Complex-coordination	4,8±1,4	7,5±1,4*	7,2±1,4	3,8±1,5	7,2±1,6	7,6±1,5*
Control	5,8±1,4	3,4±1,4	3,9±1,8	5,7±1,4	4,3±1,5	3,2±1,1

*Note. * – The differences are statistically significant in relation to the control group, p<0.05.*

Table 5. Prevalence of chronic non-infectious diseases in female athletes of complex coordination sports

Kinds of sports	Number of inspections	Cases per 100 inspection	MS and PNS	CNS	RO	DGS	DO	Other
Complex-coordination	33	84,8	33, 3*	27,3*	12,1*	3,0	6,1	3,0
Control	50	52,0	8,0	7,0	3,0	2,0	3,0	3,0

*Note. * – The differences are statistically significant in relation to the control group, p<0.05.*

Table 6. Some indicators of the health status of athletes in complex coordination sports (cases per 100 inspection) with experience of up to 5 years and more than 5 years

Observation groups	Chronic overstrain of the circulatory system (dystrophic changes in the myocardium)	Arrhythmic syndrome
Стаж – до **5** лет		
Complex coordination sports	20,0	-
Control	16,0	1,7
Стаж – более 5 лет		
Complex coordination sports	61,1*	5,6*
Control	16,0	1,7

*Note. * – The differences are statistically significant in relation to the control group, p<0.05.*

representatives of artistic gymnastics. Designations of diseases: musculoskeletal (MS), peripheral nervous system (PNS), deviations from the center. nervous system (CNS), respiratory organs (RO), diseases of the genitourinary system (DGS), digestive organs (DO).

Conclusions. The severity of the training activity of athletes in complex coordination sports belongs to class **3.3.** according to G 2.2.2006-05, this necessitates increased health control measures, full medical rehabilitation and additional social protection measures.

The increased severity of training activity may cause an increase in the prevalence of chronic non-infectious diseases in high-level athletes of complex coordination sports.

The high severity of the training activity of athletes in complex coordination sports can reduce the level of adaptation of the athletes' body and have an adverse effect on the central nervous system and circulatory system, especially after 5 years of professional sports activity.

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Improving the general physical fitness of children 7-9 years old in sports acrobatics

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Abstract

Objective of the study was to improve the general physical training of children 7-9 years old in sports acrobatics.

Methods and structure of the study. The experiment took place in the municipal budgetary institution of additional education in Rostov-on-Don "Sports School No. 6". The participants in the experiment were 12 acrobats aged 7-9 years, 6 of whom were included in the experimental group and 6 athletes in the control group. Scientific research methods included: pedagogical observation, pedagogical testing, pedagogical experiment, methods of mathematical statistics.

Results and conclusions. The results of the conducted pedagogical experiment clearly demonstrated the effectiveness of the developed sets of physical exercises in sports acrobatics, aimed at improving the general physical training of young acrobats aged 7-9 years. Therefore, it can be argued that supplementing the content of general physical training programs in sports acrobatics for this age group with experimental complexes of physical exercises will significantly increase their level of physical and functional readiness.

Keywords: *physical training, functional training, exercises, acrobatics.*

Introduction. The importance of general physical training as a separate component of the structure of the training process of various sports disciplines is reflected in the research of domestic and foreign authors in the field of physical culture and sports.

Since the primary task of training young acrobats is the development of physical qualities important for the sport, especially at the stage of initial training, namely: coordination abilities, muscle strength, speed, flexibility, endurance, balance, it would be appropriate to say that the key to determining The effectiveness of performance at competitions is a high level of physical fitness of athletes. Often, a trainer-teacher is faced with the problem of selecting means and methods for students aged 7-9 years that contribute to more effective development of physical qualities in sports acrobatics. Therefore, improving the general physical fitness of acrobats of the age group we are considering will be considered a priority area of research work.

Objective of the study was to improve the general physical training of children 7-9 years old in sports acrobatics.

Methods and structure of the study. The experiment took place in the municipal budgetary institution of additional education in Rostov-on-Don "Sports School No. 6".

Educational and training sessions in the control group were held in accordance with the approved sports training program at the initial stage. In parallel, during the training sessions of the experimental group, developed sets of physical exercises were used, mainly aimed at the comprehensive physical development of young acrobats, namely: speed qualities, strength abilities, strength endurance, coordination, flexibility and speed-strength qualities.

The purpose of the pedagogical experiment was to test the effectiveness of the complex of physical exercises we developed aimed at improving the general physical training of young acrobats at the stage of initial training. The participants in the experiment were 12 acrobats aged 7-9 years, 6 of whom were included in the experimental group and 6 athletes in the control group. All participants in the experiment were assigned to the main health group and had a doctor's permission to participate in training sessions.

In order to solve the problems posed in the experimental study and obtain the necessary information, the following scientific research methods used in pedagogy and in the theory and methodology of physical education were used:

- theoretical analysis of literary sources;
- pedagogical testing;
- pedagogical experiment;
- methods of mathematical statistics.

Our study using experimental sets of physical exercises aimed at improving the general physical fitness of acrobats aged 7-9 years at the initial stage of sports training was organized in the period from 04/01/2023 to 11/20/2023. The research work was divided into three stages.

At the first stage, from 04/01/2023 to 05/01/2023, an analysis of scientific and methodological literature on the research topic was carried out, physical exercises were compiled and physical activity complexes were developed. Also at this stage, pedagogical testing of the level of physical and functional readiness of young acrobats in the control and experimental groups was carried out.

Tests of general physical fitness of acrobats:

1) 30 meter run.
2) Shuttle run 3x10 meters.
3) Strength endurance of the trunk flexor muscles was assessed by the standard "raising the body from a supine position."
4) Flexion and extension of the arms while lying on the floor.
5) Bend forward from a standing position on a gymnastic bench (from the level of the bench).
6) Standing long jump with a push with two legs.

The functional readiness of acrobats was assessed by the following tests:

1) Stange test with breath holding. It is used to judge the oxygen supply of the athlete's body and general fitness.
2) Harvard step test. This test determines the degree of fitness of the cardiovascular system of those involved.
3) Orthostatic test. This test characterizes the excitability of the sympathetic division of the autonomic nervous system. The difference in heart rate due to a change in body position during the transition from horizontal to vertical is determined.

The second stage of the experimental study, organized from 05/03/2023 to 11/10/2023, involved the use of developed sets of physical exercises in the training process of the experimental group.

At the third stage of the pedagogical experiment, both groups were retested using similar tests that were used at the beginning of the study. All data obtained during the study were subjected to mathematical processing.

Results of the study and discussion. Based on the primary data obtained at the beginning of the study, sets of exercises were compiled with the predominant use of game, competitive and repeated methods and taking into account the level of training of athletes from the experimental group.

Special attention was also paid to the preparatory part of the training sessions in the experimental group. In the warm-up, to prepare the body for the up-

Test results at the beginning of the experiment

No.	Tests	Unit	Average value		Difference in %
			Control	Experimental	
Physical fitness					
1	Running at 30 m	Seconds	6,4±0,5	6,5±0,7	1,5
2	Shuttle run 3x10 m	Seconds	9,4±0,5	9,3±0,5	1,0
3	Raising the body from a supine position	Number of times in 30 s	21,1±3,9	22,0±3,6	4,0
4	Flexion and extension of the arms while lying down	Number of times	11,8±1,7	11,9±1,7	0,8
5	Bend forward from a standing position on a gymnastic bench	cm	3,7±1,9	3,5±1,3	5,7
6	Standing long jump	cm	129,6±4,8	130,6±3,8	0,7
Functional readiness					
1	Stange test	Seconds	31,3±4,5	30,8±3,5	1,6
2	Harvard step test	Number of times	71,3±8,5	65,5±5,9	8,8
3	Orthostatic test	Number of times	13,2±2,1	11,5±2,7	14,7

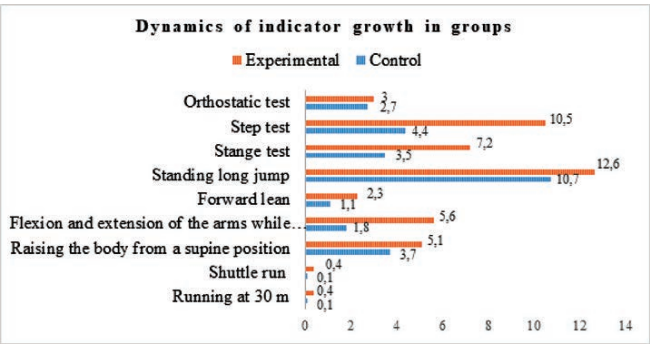
coming physical activity, warm up the muscles, ligaments, tendons, as well as optimize the functioning of the cardiovascular and respiratory systems of young acrobats, general preparatory exercises and various outdoor and sports games were used. Game warm-up motivates children to physical activity, shows creativity, and also does not cause psychological fatigue at the beginning of training.

The selection of general physical training exercises was carried out depending on the level of preparedness of the students. As the load was mastered, the exercises became more complex. At the end of the training session, exercises were used to restore breathing and gymnastic exercises to relax muscles.

Monitoring of the cardiovascular system during exercise was carried out using a heart rate monitor; heart rate was calculated at the beginning of the workout, in the main and final parts. For more effective control in both groups, a diary was kept for recording each lesson, and the training load and functional state of the body of young acrobats were analyzed.

Based on the initial data of physical fitness in both groups, no significant difference was observed. The level of functional readiness of young acrobats is between low and medium levels (see table).

At the end of the pedagogical experiment in November 2023, after the implementation and use of the compiled sets of exercises in the training process of the experimental group, both groups were re-tested using the same tests under similar conditions, the results are presented in the figure.



Conclusions. As can be seen from the presented table and figure, in control tests for the development of speed, coordination, strength, strength endurance, flexibility, speed-strength qualities, general fitness of the body, fitness of the cardiovascular system, the degree of excitability of the sympathetic division of the autonomic nervous system, comparing the results, obtained at the beginning of the pedagogical experiment and upon completion in both groups, we observe that in the experimental group there were significant changes in almost all indicators of physical fitness and indicators of the level of functional fitness of the body.

Thus, the results of the conducted pedagogical experiment clearly demonstrated the effectiveness of the developed sets of physical exercises in sports acrobatics, aimed at improving the general physical training of young acrobats aged 7-9 years. Therefore, it can be argued that supplementing the content of general physical training programs in sports acrobatics for this age group with the presented experimental sets of physical exercises will significantly increase their level of physical and functional readiness.

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The influence of the training process on the development of flexibility of the swimmer's shoulder girdle

UDC 796+06

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Abstract

Objective of the study was to evaluate the influence of the training process on the development of flexibility of the swimmer's shoulder girdle.

Methods and structure of the study. The experiment involved 168 swimmers from the "Ekran" Youth Sports School (86 girls, average age 17 years and 82 boys, average age 18 years). Swimmers were tested for shoulder flexibility in preparation for the winter competitive season. After 6 months, the swimmers were surveyed about pain throughout the season.

Results and conclusions. The findings showed a strong correlation between poor anterior shoulder flexibility and subsequent shoulder pain. Further research suggests that resistance training increases the likelihood of pain in men as a result of tendon hypertrophy. For flexibility, the occurrence of pain was independent of stroke, distance, or gender, with one exception: at a given level of flexibility, butterfly swimmers were more likely to suffer this injury than others.

Keywords: *pain syndrome, swimming, testing, survey, shoulder pain, flexibility in the shoulder joint.*

Introduction. The most common orthopedic injury in competitive swimmers is a shoulder girdle injury. It is believed that the swimmer's shoulder includes mainly the long head of the biceps muscle and the distal end of the supraspinal muscle and that the pain arises from impact. Any mechanical situation (including impact or friction) can be determined by several variables. When studying the mechanical model of a swimmer's shoulder, the following parameters are usually considered: number of movements (number of strokes); freedom of movement of the object (in the coracoacromial arch and head of the humerus); size of the moving object: thickness of the periosteal (supraspinal) muscle and tendon of the long head of the biceps; plasticity of a moving object (flexibility) of the supraspinous (supraspinal) head of the biceps; flexibility of objects surrounding a moving object (flexibility of the coracoacromial ligaments).

They are all interrelated, but the last two are of interest because they both relate to shoulder flexibility and are easy to quantify.

Objective of the study was to evaluate the influence of the training process on the development of flexibility of the swimmer's shoulder girdle.

Methods and structure of the study. The experiment involved 168 swimmers from the "Ekran" Children's and Youth Sports School (86 girls, average age 17 years and 82 boys, average age 18 years).

In October, swimmers underwent shoulder flexibility testing in preparation for the winter competitive season. In this case, a regression equation from an evaluation study was used.

Shoulder girdle flexibility test (SF). The swimmer lies down on an inclined bench. Then he lowers his hands down so as not to experience pain. In the tested swimmers, shoulder pain was not a limiting factor; to increase tension in the biceps periosteal (supraspinal) muscles and tendons, the arms are in an extended position, with the palms facing toward oneself and held in a perpendicular position relative to the body, with the subject's head on the upper raised end of the bench. When the swimmer is unable to move his arms further, the distance between the centers of the styloid processes on the wrists is measured with an accuracy of 1.63 cm. Taking into account the different lengths of the arms, the distance between the wrists is divided by the height of the swimmer, which is also measured with an accuracy of 6.35 cm. The result is the num-

ber is the shoulder flexibility (SF) index, which usually ranges from 0.00 to 0.800. It matches the protractor (extensor) angle in photographs of swimmers taken in the same testing position.

Research has shown that there is a positive correlation between swimmers with poor flexibility (high SF) and swimmers who experienced shoulder pain in the previous season. To understand whether shoulder pain is a cause or consequence of poor flexibility, we used a regression equation from an assessment study to predict the likelihood of shoulder pain in different groups of swimmers [1].

Classification of pain. Although the following system differs from the traditional clinical system, we found that athletes found it easier to answer questions within this classification: 0 – no pain; 1 – sometimes it hurts, but not much; 2 – hurts after training; 3 – pain occurs every time a circular movement is performed with the hand; 4 – it hurts during the day, forcing you to refrain from heavy exercise; 5 – severe pain, difficult to train; 6 – very strong pain that stops only under the influence of ice, medications, etc. It is impossible to train at full strength.

At the end of the competitive season (April-May), each swimmer completed a questionnaire about pain in both shoulders for the period from October after the SF test.

Flexibility. From a coach's point of view, category 4 and above are acceptable. From a doctor's point of view, any type of pain is undesirable. The researcher can choose any category. For the first part of this study (team selection), category 1 is considered to be at the 50% level of "swimmer's shoulder" syndrome, and category 2 and above is considered to be 100%.

Weight training. The third variable in the mechanical model is the thickness of the biceps and supraspinatus muscles and tendons. This factor -duration and intensity of resistance training - was considered on a scale from 0 to 20, with 6 being considered mild, 7 to 13 moderate, and 14 to 20 maximum.

Results of the study and discussion. The results of the study showed that the influence of poor flexibility affected all swimmers without exception, even the youngest.

Weight training. Table 1 shows the percentage of swimmers who trained with weights at three levels. If the forecast is based only on the GP indicator, the percentage of cases of the syndrome can be reduced, but it is necessary to take into account muscle hypertrophy caused by weight training.

Sample questions offered to athletes in the spring after the competitive period:

A. When was your weight training most intense? 1. I hardly trained; 2. From July to September; 3. From September to February.

B. How often did you train and at what intensity? 1. 0-never; 2. Once a week; 2. Twice a week; 3. Three times a week, until tired.

The selected answer options must be circled. By multiplying the numbers circled in sections A and B, the weight training factor was obtained. This provided an intensity/duration scale ranging from 0 to 20.

The higher the factor score, the longer the duration and intensity of the workout. The shoulder flexibility testing position is an excellent gravitational stretch in itself. Stretching, when the muscles are under severe tension, does not contribute to the development of flexibility.

Weight training. Tendon hypertrophy occurs in humans as a result of resistance training. Muscle strength is proportional to tendon thickness, a finding supported by research showing that resistance training is of no benefit as a preventative or therapeutic measure for shoulder pain.

