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4. Human health, physical rehabilitation and physical recreation.
5. Biomechanical and informational tools and technologies in physical education and sport.
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BOYCHENKO N.

Kharkiv State Academy of Physical Culture

INDICATORS TECHNOLOGY COMPETITIVE ACTIVITIES OF VARYING SKILL KARATE STYLE «KYOKUSHINKAI»

Abstract. Purpose: to identify the main indicators of the art of competitive activity karate different qualifications style «kyokushinkai» and identify their differences. **Material and Methods:** analysis of video recordings of highly competitive activity karate; teacher observations; methods of mathematical statistics. **Results:** based on the analysis of video recordings of competitive activity created a model of technical preparedness karate qualifications. The differences in the technique of competitive activity karate different qualifications. **Conclusions:** it was found a series of karate techniques with different skills, their frequency of use and effectiveness. Confirmed that in the competitive fight karate qualifications dominated series techniques. It is found that the technique of competitive activity highly skilled athletes is very varied combinations strikes in series of two or three strikes and more.

Keywords: competitive activity, performance, equipment, series, techniques, model.

Introduction. The analysis of a technique of competitive activity of highly skilled athletes in single combats allows to allocate the main technical actions and elements of competitive activity, and, proceeding from it, it is more rationally and effectively to organize educational and training process of a single wrestler [4].

Most of authors [1–3; 5] note that the main attention in the course of training of athletes should be provided to the improvement of those technical actions and combinations which are applied in competitive activity most often whereas it is expedient to use others for the expansion of motive experience and formation of an individual manner of a fight. These receptions are based on the most probable starting positions which are developed during protective and counterattacking actions on a tatami or a ring.

The automation of a serial and combinational technique doesn't limit a conscious choice to an athlete of the most favorable actions in a changeable situation on a tatami in any way. Owing the studied receptions, an athlete observes more attentively and perceives actions of an opponent and at the necessary moment instantly chooses from means of war a necessary reception which applies immediately.

The connection of the work with the scientific programs, plans, subjects. The work is performed according to the plan of RW of Kharkov state academy of physical culture.

The aim of the study: to define the main indicators of a technique of the competitive activity of karatekas of different qualification of kyokushinkai style and to find their differences.

The task of the work:

1. To create a model of technical readiness of highly skilled athletes.
2. To find differences in technique of the competitive activity of karatekas of different qualification.

The material and the methods of the study: analysis of videotape recordings of the competitive activity of highly skilled karatekas; pedagogical supervision; methods of mathematical statistics.

The results of the study and their discussion. Results of the analysis of videotape recordings of the competitive activity of the V World Championship "kyokushinkai" karate (IKO 1) 5 World Weight Category Karate Championships which was held in Japan (in 27–28.04.2013), the model of technical readiness of athletes of qualification the Master of Sports (MS) and the master of sports of international class (MSIC) are allowed to create. The analysis of the competitive activity found out that during a match athletes apply not only single kicks by hands and feet, but also short series of kicks, successfully being on duty them among themselves. Series from two and three kicks were allocated more, what karatekas seek to finish by a knock-out.

It is proved that in a competitive match of highly skilled karatekas the serial and combinational technique prevails. Namely, during a match highly skilled karatekas carry out 21 combinations on average for a fight. It is established that when performing a serial technique at karatekas of high qualification series from two kicks (57%) prevail. First of all it is predetermined by specifics of the competitive activity. Athletes apply series with constant number of kicks to the increase of efficiency of conducting collision, and then unexpectedly increase a number of kicks in a series. It is explained by accustoming of the opponent to a certain number of kicks in a series therefore he misses kicks when a series to become longer. It is established that efficiency of series from three kicks and more makes 80%, series of two kicks – 64%.

The analysis of series of kicks which are most often applied during a single combat of highly skilled karatekas allowed to create a model of a technique of the competitive activity of highly skilled athletes (tab. 1).

Table 1

Model of a technique of the competitive activity of highly skilled athletes

Series from 2 kicks	Series from 3 kicks and more
By hands	
– Two (a direct kick by a hand – a direct kick by a hand)	– A direct kick by a hand – a kick from below by a hand – a kick from below by a hand
– A direct kick by a hand – a kick from below by a hand	– A direct kick by a hand – a kick from below by a hand – a direct kick by a hand
– A kick from below by a hand – a kick from below by a hand	– Two – a kick from below by a hand
– A kick from below by a hand – – a	– Two – a direct kick by a hand

direct kick by a hand	
	– Two – a kick from below by a hand – a direct kick by a hand
By hands + by feet	
– A direct kick by a hand – a round kick by a foot	– Two – a round kick by a foot
– A kick from below by a hand – a round kick by a foot	– A direct kick by a hand – a kick from below by a hand – a round kick by a foot
– A round kick by a foot – a direct kick by a hand	– A kick from below by a hand – a kick from below by a hand – a round kick by a foot
– A direct kick by a hand – a direct kick by a foot	– The two – a direct kick by a hand – a round kick by a foot
– A round kick by a foot – a kick from below by a hand	– A round kick by a foot – a direct kick by a hand – a kick from below by a hand
– A direct kick by a hand – a kick by a knee	– A round kick by a foot – a direct kick by a hand – a round kick by a foot
	– A direct kick by a hand – a kick from below by a hand – a kick by a knee
By feet	
– A round kick by a foot – a round kick by a foot	

Some differences appeared At the research of the technique of the competitive activity the 30th athletes students (the 1st category) during the pedagogical experiment and its comparison with indicators of a technique of competitive activity of highly skilled athletes (tab. 2-4).

Table 2

Comparison of indicators of a technique of the competitive activity of athletes of different qualification of kyokushinkai style

Technique	Percent of application during a single combat		Efficiency (%)	
	MS	I category	MS	I category
Series from 2 kicks	57	62	64	41
Series from 3 kicks and more	43	38	80	28

The comparative analysis shows that when performing series of techniques at karatekas of the I sports category in a percentage ratio, as well as at highly skilled athletes, series from two kicks (62%) have advantage, series from three kicks and more also have small percent of application – 38%.

The comparison of the efficiency of the performance of series of techniques found certain divergences. So, the efficiency of series makes of two kicks – 41% at athletes of the I category, unlike karatekas of high qualification. Series from three kicks and more in a competitive single combat of athletes of such qualification in general ineffective – 28%. It is explained the fact that athletes of the I category

adequately don't own ability to create more favorable conditions for drawing effective final kick in series from three kicks more.

The subsequent analysis allowed to establish series of kicks which are most often applied during a single combat of karatekas of the I category, and to compare them to indicators of a technique of the competitive activity of highly skilled athletes (tab. 3, 4)

Table 3

Comparison of indicators of a technique of the competitive activity of athletes of different qualification of kyokushinkai style (series from 2 kicks)

№ series	Series from 2 kicks	Percent of application during a single combat	
		MS	I category
By hands			
1	– Two (a direct kick by a hand – a direct kick by a hand)	21	32
2	– A direct kick by a hand – a kick from below by a hand	12	2
3	– A kick from below by a hand – a kick from below by a hand	6	12
4	– A kick from below by a hand – a direct kick by a hand	6	–
By hands+by feet			
6	– A direct kick by a hand – a round kick by a foot	21	6
7	– A kick from below by a hand – a round kick by a foot	6	2
8	– A round kick by a foot – a direct kick by a hand	2	12
9	– A direct kick by a hand – a kick by a knee	2	–
10	– A direct kick by a hand – a direct kick by a foot	1	–
11	– A round kick by a foot – a kick from below by a hand	1	–
By feet			
12	– A round kick by a foot – a round kick by a foot	2	16

The comparison of indicators found out that during a competitive single combat the athletes of the I category apply almost all arsenal of series, as highly skilled athletes, but the percent of application of these series during a single combat differs a little bit, as in series from two, and three kicks more. Unlike masters of sports, athletes who are investigated, generally apply series with the simplest connection of kicks as by hands, and hands with feet (series No. 1, 3, 6-9 in series from two kicks; series No. 1, 4, 6-9, 11 in series from three kicks more). The inability of athletes to combine the kicks, various behind the nature of performance based on the ability what creations of the most probable starting positions in series is explained by the insufficient level of preparedness of karatekas.