Subluxation. The presence of subluxation was not tested in this study. But since we found a correlation between tension in the front of the shoulder and subsequent shoulder pain, we can expect a correlation with weakness in the back of the shoulder. Slouch-

Table 1. *Percentage of swimmers on each team who trained with weights*

Team	Gender	The weight training factor		
		0-6	7-13	14-20
A	Woman Man	66,6 78,6	22,2 7,1	11,1 4,3
B	Woman Man	10,0 25,0	75,0 43,7	15,0 31,3
C	Woman Man	14,3 42,9	85,7 57,1	0 0
D	Woman Man	8,7 20,0	47,8 30,0	43,5 50,0
E	Woman Man	40,0 4,3	50,0 82,6	10,0 13,1
F	Man	0	40,0	60,0

Table 2. *Prognosis of the appearance of "swimmer's shoulder" syndrome in swimmers specializing in swimming in various ways (women and men)*

Swimming method	Gender	Average crying flexibility	Number of syndrome cases (%)
Freestyle (sprint)	M	638	57,5
Breaststroke	M	630	64,7
On the back	M	617	56,7
Freestyle (stayer)	M	592	50,0
Freestyle (sprint)	W	581	52,1
Freestyle (stayer)	W	568	42,3
Butterfly	M	562	52,8
On the back	W	553	38,0
Breaststroke	W	553	34,2
Butterfly	W	518	47,2

ing, characterized by a forward drooping of the shoulders, often seen in swimmers, indicates stretching of the posterior tendons of the shoulder, causing anterior subluxation. So, in many cases when swimmer's shoulder is diagnosed, the cause is a subluxation. It is believed that this syndrome most often occurs in stayers specializing in freestyle and butterfly swimming (with the exception of highly qualified swimmers, in whom this disease is even more common than in men).

Until now, it has been difficult to predict the risk factor for each swimmer. The work tested the dependence of the appearance of pain in the shoulder on the method of swimming, distance and gender. Data from other studies were used to ensure the sample was sufficiently representative. Swimmers with a shoulder flexibility of 0.700 or greater were excluded. Resistance training was not included because it has not been studied in other studies. Shoulder pain was considered a 100% syndrome starting from point 4. The forecast results are shown in Table 2.

With few exceptions, the prognosis for the onset of the syndrome, as can be seen from Table 2, depends more on the indicator of shoulder flexibility than on the method of swimming, distance or gender. Even if we exclude two groups of subjects swimming in the butterfly style, when the arms work simultaneously and the load on the shoulder joints is higher, 8 groups remain. Their mean still showed a strong correlation between shoulder flexibility and subsequent pain (R=0.9769). The risk factor is especially high in swimmers with poor shoulder flexibility and in men who train with weights at maximum effort.

Conclusions. The shoulder flexibility test was performed before the winter season on 168 swimmers, most of whom did not suffer from swimmer's shoulder syndrome. After 6 months, swimmers answered questions about pain throughout the season. The findings showed a strong correlation between poor anterior shoulder flexibility and subsequent shoulder pain. Further research suggests that resistance training increases the likelihood of pain in men as a result of tendon hypertrophy. For flexibility, the occurrence of pain was independent of stroke, distance, or gender, with one exception: at a given level of flexibility, butterfly swimmers were more likely to suffer this injury than others.

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Role of rapid response factors to injuries in basketball players studying at russian universities

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Abstract

Objective of the study was to identify factors that have a significant impact on student basketball players making emergency decisions when injuries occur.

Methods and structure of the study. During the analysis of scientific and methodological literature, 4 management factors of rapid response to injuries among basketball players classified as the first level were identified. In turn, each of the factors (university administration, coach, athlete, parents) is characterized by different types of management decisions in the event of injuries that were classified as the second level. The experts were asked to rate the importance of each first-level factor on a scale from 1 to 5 (1 – insignificant, 5 – very important).

Results and conclusions. Coach level and athlete level were found to be the most important, followed by university and parent levels. Therefore, the main efforts aimed at preventing injuries must be implemented at the level of athletes and coaches. First of all, they should be aimed at increasing the awareness of athletes and coaches in the means and methods of preventing emergency situations, as well as ensuring the neuropsychic stability that is necessary when making decisions if they arise.

Keywords: *basketball players, sports injuries, factors influencing emergency decision making, coach level, athlete level, university level, parent level.*

Introduction. Basketball is a sport that is accompanied by a high load on the musculoskeletal system and the functional system of athletes. Frequent jumping and collisions as a result of fighting for the ball can lead to injury [1, 2]. The athlete's future performance depends on how effective recovery procedures are after injury. Studying the role of factors influencing decision-making in emergency situations (in case of injury) may be an important step towards reducing the risk of injury among basketball players on university teams.

Objective of the study was to identify factors that have a significant impact on student basketball players making emergency decisions when injuries occur.

Methods and structure of the study. During the analysis of scientific and methodological literature, 4 management factors for rapid response to injuries among basketball players classified as the first level were identified (Table 1). Each of the factors (university administration, coach, athlete, parents) is characterized by different types of management decisions in the event of injuries that were classified as the second level (Table 2) [3-6].

The experts were asked to rate the importance of each first-level factor on a scale from 1 to 5 (1 – insignificant, 5 – very important).

Results of the study and discussion. Expert assessment showed that "coach level" and "athlete level" are important factors in making emergency decisions when student basketball players are injured (Table 1, Fig. 1).

Factor analysis made it possible to determine the weighting coefficients of the factors (Fig. 2).

The weighting coefficient at the athlete and coach level is 0.2632. To make emergency decisions in an injury situation, coaches and athletes are the most important links. When considering injuries to basketball players, athletes and coaches themselves must

Table 1. Assessment of the significance of first-level factors in making emergency decisions in case of injuries among basketball players of Russian universities

Levels/Experts	E1	E2	E3	E4	E5	σ	General assessment	Ratio
University level	5	5	5	5	4	0,4472	24	0,96
Trainer level	5	5	5	5	5	0	25	1
Athlete level	5	5	5	5	5	0	25	1
Parent level	4	4	5	5	3	0,8366	21	0,84

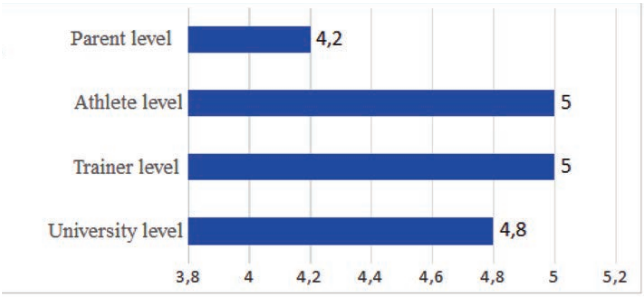

Figure 1. Average value of first-level factors in making emergency decisions in case of injuries among Russian university basketball players

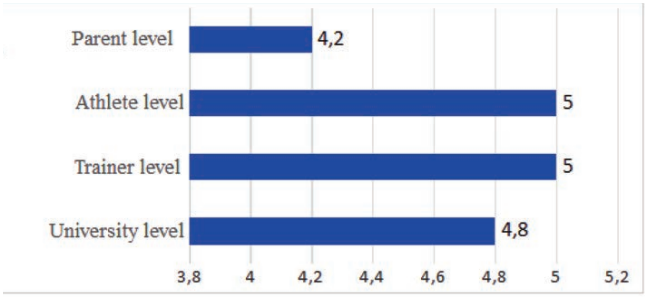

Figure 2. Weighting coefficients of first-level factors in making emergency decisions in case of injuries among basketball players of Russian universities

first make scientific and informed decisions in order to effectively prevent the occurrence of injuries and be able to effectively deal with their consequences.

The outcome of an emergency situation depends on their actions, which means it is necessary to provide both coaches and athletes with knowledge and skills aimed at preventing such situations, as well as ensuring the neuropsychic stability that is necessary when making decisions. The coach must have not only methodological literacy, but also knowledge in

Table 2. Assessment of the significance of second-level factors in making emergency decisions in case of injuries among basketball players of Russian universities

First level factors	Second level factors	General assessment	Correlation with maximum score	σ, standard deviation	Average value
University level	The degree of perfection of the university decision-making system in the situation of injury	24	0,96	0,4472	4,8
	Management decisions made by the university	21	0,84	0,4472	4,2
	Conduct of the university management when dealing with incidents	19	0,76	0,4472	3,8
	University management's attitude towards work	25	1	0	5
Trainer level	Availability of a specialist in injury prevention in team sports	6	0,24	1,6431	1,2
	Responsibility for the team	23	0,92	0,8944	4,6
	Knowledge of sports injuries	25	1	0	5
	Methodological literacy	25	1	0	5
Athlete level	Healthy behavior and life safety	25	1	0	5
	Ability to prevent injuries	23	0,92	0,5477	4,6
	Ability to cope with stress	19	0,76	0,8366	3,8
	General health level	25	1	0	5
Parent level	Cooperation and coordination	15	0,6	0	3
	Loss of interest	11	0,44	1,0954	2,2
	Awareness of responsibility for sports injuries	23	0,92	0,8944	4,6
	Emotional reaction	19	0,76	0,4472	3,8

the field of sports injuries, which will allow him to adjust the training program in such a way as to minimize the negative impact on the athlete. The athlete, in turn, must have both good health and the ability to ensure his own safety in training and game situations.

The weighting factor at the university level is 0.2525. The university can provide equipped training grounds with good coverage, ventilation, sufficient lighting, etc. to minimize the possibility of injury due to the environment. It is also within the power of a higher educational institution to provide medical equipment and a sports doctor so that athletes have the opportunity to receive effective treatment if injuries occur.

Finally, the weight at the parent level is 0.2211. It is the parents who provide the appropriate conditions for the athlete to quickly recover from injury.

As a result of determining the significance of second-level factors in making emergency decisions in case of injuries among basketball players, it was found that "the presence of a specialist in the prevention of injuries in team sports" (coach level) and "loss of interest" (parental level) are the least important (Table 2).

Table 3 presents the final list of significant factors of the second level, grouped by factors of the first level.

The average values and weighting coefficients of second-level factors in making emergency decisions in case of injuries among Russian university basketball players are presented in Table 4.

Decision-making in emergency situations at the university level is largely dependent on the leadership position and includes four components: the degree of sophistication of the university's decision-

Table 3. Summary table of first and second level factors in making emergency decisions in case of injuries among basketball players of Russian universities

First level factors	Second level factors
University level	The degree of perfection of the university decision-making system in the situation of injury
	Management decisions made by the university
	Conduct of the university management when dealing with incidents
	University management's attitude towards work
Trainer level	Responsibility for the team
	Knowledge of sports injuries
	Methodological literacy
Athlete level	Healthy behavior and life safety
	Ability to prevent injuries
	Ability to cope with stress
	General health level
Parent level	Cooperation and coordination
	Awareness of responsibility for sports injuries
	Emotional reaction

Table 4. Average values and weighting coefficients of second-level factors in making emergency decisions in the event of injuries to basketball players at Russian universities

First level factors	Second level factors	Average value	Weight coefficient
University level	The degree of perfection of the university decision-making system in the situation of injury	4,8	0,2697
	Management decisions made by the university	4,2	0,2359
	Conduct of the university management when dealing with incidents	3,8	0,2135
	University management's attitude towards work	5	**0,2809**
Trainer level	Responsibility for the team	4,6	0,315
	Knowledge of sports injuries	5	**0,3425**
	Methodological literacy	5	**0,3425**
Athlete level	Healthy behavior and life safety	5	**0,2717**
	Ability to prevent injuries	4,6	0,2501
	Ability to cope with stress	3,8	0,2065
	General health level	5	**0,2717**
Parent level	Cooperation and coordination	3	0,2632
	Awareness of responsibility for sports injuries	4,6	**0,4035**
	Emotional reaction	3,8	0,3333

making system in an injury situation; management decisions made by the university; the behavior of university management in handling incidents; attitude of university management towards work. "University Management Work Attitude" has the highest weighting, indicating that this indicator is the most important factor in emergency decision making at the university level.

Emergency decision making at the athlete level is based on the knowledge that the injury subject has and includes four components: health behavior and life safety; ability to prevent injuries; ability to cope with stress; general level of health. "Health and Life Safety Behavior" has the highest weighting, indicating that it is the most important aspect of emergency decision making at the athlete level.

When a basketball player gets injured, it is the coach who needs to make the quickest decision. Therefore, at the coach level, there are two equally important indicators: "knowledge in the field of sports injuries" and "methodological literacy."

The parent level mainly involves ensuring the life safety of basketball players during the recovery period, so "cooperation and coordination" has the highest weight at the parent level.

Conclusions. The study identified a system of indicators that reflects the effectiveness of making emergency decisions when student basketball players receive an injury: coach level, athlete level, university level and parent level. At the university level, these are: the degree of perfection of the university decision-making system in a situation of injury; management decisions made by the university; the behavior of university management in handling incidents; attitude of university management towards work. At the coach level: responsibility for the team, knowledge in the field of sports injuries, methodological literacy. At the athlete level: health behavior and life safety, ability to prevent injuries, ability to cope with stress, general level of health. At the parent level: cooperation and coordination, awareness of responsibility for sports injuries, emotional reaction.

The work carried out may be useful for improving the decision-making system in emergency situations (in situations of injury), and will also improve the management aspect in order to minimize the likelihood of athletes getting injured in the future.

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Biomechanical analysis of the trajectory of movement of the center of gravity of an athlete in martial arts

UDC

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Abstract

Objective of the study was to study the essence of the process of oscillations of the athlete's center of gravity when moving using the "shuttle" method and to test the methodology for analyzing the movement of the center of gravity.

Methods and structure of the study. The essence of the analysis of oscillatory movements of the center of gravity is to construct the trajectory of the athlete's movement, as well as graphs of changes in speeds and accelerations of the center of gravity depending on the coordinate. In this case, the graphs are plotted one below the other on the same scale of the coordinate axis. This allows you to visually compare the features of the trajectory of the center of gravity with changes in speed and acceleration.

Results and conclusions. Fluctuations in the center of gravity of an athlete during movement using the "shuttle" method represent a movement of the center of gravity from one area of space to another in the forward and backward directions. In this case, the movement trajectories differ from each other. It is advisable to describe such oscillations not by individual parameter values, but by areas of parameter values characteristic of a specific state of the system.

The data processing technique used allows us to obtain more complete and visual information about the movement of the athlete's center of gravity during movement.

Keywords: *biomechanics of martial arts, sports-combat sambo, jiu-jitsu.*

Introduction. The issue of the oscillatory movements of an athlete in martial arts has been practically not considered in biomechanics, despite the fact that it is of great importance in this type of motor activity. The oscillatory movement of the athlete's center of gravity occurs when moving using the "shuttle" method or when the athlete is unbalanced before throwing [3, 4].

Objective of the study was to study the essence of the process of oscillations of the athlete's center of gravity when moving using the "shuttle" method and to test the methodology for analyzing the movement of the center of gravity.

Methods and structure of the study. To conduct the study, a video was taken in which an athlete qualified as a master of sports of Russia in jiu-jitsu performs movement using the "shuttle" method. The video recording was divided into 40 cyclograms with a time interval of 0.08 s. Three separate forward and three backward movements of the center of gravity were considered. Each movement was considered on a separate chart. The trajectory of movement was divided into a number of parts equal to the number of cyclograms.

The essence of the analysis technique used is to construct the trajectory of the athlete's center of gravity, as well as graphs of changes in speeds and accelerations depending on the coordinate. In this case, the graphs are plotted one below the other on the same scale of the coordinate axis. This allows you to visually compare the features of the trajectory of the center of gravity with changes in speed and acceleration. Previously, such a technique for analyzing oscillatory movements was already recommended for describing nonlinear oscillator oscillations [2].

Research results and discussion. Figure 1 shows the trajectories of the athlete's center of gravity during three forward and backward movements while moving using the "shuttle" method.

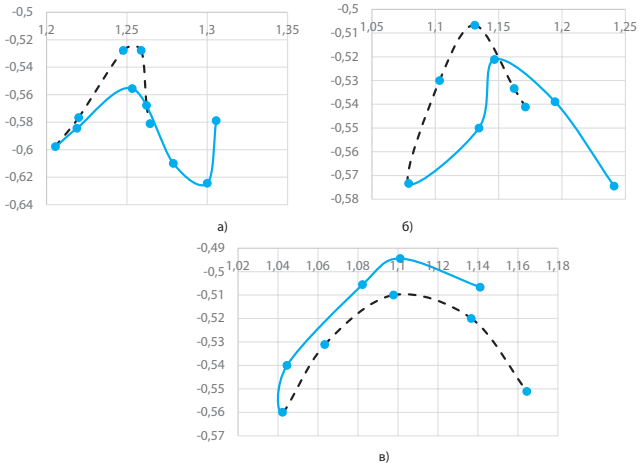

Figure 1. *Trajectories of centers of gravity during oscillations in Cartesian coordinates (blue line – forward movement, red dotted line – backward movement)*

In mechanics, harmonic vibrations mean vibrations that occur according to a harmonic law:

$x = A \sin(\omega t + \varphi)$ (1)

where is a dynamic variable, is the frequency of oscillations, is the phase of oscillations.