Table 4

Comparison of indicators of a technique of the competitive activity of athletes of different qualification of kyokushinkai style (series from 3 kicks)

№ series	Series from 3 kicks and more	Percent of application during a single combat	
		MS	I category
By hands			
1	– A direct kick by a hand – a kick from below by a hand – a kick from below by a hand	6	8
2	– A direct kick by a hand – a kick from below by a hand – a direct kick by a hand	3	–
3	– Two – a kick from below by a hand	3	–
4	– Two – a direct kick by a hand	3	12
5	– Two – a kick from below by a hand – a direct kick by a hand	2	–
By hands+by feet			
6	– Two – a round kick by a foot	21	16
7	– A direct kick by a hand – a kick from below by a hand – a round kick by a foot	11	2
8	– A kick from below by a hand – a kick from below by a hand – a round kick by a foot	6	8
9	– The two – a direct kick by a hand – a round kick by a foot	2	12
10	- A round kick by a foot – a direct kick by a hand – a kick from below by a hand	2	1
11	- A round kick by a foot – a direct kick by a hand – a round kick by a foot	2	6
12	– A direct kick by a hand – a kick from below by a hand – a kick by a knee	2	–

It is expedient to use special technical means which consider specifics of the competitive activity of a kind of sport for the improvement of series of techniques. The traditional equipment: boxing bags, punch balls, paws, makiwaras, wall cushions and others received the greatest distribution in modern oriental martial arts. Application of these means will allow to increase efficiency of educational and training process considerably.

Conclusions:

1. It is confirmed that series of techniques prevail in a competitive single combat of highly skilled karatekas.

2. It is revealed that series from two kicks (57%) have advantage when performing series of techniques of highly skilled karatekas, but it is established that series from three kicks and more (80%) differ in bigger efficiency, than series from two kicks (64%). Series from two kicks (62%) have also advantage at athletes of the lowest qualification (the I sports category) in a competitive single combat, but unlike masters of sports of series from three kicks more in general the ineffective – 28%.

3. It is established that the technique of the competitive activity of highly skilled athletes differs in a big variety of combinations of kicks in series from two and three kicks and more.

Prospects of the subsequent researches. Using the models of a technique of the competitive activity of highly skilled athletes it is planned to create complexes of tasks for the improvement of technical skill of karatekas.

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EFFECT OF PHYSICAL CULTURE MINUTES ON THE MENTAL PERFORMANCE OF STUDENTS OF SECONDARY SCHOOLS

Abstract. Purpose: *To find out the impact on the mental performance of students of physical activity used in the process of physical education minutes and the lessons the overall cycle. Materials and Methods:* *A study was conducted in four secondary schools in Vinnitsa and Kharkov regions. The study involved 673 students grades 5–11. The study was conducted in two stages. In the first stage determines the change in the mental health of students during the school day. We used a technique A. Myunsberga. In the second phase of the study determined the impact of sports on the minutes and indicators of mental health of students. The study was conducted using a sample V. Anfimova proofreading. Conclusions:* *The study shows the steady decline in indices of mental health of students during the school day. From the second to the sixth lesson mental performance of schoolchildren in the classroom overall cycle is reduced by 13.2%. The study also found that the performance of students in the classroom physical education minutes and the total cycle enhances their mental performance by 8%, compared with the lessons in which minute physical exercise have been conducted.*

Keywords: *mental performance, physical activity, physical education classes, fitness moment.*

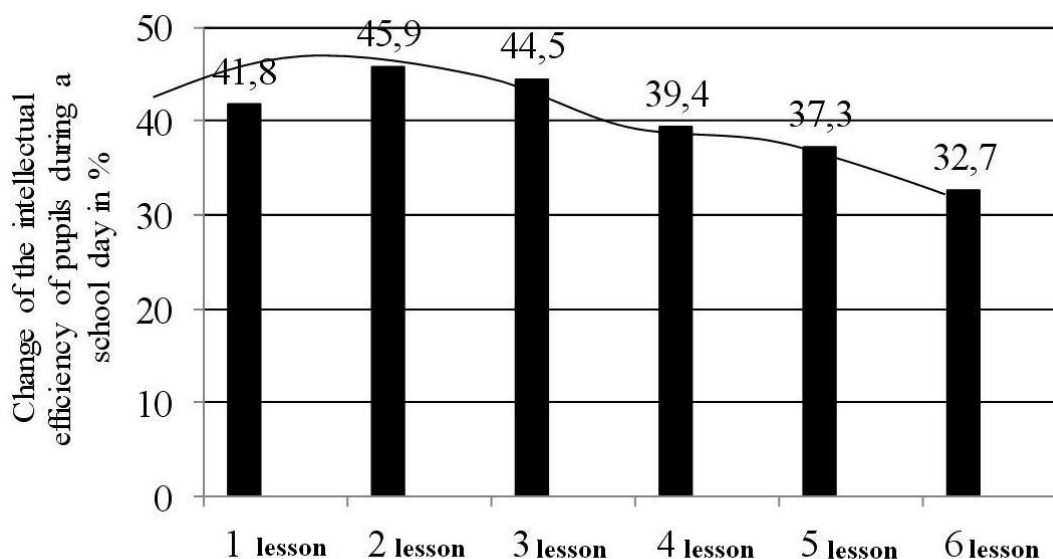
Introduction. In recent years physical health of pupils of general education of educational institutions of Ukraine worsens steadily [1; 9 and other]. One of the reasons of the emergence and the development of such tendency is an intellectual overfatigue of pupils during the study at school [4]. So, according to a number of scientists of a sign of mental fatigue meet in 59% of pupils of an average and in 53% of pupils of the advanced school age [6; 8]. As N. Denisenko notes [4] just the growth of volume of an academic load becomes the reason of different mental disorders at student's youth. Such situation is connected first of all with the irrational organization of educational process at comprehensive schools, the congestion of the existing school training program and the insufficient volume of physical activity of pupils during a school day [8; 9]. The system of school physical training plays an important role in ensuring the necessary volume of physical activity of pupils and consequently in ensuring their physical health. Today there is a wide range of researches of different kits of school physical training connected with the definition of influence on health of children and youth of school age [2; 3; 5 but other], however questions concerning their influence on the intellectual efficiency of pupils remain studied insufficiently.

The aim of the research: to find out the effect on the intellectual efficiency of pupils of physical activities who are used in the course of carrying out sports minutes at lessons of the general cycle.

Communication of the work with scientific programs, plans, subjects. The research is executed within the implementation of the complex scientific project "Theoretic-methodological principles of the formation of personal physical culture at children and youth as bases of their health" (the state registration number is 0113U001205).