Also, harmonic vibrations can be described by the equation

: $\ddot{x} + \omega^2 x = 0$, (2)

where second derivative of the coordinate with respect to time.

Nonlinear oscillations are understood as oscillations that are described by other equations. For example, in formula 2, you can take into account quadratic or cubic nonlinearity during oscillations by introducing additional terms.

Figure 1 shows that the athlete's center of gravity moves forward and backward, but does not return to its original position. The trajectories of movement also differ in their shape. Common to all trajectories is the presence of a maximum occurring approximately in the middle of the movement. In order to characterize any parameter that describes oscillations of the center of gravity (the amplitude of oscillations, the initial or final position of the center of gravity), one can use the ranges of values within which this parameter changes. Previously, the concepts of attractor and quasi-attractor were proposed in the scientific literature [1, 5]. In the most general case, this is a range of values of a quantity that correlates with a specific state of the system.

Thus, by fluctuations in the center of gravity of an athlete in the case of movement using the shuttle method, we will understand the repeated movement of the center of gravity from one finite region of space to another, while the trajectories of movement will also be located within a certain region of space, that is, as a rule, they will not be repeated.

The table shows the lengths of the trajectories of movements of the center of gravity forward and backward and their duration.

Length and duration of each forward movement

Movement number		Length (c.u.)	Time (s)
I movement	Forward	0,20	0,40
	Back	0,15	0,36
II movement	Forward	0,23	0,40
	Back	0,14	0,36
III movement	Forward	0,19	0,36
	Back	0,16	0,48

The table data shows that the duration and length of each forward and backward movement are not always the same. Therefore, it can be proposed to also use ranges of values, rather than specific numerical values, to describe the amplitude of movements and duration.

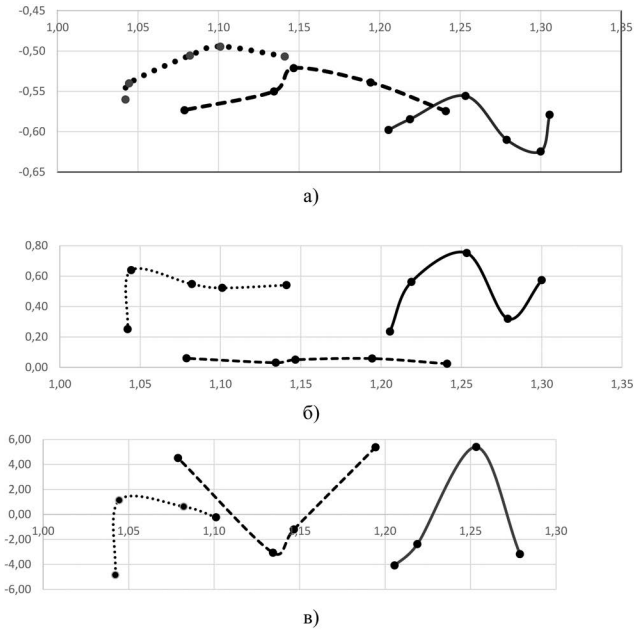

Figure 2. *a) trajectories of the center of gravity during movement b) speed of the center of gravity depending on the coordinate c) acceleration of the center of gravity depending on the coordinate (solid line - first forward movement, broken line - second forward movement, dotted line - third forward movement)*

Figure 2 shows the trajectories of the athlete's center of gravity in the process of moving forward (Fig. 1 a), changes in speed and acceleration of the athlete's center of gravity depending on the coordinate (Fig. 1 b and 1 c).

In Figure 2 you can see that the maximum speeds and accelerations do not always correspond to the highest point of the trajectory of the center of gravity. However, the maximums and minimums of velocities and accelerations, as a rule, occur at the same coordinate.

Figure 3 shows the trajectories of the center of gravity during the backward movement.

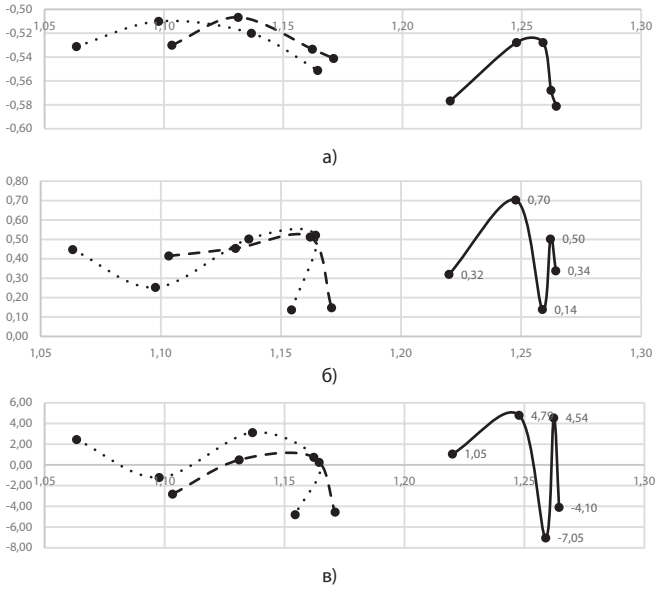

Figure 3. *a) trajectories of the center of gravity in the process of moving backwards b) speed of the center of gravity depending on the coordinate c) acceleration of the center of gravity depending on the coordinate (solid line - first forward movement, broken line - second forward movement, dotted line - third forward movement)*

It is also clear that the highest point of the trajectory does not always correspond to the maximum speed or acceleration. The maximums and minimums of speeds and accelerations, as a rule, also coincide.

Conclusions. Fluctuations in the center of gravity of an athlete during movement using the shuttle method represent a movement of the center of gravity from one area of space to another in the forward and backward directions. In this case, the movement trajectories differ from each other. It is advisable to describe such oscillations not by individual parameter values, but by areas of parameter values characteristic of a specific state of the system.

In one figure, observing the scale, it is advisable to plot the trajectory of the center of gravity, as well as the dependence of the speed and acceleration of the center of gravity on the coordinate. This allows you to study the features of the movement of the center of gravity. To describe oscillations of the center of gravity, you can also use the ranges of speeds and accelerations.

The data processing technique used allows us to obtain more complete and visual information about the movement of the athlete's center of gravity in the process of motor activity.

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Features of motivation for success and willingness to take risks among students of the faculty of physical education and sports of the pedagogical university with an androgynous gender type

UDC 378.4

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Abstract

Objective of the study was to study the characteristics of motivation for success and willingness to take risks among students of the Faculty of Physical Education and Sports of a pedagogical university with an androgynous gender type.

Methods and structure of the study. The scientific work was carried out at the Ulyanovsk State Pedagogical University on a sample of full-time undergraduate students of the 1st-4th year of the Faculty of Physical Culture and Sports. Analysis of the results of modern research, synthesis, and generalizations were used as theoretical research methods. The empirical method was a ascertaining experiment, using the personality diagnostic method for motivation for success by T. Ehlers, the diagnostic method of the degree of risk readiness by G. Schubert and the questionnaire by S. Boehm.

Results and conclusions. Analysis of primary sources revealed a direction of research related to the study of student-athletes' motives for sports achievements and professional development. However, these studies do not fully describe the relationship between the motivational characteristics of sports department students and their gender characteristics. During the implementation of the experimental part of the study, it was found that in a sample of students heterogeneous in gender composition, the androgynous type of gender is predominant. Such students are motivated to achieve success; most of them are characterized by a high level of motivation. The willingness to take risks in androgynous students is manifested to a lesser extent than the tendency to be cautious. At the same time, no significant connection was found between motivation to achieve success, on the one hand, and the tendency to behave cautiously, or willingness to take risks, on the other. There was also no obvious connection between the level of motivation to achieve success and the propensity to take risks with team or individual sports of students. The results obtained during the study can be used in the development of sports tasks and exercises that combine a focus on success with an optimal amount of risk in both individual and team sports.

Keywords: *students of sports departments, androgynous gender, motivation for success, risk-taking, individual and team sports.*

Introduction. Studying the problems of physical culture and sports through the prism of a gender approach is currently extremely important, since it allows us to take into account the gender characteristics of an individual in physical culture and sports activities, to help improve the efficiency of training athletes in a pedagogical university, taking into account the characteristics of the type of gender. At the same time, insufficient attention is paid to the study of the relationship between gender characteristics of students of sports departments and personal characteristics important for achieving high sports results.

During the analysis of the problem, a contradiction was revealed between the importance for students of sports departments of achieving high results in educational and professional activities and insufficient knowledge of the relationship between the characteristics of motivation and risk-taking with their gender characteristics.

Objective of the study was to study the characteristics of motivation for success and willingness to take risks among students of the Faculty of Physical Education and Sports of a pedagogical university with an androgynous gender type.

Methods and structure of the study. The study was carried out at the Ulyanovsk State Pedagogical University named after I.N. Ulyanov. At the initial stage of the work, an analysis of sources was carried out, diagnostic tools were selected, and a sample of experiment participants was determined. The main stage included conducting empirical research, analysis and interpretation of data, and conclusions.

The following theoretical research methods were used: analysis of literary sources on the problem of personal and gender characteristics of students; synthesis and generalizations. Empirical methods are presented by an ascertaining experiment using the questionnaire "Methodology for diagnosing personality for motivation to succeed" by T. Ehlers, which allows diagnosing the motivational orientation of an individual to achieve success, the method for diagnosing the degree of risk readiness of G. Schubert and the questionnaire of S. Boehm, which determines the degree of androgyny, masculinity and femininity of the individual. To establish the significance of differences, Student's t-test was used.

The practical part of the study was carried out on a representative sample of full-time undergraduate students of the 1st-4th years of the Faculty of Physical Education and Sports (n = 68 or 25.28% of the total number of bachelors, boys - 38, girls - 30). Of these, approximately the same number of people are involved in team (volleyball, basketball, football, etc.) and individual (athletics, karate, swimming, etc.) sports - 32 and 36, respectively.

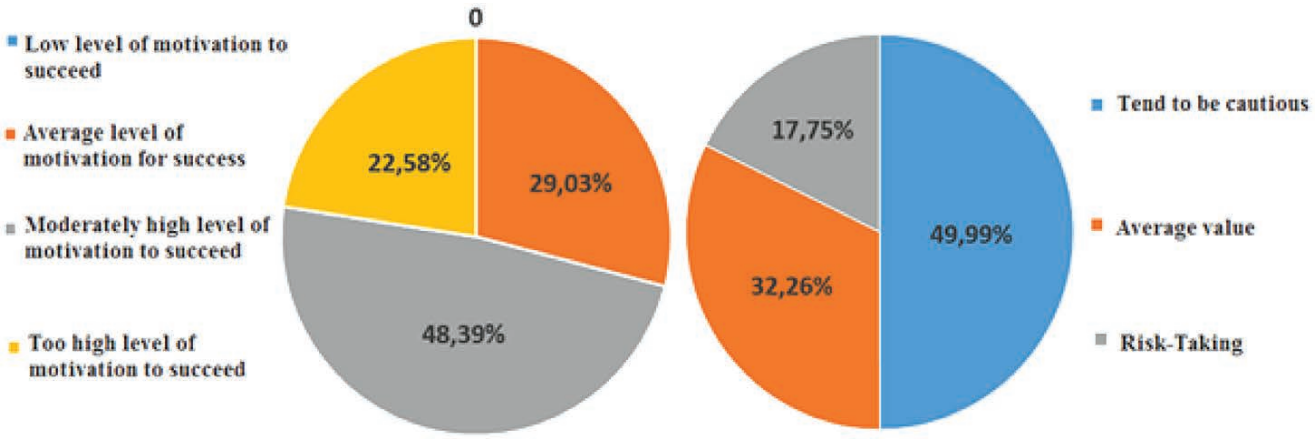
Results of the study and discussion. Theoretical analysis of scientific research on the problem of motivation in the field of physical culture and sports can be differentiated in three areas: ways of developing students' motivation for sports and physical education; components of the motivational component of students' educational and professional activities; gender characteristics of the motivational sphere of student-athletes.

The first part of the research concerns the means and methods of developing students' motivation to play sports: the use of ICT technologies in the physical training of students, assessing the dynamics of students' motivation for future professional activities [3, 6], etc. The study of the motivational component of the activities of student-athletes is represented by studies of the characteristics of students' motivation to engage in physical education and sports, as well as the choice of a future profession [5, 16], etc. In relation to our research, similar works study the motives and aspirations for success and development in sports and physical activity, achievements in sports competitions, etc. [1, 11].

It should be noted that a small part of the research in recent years has been carried out in line with the gender approach. These include studies of students' motivation to engage in sports and physical education from the perspective of a gender approach [9], students' interest and motivation to engage in physical education through sports dances, taking into account gender differences [15], etc. Summarizing the above, we state that the studies are not fully describe the relationship between the motivational characteristics of sports department students and their gender characteristics.

The main empirical method of research was the ascertaining experiment. To determine the gender composition of the sample, S. Bem's questionnaire was used. It was found that the majority of students who took part in the study (n=62; 91.18%) are carriers of the androgynous gender type. Another 5 people (men) have a pronounced masculine type (7.35%) and 1 student (1.47%) has a feminine type. This made it possible to detect the gender homogeneity of the sample of students of the sports department with the gender heterogeneity of its composition (38 men and 30 women). The sign of gender homogeneity was the leading one for subsequent data processing (dependent variable). For this reason, the results of respondents with an androgynous gender type were retained in the sample.

Diagnosis of motivation for success using T. Ehlers' method showed the absence of results among students indicating its low level (i.e., a desire to avoid failures). All respondents are motivated to succeed, and most of them are characterized by a high level of motivation: moderately high (17-21 points inclusive) for 30 respondents (48.39%) and too high (from 22 points) for 14 students (22.39). 58%). The rest (18 people – 29.03%) have an average level of motivation (from 11 to 16 points). The results of applying G. Schubert's technique showed that the tendency to be cautious (from -30 to -11 points) among the subjects is more noticeable than the willingness to take risks.



The results of applying T. Ehlers' method of motivation for success and G. Schubert's risk appetite

It is typical for 31 "cautious" respondents (49.99%), of which 6 people (9.68%) are "overly cautious" (less than -30 points), and the remaining 25 (40.31%) have a "certain tendency to cautious behavior" (from -30 to -11 points). "Average" values (from -10 to +10 points) were demonstrated by 20 people (32.26%). About one in six study participants is ready to take risks (11 respondents – 17.75%). Of this group of "risky" people, five (8.07%) have a "certain propensity" (from +11 to +19 points), and another six (9.68%) have a "pronounced propensity" (from +21 points) to take risks (see picture).

Comparing the diagnostic results for motivation to success in two disconnected samples – "cautious" (n=31) and "risky" (n=11) – we were unable to detect significant differences between them on the selected indicator. Critical values of tcr. are in the range from 2.02 (p≤0.05) to 2.7 (p≤0.01) with the empirical value temp.=1.3, which indicates the insignificance of the differences. It is likely that students of sports departments of pedagogical universities with an androgynous gender type do not express a connection between a high willingness to take risks or a tendency to behave cautiously with high motivation to achieve success.

One of the objectives of the study was to test the relationship between students' motivation for success and risk-taking, on the one hand, and, on the other, individual or team sports. For this purpose, the sample was divided into two groups – those involved in "individual" (n=32) and "team" (n=30) sports.

Comparison of the results in motivation for success of two groups of respondents using Student's t-test did not show significant differences. At critical values of tcr. from 2.0 (p≤0.05) to 2.66 (p≤0.01), the obtained empirical value was temp. = 0.2, which is in the zone of insignificance. Similarly, in these groups there are no significant differences in the results regarding risk propensity (with the same critical values temp. = 0.4). This means that these students' level of motivation to achieve success, as well as their propensity to take risks, has no connection with what kind of sport – team or individual – they are involved in.

Conclusions. Summing up the results of the study, we can draw the following conclusions: 1) analysis of a representative sample of students at the Faculty of Physical Culture and Sports of the Pedagogical University showed the gender homogeneity of its composition with the dominance of the androgynous type of gender; 2) student-athletes of the androgynous type demonstrate a motivational focus on achieving success, and the predominant part is characterized by a high level of motivation; 3) the tendency to be cautious among androgynous students is manifested to a greater extent than the willingness to take risks; 4) among students of the sports department, no significant connection was found between the tendency to behave cautiously, as well as the willingness to take risks with motivation to achieve success; 5) participation in team or individual sports does not have an obvious connection among students with the level of motivation to achieve success and propensity to take risks.