The material and methods of the research. For the solution of the put tasks there was a conducted research at four comprehensive schools of Vinnytsa and Kharkov regions. 673 pupils of 5-11 classes took part in the research. The research was conducted in two stages. At the first stage changes of the intellectual efficiency of pupils were defined during a school day. Thus A. Myunsberg's technique was used [7]. The influence of sports minutes on indicators of the intellectual efficiency of pupils was defined at the second investigation phase. The research was conducted with the use of the proof test of V. Anfimov [7].

Results of the research and their discussion. Results of the conducted research testify that the intellectual efficiency of pupils decreases by 13,2% (pic.1) in the course of a school day at lessons of the general cycle (from the second for the sixth). So, for example, if at the second lesson the average group indicator of number of pupils who performed the put task before them made 45,9%, at the third lesson of such pupils there were already 44,5%, for the fourth 39,4%, and at the fifth and sixth lessons respectively 37,3% and 32,7%.



Pic. 1. Dynamics of change of the intellectual efficiency of pupils during a school day

The effect of sports minutes on indicators of the intellectual efficiency of pupils at lessons of the general cycle. The assessment of the intellectual efficiency of pupils was carried out after the third lesson of the general cycle at the first investigation phase. Results of the research are presented in tab. 1.

Table 1

Indicators of the intellectual efficiency of pupils after lessons of the general cycle, lessons of physical culture and sports minutes

Indicators of the intellectual efficiency of pupils	Educational classes							Average group indicator
	5	6	7	8	9	10	11	
	Nature of classes							
At lessons of the general cycle								
The volume of the processed information (quantity of the reconsidered signs)	468,1	532,8	613,5	703,2	779,1	708,4	786,2	655,9
Quantity of the made mistakes	14,2	11,7	13,4	11,7	10,9	10,2	8,3	11,4
Indicators of pure productivity	369,7	447,5	546	653,9	667,7	685,6	746,8	588,1
At lessons of the general cycle after carrying out sports minutes								
The volume of the processed information (quantity of the reconsidered signs)	479,7	537,2	718,2	798,2	627,7	726,5	791,5	668,4
The quantity of the made mistakes	12,9	13,6	10,7	9,2	11,0	8,7	7,5	10,5
Indicators of net productivity	393,3	461,9	667,9	758,2	671,2	732,3	759,8	634,9

They testify that the coefficient of net productivity of pupils, after lessons of the general cycle, makes 588,1 standard units (average group indicator of all pupils of 5-11 classes). Among pupils of the fifth classes this indicator makes 468,1 standard units among pupils of the sixth classes – 532,8 standard units among pupils of the seventh classes – 613,5 standard unit among pupils of the eighth classes – 703,2 standard unit, at pupils of the ninth, tenth and eleventh classes this indicator makes, respectively, 779,1, 708, 4, and 786,2 standard unit. The total amount of the work (quantity of the crossed-out signs) performed by pupils makes 655,9 standard unit (an average group indicator of all pupils of 5-11 classes), and the quantity of the made mistakes equals 11,7 (an average group indicator of all pupils of 5-11 classes). At the second investigation phase, for the clarification of the influence of sports minutes on indicators of the intellectual efficiency of pupils, on the twentieth minute of a lesson spent sports minute on which pupils carried out complexes of physical exercises within 2–3 minutes which were developed taking into account century features of pupils according to B. Shiyan's recommendations [15; 18]. The indicators of the

intellectual efficiency of pupils were defined after the performance of sports minute. Results of the conducted research testify that the coefficient of productivity of their work makes 634,9 (an average group indicator of all pupils of 5-11 classes) after the performance by pupils of sports minutes (tab. 1). Among fifth-graders this indicator makes – 393,3 standard unit, among sixth-graders – 461,9 standard unit, among seventh-graders – 667,9 standard unit, among eighth-graders and ninth-graders respectively – 758,2 standard unit, but – 671,2 standard unit, at pupils of the tenth and eleventh classes the work productivity coefficient after the performance of sports minutes makes respectively – 732,3 standard unit but 759,8 standard unit. Therefore, results of the conducted research testify that the performance by pupils of sports minutes provides increase for 8% of their intellectual working capacity at the lessons of the general cycle, in comparison with the lessons on which sports minutes weren't spent.

Conclusions:

1. The results of the conducted research testify that the intellectual efficiency of school students decreases by 13,2% from the second till the sixth lesson at lessons of the general cycle.

2. It is established that the performance by pupils of sports minutes at the lessons of the general cycle provides the increase of their intellectual working capacity for 8% in comparison with the lessons on which sports minutes weren't spent.

Prospects of the subsequent researches consist in carrying out the comparative analysis of the influence of different kits of school physical training on the level of health and the intellectual efficiency of pupils of general education educational institutions.

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FEDYNYAK N.*Vasyl Stefanyk Carpathian National University***USE OF HYPOXIA DOSED TO SLOW AGE-RELATED CHANGES
ORGANISM SENIORS**

Abstract. Purpose: *to carry out a detailed analysis of current scientific views on the use of dosage hypoxia to enhance functionality and slowing premature aging of the human body older and older. Material and Methods:* *the research work leading domestic and foreign scholars who have studied this problem. Results:* *found that the use of hypoxic effects on the human body and elderly seniors is a safe and effective way to increase the functional state anti-hypoxic mechanisms which are a key component in the determination of the aging process. Conclusion:* *found that short-term hypoxic effects that are useful for older age groups is no less effective than a long term.*

Keywords: *aging, biological age, vitaukt, hypoxia.*

Introduction. Nowadays it is to be understood that aging can occur in two way, i.e. physiological (natural) or abnormal (accelerated) [1; 3; 8; 9; 15; 17; 19; 21; 30; 34]. At that the option of aging is due to reliability of self-regulation mechanisms. Physiological aging is the key to longevity whereas the accelerated development of age changes causes to formation of age pathologies. In most cases (85-90%), people age prematurely [8; 9].

As well as physiological aging accelerated aging are caused by exogenous and endogenous factors. The role of genetic factors is proved by progeria cases when typical elderly changes in condition and functioning of the internal organs already appear at an early age. Many scientists have noted much higher mortality in descendants of parents with a short life expectancy [8].

Among the factors that accelerate the rate of age changes in the body there should be noted atherosclerosis, hypertension, hypokinesia, chronic nonspecific lung diseases, diseases of the cerebral nervous system (cerebral atherosclerosis, Parkinson's, etc.), pancreatic diabetes, hypothyroidism, obesity.

Nowadays modern medicine offers a whole arsenal of means for prolonging life, so-called geroprotectors. The possibility of extending life expectancy has been demonstrated in experiments using antioxidants, negligent agents, lathyritcs, adaptogens, neurotropic drugs, glucocorticoids, sex hormones, growth hormone, melatonin, immunomodulators and mimetics [7]. However, the use of drugs is limited due to a decrease in function of liver, kidneys, multimorbid states, frequent development of allergic reactions and complications that occur during their use. And according to many authors there is no chemical geroprotector the positive effect of

which would be undoubtedly proven. In this regard nonmedical geriatric means and methods based on the use of reserve factors of the organism or the environment deserve attention [11; 12].

Limited physical activity also causes the development of many diseases and premature aging. In old and elderly age a vicious circle creates, the aging limits human muscle activity and age hypokinesia, in turn, leads to accelerated aging.