The results obtained during the study can be used in organizing the educational process of students of sports departments of pedagogical universities when preparing tasks that combine a focus on success with

an optimal amount of risk in both individual and team sports.

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Virtual technologies in professional training of student-athletes: assessment of functional indicators and competencies

UDC 37.04

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Abstract

Objective of the study was to study the functional indicators of the cardiovascular system and respiration of students with massive sports categories when passing a VR scenario for assessing competencies with an emotionally intense situation.

Methods and structure of the study. The scientific experiment involved 30 students of the Faculty of Physical Culture and Sports of a pedagogical university with mass sports ranks. The control group consisted of 33 university students who did not regularly engage in sports. The subjects' heart rate, blood pressure, pulse pressure, Kerdo autonomic index, endurance coefficient, index of functional changes, type of self-regulation of blood circulation, respiratory rate, and Hildebrandt index were assessed in the subjects at rest, during instruction, and during the passage of the scenario using VR glasses. The study was carried out using the "Virtual pedagogical simulator Tut360", containing emotionally intense pedagogical scenarios ("Fire at school"). At the same time, the formation of psychological and pedagogical competencies (UC-3, UC-8, GPC-3, GPC-4, GPC-6, PC-1) was automatically assessed.

Results and conclusions. In the group of students systematically involved in sports, lower heart rate, blood pressure, Kerdo index, type of self-regulation of blood circulation and Hildebrandt index were found at all stages of the study compared to the control group. More pronounced changes in indicators of the cardiovascular and respiratory systems (not always significant) were detected in student-athletes at the stage of familiarization with the instructions, and in untrained students - at the stage of passing the scenario. Based on the results of completing the scenario, the development of psychological and pedagogical competencies among students of the two groups was noted to be approximately at the same level. We believe that the use of VR technologies in the process of professional training of students of various specialties will allow them to psychologically prepare for performing real professional tasks and increase the efficiency of the educational process.

Keywords: *virtual pedagogical simulator, VR technologies, stress, functional indicators, psychological and pedagogical competencies, student-athletes of the mass ranks.*

Introduction. Physical activity is considered by many authors as the most important condition for human adaptation, contributing to the optimization of the functional state in difficult, including extreme situations [5, 7]. Considering that the learning process of students is accompanied by various stressful situations and increased psycho-emotional stress, adaptation to them is accompanied by significant tension in the body's compensatory-adaptive systems. One of the priority tasks of professional training of students is to increase their adaptive potential through the development of effective educational technologies. These are virtual technologies (VR), which allow simulating controlled stressful situations from real professional activities (including teaching), giving students the experience of solving them without risk, safe repeated practice and adaptation to them [2].

Objective of the study was to assess the functional indicators of the cardiovascular system and respiration during the passage of the "Virtual Pedagogical Simulator Tut360" with an emotionally tense situation by students with massive sports ranks.

It is assumed that student-athletes' cardiovascular and respiratory systems are functionally more resist-

ant to emotional stress than those of untrained students.

Methods and structure of the study. The scientific experiment was attended by 30 students of the Faculty of Physical Culture and Sports of the Pedagogical University with mass sports ranks (group 1), and 33 untrained students of various pedagogical profiles (control - group 2). The average age of students is 20 years. All subjects were previously familiarized with the content of the study and gave consent to it. To create emotional tension, a scenario was used that simulated a fire in a school and the evacuation of students [6]. As its criteria, indicators of the functioning of the cardiovascular (CVS) and respiratory systems (RS), which are highly responsive and play a key role in the adaptive changes of the body, not only to physical stress, but also to emotional stress, were assessed [1, 4, 5]. The subjects were determined to have heart rate (HR), systolic and diastolic blood pressure (SBP and DBP), pulse pressure, Kerdo autonomic index (AIK), endurance coefficient (EC), functional change index (FCI), type of self-regulation of blood circulation (TSC), respiratory rate (RR), Hildebrandt index (HI) [4]. The indicators were measured three times: before the start of the test (rest, relative emotional stability), during instruction using virtual reality glasses, and during the passage of the scenario (emotionally tense situation). The Wilcoxon T-test was chosen as a criterion for assessing the severity of shifts in the studied indicators under different conditions in each group. The significance of differences between the study groups was assessed using the Mann–Whitney U test.

Results of the study and discussion. The results of the study revealed lower resting heart rate and blood pressure in student-athletes than in the control group, which remained the same throughout the experiment (Table 1).

Changes in heart rate and related hemodynamic parameters are considered the most common reactions to stress from the cardiovascular system [1, 3, 5]. The highest pulse values among students in the control group were achieved as a result of completing the scenario, and among student-athletes during preparation for it - at the stage of familiarization with the instructions, which can be considered as the mobilization of the cardiovascular system to complete the task and the dynamic regulation of the body for the upcoming load.

In our study, the blood pressure indicators of the subjects, although they underwent some changes, remained within normal limits both at the initial stage and during the course of the scenario. A tendency was revealed for a decrease in ABP, DBP and PP from the first measurement to the final one in both groups, which may indicate that it reflects the regulatory mechanisms of the autonomic nervous system.

To assess the influence of the autonomic nervous system on the cardiovascular system in the subjects, they were determined by the Kerdo autonomic index. At rest, the majority of students in the two groups showed a balance between the tone of the sympathetic and parasympathetic systems, with a predominance of parasympathetic influences in the athletes group and sympathetic influences in the control group. During the experiment, sympathicotonia was detected in the groups - with an increase in the vegetative index in the second group and normotonia - in the group of student-athletes. Positive changes in the vegetative

Table 1. *Average values of indicators in the studied groups*

Indicators / Stages	Heart rate (bpm)	SBP (mm Hg)	DBP (mm Hg)	PP (mm Hg)	AIK (point)	EC (point)	FCI (point)	TSC (c.units)	RR (units/min)	HI (c.units)
Group 1 – athletes										
At rest	72,4	120,3	78,7	41,6	-10,7	18,3	2,2	110,7	20,3	3,9
Briefing	79,4»*	119,2	78,6	40,6	-0,5»	21,3	2,2	100,5	20,5	3,9
Scenario	77,7»*	117,8»	77,3*	40,5	-0,7	20,4	2,2	101,7	19,8	4,2
Group 2 – control										
At rest	87,8	122,5	82,9	39,6	3,2	24,2	2,5	96,8	20,1	4,6
Briefing	88,5	120,5	82,8	37,8	4,6	26,7	2,5	95,4	21,3»	4,4
Scenario	91,5»	118,6»	82,3	36,3	8,6	27,4	2,5	91,4»	22,2	4,4

Note: significance of the U test between groups: * – p≤0.05; significance of the T-test compared to rest: “– p≤0.05

index indicate the activation of the ergotropic regulatory mechanism and the tension in the functioning of the body.

The tension in the circulatory system and the weakening of the cardiovascular system are also evidenced by the revealed increase in the endurance coefficient, which was more pronounced in the control group. It was quite high among students both before and after the test on the simulator, which may indicate a lack of functional capabilities of the circulatory system. At the initial stage, 40% of student-athletes and only 15% of students in the second group had an endurance coefficient within normal values, and its decrease was found in 53% and 82% in the corresponding groups. An increase in the endurance coefficient may indicate detraining of the CVS of the subjects, which was more pronounced in the control group.

One of the informative indicators reflecting the characteristics of the body's adaptive reactions is the type of self-regulation of blood circulation. On average, among students of the two groups at rest, the cardiovascular type of regulation predominates. However, during the process of passing the scenario on the simulator, an increase in the proportion of students with cardiac regulation type in the control group was revealed (from 36% to 42%). Such shifts may indicate the tension in the functioning of central hemodynamics and the provision of adaptation to sudden, short-term disturbing influences of the external environment [3]. On the contrary, in the group of athletes, the proportion of students with a cardiovascular type of regulation increased: from 50% at rest, to 63% and 70% at the next stages of the experiment, which reflects the optimal functioning and balanced regulation of the circulatory system [3].

To assess the adaptive potential and adaptive capabilities of the subjects, an assessment was made of the index of functional changes, which on average remained within normal values and did not change significantly in the groups during the test with the simulator. Assessing the distribution of this indicator in the control group at rest, satisfactory adaptation of the cardiovascular system was revealed in 77% of students, its tension in 30%, and unsatisfactory adaptation in 3% of subjects. In virtual reality glasses and during the passage of the scenario, the proportion of students with tension in adaptation mechanisms increased to 40%, respectively, and from unsatisfactory to 6% of students. In the group of student-athletes, no one was identified who had manifestations of unsatisfactory adaptation at all stages of the examination, and passing the instructions and the scenario itself was accompanied by an increase in the proportion of students with adaptation stress from 3% to 12% and 9%, respectively. The data obtained may indicate a greater increase in the tension of regulatory systems and the inclusion of functional reserves when passing the test in untrained students, which is the "price" of adaptation, due to which the main vital signs are maintained within normal limits for a long time [1].

On the part of the respiratory system, there was an increase in the respiratory rate of students in the control group at each subsequent stage of the experiment, and in the group of student-athletes this indicator remained within the normal range with a tendency to decrease as the scenario progressed. A reflection of the cardio-respiratory relationship is the Hildebrandt index, which showed higher values, but within the normal range, at each stage of the study in students of the second group compared to those in student-athletes. In general, the indicator indicates the presence of coordinated changes in the activity of the cardiovascular system and respiratory system in both groups.

Assessment of the development of psychological and pedagogical competencies using VR technologies showed that students of both groups, solving pedagogical situations in a virtual environment, experienced a state of stress to varying degrees, but this did not affect the total score of competencies (student-athletes had an average score for the sum of the competencies studied - 36.3, in the control - 37.1). Student-athletes showed a slightly lower level of com-

Table 2. *Indicators of the development of professional and psychological competencies obtained using the "Virtual Pedagogical Simulator Tut360"*

Groups	Formation of competencies (points)					
	UC-3 (max. 12)	UC-8 (max. 9)	GPC-1 (max. 3)	GPC-4 (max. 6)	GPC-6 (max. 3)	PC-1 (max. 12)
Athletes	9,87	7,17	2,30	4,90	2,30	9,80
Control	10,5	7,38	2,88	5,38	2,63	10,25

Note: UC - universal competence, GPC- general professional competence, PC – professional competencies

petence development with more stable indicators of the functional state (Table 2.)

Conclusions. It was revealed that among student-athletes, more pronounced changes (not always significant) were noted at the stage of familiarization with the instructions, and, rather, are associated with mobilization before passing the scenario (HR, AIC, EC, TSC, RR), and among untrained students - at stage of passing the scenario (HR, SBP, PP, AIC, IV, TSK, RR), which may indicate a slight increase in the voltage of regulatory systems and the inclusion of functional reserves when performing a task. With a small acting external factor in terms of strength and time, the cardiovascular system can maintain a satisfactory nature of adaptation and an optimal mode of functioning due to the relatively small tension of the regulatory mechanisms [1]. It is likely that systematic sports activities increase the ability for self-regulation, stress resistance and mobilization of athletes when performing an emotionally intense task [7].

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Individual-typological features of youth involved in physical and sports leisure activities

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Abstract

Objective of the study was to identify the individual typological characteristics of young people who systematically engage in a certain type of physical education and sports leisure activity in the open air.

Methods and structure of the study. The survey was attended by 60 young residents of Nizhnevartovsk, Khanty-Mansi Autonomous Okrug-Yugra, who spend their free time outdoors: workout, football, volleyball, walking or running, as well as participants in open fitness training. G. Eysenck's personality questionnaire was used to study individual psychological personality traits. To identify the factors of youth involvement in independently organized physical culture and sports activities, the author's questionnaire was used.

Results and conclusions. Among those who prefer workout classes, walking and running, introverts predominate. High levels of extraversion were found in individuals who chose team sports. Open street fitness training brought together young people with different psychodynamic characteristics and temperament types. A relationship was found between the choice of the form of participation in mass physical culture and sports events with the type of temperament and indicators of extraversion/introversion. The results obtained indicate the importance of scientific psychological and pedagogical support for physical education and sports activities of young people who independently organize their leisure time in the open air.

Keywords: *involvement, temperament, preferences, motive, street sports, psychodynamic characteristics of personality.*

Introduction. Modern society is focused on the development of human creative potential, his independence and competitiveness. An important role in solving these problems is played by physical culture and sports leisure activities, during which the ability to independently use the means of physical culture and sports is demonstrated, taking into account existing knowledge and experience [5, 7]. One can observe individually unique ways of solving motor problems in individuals who prefer to interact with objects or people, who give priority to single or repeated varied or monotonous actions [4]. From the position of the subject-activity approach (E.A. Klimov, V.S. Merlin), the choice of activity is based on a person's conscious attitude to the surrounding reality, his interests, inclinations and capabilities. Choosing a type of activity, including physical education and sports during leisure time, that does not correspond to individual characteristics, requires the student to show persistence, patience, struggle with himself, causes a feeling of discomfort and ultimately leads to refusal of classes [1]. This is probably due to the episodic nature of leisure activities of people seeking to join new physical education and sports activities, following fashion trends, but not taking into account individual characteristics.

The scientific literature provides convincing evidence of the relationship between temperament properties and preferences in choosing a sport. The issues of the influence of the typological characteristics of young people on their choice of the type of physical culture and sports leisure activities in the open air and forms of participation in mass physical culture and sports events remain insufficiently studied.

Objective of the study was to identify the individual typological characteristics of young people who systematically engage in a certain type of physical education and sports leisure activity in the open air.

Methods and structure of the study. G. Eysenck's personality questionnaire was used to study

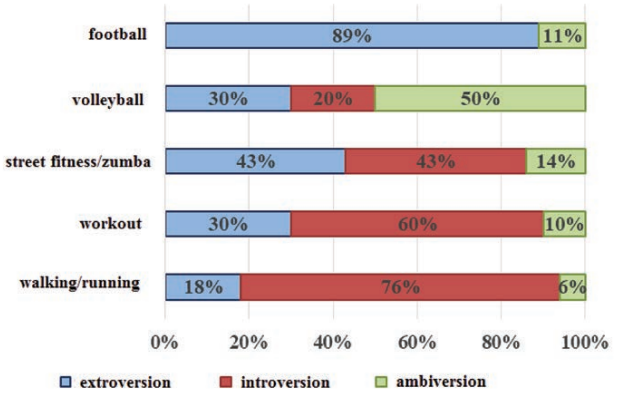
individual psychological personality traits; To study the factors of youth involvement in independently organized physical culture and sports activities, a questionnaire was used that included semi-closed and closed questions. Mathematical and statistical processing of the results was carried out in MS Excel.

The study involved young residents of Nizhnevartovsk, Khanty-Mansi Autonomous Okrug-Yugra, in the amount of 60 people (boys - 28, girls - 32) aged from 18 to 35 years (average age 22.8 years), engaged in outdoor exercise in their free time: workout (n_b=9, n_g=1); football (n_b=9); volleyball (n_g=10); walking or running (n_b=10, n_g=7); as well as participants in open fitness training (n_g=14). All subjects provided consent for diagnostics and processing of personal data.

Research results and discussion. Factors in the involvement of study participants in independent physical culture and sports activities in the open air, allowing us to talk about persistent preferences in physical culture and sports leisure activities, were the following indicators: 92% engage in 1-2 times a week or more often; 87% have experience of systematic sports; For 97%, each lesson lasts at least one hour. During the study, groups of young people were identified who prefer individually organized (walking/running, workout) or collective physical activity (football, volleyball), as well as those who, when working out in a group, do not interact with other participants (street fitness training "Zumba"). A study of personally significant motives for engaging in physical culture and sports activities among young people showed the importance of solving the problems of preserving and strengthening health both for those who prefer group (75%) and individual (76%) forms of exercise. At the same time, among those who choose leisure activities alone, more of those who solve the problem of improving their physique. The opportunity to meet and communicate with friends motivates young people who train in a group to practice, which makes them different from their peers who train individually [2].

The choice of a certain type of physical culture and sports activity, duration and effectiveness of classes is significantly influenced by the typological properties of the nervous system and temperament, which are the determining factor of a person's individuality [3, 6]. The study of individual typological characteristics of persons who independently organize physical leisure showed that the choice of types of activities correlates with indicators of extraversion / introversion (see figure).