Longstanding studies conducted by B. V. Shatylo and O. V. Korkushko (2009) showed that physical activity of moderate intensity slows level of aging of physiological systems indicating their geroprotector effects on the body. Elderly people who regularly train have gradually reducing degree of aging of the cardiovascular system for 3 years.

Aging is not a simple sum of changes that occur at a certain level but a complex interaction covering various structures and functions of the body. This understanding makes the need to find those links in the overall chain of physiological processes, from which crucial development of senile disorders depends. Among these factors that play an important role in age changes, especially premature aging, there is oxygen deficiency, hypoxia.

In the most general form hypoxia can be defined as discrepancy of cell energy consumption to energy production of mitochondrial oxidative phosphorylation system [18].

To improve the energy status of cells pharmacological medications are commonly used, i.e. antihypoxants that form five groups (inhibitors of fatty acid oxidation, succinate containing and succinate generating means, natural components of the respiratory chain, artificial redox systems, macroergic compounds) [18; 20; 24].

Reducing resistance of the body to hypoxia in physiological and pathological aging substantiates the expediency of search methods for correcting homeostasis hypoxic changes and increasing resistance of the body to hypoxia in old and elderly age in order to slow the aging process.

In summary, it can be assumed that the prevention of aging today is mainly realized through pharmacological medications, and existing non-drug methods for correcting age changes (positive pressure breathing on exhalation, interval normobaric hypoxic training, reflex therapy and acupuncture) are accompanied by some difficulty in use so finding ways to increase resistance to hypoxia of older people is currently important.

Purpose of search: to carry out a detailed analysis of scientific experience on the use of dosage hypoxia for slowing age changes of the older people's body.

Material and Methods: analysis of existing literature on the subject, synthesis, induction, deduction, generalization.

Results of search and its discussion: Lack of oxygen is one of the environmental factors that occurs frequently. Indeed hypoxia accompanies many physiological and pathological processes: going up in the mountains and inhaling the rarefied air is a classic example of hypoxia; during intense exercise lack of oxygen occurs because muscles absorb oxygen more intensively than it is provided through

the blood; anemia due to blood loss or any other reason also causes tissue hypoxia; almost all diseases of the heart and breathing usually are accompanied by hypoxia [18; 23; 28].

With age the body's need for oxygen doesn't increase but decreases, the number of cells decreases, stresses decrease, hypodynamia develops, reactivity reduces etc. However, even under such circumstances changes in antihypoxic system are so essential that they do not provide an adequate level of energy processes and cause the development of hypoxia [27].

It is proved that periodic hypoxia improves functioning of the respiratory, cardiovascular and immune systems, increases resistance to extreme environmental factors, stimulates airway clearing of foreign particles, reduces the negative effects of ionizing radiation and enhances resistance to poisons of animal and chemical origin [24].

Body ability to counteract the influence of hypoxia and maintain the viability of the proper level is ensured through the activation of compensatory mechanisms (antihypoxic system is an important component of vitaukt). Among them reflex enhancement of pulmonary ventilation is important (growth of minute volume of respiration in response to stimulation of chemoreceptors). Another compensatory mechanism is slowing of blood flow (contact of blood with the tissues is prolonged and better oxygen utilization is provided) [30].

The most famous classification of hypoxia by J. Barkroft, Van Slyke and Peters includes 4 major classes of hypoxia [18]:

1. Hypoxic hypoxia, i.e. reduction of oxygen content in the atmosphere, and hence in the alveoli and arterial blood.

2. Anemic hypoxia, i.e. lack of red blood cells or hemoglobin as the main carrier of oxygen.

3. Congestive or circulatory hypoxia – is caused by disorders of blood circulation due to heart failure.

4. Histotoxic hypoxia – is the result action of poisons (cyanide).

According to F. S. Merson and other researchers, adaptation to hypoxia during prolonged hypoxic training takes place with the participation of the following mechanisms:

5. mobilization of oxygen in the body due to hyperventilation, hyperfunction of heart polycythemia;

6. priority to ensure vital organs under hypoxic conditions (expanding coronary and cerebral vessels, reducing the diffusion distance for oxygen between capillary wall and mitochondria of cells through the formation of new capillaries and changes in the properties of cell membranes, increase oxygen utilization by muscles due to myoglobin concentration);

7. increase the capacity of cells and tissues to absorb oxygen from the blood to form ATP (by increasing the oxygen affinity of cytochrome oxidase, increasing the number of mitochondria, increased coordination degree of oxidation and phosphorylation);

8. increase in anaerobic ATP resynthesis by glycolysis activating.

Examining the safety and efficiency of application of normobaric hypoxic interval training (NHIT) in the elderly, B.V. Shatylo with coauthors (2005) found that exposure NHIT physical capacity increased by $5,5 \pm 2,3$ W ($p < 0,05$). Positive effect was achieved in 55% of subjects in which the power limit physical activity increased by $12 \pm 3,0$ watts. In 45% of older people exercise tolerance remained unchanged (Table).

Indicators of cardiovascular, respiratory minute volume and oxygen consumption in metered physical activities before and after the course NHIT in the elderly (with B.V. Shatylo, 2005)

Physical loading 25 watts, fifth minute			
Indicators	Period of examination	Subgroup with the effect (1)	Subgroup without the effect (2)
Systolic BP, mm of Mercury.	Before training	139 ± 6	142 ± 7
	After training	134 ± 2	144 ± 4
Heart rate, min	Before training	91 ± 4	78 ± 5
	After training	$82 \pm 5^*$	81 ± 5
Oxygen consumption, $l \text{ min}^{-1}$	Before training	$0,74 \pm 0,09$	$0,90 \pm 0,12$
	After training	$0,67 \pm 0,02$	$0,90 \pm 0,09$
PROGRESS, l	Before training	$18,6 \pm 2,2$	$23,4 \pm 3,0$
	After training	$17,5 \pm 1,4$	$22,3 \pm 2,2$
Physical loading 70 watts, fifth minute			
Indicators	Period of examination	Subgroup with the effect (1)	Subgroup without the effect (2)
Systolic BP, mm of Mercury.	Before training	139 ± 6	142 ± 7
	After training	134 ± 2	144 ± 4
Heart rate, min	Before training	91 ± 4	78 ± 5
	After training	$82 \pm 5^*$	81 ± 5
Oxygen consumption, $l \text{ min}^{-1}$	Before training	$0,74 \pm 0,09$	$0,90 \pm 0,12$
	After training	$0,67 \pm 0,02$	$0,90 \pm 0,09$
PROGRESS, l	Before training	$18,6 \pm 2,2$	$23,4 \pm 3,0$
	After training	$17,5 \pm 1,4$	$22,3 \pm 2,2$

Note. The reliability indicators of changes under the influence of training: * – $p < 0,05$.

Also noteworthy is the fact that the positive effects on physical performance NHIT observed in the elderly with lower body functional state (power limit load on $82,0 \pm 5,6$ W). At the same time NHIT effect is absent in the patients with relatively high functionality of the body (103 ± 8 W) (see. Table.).

E. O. Asanov (2008) found that the main factors determining the decrease in resistance to hypoxia during aging are as follows:

1. insufficient ventilatory response to hypoxia due to decreased efficiency of chemoreflex;
2. decrease in the efficiency of pulmonary gas exchange due to the reduction of diffusion capacity and uniformity of ventilation;
3. lack of response to hypoxia oxygen transport system of blood;

4. decrease in the efficiency of gas exchange in the tissues due to age-related changes of microcirculation and endothelial dysfunction, which deepened during hypoxic exposure;

5. insufficient hemodynamic response to hypoxia due to decreased efficiency and sensitivity hemoreflex sinus heart to autonomic influences.

In studies of Yu Furman (2013), V. Polyak (2013) highlights the use of exercise in combination with the method of artificially created in the body condition of hypoxia, which contributed to substantial improvement in the average capacity of aerobic energy processes of the body. Also enhances functional fitness, maximal oxygen consumption and anaerobic performance body.

Using the dosage hypoxia, as noted by researchers B.V. Shatylo (2005), A.V. Korkushko (2005) VA Ischuk (2005), is safe for the elderly. If individual selection mode hypoxic training and good clinical tool control during their execution – well tolerated by the elderly and can be recommended as a means to further the adaptation of the organism.

In studies of NHIT impact on the state of cerebral hemodynamics and mental performance in older adults with physiological and accelerated aging E.D. Osmak (2012) found that after a course of the experiment participants NHIT in improved mental performance (memory, attention, psychomotor performance), the consumption of oxygen and resistance to hypoxia.

These A.V. Serebrovsky (2009) and T.V. Serebrovsky (2009) on the optimum conditions for hypoxic training by reverse breathing indicate that short-term hypoxia sessions that are repeated at least 6 times an hour, substitute hypoxic breathing mixture for 30 minutes . Also, it was found that short-term hypoxia sessions are not smaller effect (which can be used in the older age groups) than longer.

According to the theory of adaptation to internal and external environmental conditions are constantly changing, the key provisions of the physiology of activity and theory of physical culture, the process of involutionary can slow down, pause at certain limits, to increase the level of preparedness by organizing effective modes of exercise [22; 23; 27].

As a result of many observations doctors concluded that a violation of the secular nature of the body is very similar to disorders that result from low physical activity. Like older people, those who lead a sedentary life, similar changes occur in the body. Only a sedentary life, systematic physical exercise can stop the aging process, making it less noticeable [21].

Conclusions:

1. It was established that the increase due airtight defense (dosage hypoxia) own homeostatic capacity of the organism may allow him to counter the aging process and enhance functionality. Severe stress interferes with the normal functioning of the body, whereas "soft" stress can stimulate his mental and physical abilities.

2. It was found that the dosage hypoxic effects are well tolerated by the elderly and can be recommended as a means to further the adaptation of the organism.

Prospects for further research. Application of dosage hypoxic effects (in the form of breath under water) as part of the wellness swimming lessons for older people.

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EFFECT OF EXPERIMENTAL METHODS FOR SELECTIVE DEVELOPMENT OF MOTOR SKILLS OF YOUNG KARATISTS

Abstract. Purpose: justify, develop and experimentally verify the effectiveness of the pilot program of development of physical qualities of young karate during pre-basic training. **Material and Methods:** The study was conducted on 52 karate 10–12 years. Applied pedagogical experiment, teacher testing and statistical methods. **Results:** identify the means program development and evaluation criteria of physical fitness of young karate. **Conclusions:** The use of the author's program contributed to a more significant increase in special physical preparation karate experimental group.

Keywords: general and special physical preparation, authoring program.

Introduction. The methodology of the research was based on general-theoretical provisions and synthesis of the experience of sports training of children and teenagers [3; 6; 9].

Fundamental provisions of the theory of development of physical qualities [3; 11; 14] and theories of adaptation [10; 14] to specific loadings in different types of sport were used during the development of a structure of physical training of young karatekas. The efficiency of adaptation in the course of long-term preparation depends on the sensitive periods of the development of motive function of a person [4; 5; 12].

The stage of preliminary basic preparation covers young karatekas of 10-12 years old. During this period the greatest number of the sensitive periods of the development of coordination abilities is observed that provides the possibility of mastering difficult and coordination elements of a technology of karate [1; 2; 15].

In our opinion, the orientation of the training process on the selective development of physical qualities in the course of a stage of preliminary basic preparation will promote more effective development of technical elements of karate.

The existing researches not completely open the contents and the structure of special physical training of young karatekas at this stage. Therefore the solution of this problem also causes the relevance of the real research.

The aim of the research: to prove, to develop and to check experimentally the efficiency of the experimental program of the development of physical qualities of young karatekas at a stage of preliminary basic preparation.

The problems of the research:

1. To define a current state and prospects of the development of the general and special physical preparation of young karatekas at a stage of preliminary basic preparation.

2. To define the influence of the experimental program of the selective development of motive qualities on the level of the general and special physical preparation of young karatekas at a stage of preliminary basic preparation.

The methods of the research: analysis of scientific and methodical literature, pedagogical supervision and pedagogical experiment, tool methods (goniometry, dynamometry, reflexometry), pedagogical testing and methods of mathematical statistics.

Results of the research and their discussion. The offered author's technique fully promotes the implementation of the genetic program of the development of a child which basis is made by the physiological development and the correct sequence of the development of motive qualities and the formation of existential perceptions when training in elements of a technology of karate.

For comparison the approximate maintenance of the main part of the training classes is provided which is recommended by the existing program for CSS and the maintenance of the main part of training classes of the experimental program (tab. 1 and 2).

Table 1

The maintenance of the main part of training occupation of the existing program for CSS

Day of a week	Content of training classes	Teaching suggestions
Monday	1. Acceleration 5x30 m 2. Exercises for hands; feet; fight with "shadow", alternating approaches to dumbbells; sports	7 rounds on 90 s Rest between rounds 90 s To carry out exercises as fast as possible

The experimental program contains 6 blocks. A basis of them consists of special exercises for karate, and exercise of other types of single combats which were used as all-preparatory, special and preparatory and competitive for the formation and the improvement of elements of a technology of karate.

The fragment of the main part of training classes of the experimental program with the use of exercises of the first block (tab. 2) is given.

The first block contains the exercises aimed at the development of the ability to statistical and dynamic balance.

Table 2

Indicators of the main part of training classes with the use of exercises of the first block

Task: the improvement of a shock phase of lateral kicks with a step movement			
№	Exercises	Dosage	Teaching suggestions
1.	Saving of various provisions of balance during a movement	2 series, in 30–40 s of rest The total time of the performance 3-4 min.	It is carried out in the movement in a column. Eyes are closed. Distance of 7-8 m. To pay attention to position of hands and feet. Intensity of 30-40% of the maximum
2.	Saving of various provisions of balance when performing lateral kicks in the average level	2 series, interval of rest 30-40 s. Total time of the performance 2-3 min.	It is carried out in a column. Eyes are closed. Distance 7-8 m. To pay attention to position of hands and feet. Intensity 35-40% from the maximum
3.	Saving of various provisions of balance after the performance of lateral kicks to the top level	2 series, interval of rest 30-40 s. Total time of the performance 2-3 min.	It is carried out in a column. Eyes are closed. Distance 7-8 m. To pay attention to position of hands and feet. Intensity 35-40% from the maximum
4.	«Swallow»	4 series on each foot. Rest between series 20-30 s Total time of the performance 7-8 min.	To carry out in 2–3 ranks. To pay attention to position of a back (body in full extension), not to bend a foot in a knee joint. To keep balance without hesitation of a trunk
5.	«Swallow» standing on the right (left) knee		
6.	Jumps on markings		
7.	Preservation of a balance on one foot (Shtange test)	On 4 series on each foot. Rest time between series 30-35 s. Total time of the performance 8-9 min.	To carry out it in 2–3 ranks frontally. Right foot is shock.
8.	Preservation of a balance on one foot in the provision of a final phase after a lateral kick in the average level		

The offered program promoted the considerable improvement of a technique of shock elements of karate. Selective possibility of the improvement of elements of a technology of shock receptions allows to define the lagging behind elements and to pay them more attention for the improvement.