The smallest number of introverts is observed in the group of young people who chose team forms of training: among those involved in volleyball – 20%; among football players, no introverts were identified. High levels of extraversion among football players correlate with the results of research by G.L. Drandrova et al. [3]. Among the participants in the open "Zumba" training, 43% are extroverts and 43% are introverts. Introverts predominate among the contingent involved in workout (60%) and recreational walking or running (76%).



Psychodynamic characteristics of the personality of young people involved in independently organized physical education and sports activities in the open air, %

Distribution of temperament types among young people involved in independently organized physical education and sports activities in the open air, %, (number)

Physical education and sports activity	Temperament type			
	Choleric	Sanguine	Phlegmatic	Melancholic
Football (n=9)	44 (4)	56 (5)	0	0
Volleyball (n=10)	80 (8)	0	20 (2)	0
Street fitness / Zumba (n=14)	36 (5)	21 (3)	29 (4)	14 (2)
Workout (n=10)	10 (1)	20 (2)	30 (3)	40 (4)
Walking/running (n=17)	6 (1)	18 (1)	41 (7)	35 (6)

The table shows that the dominant choleric type of temperament was found in the group of girls playing volleyball in their leisure time (80%). Among young men who unite in their free time to play football, 56% are sanguine, 44% are choleric. Among the study participants doing workout on horizontal bars, 40% were melancholic, 30% were phlegmatic. Among those who engage in recreational walking or jogging – 41% are phlegmatic, 35% are melancholic, and 18% are sanguine. Among the girls who regularly participate in open street Zumba training, no significant predominance of any type of temperament was identified.

The study of the relationship between youth's choice of the preferred form of participation in mass physical culture and sports events (team, personal, individual-team, individual without competition with others) and psychodynamic characteristics of the individual showed the presence of an average strength of connection (r = 0.61), as well as with the type temperament (r=0.63). The emotional stability of an individual does not influence the choice of sports competition.

Conclusions. The study showed that the choice of types of physical culture and sports leisure activities in the open air correlates with the individual typological characteristics of those involved. Individual types are chosen by introverts who are not inclined to communicate, who cope better with monotony, in contrast to extroverts, who are sociable and prefer work with quick decision-making. Free street fitness training, which does not require physical interaction, but is carried out in a group, brings together people with different psychodynamic personality characteristics and temperament types. The characteristics of the nervous system and temperament should also be taken into account when developing plans to increase the mass participation of physical education and sports events, including competitive practices with various forms of participation. The results obtained indicate the importance of scientific psychological and pedagogical support for physical education and sports activities of young people who independently organize their leisure time in the open air.

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Design of educational programs for preschool education using the example of integration of the compulsory part and the partial program for the early physical development of children

UDC 372.3/.4

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Abstract

Objective of the study was to develop algorithms for designing educational programs for preschool education using the example of the integration of the compulsory part (FEP DE) and a partial program for the early physical development of children.

Methods and structure of the study. The structure and content of the educational program of preschool education have been developed, partial programs have been analyzed, including those for the early physical development of children, algorithms for integrating two parts of the educational program have been determined, and a designer of educational programs for preschool education (hereinafter referred to as the Constructor) has been created.

Results and conclusions. A Constructor has been developed for creating educational programs for preschool educational organizations, which includes in its structure a mandatory part represented by the Federal program and a part formed by participants in educational relations (PFP). The constructor was created in the form of a chat bot in the Telegram channel, a link to it is posted on the official website of the Federal State Budgetary Institution "Institute of Child Development, Health and Adaptation" and the website "constructordo.rf". It allows educational organizations to design an educational program by consistently answering the proposed questions. Algorithms for integrating two parts of the educational program are characterized: the inclusion in the PFP of one or more partial programs, program elements (tasks, technologies, forms of work, etc.) that expand or complement the tasks of teaching, raising and developing children from two months to seven years, presented in Federal educational program for preschool education.

Recommendations for their use. The results of the study can be used in the design of educational programs of preschool educational organizations; conducting an internal audit of the compliance of educational programs with the Federal educational program of preschool education; advanced training of teaching staff in the field of preschool education; development of criteria for the selection of partial programs for early physical development of children for inclusion in the educational program of a preschool educational organization in the PFP, inclusion of the content of the regional component of the educational program of a preschool educational organization.

Keywords: *preschool education, federal educational program for preschool education, partial programs for early physical development of children, designer of educational programs for preschool education.*

Introduction. From September 1, 2023, preschool educational organizations in Russia switched to working under the Federal Educational Program for Preschool Education (hereinafter referred to as the Federal Program), which is a new document that has significant differences from the previously used exemplary and original educational programs for preschool education. The federal program is educational and methodological documentation, which includes the federal work program of education, the approximate regime and daily routine of preschool groups, the federal calendar plan of educational work and other components [2]. This fact justifies the need to identify ways to design educational programs for preschool education (hereinafter referred to as PE).

The Federal State Educational Standard for Preschool Education (FSES PE) and the Federal Program are the basis for the independent development and approval by preschool educational organizations of educational programs for preschool education. [1]. The FSES PE sets requirements for the volume of the mandatory part [3], which must be at least 60%. The part formed by educational participants takes up no more than 40%, and can be focused on the specifics of national, sociocultural and other conditions, including regional ones; established traditions of preschool educational institutions; selection of partial educational programs and forms of organizing work with children that best suit the needs and interests of children, their parents, as well as the capabilities of the teaching staff and preschool educational organizations in general.

The requirements for the development of educational programs of preschool educational organizations specified in the Federal State Educational Standard for Preschool Education cause difficulties for practitioners in their design. Difficulties are caused by the mechanism for integrating the mandatory part and the part formed by the participants in educational relations (hereinafter referred to as the PFP), determining the structure and content of the PFP. The creation of a designer for the development of educational programs for preschool education, an algorithm for integrating two parts of the educational program will contribute to the effective design of educational programs of preschool educational organizations.

Objective of the study was to develop algorithms for designing educational programs for preschool education using the example of the integration of the compulsory part and a partial program for the early physical development of children.

Methods and structure of the study. Based on the requirements of the FSES PE and the Federal Program, the structure and content of the educational program of a preschool educational organization was developed, partial programs were analyzed, including those for the early physical development of children [4], and algorithms for integrating the compulsory part and PFP were determined.

In the course of the study, a constructor was developed for creating educational programs for preschool educational organizations, which includes a mandatory part presented by the Federal program and a part formed by participants in educational relations. The constructor was created in the form of a chat bot in the Telegram channel, a link to it is posted on the official website of the Institute of Child Development, Health and Adaptation and the website constructordo.rf. It allows educational institutions to design an educational program by consistently answering the proposed questions.

Results of the study and discussion. The interactive, automated designer includes questions, answering which the organization consistently designs an educational program, taking into account its unique features (location, number of age groups, operating hours, student population, family composition and other information). The design is completed by saving the working version of the educational program in Word format with the ability to download it. The design process consists of 2 successive stages: the creation of a mandatory part that fully complies with the Federal program, and a part formed by the participants in educational relations. Each part of the educational program is represented by three sections: target, content and organizational.

The part formed by the participants in educational relations is in addition to the mandatory part of the educational program. Algorithms for filling it have been developed and included in the Constructor. The preschool educational organization independently selects the options for filling the PFP from those offered in the Constructor menu.

The first option for filling the part formed by the participants in the educational relations of the educational program of the preschool educational institution is one or more partial programs that can be implemented in all, one or several age groups. An educational organization can choose proprietary partial programs; programs independently developed by preschool educational institutions; regional partial programs and others. When choosing partial programs, you should focus on their selection criteria: compliance with the requirements of the FSES PE for the structure and content of the Program, the absence of duplication of tasks, content and planned results contained in the Federal Program.

The second option for filling the PFP of an educational program is a separate program element: one or more educational tasks that expand or complement the tasks of teaching, raising and developing children of infant, early or preschool age, technology, and forms of work with children outlined in the Federal Program.

Let us give examples of filling the PFP using partial

programs for the early physical development of children.

Example 1. A preschool educational institution selects a partial program to implement in groups of children aged 3-7 years. For example, “Strong Kids” (authors Berezhnova O.V., Boyko V.V.). In the early age group, an original partial program developed by teachers of this group will be implemented.

Example 2. A preschool educational institution chooses a partial program for physical development “Jolly Backpack” (authors Chemeneva A.A., Melnikova A.F., Volkova V.S.), which will be implemented in senior groups. The structure of this partial program corresponds to the Federal State Educational Standard. For young children, the preschool educational institution undertakes to implement an educational task that is not provided for in the educational area “Physical Development” of the Federal Program, formulates the planned result of the development of children and the content of educational activities; in the middle group, a partial program for physical development is selected, developed in the organization itself.

Example 3. A preschool educational institution selects a regional partial program for the physical development of children, which will be implemented in all age groups.

The designer provides the opportunity to combine filling options for PFP. The organization can include innovative educational technologies, various forms of educational activities, and proprietary methods in the program.

Currently, with the help of the Constructor, 1,397 educational programs have been created by organizations from all Federal Districts. Most preschool educational institutions presented PFP with partial programs (74%), a smaller part - with program elements (26%). Half of the preschool educational institutions (50%) included one partial program in the PFP, 26% - two, 13% - three, 11% of preschool educational institutions - four educational programs that are implemented in different age groups.

Conclusions. The developed Designer allows you to effectively design educational programs for preschool education in real time. The algorithm for integrating the compulsory part and PFP reveals the possibilities of designing and ensuring variability in educational programs of preschool educational institutions. The practice of using the Constructor has shown the effectiveness of constructing educational programs in real time.

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Features of applying russian experience in preparing qualified china athletes in mini-football

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Abstract

Objective of the study was to identify the features of the use of Russian experience in the preparation of qualified Chinese athletes in mini-football (futsal).

Methods and structure of the study. A survey was conducted of coaches working with futsal student teams of the Russian University of Sports "GTSOLIFK" (Moscow, Russia), the Mongolia Technological University (Hohhot, China), Beijing Sports University and Peking University (Beijing, China).

Results and conclusions. The effectiveness of training qualified Chinese athletes in mini-football (futsal) is determined by the use of advanced approaches to organizing the structure and content of the training process, which is based on a variety of training tools. The Russian system of training qualified athletes in mini-football (futsal), over a long period of testing scientific, theoretical and practical approaches to organizing the training process, has shown its high efficiency, which is confirmed by the results of national and club teams at competitions of various ranks. Thus, it is advisable to substantiate the specifics of using Russian experience in training qualified Chinese athletes in mini-football (futsal).

Keywords: *mini-football (futsal), qualified athletes, long-term training, training process, integral preparedness.*

Introduction. Increasing the sportsmanship of qualified players in mini-football (futsal) is largely determined by the quality of the organization of the long-term training process, which should have its own structure and content at various stages of the annual training cycle [1, 5, 6].

An analysis of special scientific and methodological literature [2, 3, 4] showed that the available sources discuss in sufficient detail the issues of physical and technical training of qualified athletes in mini-football (futsal), and also touch upon some aspects of the morphofunctional development and technical and tactical readiness of players. However, the results of numerous studies on these issues alone do not fully solve the problem of increasing the effectiveness of the long-term training of qualified Chinese athletes in mini-football (futsal). In particular, there is no data that generalizes Russian experience and specifies the long-term training system taking into account national characteristics.

Objective of the study was to identify the features of the use of Russian experience in the preparation of qualified Chinese athletes in mini-football (futsal).

Methods and structure of the study. In the context of achieving the goal of the study, coaches working with futsal student teams of the Russian University of Sports "GTSOLIFK" (Moscow, Russia), the Technological University of Mongolia (Hohhot, China), Beijing Sports University and Peking University (Beijing, China) were offered a questionnaire

that included 15 questions, which made it possible to study the features of the use of Russian experience in the preparation of qualified Chinese athletes in mini-football (futsal).

Results of the study and discussion. A sociological survey conducted shows that in order to achieve high sports results, 32.5% of coaches working with Chinese qualified athletes in mini-football (futsal) must have high levels of physical fitness, 24.4% - tactical readiness, 20.5% - psychological, 16.4% – technical and only 5.2% – integral.

Research has revealed that the majority of specialists (73.7%) do not associate the effectiveness of game actions with indicators of integral readiness; as a rule, coaches pay attention to the player's understanding of the tactical interactions of players in defense and attack. In turn, it should be noted that 56.3% of Russian coaches believe that the result of the execution of specific technical and tactical techniques in the process of competitive activity of qualified athletes in mini-football (futsal) directly depends on the degree of readiness of the player to overcome competitive loads. Maintaining high motor activity throughout the match is largely determined by the indicators of the athletes' integral preparedness.

As research by Russian specialists has shown, in modern mini-football (futsal), the integral preparedness of an athlete, combining physical, technical, tactical, psychological, functional and game components, is one of the key areas that ensures further improvement in the sportsmanship of players at the stages of long-term training.

In this regard, in order to increase the integral components of the preparedness of qualified Chinese athletes in mini-football (futsal), it is necessary to effectively plan training loads that make it possible to maintain maximum motor activity during the game and show high performance in game actions in defense and attack.

A sociological survey revealed that the main criterion for planning an integral training load for the majority of 42.2 and 35.0% of Russian coaches working with qualified athletes in mini-football (futsal) is the regulation of the volume and intensity of the motor vehicle in the process of developing physical qualities and improving technical skills. -tactical actions and the use of various operating modes during game exercises. It should be noted that only 10.6% of Chinese experts recommend focusing on the athlete's playing role when planning an integral training load, since each athlete plays his role on the court and is an important unit in organizing team interactions, which must be carried out with maximum speed and duration. throughout the match without reducing physical performance.

The results of the survey made it possible to determine that for the majority of 43.8% of Russian qualified mini-football teams, planning the integral training load is most significant in the preparatory period of the annual training cycle of athletes, 24.1% - competitive and 13.2% - transitional. It should be noted that 18.9% of Chinese specialists working with qualified teams in mini-football (futsal) use an integral training load at all stages of the annual training cycle.

It was experimentally established that only 14.3% of Chinese coaches consider it necessary to plan the integral training load in their teams at all stages of athletes' training. It is characteristic that 34.5 and 30.6% of Russian specialists, respectively, believe that it is advisable to plan the integral training load for qualified athletes in mini-football (soccer) at the special preparatory and pre-competition stages of sports training. It was found that 15.5% of Chinese coaches believe that the integral training load gives the greatest effect if it is applied at the competitive stage of the annual training cycle of qualified athletes in mini-football (futsal).

The preparation of a qualified Chinese team in mini-football (futsal) involves the introduction of innovative technologies, which are summarized in sufficient detail and justified in the Russian system, which has proven high efficiency over many years of research, since Russian teams demonstrate high sports results in the process of competitive activity.

Conclusions. Summarizing the data of the ongoing research, it should be noted that in the annual training cycle of Chinese qualified athletes in mini-football (futsal), the main attention should be given to the comprehensive improvement of the athlete through the use of integral training loads depending on the game role that the athlete performs during the game.

This fact indicates that in order to increase the effectiveness of the long-term training of qualified Chinese athletes in mini-football (futsal), it is necessary to actively implement theoretical and meth-

odological developments that are substantiated and have proven highly effective in the training system of Russian teams.

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The use of interactive teaching methods in the training of sports coaches in universities in China

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Abstract

Objective of the study was to assess the level of demand for interactive teaching methods when conducting classes aimed at acquiring special knowledge, professional skills and abilities from future table tennis coaches.

Methods and structure of the study. To achieve this goal, an expert survey was conducted, in which 9 teachers from Zhengzhou Sports University and 4 teachers from RUS «GTSOLIFK» took part. Experts were asked to express their opinion on the use and significance of interactive methods when conducting practical classes aimed at acquiring special knowledge, professional skills and abilities from students. All respondents were highly qualified table tennis specialists and had more than 10 years of teaching experience.

Results and conclusions. The results of an expert survey to assess the applicability of interactive teaching methods in the educational process with students of sports universities (W = 0.897), focused on training table tennis coaches, indicate that teachers most often use this method as training, and 61.5% of respondents put it in 1st place, and 38.5% - in 2nd. In addition, it is necessary to highlight the applicability of the modeling method, and 61.5% of respondents put it in 2nd place, but 38.5% highlight it as the main one, putting it in 1st place.