Materials of the research testify that initial indicators of the general and special physical preparation have no statistically reliable distinctions (tab. 3).

Table 3

Indicators of the general physical preparation before the pedagogical experiment

№	Tests	Stage	Experimental group (n=30)	Control group (n=22)	t
1.	30 m run from a low start (s)	Before	5,77±0,02	5,75±0,02	–
		After	5,48±0,04*	5,46±0,04*	3,6
2.	Long jump from place (sm)	Before	163,9±1,3	164,4±1,0	–
		After	174,0±1,1*	168,4±1,1	4,0
3.	Standing jump up (sm)	Before	40,0±0,7	37,0±0,6	–
		After	45,8±0,7*	43,1±0,9*	2,45
4.	Cross split (degree)	Before	167,1±1,3	168,1±1,5	–
		After	175,2±1,1*	174,9±0,9*	0,21
5.	Forward split to the right (degree)	Before	148,5±2,4	148,7±1,9	–
		After	157,8±2,2*	161,1±2,0*	1,13
6.	Forward split to the left (degree)	Before	152,5±2,4	154,7±2,0	–
		After	163,3±1,8*	167,3±1,9*	1,53
7.	6-minute run (m)	Before	1032,2±7,6	1038,3±6,6	–
		After	1195,4±11,1*	1181,6±13,1*	0,81
8.	Shuttle run 4x9 m (s)	Before	11,17±0,06	11,02±0,07	–
		After	10,93±0,05*	10,90±0,07*	3,39
9.	Running on place for 10s (qty)	Before	36,4±0,4	36,6±0,4	–
		After	45,1±0,3*	43,4±0,1*	17,0
10.	Jumps on place for 10s (qty)	Before	17,3±0,2	17,2±0,2	–
		After	20,0±0,1*	18,5±0,2*	2,41
11.	Jump with circling to the right (degree)	Before	318,7±7,1	318,9±7,6	–
		After	415,1±8,9*	386,1±6,0	4,08
12.	Jump with circling to the left (degree)	Before	323,9±6,1	321,7±7,1*	–
		After	428,1±4,8*	371,1±6,8*	4,86
13.	Right carpal dynamometry (kg)	Before	15,03±0,1	15,00±0,2	–
		After	18,03±0,1*	16,56±0,2*	6,4
14.	Left carpal dynamometry (kg)	Before	14,40±0,2	14,26±0,3	–
		After	17,90±0,2*	16,70±0,1*	17,1
15.	Reflexometry (s)	Before	0,190±0,003	0,191±0,002	–
		After	0,182±0,002*	0,187±0,002*	10,7

*Note. Hereinafter: * – ($p < 0,05 - 0,001$) in EG and CG after the experiment*

The given materials testify that the GPP program for CYSS promotes the reliable development of physical qualities in both groups, with some superiority in the experimental group. This results from the fact that initial indicators of both groups don't differ among themselves.

Dynamics of indicators of SPP before the experiment is shown in tab. 4.

Table 4

Indicators of special physical preparation of karatekas after pedagogical experiment

№	Tests	Stage	Experimental group (n=30)	Control group (n=22)	t
1.	Static balance on a right foot (s)	Before	12,67±0,24	12,71±0,23	
		After	43,5±1,89*	24,81±0,94*	8,9
2.	Static balance on a left foot (s)	Before	22,98±1,05	22,93±0,88	–
		After	43,93±1,52*	34,19±1,09*	5,4
3.	Dynamic balance on a right foot (s)	Before	8,55±0,24	8,75±0,27	–
		After	44,81±1,55*	27,25±1,16*	4,69
4.	Dynamic balance on a left foot (s)	Before	9,90±0,59	10,04±0,37	–
		After	47,02±1,84*	30,72±1,19*	7,47
5.	Five kicks to the top level raising of a right foot (s)	Before	6,68±0,11	6,74±0,15	–
		After	5,08±0,08	5,07±0,03*	16,07
6.	Five kicks to the top level raising of a left foot (s)	Before	8,5±0,11	7,44±0,15	–
		After	6,99±0,12*	6,14±0,08*	10,57
7.	Lateral kicks by a right foot in the average level for 10 s (qty)	Before	16,5±0,2	16,3±0,2	–
		After	19,3±0,2*	17,4±0,2*	0,1
8.	Lateral kicks by a left foot in the average level for 10 s (qty)	Before	15,8±0,2	15,3±0,2	–
		After	18,2±0,2*	16,5±0,2*	0,32
9.	Two kicks by hands: a front hand in a breast, and a hand which is behind – in a stomach area for 10 s (qty)	Before	8,7±0,2	8,8±0,2	–
		After	10,2±0,1*	10,1±0,2*	0,45
10.	The same – 5 combinations (s)	Before	8,14±0,3	8,09±0,21	–
		After	7,16±0,12*	7,48±0,13*	0,7
11.	Two kicks by hands and by one foot in the average level, 5 combinations (s)	Before	15,14±0,09	15,09±0,07	–
		After	12,7±0,07*	12,9±0,09*	0,8
12.	Attack – counterattack (s)	Before	5,14±0,09	5,47±0,08	–
		After	4,16±0,07*	4,72±0,08*	5,26

The analysis of indicators of GPP and SPP of young karatekas testifies, the most part of indicators has the reliable increase in comparison with initial indicators as in the experimental, and in the control group after the pedagogical experiment. It isn't observed the reliable changes of such indicators of GPP: cross split, forward split to the right, forward split to the left, 6-minute run. It gives the grounds selectively to define the direction of training classes. It should be noted that the intergroup reliable distinctions aren't observed after the pedagogical experiment.

The analysis of indicators of SPP revealed that the intra group reliable improvement is observed after the pedagogical experiment. It isn't observed the

reliable intergroup indicators in such exercises: lateral kicks by the right and left foot in the average level for 10 s; the same by the left foot; two kicks by hands in a breast and in the area of a stomach; the same 5 combinations; two kicks by hands and by one foot.

The application of the experimental program promoted the considerable improvement of indicators of SPP in the experimental group. So, in EG the indicator of the statistical balance on the right and left feet increased by 35%, and in the control group for 20% ($p < 0,001$); the indicator of lateral kicks by the right foot in the average level for 10 s increased in EG by 13%, and in the control group— 9,8% ($p < 0,01$).

Conclusions:

1. The experimental program contains 6 blocks of training means which are distributed in a year cycle of training process according to a certain scheme. Its difference from the recommended program for CYSS consists that the structure of special physical preparation changes qualitatively and the range of application of technical elements of karate extends.

2. The redistribution of the importance of application of technical elements in the experimental group is characterized by that indicators of the ability to the evolution of movements surpass (attack – counterattack). It testifies that more perfect level of manifestation by young karatekas of EG of difficult technical actions is not only at the set motive task, and in a sparring, i.e. in the competitive activity.

The prospect of further researches consists in the establishment of compliance of the development of physical qualities in one class and an adequate combination of the development of physical qualities and the formation of motor skills.