However, when assessing the significance of the interactive teaching methods used in practical classes with students specializing in table tennis, the experts identified, first of all, role-playing as the most effective method of training coaches (W = 0.874). This is explained by the fact that in a role-playing game attention, perception, memory, imagination are activated, and the cognitive, emotional and behavioral aspects of the simulated situations are realized.

Keywords: *competency-based approach, interactive learning tools, training of trainers, usability and significance, role-playing game.*

Introduction. Competence is the ability to use one's knowledge and skills, as well as developed personal qualities and practical skills to ensure successful activities in a specific area [1]. Competence includes a set of interrelated personality qualities (knowledge, abilities, skills, methods of activity), specified in relation to a certain range of objects and processes and necessary for high-quality productive activity in relation to them [3].

The competency-based approach in the educational process provides for the widespread use of various active and interactive forms, when computer simulations, business and role-playing games, various trainings, with analysis of specific situations, etc. are used in the classroom. Interactive learning is a form of organizing training when interactions between the teacher and students is based on the fact that the teacher creates conditions for students to show initiative and "shifts" their activity onto them, encouraging them to independently search for a solution to the task [2, 4]. This helps students become interested and active in learning; the feelings of each participant in the process are taken into account, which contributes to the effective acquisition of knowledge and the formation of skills. In addition, interactive forms allow for feedback and feedback from students who are able

to express opinions and attitudes to a given situation, and develop special skills necessary in professional activities.

Among interactive methods, it is necessary to highlight those that are used in theoretical and practical classes.

The following methods are used in theoretical classes: brainstorming, lecture, presentations using various additional tools, watching videos, interviews, discussion, etc.

The following methods are used in practical classes: case method, collective solutions to practical problems, modeling, watching video recordings of games in competitions, role-playing, training, etc.

The Federal State Educational Standard in the section "Requirements for the conditions for the implementation of basic educational programs" [5] notes the need for active use of interactive forms of conducting classes. It states that in the educational process the share of classes using interactive forms should be at least 20% of all planned classroom classes. It is this approach that provides the opportunity to develop competencies to perform labor functions provided for by the professional standard "Trainer" [7].

Objective of the study was to assess the level of demand for interactive teaching methods when conducting classes aimed at acquiring special knowledge, professional skills and abilities from future table tennis coaches.

Methods and structure of the study. To achieve this goal, an expert survey was conducted, in which 9 teachers from Zhengzhou Sports University and 4 teachers from RUS "GTSOLIFK" took part. Experts were asked to express their opinion on the use and significance of interactive methods when conducting practical classes aimed at acquiring special knowledge, professional skills and abilities from students. All respondents were highly qualified table tennis specialists and had more than 10 years of teaching experience.

Results of the study and discussion. As a rule, the organization of the educational process is based on a one-way form of communication, when the teacher transmits information, and the student, after perceiving what he has heard and read about certain knowledge, reproduces it. Occasionally, two-way communication may occur when a student asks a question, clarifying some details of the transmitted knowledge.

A one-way form of communication is typical not only for lectures, but also for seminars. Only in seminar classes, information is transmitted by students in the form of reading abstracts, reproducing lectures, and giving oral answers to questions posed in advance by the teacher. This form of conducting classes does not meet the requirements of Federal State Educational Standard-3, which notes the importance of using interactive methods in the learning process.

Effective development of professional competencies in students can be achieved through the use of multilateral communication in the classroom, when students do not just speak out and share knowledge on the topic being studied, but "immerse" themselves in the educational process with their knowledge. This allows them to quickly master specific special skills and abilities, which means they develop professional competencies specified by job functions [7].

Considering that most of the classroom sessions are devoted to practical training, an expert survey was conducted to assess the applicability and significance of interactive methods in conducting classes aimed at

Table 1. Use of interactive teaching methods in practical classes with students of sports universities (%)

Interactive methods used in teaching students in practical classes	Rank by applicability					
	1	2	3	4	5	6
Case method – analysis of specific competitive situations				15,4	61,5	23,1
Collective solutions to practical problems - not just the perception of a task, but a creative solution					23,1	76,9
Simulation of training processes and situations - imitation of real conditions	38,5	61,5				
Role-playing - students acting out pedagogical activities with pre-assigned roles			30,7	69,2		
Training – the formation of skills and abilities of the game through the completion of successive tasks	61,5	38,5				
Watching video recordings of games in competitions - assessing the technique of techniques and tactics of their application			69,2	15,4	15,4	

Table 2. The importance of interactive teaching methods in practical classes with students of sports universities (%)

Interactive methods used in teaching students in practical classes	Rank by applicability					
	1	2	3	4	5	6
Case method – analysis of specific competitive situations			46,2	30,7	23,1	
Collective solutions to practical problems - not just the perception of a task, but a creative solution				23,1	76,9	
Simulation of training processes and situations - imitation of real conditions	30,7	46,2	23,1			
Role-playing - students acting out pedagogical activities with pre-assigned roles	**69,2**	30,7				
Training – the formation of skills and abilities of the game through the completion of successive tasks		23,1	30,7	46,2		
Watching video recordings of games in competitions - assessing the technique of techniques and tactics of their application						100

acquiring special knowledge, professional skills and abilities among students at a Chinese sports university and RUS "GTSOLIFK".

9 teachers of Zhengzhou University of Sports and 4 teachers of RUS "GTSOLIFK" took part in the expert survey. All respondents were highly qualified table tennis specialists and had more than 10 years of teaching experience.

The respondents were asked the following questions:

1. "Which of the listed interactive methods do you use in the process of teaching students in practical classes? Give a rank according to the applicability of each method."

2. "Which of the listed interactive methods do you consider most appropriate to use in practical classes when teaching and preparing students for teaching activities? Rank the importance of each method."

The results of an expert survey to assess the applicability of interactive teaching methods in the educational process with students of sports universities (W = 0.897), focused on training table tennis coaches (Table 1), indicate that teachers most often use such a method as training, and 61.5% of respondents put it in 1st place, and 38.5% - in 2nd.

In addition, it is necessary to highlight the applicability of the modeling method, and 61.5% of respondents put it in 2nd place, but 38.5% highlight it as the main one, putting it in 1st place. Role-playing play is used somewhat less frequently by respondents, and 30.8% of teachers put it in 3rd place, and 69.2% - in 4th. At the same time, teachers consider it necessary to use analysis of video recordings

competitive games to discuss with students the details of the confrontation between athletes, and 69.2% of respondents put this method in 3rd place, 15.4% - in 4th and 15.4% - in 5th place. The case method does not stand out in terms of its use by teachers, since only 15.4% of respondents put it in 4th place, 61.5% in 5th place and 23.1% in 6th place. Even less often, teachers use the method of collective decisions in practical classes, and 23.1% of respondents put it in 5th place, and 76.9% - in 6th place.

However, when assessing the importance of the interactive teaching methods used in practical classes with students specializing in table tennis (Table 2), the experts identified, first of all, role-playing as the most effective method of training coaches (W = 0.874). This is explained by the fact that in a role-playing game attention, perception, memory, imagination are activated, and the cognitive, emotional and behavioral aspects of the simulated situations are realized. The main sequence of conducting a role-playing game comes down to determining the content, conducting the game and reflection [6].

At the same time, we should dwell on some of the difficulties of using the role-playing method in practical classes with students of sports universities. It is noted that the limitations in the application of this method of interactive training are, first of all, the difficulty in organizing students, their distribution according to "roles" and functional responsibilities, as well as in determining criteria for assessing the activities of a student-trainer aimed at solving a given task on the part of students -experts.

Conclusions. Thus, the study allows us to verify that role-playing in the process of training sports coaches is the most significant interactive teaching method. Role-playing allows you to simulate the process of specialized training of athletes, which is aimed at developing professional competencies in future coaches. Therefore, understanding the ef-

fectiveness of using role-playing games in training a trainer, not all teachers use it due to some difficulties in organizing and managing students, the need to give them pre-prepared tasks, without assessing their practical skills in managing the training process.

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Motivation to win in fiction and journalistic literature about sports

UDC 796.011

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Abstract

Objective of the study was to identify in the texts of journalistic and artistic works about sports the mechanism of formation and reproduction of sustainable achievement motivation.

Methods and structure of the study. The scientific work was carried out using the method of probabilistic thematic modeling of a corpus of texts, which included works of art about sports in the genre of realism.

Results and conclusions. It was revealed that the motivation to win in the literature on sports is interpreted as a complex life-meaning system based on a parity combination of collectivism (meeting the expectations of the sports, family environment, as well as fans, the nation) and individuality (satisfying one's emotional, cognitive, aesthetic needs; improving technical skills). -tactical skills and bodily-kinesthetic intelligence, as well as public recognition of work). The literature on sports reflects a mechanism referred to in social psychology as a "shift of motive to goal" (A.N. Leontyev), which devalues the athlete's potential demotivators - fear, fatigue, failure, etc., transforming them into meaning-forming motives. The conclusion is drawn: the literature on sports topics shows that stable motivation to win is formed only as a result of a shift in the need for reward to a complex cognitive-affective-behavioral complex of the lifelong need for sports. Reflective journalism by athletes and coaches, as well as fiction about sports, is an important source of developing the motivation of young athletes, a pedagogical guide for coaches and a source of data about everyday sports life for society as a whole.

Keywords: *sports motivation, literature about sports, Soviet sports, Russian sports, youth education.*

Introduction. Sports victories are an integral part of the achievements of our society, its historical and cultural tradition and state value. The will to win, fortitude, and exertion of strength, personified in high-achievement sports, are traditionally an example of the physical, moral, aesthetic, and patriotic education of youth, and champions are role models not only in sports, but also in their attitude to themselves and to life. At the same time, in real sports activities, during training and competitions, demotivating situations of extreme loads, danger of injuries, causing disappointment, psychological burnout, fatigue, fear, aggression [2], and other negative conditions can be formed. The cognitive ideas of a young athlete that form projections for victory do not take into account the energy consumption and risk of the training process, which contributes to the emergence of cognitive dissonance as part of maintaining achievement motivation.

This state of internal conflict of an athlete is a relevant area of fiction and journalistic literature. Such works, which use dramatic tools to colorfully describe the sports world, do not distort its realism, but, on the contrary, complement and enrich the pragmatics of sports discourse.

In addition, the literature on sports contains a huge variety of methodological solutions for increasing sports motivation and its research is aimed not only at obtaining information about the past, but also at projecting its future development, searching for effective, proven motivating techniques.

We tried to find in the literature about sports the answer to the main motivational question: "Why do ath-

letes do what they do?", to see the resolution of the contradictions of professional sports, to compare the motivation of the heroes of Soviet and modern works, to highlight the general and special in it, characteristic of modern times.

Objective of the study was to identify in the texts of journalistic and artistic works about sports the mechanism of formation and reproduction of sustainable achievement motivation.

Methods and structure of the study. The works were selected on the following validating grounds: by authors - Soviet and Russian athletes, coaches, as well as professional writers; by genre - documentary books, memoirs, memoirs, biographies and works of art in the genre of realism; by the synchronicity of the writing of the book and the events described within the chronological framework of the periods of the USSR and the Russian Federation; according to the plot - sports life, sports achievements; according to the main characters of the work - Soviet and Russian athletes and coaches; by popularity – the book has been published more than once and/or is called popular by experts; The language of writing is Russian.

The selection of such works was carried out in several stages: 1) a survey of experts (coaches, teachers of physical education departments n=18) who compiled the primary list of books; 2) a survey of expert philologists n=2, who identified in the list those that belong to the declared genre; 3) dividing the list of works into Soviet and Russian. As a result, a corpus of texts was compiled from 48 works, 9448 pages.

The selection of books provided research access to a three-pronged view of the problem. These are documentary texts containing the athlete's self-analysis and the coach's reflective experience, his observations; and also – observations from the outside, realistically presented in a work of art.

The analysis of the selected sources was carried out using probabilistic topic modeling, a text analysis tool that identifies characteristic clusters of words and phrases called topics. This is one of the best modern tools for structuring large volumes of text data, applicable for extracting hidden meanings.

As a result, 10 themes (clusters of words) were obtained in each group of works. During text preprocessing, we performed tokenization, lemmatization, and exclusion of stop words in the dictionary, except for the words "we" and "our" (about the methodology [3, 4, 5]). In each topic, words with the highest coefficients (18.21–33.27) characterizing the topic were selected. As a result, more than 30 words were recorded in each topic. We interpreted the resulting probabilistic themes on the basis of the motivational theory of A.N. Leontiev [1].

Results of the study and discussion. Meaning-forming motives. It seems obvious that the main meaning-forming motive of an athlete is victory in competition. However, works about sports reveal a more complex content of the need to win - on the one hand, this is victory - an objective "object of need" [1], which is labeled in literature as *"a record, a prize, a pedestal"* (Here and below, words and phrases from the analyzed corpus of texts that received maximum coefficients in the thematic model of 18.21–33.27 are highlighted in quotation marks), and on the other hand, this is overcoming - a "need state "[1], which is marked as – *"able, proved, accomplished, stubborn, challenge, character, responsibility, worthy, triumph, enthusiasm, maximum," assault, speed".* So, responsibility and an assault at maximum strength are the same meaning-forming motive as a medal, which is recorded by both Soviet and modern authors.

Motives-incentives. A.N. Leontyev also noted that incentives can be not only positive, but also negative. Let's look at how this is reflected in the literature.

In probabilistic themes, words are recorded with significant coefficients that reflect positive experiences *"interesting, understanding the result, creatively, professionally, tactics, idea, complex, beautiful, magnificent, great, record, art",* which characterize the processes of creativity, cognition, achievement and reinforce positive motivation. And also words are recorded that reflect the negative and even traumatic experience of the athlete: *"danger, nerves, tears, injury, hopeless, cruel, pressure, exclusion, lose, anger, cold, load, heavy, fatigue, regimen, blood".* Negative experiences are given significant weight, which raises a logical question: why, despite all these dangers and risks, does the athlete continue to train?

Personal meaning of playing sports. Literary works assign a special role to negative experiences. The authors note that they do not repel sports, but, on the contrary, motivate along with positive ones. The reason for this is A.N. Leontyev explains by introducing the concept of personal meaning [1]. Negative motivation does not change the personal meaning of an activity. Something else happens - personal meaning quickly discredits the negative emotion that has arisen and forms the motivation to overcome the situation. This phenomenon in thematic models is captured in

the words *"overcome, necessary, continue, rise, perform, work, professionally, attitude, confidence".*

Sports activity acquires a personal meaning, that is, it becomes part of the athlete's life world under the influence of different people and events. In probabilistic topics, the influence of the sports team *"coach, comrades, veterans, guys, seniors, captain, judges"* is highlighted; families – *"brother, father, mother, wife, daughter, grandmother, relatives";* as well as the society *"tribunes, people, homeland, country, spectators".* The emotional background *"friendly, atmosphere, communication"* is of great importance. Also, the proper names of coaches and athletes of both contemporaries and past sports eras are recorded with significant coefficients, which reflects the strength of personal influence on the athlete from his coach, comrades and sports idols.

Instrumental motives. The contribution of the leisure motive to the athlete's motivational system is important. In Soviet literature, we did not identify clusters of words with significant coefficients reflecting leisure. However, modern literature about sports displays the importance of recreation *"health, psychologist, relax, sleep"* and comfort *"style, cafe, adventure, hotel, restaurant".* These motives cannot be considered basic; rather, they are tools that perform an everyday regulatory role.

The mechanism of "shifting the motive to the goal." The authors of the works reveal how the sociopsychological mechanism "shift of motive to goal" is ultimately implemented, which affects the athlete's motivational system, including potential demotivators, which under this influence acquire personal meaning and are transformed into the athlete's life-meaning system.

Thanks to this mechanism, the motive to receive an award is transformed into the motive of sports activity as a personal existential value, which is marked by words with significant coefficients *"philosophy, fate, meaning, reflections, traditions, God, consciousness, future".*

Conclusions. During the analysis of the textual material, we found that both Soviet and modern authors in the interpretation of sports motivation are united by the opinion that achieving victory, receiving rewards and approval is not a sufficient motivating factor to continue exhausting training, as well as failure, reproach and even Injuries do not always have a demotivating effect on an athlete. An athlete will be persistent in training only if he has formed an attitude towards sport as a life purpose. This view of outstanding athletes and their coaches is useful for modern sports coaches who shape the motivation of their students, as well as for aspiring athletes and their parents.