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APPLICATION OF ACS IN THE SYSTEM OF PHYSICAL TRAINING OF MILITARY PERSONNEL

Abstract. Purpose: to develop an automated control system for the system of physical training of military personnel (cadets). **Material and methods:** the following methods were used in the research: analysis of special scientific and methodical literature, structural analysis, mathematical modeling. **Results:** the automated control system is offered the main task of which consists in accumulation of information, processing of this information and establishment of causal and investigation relationships between the implementation of standards or their non-implementation for the purpose of further adjustment and the elimination of the interfering factors. **Conclusions:** application of ACS in the process of physical training of military personnel (cadets) will allow to provide the concrete orientation, the correct selection of means and methods for physical improvement of military personnel, and also the management of this process.

Keywords: automated control system, methods of physical perfection, mode of training, training of military personnel, software, data analysis.

Introduction. Physical preparation has to promote a professional study of military personnel as one of the main subjects of combat training. However this important task isn't always considered in the educational training process. This problem can be solved, if a task of physical preparation will be concretized for all stages of military and professional study [1–3]. Therefore the topical issue of the present appears the application of automated control systems in the system of physical training of military personnel for the purpose of the specification of an orientation, the correct selection of means and methods of physical improvement and fighting skill, taking into account all negative factors which influence this process, by the creation of systematic database.

The necessity of the development and application of the automated control systems (ACS) in the process of physical training of military personnel (cadets) it is caused by such circumstances:

1. Factors which define a character and a measure of influence of physical qualities and movement skills of military personnel on fighting skills, are studied insufficiently because not always the excellent physical preparation determines the high level of military preparedness [4–6].

2. The automated control system will allow to obtain objective data on the

influence of these or those physical qualities of military personnel on the performance of military and professional receptions and actions, different by character, by it in special conditions.

3. The insufficiently studied negative influence on health of military personnel of addictions, climatic (ecological) and living conditions, and also the influence of food, the mode of service, the nature of rest, and so forth on physical preparation and, as a result, on fighting [7; 8].

4. It is known that the computerization got in the military sphere for this time of the wide appendix. In this regard the considerable part of military personnel is more and more released from labor-consuming operations which need physical activity. Besides, the most part of time (a dream and rest) is wasted at the expense of computer games and Internet which certainly is reflected in physical preparation (the implementation of standards) and military vocational training in general. The lack of approaches concerning the identification of caused and effected relationships of combat and physical training with the above-mentioned factors.

Thus, the introduction of ACS in the process of physical training of military personnel (cadets) will allow to provide a concrete orientation, the correct selection of means and methods of physical improvement of the military personnel, and also the management of this process.

Besides, ACS will allow to conduct statistical researches taking into account all negative and positive factors which influence the military personnel (cadets) and to compare them for a certain period with the purpose to have an opportunity to estimate a real efficiency of this or that system of physical preparation and to provide a necessary feedback.

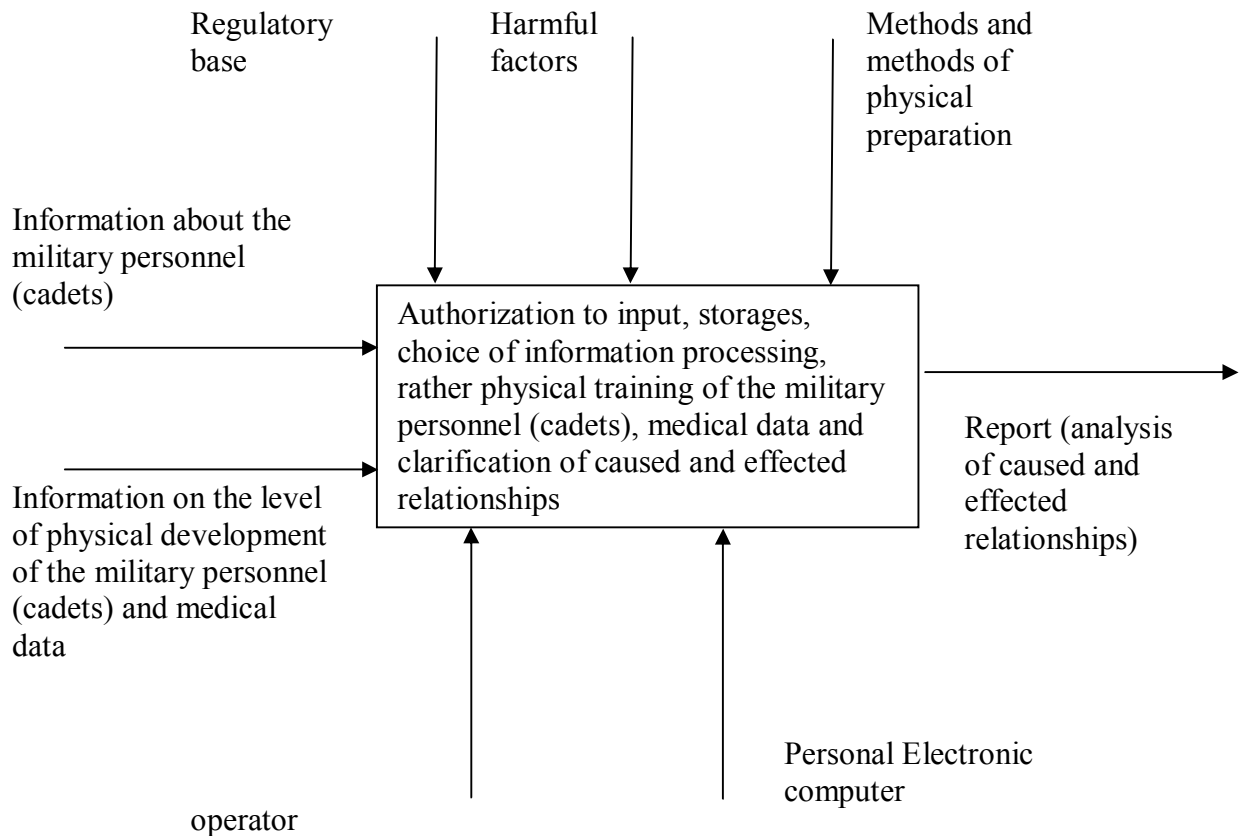
The creation of ACS for the system of physical preparation (military personnel) of cadets is offered to be carried out by the analogy of the structural analysis of the medical automated information system which realizes its most important functions that the storages connected with the organization and the replenishment by information. In the subsequent the kernel is increased by program modules, as a result the multilevel architecture is created [9; 10].

The automated information system has to provide the reliable storage of information, and also its processing crossed in blocks and subgroups.

The aim of the research: to develop the automated control system for the system of physical training of the military personnel (cadets).

The material and methods of the research. The following methods were used in the research: analysis of special scientifically methodical literature, structural analysis, mathematical modeling.

Results of the research and their discussion. It is offered to use the structural approach which essence consists in division of a system into subsystems in a hierarchical order during the development of ACS. For example, the subsystem of the top level will be organized according to pic.1.