The results obtained provide an answer to the increasingly frequent debates that have arisen in recent years in the media about whether it makes sense to train, endure fatigue and even pain, what is the degree of freedom of athletes, whether the risks of injuries and disappointments are justified, whether life's time was wasted in training, if as a result you did not win or were not even selected for the competition. All these questions, it would seem, should dissuade anyone dreaming of Olympic victories and cast doubt on the value of professional sports. However, we again see our athletes on the pedestals, devoting physical and psychological strength not only to an individual victory, but to sport as their life purpose.

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Methodology for evaluating the social intelligence of a coach

UDC 154

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Abstract

Objective of the study was the development and psychometric analysis of the "Social intelligence of a coach" methodology.

Methods and structure of the study. The sample consisted of 120 coaches (78 men and 42 women, aged from 21 to 65 years), various sports; 98 students of 8 specializations of SSUS in Smolensk and 45 sports psychologists. A correlation analysis, confirmatory factor analysis, and testing of psychometric indicators were carried out: representativeness, reliability, convergent and divergent validity. Competitive validity was determined using tests: verbal intelligence (J. Barrett), non-verbal intelligence (Ravena), multiple intelligence: spatial-visual, interpersonal, intrapersonal (G. Gardner).

Results and conclusions. 4 subscales of the trainer's social intelligence were empirically verified, and norms for the expression of each ability were determined. Examples of the content of the methodology tasks are illustrated. The developed methodology "Social intelligence of a coach" is reliable and valid, and can be proposed for scientific and practical use in sports practice with the possibility of extrapolation for the diagnosis of athletes, judges, and parents.

Keywords: *social intelligence, interaction, coach, sports activity.*

Introduction. The success of professional activity and the effectiveness of interpersonal interaction of a coach depends on the level of his social intelligence, expressed in the ability to understand correctly the feelings and emotional states experienced by verbal and non-verbal manifestations, predict the most likely behavioral reactions, recognize the social context of situations and navigate them. The need to develop a methodology for assessing social intelligence is dictated by the lack of modern standardized methods that allow quantifying and qualitatively measuring the social intelligence of a coach in sports, as an intellectual ability associated with social interaction, but not as a combination of his personal traits.

The methodological basis of the development was: the theory of Ch. Spearman, who put forward general, verbal and psychological (social) intelligence; J. Guilford's theory, reflecting: information about feelings, motives, thoughts, intentions, attitudes or other mental qualities that can influence an individual's social behavior; cognition, memory, ways of performing actions, generating one correct decision, comparison with a given criterion; transformation of information, extrapolation in the form of assumptions; the activity approach of S.L. Rubenstein, where the initial analysis is the reflexive transformations of mental reality in the process of activity. The conceptual model for practical development was the method of J. Guilford (1959), where social intelligence is a system of intellectual abilities independent of the factor of general intelligence and related to the cognition of behavioral information.

Objective of the study was to develop and conduct a psychometric analysis of the "Social Intelligence of a Trainer" method.

Methods and structure of the study. The study has involved 120 coaches of various sports (78 men and 42 women, aged 21 to 65 years); 98

students of the Smolensk State University and 45 sports psychologists-experts participating in a preliminary test experiment. The survey results have been collected online by using Google Forms. Stages of the study:

1) the content has been developed (55 cards with test tasks, 154 drawings have been drawn, 36 interaction situations and 105 photographs have been developed); standardized response scales have been established;

2) standardized psychodiagnostic techniques have been selected to verify the theoretical validity of the developed scales, assuming that the developed scales correspond to the studied ability;

3) an empirical verification of the diagnostic suitability of the technique has been carried out by using initial and subsequent testing;

4) the verification of psychometric indicators of the normality of distribution, representativeness, reliability, convergent and divergent validity has been determined. The methodology is represented by 4 subscales (Table 1).

The content of the methodology is presented with single examples from a series of tasks in the figure.

The total duration of the diagnosis is 28 minutes.

Scale norms were calculated by using linear standardization of results on a 5-point scale with the boundaries of the norm of average indicators, which allows you to expand the range of indicators deviating from the norm (Table 2).

In order to verify the theoretical validity of the developed scales, standardized psychodiagnostic methods were used: verbal intelligence (J.Barrett), non-verbal intelligence (Raven), multiple intelligence: spatial-visual, interpersonal, intrapersonal (G.Gardner).

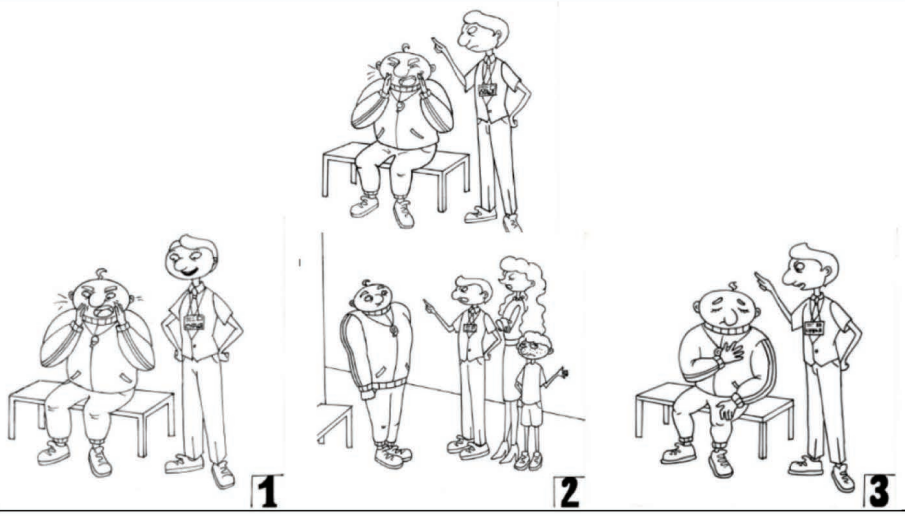
The methods of mathematical statistics were carried out with a help of statistical programs SPSS-22 and EQS 6.2 for Windows by using stable statistics (correlation analysis of nonparametric criteria, confirmatory factor analysis, verification of psychometric indicators of representativeness, reliability and convergent and divergent validity) [6]. The factors were isolated by the Varimax rotation method. The sample underwent a study on the normality of the distribution of the total value by using the Kolmagorov-Smirnov criterion.

Results of the study and discussion. The first step in the psychometric verification of the "Coach's Social Intelligence" methodology was to check the tasks we proposed for clarity of perception (97%), unambiguity of understanding (93%) and acceptability of situations in sports (100%). As a result of the results obtained and the opinions of experts, all drawings were corrected and brought to 100% compliance with the opinion of experts.

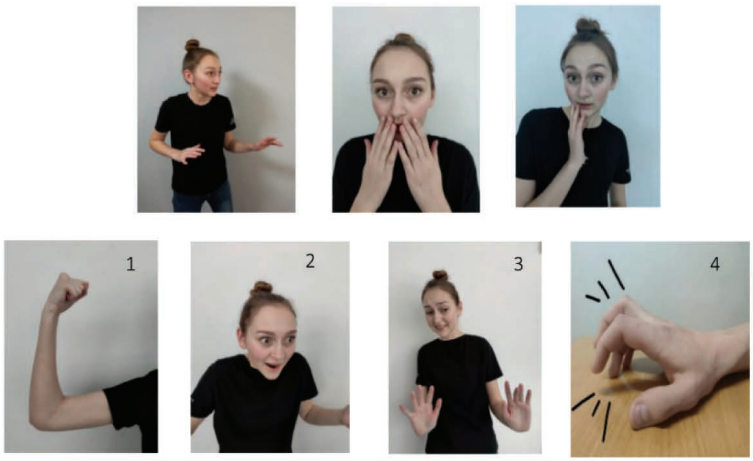
Table 1. *Structure of the methodology "Social intelligence of a coach"*

Subscales	The ability to cognize behavior	Instructions for the task
Stories with completion (it takes 6 minutes to complete 14 tasks)	. Understanding people's feelings and intentions, their relationships, and the consequences of behavior based on available information	Use the upper drawing depicting the situation to determine people's feelings. Choose among the three suggested lower figures the one that shows the most plausible option for the continuation (completion) of this situation.
Expression groups (it takes 7 minutes to complete 15 tasks)	. Understanding the human condition through expressive movements, postures, gestures, facial expressions.	. From the four drawings below, choose the one that fits the group of three drawings from above, illustrating the same human condition, the same thoughts, feelings, intentions.
Verbal expression (it takes 5 minutes to complete 12 tasks)	. Understanding the changing meaning of verbal and non-verbal behavior in different situational contexts.	From the proposed three phrases said by one person to another, who are in a certain role position, choose the one that will be associated with a different intention, acquire a different meaning than in the other two situations.
Stories with the supplement (it takes 10 minutes to complete 14 tasks)	. Understanding the logic of the development of holistic situations of human interaction, the meaning of their behavior in these situations	Clarify the meaning of the proposed story of the top row, consisting of four pictures, where one of them is missing. Identify the feelings and intentions of the people taking part in it. Choose among the four pictures in the bottom row the one that complements the missing picture and clarifies the situation as a whole

Example: «A story with a completion



Example: «Expression»

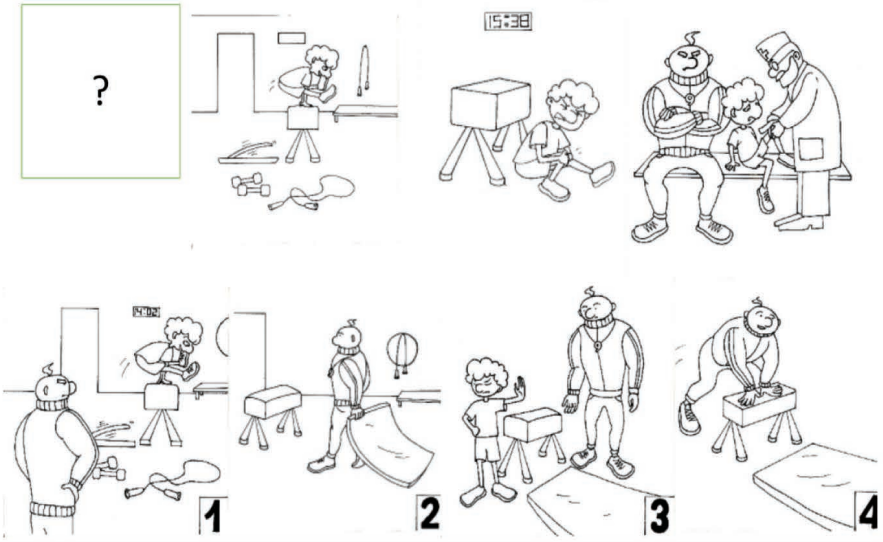


Example: «Verbal expression»

A deaf man to his friend:
«Repeat, please»
(a polite request)

1. 1. A person writing down another person's phone number
2. 2. Student to teacher.
3. 3. The losing athlete to his opponent
4.
5.

Example: "A story with an addition"



The content of the tasks for assessing the social intelligence of the coach

Table 2. *Standardization of test norms of the "Social intelligence of a coach" methodology*

Evaluation criterion SI subtests	Scores for subtests				General SI development level scores	Assessment of the level of development SI
	Stories with completion	Expression groups	Verbal expression	Stories with the supplement		
1 very low	0-2	0-2	0-2	0-1	0-12	1 very low
2 low	3-5	3-5	3-5	2-4	13-26	2 low
3 average	6-9	6-9	6-9	5—8	27-37	3 average
4 high	10-12	10-12	10-11	9-11	38-46	4 high
5 very high	13-14	13-15	12	12-14	47-55	5 very high

Table 3. *Indicators of convergent validity of the assessment of the coach's social intelligence*

Criteria of social intelligence				
Stories with completion		Expression	Verbal expression	Stories with supplement
«Spatial and visual intelligence»	0,882	0,835	0,907	0,781
«Verbal abilities»	0,794	0,848	0,833	0,799
«Expression control»	0,425	0,689	0,348	0,421
«Managing your emotions»	0,341	0,217	0,412	0,114
«Managing other people's emotions»	0,347	0,427	0,285	0,247
«Understanding your emotions»	0,541	0,542	0,321	0,258
«Understanding other people's emotions»	0,782	0,658	0,542	0,875
«Managing emotions»	0,325	0,289	0,478	0,423
«Understanding emotions»	0,892	0,985	0,758	0,788
«Intrapersonal intelligence»	0,347	0,673	0,458	0,458
«Interpersonal intelligence»	0,741	0,685	0,852	0,872

Table4. *Matrix of factor loads after rotation (absolute values greater than 0.4)*

Variables	Factors				
	1	2	3	4	5
Stories with completion	0,569				0,781
Expression	0,542	-0,517	0,825		
Verbal expression	0,787	0,498		-0,759	
Stories with the supplement		0,621			
Compositional assessment	0,652		0,914		0,818

As a result of checking the compliance of the developed tasks with the studied criterion of social intelligence of the coach, high correlation coefficients of constructive validity were revealed, where indicators of spatial and visual intelligence, verbal abilities, understanding of emotions, interpersonal intelligence have the greatest degree of correlation from 0.542 to 0.985, at a significance level ($p<0.05$) (Table 3), which says on the sufficient reliability and compliance of the results of psychodiagnostics.

The stability of the diagnosed indicators was established after three months, which indicates adequate retest reliability in a preliminary sample of subjects by using the Spearman correlation coefficient within the framework of nonparametric statistics.

The correlation results have shown that the scales associated with the control and management of emotions have no connection with the tasks of the methodology, while the scales associated with spatial and visual intelligence ($r=0.907$), verbal abilities ($r=0.847$), understanding of other people's emotions ($r=0.975$) have a significant correlation with each other ($p \leq 0.01$), which is explained by the general psychological mechanism of manifestation of these criteria of social intelligence and their interdependence. The results obtained have confirmed the hypothesis of the validity

of the technique.

To study the internal structure of the methodology and its compliance with the proposed tasks, a series of factor-analytical procedures was carried out to identify five stable factors that generally correspond to the proposed structure by using the Varimax method (Table 4.).

It was revealed that the internal structure of the tasks corresponds to the a priori structure of the methodology, and most tasks have high loads on the factor indicated by it, which indicates a fairly high consistency of the subtests of the methodology.

Conclusion. The developed methodology "Social intelligence of a coach" is reliable and valid. The technique allows not only to assess the overall level of social intelligence, but also to characterize the results of individual abilities.

The technique can be proposed for scientific and practical use in sports practice with the possibility of extrapolation for the diagnosis of athletes, judges. The possibility of diagnosing the coach's social intelligence will allow him to study more deeply the ability to understand behavior when interacting with all subjects of sports activity, to make adjustments to interpersonal and business communication in professional activities, which will contribute to social adaptation and the success of professional activities.

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Assessment of psychophysiological indicators of e-sports players, winners of the international e-sports festival «Battle for science» 2023

UDC 796.088

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Abstract

Objective of the study was to determine the psychophysiological indicators characterizing the properties of attention and cognitive processes of the winners of the Battle for Science - 2023 festival in the disciplines "Caliber", "League of Legends" and "DOTA 2".

Methods and structure of the study. To collect data, standardized methods were used to assess psychophysiological indicators characterizing concentration, stability of concentration, and speed of information processing. Additionally, operational and combinatorial abilities were assessed; ability to analyze and synthesize.

Results and conclusions. The results of a study of the psychophysiological indicators of the winners of the international e-sports festival “Battle for Science” 2023 are presented. The need for prospective studies of the psychophysiological indicators of e-sportsmen competing in selected disciplines is determined.

Keywords: *eSports, “Battle for Science”, attention, concentration, attention span.*

Introduction. Student eSports events are one of the important components of the tools for working with the younger generation, the scalability of which is increasing and supported by educational organizations and the state [2, 4]. International festival of student e-sports and computer science science “Battle for Science-2023”, implemented with grant support from the Ministry of Science and Higher Education within the framework of the federal project “Popularization of Science and Technology” of the state program “Scientific and Technological Development of the Russian Federation”, as well as events , dedicated to the “Decade of Science and Technology in Russia”, became one of the flagship events for university students from all over the country, where student teams fought among themselves in eight disciplines – “League of Legends”, “VALORANT”, “StandOff 2”, “ PUBG”, “Caliber”, “Tanks Blitz”, DOTA 2, “World of Tanks” [1].

Some of the most spectacular tournaments in the festival program were tournaments in such disciplines as “Caliber”, “League of Legends” and “DOTA 2”. The high level of competition in these disciplines places very significant demands on the psychophysiological characteristics of the nervous system of e-sportsmen and their cognitive abilities, as one of the leading factors in achieving maximum sports results [3].

Objective of the study was to determine the psychophysiological indicators characterizing the properties of attention and cognitive processes of the winners of the “Battle for Science – 2023” festival in the disciplines “Caliber”, “League of Legends” and “DOTA 2”.

Methods and structure of the study. To collect data, standardized methods for assessing psychophysiological indicators were used, characterizing concentration of attention, stability of concentra-

tion, speed of information processing based on the Bourdon correction test. Additionally, operational and combinatorial abilities were assessed; ability to analyze and synthesize based on the Raven's Progressive Matrices test.

Research results and discussion. The study obtained the results of assessing psychophysiological indicators characterizing the attention properties of e-sportsmen in the disciplines "Caliber" (n=4), "DOTA 2" (n=5) and "League of Legends" (n=3), table 1.

Analysis of the results obtained indicates a high level of manifestation of psychophysiological indicators characterizing the properties of attention among athletes in the presented disciplines. Among the studied contingent of athletes in the presented disciplines, indicators of attention concentration and its stability are determined in the range of high values among representatives of the three studied disciplines. However, among athletes competing in the "Caliber" discipline, the stability of concentration demonstrates higher values than among athletes in the "DOTA 2" discipline ($t = 8.13$ at $\alpha = 0.05$) and in the "League of Legends" discipline ($t=5.31$ at $\alpha = 0.05$). The indicator of information processing speed among representatives of the studied disciplines corresponds to the range of normal values for adults, according to the data used to analyze the results of the Bourdon test. However, athletes competing in the "Caliber" discipline showed higher values of information processing speed than athletes in the "DOTA 2" discipline ($t = 11.67$ at $\alpha = 0.05$) and in the "League of Legends" discipline. ($t=14.14$ at $\alpha = 0.05$). The given values are probably due to the specific features of the game situation, which require immediate response and consideration of various game situations extended over time in order to achieve maximum sports results in selected disciplines.

Along with the obtained psychophysiological indicators, which characterize a high level of expression of attention properties, the cognitive processes of e-sportsmen in three disciplines were studied based on the "Raven's Progressive Matrices" test, table 2.

During the analysis of the results obtained in the "C" series, reflecting operational abilities, a higher level of the studied indicator was demonstrated by athletes in the "Caliber" discipline in comparison with the results of athletes in the "DOTA 2" disciplines ($t = 7.06$ at $\alpha = 0.05$) and "League of Legends" ($t=8.34$ at $\alpha = 0.05$). Analysis of the results in the "D" series, reflecting the combinatorial abilities of athletes, demonstrated the highest scores for athletes in the "Caliber" discipline in comparison with representatives of the "DOTA 2" discipline ($t = 9.01$ at $\alpha = 0.05$) and "League of Legends" ($t=20.08$ at $\alpha = 0.05$). Along with the established differences in the "D" series, significant differences in the results obtained were recorded between representatives of the "DOTA 2" and "League of Legends" disciplines ($t = 8.10$ at $\alpha = 0.05$). Presumably, this circumstance indicates that a select contingent of athletes competing in the "Caliber" discipline have the most pronounced combinatorial abilities when solving cognitive problems in comparison with athletes in the "DOTA 2" and "League of Legends" disciplines. However, due to the small size of the sample, this

Table 1. *Characteristics of psychophysiological indicators characterizing the properties of attention in e-sportsmen - winners of the International e-sports festival "Battle for Science" 2023*

Indicator under study	Caliber	DOTA 2	League of Legends
Concentration of attention	86,75±0,76	84,16±1,13	86,50±0,3
Stability of concentration	172,75±0,38	161,82±1,29	166,17±1,18
Information processing speed	1,45±0,02	1,12±0,02	1,05±0,02

Table 2. *Characteristics of indicators of cognitive processes among e-sports athletes - winners of the International e-Sports Festival "Battle for Science" 2023*

Indicator under study	Caliber	DOTA 2	League of Legends
Series C	11,75±0,11	10,6±0,12	10,33±0,13
Series D	10,75±0,11	9±0,16	7,33±0,13
Series E	5,75±0,38	1,0±0,5	1,33±0,34

assumption requires prospective studies on a larger sample of cybersportsmen. The highest values demonstrated in the "E" series, reflecting the ability to analyze and synthesize, were also demonstrated by athletes in the "Caliber" discipline in comparison with the values in "DOTA 2" ($t = 7.56$ at $\alpha = 0.05$). "League of Legends" ($t=3.93$ at $\alpha = 0.05$). At the same time, no significant differences were found between athletes representing two disciplines - "DOTA 2" and "League of Legends", however, similarity of results was revealed, recorded in the range of low values. The results obtained probably indicate that there is no need for DOTA 2 and League of Legends athletes to use these abilities during dynamically changing game conditions due to the limited time factor for making a decision and a clear game role with strict competitive functionality.

Conclusions.

• The presented results of a study of psychophysiological indicators of the winners of the international e-sports festival "Battle for Science" 2023 indicate a high level of manifestation of attention properties in athletes - concentration, stability of concentration and speed of information processing.

• The need has been determined to conduct prospective studies of the psychophysiological indicators of e-sportsmen competing in selected disciplines and the characteristics of cognitive processes for a more detailed study, determining their impact on competitive success.

• Presumably, the integration of students as participants in e-sports events in the disciplines "Caliber", "League of Legends" and "DOTA 2" allows them to demonstrate a high level of concentration and attention span, speed of information processing, and analytical abilities, which can create favorable conditions for educational activities in general, since it is the processes of attention and the ability to analytical activity that play one of the priority roles in the successful development of educational programs.

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Psychological well-being of sport gifted adolescents in an educational environment

UDC 159.922.27

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Abstract

Objective of the study was to identify the relationship between indicators of the psychological well-being of sport gifted adolescents and the psychological safety of the educational environment in different types of schools.

Methods and structure of the study. 26 athletically gifted teenagers with achievements in the sports field, studying in general education (14 people) and specialized schools of physics, mathematics and natural sciences (12 people) took part in the scientific work. The methods used were "Psychological Well-Being Scale" by K. Riff, "Subjective Well-Being Scale" and "Psychological Safety of the School Educational Environment" by I.A. Baeva.

Results and conclusions. Athletically gifted adolescents are characterized by an average level of psychological and subjective well-being, protection from psychological violence, high satisfaction with the educational environment, and a low level of its referent significance. No reliably significant differences have been established between athletically gifted adolescents in specialized and general education environments, however, at the trend level, the level of well-being is higher in a specialized environment, and the level of psychological safety is higher in a general education environment. The results obtained are important for building individual psychological and pedagogical support for athletically gifted adolescents studying in various educational environments.

Keywords: *sports gifted children, psychological well-being, educational environment, adolescents.*

Introduction. Research into psychological well-being continues to be relevant. The changes taking place in the world increasingly raise the question of identifying the factors that determine the state of psychological well-being in athletes. It was found that high values of self-description of physical development correlate with a high level of well-being in adolescent athletes [4]. For professional athletes, the factors that determine well-being are a high level of self-regulation and a low level of life stress [3]. Self-esteem of physical health also affects the well-being of athletes, while self-esteem of health can be improved using psychological self-regulation techniques [1].

Foreign studies have found that psychological safety is interconnected with the well-being of athletes, protects them from psychological burnout and increases satisfaction with teamwork [5]. In addition, well-being as the realization of a life position is important for an emerging professional in the sports field [2].

Objective of the study was to identify the relationship between indicators of the psychological well-being of sport gifted adolescents and the psychological safety of the educational environment in different types of schools.

Methods and structure of the study. The scientific work involved 26 teenagers (13-16 years old) with achievements in the sports field (masters of sports, winners and prize-winners of competitions at the All-Russian and European levels), studying in general education (14 people) and specialized schools of physics, mathematics and natural sciences (12 people).

The research used the following methods: "The scale of psychological well-being by K. Rieff" (adapted by N.N. Lepeshinsky) and "Scale of subjective well-

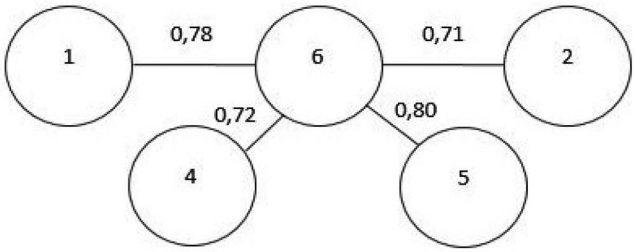
being" (A. Perrudet-Badoux, G. Mendelssohn and J. Chiche, adapted by M.V. Sokolova), methodology "Psychological safety of the school educational environment" by I.A. Baeva.

It is important to note that the "Subjective Well-Being Scale" technique is inverted, i.e. the lower the primary score, the higher the subjective well-being. Therefore, to standardize data analysis, we used its inverse version, that is, the higher the data on the scales, the higher the level of well-being.

Results of the study and discussion. The results of a comparative analysis of the level of psychological well-being and attitude towards the educational environment showed the absence of significant differences among sports-gifted adolescents studying in general education and specialized schools. The data obtained indicate an average level of psychological well-being among teenage athletes (353.75±56.93 in a general education school and 371.83±40.24 in a specialized school), that is, respondents accept their life as holistic and meaningful. They know how to establish acceptable, friendly relationships with others, think about their well-being, are quite independent in making decisions, but can listen to the opinions of others in difficult situations, know how to set goals and create conditions for their implementation, control their own external activities, and are open to new things. experience, they see their own points of growth, perceive themselves quite objectively, taking into account their positive and negative qualities, the general attitude towards themselves is positive. This is also confirmed by data on the level of subjective well-being. Teenage athletes are in emotional comfort: they are not concerned about significant emotional difficulties, are quite confident in their abilities and are active, successfully establish connections and communication with others, and adequately regulate their actions and actions. In most cases, they do not feel the burden of the work they do, they know how to build interaction with others, they prefer to jointly solve problems and difficulties that arise, relationships with family and friends are usually good. There are certain signs that accompany the main psychosomatic symptoms, but they do not interfere with the athletes' normal life activities. An optimistic perception of life prevails, a good mood, they are satisfied with daily activities and their own physical form, and their health is assessed as good. At the same time, at the level of a trend, one can note a higher level of psychological and subjective well-being inherent in teenage athletes from specialized schools.

The data obtained indicate a low level of referent significance of the educational environment for teenage athletes. The likely reason for this is the fact that neither general education nor specialized schools provide the necessary conditions for the development of their sports talent. At the same time, they have high rates of satisfaction with the educational environment and protection from psychological violence from classmates. In general education schools, teenage athletes are fully protected from psychological violence from teachers; they feel a little less protected in specialized schools. In general, this indicates emotional comfort and security in the educational environment. Also, more pronounced levels of psychological safety components were found in athletically gifted adolescents from general education schools, which may be due to higher academic demands placed on students in specialized schools, despite their athletic achievements.

To test the hypothesis, correlation analysis was



used, which made it possible to identify a number of correlations (Figures 1 and 2).

Figure 1. The relationship between subjective well-being and psychological safety of the educational environment among sports-gifted adolescents studying in secondary schools.

Note: 1 – Subjective well-being, 2 - Tension and sensitivity, 4 - Self-esteem of health, 5 - Satisfaction with daily activities, 6 - Behavioral component of attitude towards the educational environment.

The data obtained indicate the leading role of the behavioral component of the educational environment in the well-being of athletically gifted adolescents in secondary schools. It is how emotionally comfortable they are in the educational environment, how effectively they can build relationships, whether they experience difficulty in completing tasks, whether they complain about various ailments at

every opportunity, how they feel about their physical fitness and whether they are satisfied with their own daily activities that determines them attitude towards the educational environment at the level of behavior: will they go to school, will coming to school require a strong-willed effort, will it be accompanied by a good mood, will they be interested in visiting an educational organization at all.

At the same time, completely different relationships were obtained in a specialized educational environment, although the average data for the levels under consideration were similar.

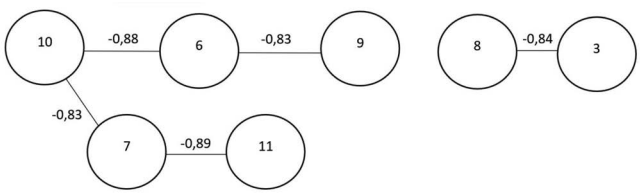


Figure 2. The relationship between psychological and subjective well-being and psychological safety of the educational environment among sports-gifted adolescents studying in specialized schools.

Note: 3 - Signs accompanying the main psycho-emotional symptoms, 6 - Behavioral component of attitude towards the educational environment, 7 - Satisfaction with the characteristics of the educational environment, 8 - Protection from psychological violence in interaction with classmates, 9 - Psychological well-being, 10 - Autonomy, 11 - Goals in life.

Data on teenage athletes studying in specialized schools indicate the absence of a central link connecting the psychological safety of the educational environment and the well-being of students. From Fig. Figure 2 shows that protection from psychological violence from classmates in the educational environment is interconnected with psycho-emotional signs of growing tension. This suggests the importance of peer support in helping adolescent athletes become more resilient to anxiety, sleep disturbances, overreaction to challenges, and other signs of increasing stress.

Autonomy, which speaks of autonomy and independence, is interconnected with the behavioral component of the attitude towards the educational environment and satisfaction with its characteristics, which in turn are associated with psychological well-being and the presence of a goal in life. Consequently, it is extremely difficult for teenage athletes from special schools to have such diverse interests. Studying in specialized schools requires the utmost concentration of all efforts and attention on learning, and sports training also requires the same in order to achieve significant sports results. As a result, this leads to a decrease in the importance of general academic studies compared to a sports career. The obtained correlations allow us to conclude that these goals come into a competitive state for the resources available to the teenager, therefore, in order to succeed in one of the areas, he needs to reduce the influence of the other.

Conclusions. The study shows that the educational environment has different impacts on gifted teenagers studying in general and specialized schools. It acts as a resource for teenage athletes from mainstream schools and has a suppressive effect on students from specialized schools.

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Model indicators of physical fitness and development of military servants of the Venezuela army

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Key words: *model indicators, physical fitness, physical development, military personnel, army, Venezuela.*

Introduction. In modern military conflicts, along with other types of training, the physical preparedness of military personnel of the armies of various countries, including military personnel of the Venezuelan army, is important for the effective performance of various tasks. The physical fitness of military personnel is based on the developed applied physical qualities necessary to perform various tasks assigned by the command. In this direction, it is necessary to effectively and quickly develop proper physical fitness among military personnel for the systemic and mobile readiness of the Armed Forces, to protect the sovereignty and integrity of the state. The developed model indicators of physical readiness, which show and direct to the necessary guidelines for the formation of proper applied physical qualities in military personnel, become important in the mobile physical training of military personnel. The present work was carried out in this direction.

Objective of the study was to substantiate and develop model indicators of physical fitness and physical development of military personnel of the Venezuelan army and recommend them for practice.

Methods and structure of the study. The study involved members of the Venezuelan army. The sample size was 100 people. During the year, the content and level of physical fitness of military personnel of 1 and 2 years of military service were monitored. The necessary factual material on the physical fitness of the Venezuelan army personnel was collected. Based on this statistical material, model indicators of physical fitness and physical development of military personnel of the Venezuelan army were developed.

Results and conclusions. During the scientific research, the following indicators of physical fitness were analyzed: strength indicators of the upper shoulder girdle and abdominals, general endurance and mobility of the musculoskeletal system. Physical development was also determined: height (cm), weight (kg), dynamometry of the hands (kg). Table 1 presents model indicators of physical fitness and development of military personnel of the Venezuelan army.

Table 1. *Model indicators of physical fitness and development of military personnel of the Venezuelan army*

Indicators of physical fitness and development	$\bar{X} \pm \sigma$
Flexion and extension of arms while lying down per minute, number of times	30±4,6
Raising the body per minute, number of times	40±6,1
Running 2400 m, min/s	10,25±1,40
Bend forward from a sitting position, cm	1,4±0,6
Height, cm	1,69±6,0
Weight, kg	74,2±8,0
Hand dynamometry, kg: right hand left hand	44,6±6,3 38,9±8,1

The table presents model indicators of physical fitness and development of military personnel of the Venezuelan army, which the country's military specialists need to focus on for effective physical training of employees of the Armed Forces of the state.

Conclusions. The scientific work carried out made it possible to identify and formulate model indicators of physical fitness and physical development of military personnel of the Venezuelan army. All this as a whole allows you to quickly, effectively and with the proper indicators to form the physical fitness of the Venezuelan army.

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