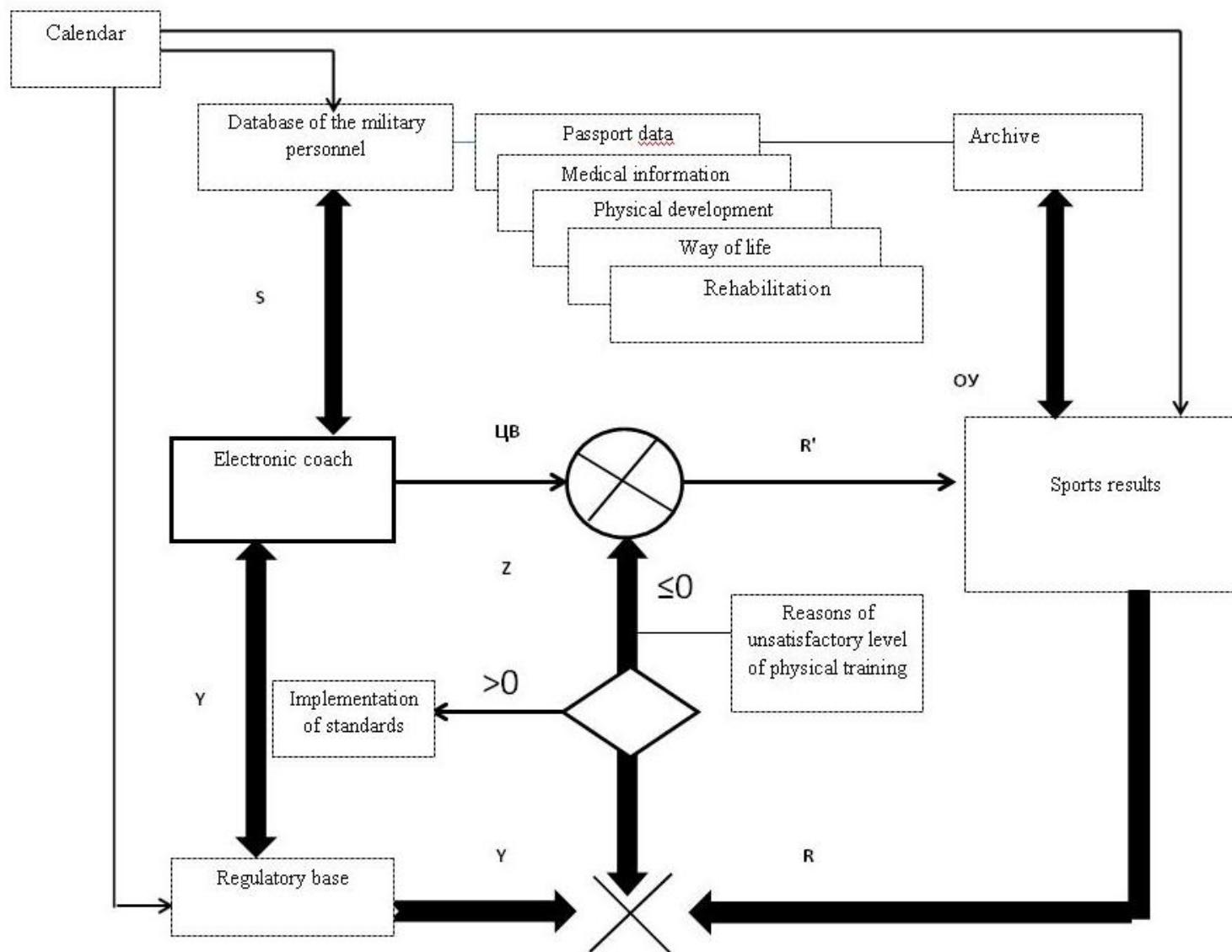


Pic. 1. The general view of a subsystem of the highest level

Then the specification of a subsystem of the top level is directed on subsystems of the 1st, 2nd and 3rd levels.

It comes up from the provided scheme that the main task of the offered ACS consists in accumulation of information, processing of this information and establishment of caused and effected relationships, between the implementation of standards or their non-performance, for the purpose of the subsequent correction and elimination of factors which disturb it [13–15].

The above-mentioned is a basis for the offered ACS (pic. 2).



Pic. 2. Block diagram of ACS

The contents of subgroups which enter to ACS.

The block "DATABASE OF THE MILITARY PERSONNEL (CADETS)" for which physical preparation is obligatory, it consists from subgroups.

The subgroup "PASSPORT DATA" comprises a surname, a name and patronymic name, a year and a month of birth, a sex, study terms, a course, a number of groups, a service life for the military personnel (age).

The subgroup "MEDICAL INFORMATION" comprises the data of rather medical supervision, treatments, laboratory researches data, rehabilitation, and so forth.

The subgroup "PHYSICAL DEVELOPMENT" comprises anthropometrical data of the serviceman (length and body weight and so forth).

The subgroup "WAY OF LIFE" comprises the popularity about addictions (smoking, alcohol intake, drugs), a day regimen (duration of a dream, rest, frequency of trainings, duties, lesson schedule, and so forth), data, about food (food caloric content, its quality).

Besides, it is necessary to consider such psychological factor as a discontent with the military service in this subgroup. This factor can be the most important in the system of physical and combat training [11].

The reasons of it for the military personnel can be such:

- the impossibility in full to provide material requirements of a family;
- the absence or discrepancy of housing of structure of a family;
- the considerable expenses on journey to the point of service;
- the low-quality organization of teaching and educational process in HEI (on a service);
- difficulties in the material support of educational process;
- the incorrect game mode in culture of rest.

The block "REGULATORY BASE" is a distribution of standards from physical training for an age on such groups: I – till 30 years old; II – from 30 to 35 years old; III – from 35 to 40 years old, IV – from 40 to 45 years old, V – from 45 to 50 years old, VI – from 50 to 55 years old, VII – over than 55 years old. Names of standards and results for different types of Armed Forces of Ukraine differ one from another [12–13].

The block "SPORTS RESULTS" comprises the received results from this or that sport that enter the military and sports classification, and also results from military and applied sports, work on classes, the Olympic Games and so forth.

The block "ELECTRONIC COACH" is a complex of the hardware-software means realized on the basis of the personal computer and the special software [16–17].

It is offered to create the special software on the basis of mathematical model of processing, the analysis of data, for issue of the decision concerning the mode of trainings.

The entrance for the block "electronic coach" is the regulatory base and the database of those who trains.

At first the entrance data need to be formalized and brought in a base. Let the maximum number of those who trains and whose data are brought to a database, – n . To everyone i ($i=1 \dots n$) from them we will put vector S_i ($S_{i1}, S_{i2} \dots S_{ij} \dots S_{im}$), $j=1 \dots m$ in compliance. The elements of this vector will be values of an integer (for example, number of full years), valid (for example, body weight) or logical (for example, smoke / not smoke) variables which characterize a condition of who trains, on the set moment of time.

In the similar way we will break the regulatory base into vectors Y_i ($y_{i1}, y_{i2} \dots, y_{ij} \dots y_{im}$), $i=1 \dots n, j=1 \dots m$ according to the semantic contents. The components of each vector are the value of standards of each semantic block.

The logical multiplication of vectors of S_i and Y_i will give a vector of target designation Z_i ($z_{i1}, z_{i2} \dots, z_{im}$), $i=1 \dots n, j=1 \dots m$. This vector will be a day off for the block "electronic coach" and to contain the schedule of trainings with recommendations in a numerical view for each athlete of the set moment of time concerning its problem indicators from the point of view of the implementation of the set standards.

The vector of sports results of R_i ($r_{i1}, r_{i2} \dots, r_{im}$), $i=1 \dots n, j=1 \dots m$ for everyone i of a military personnel (cadet) will have the identical format of data presentation with the blocks "regulatory base" and "sports results". After the addition of these vectors it is obsessed the vector D_i (d_{i1}, d_{i2}, d_{im}), $i=1 \dots n, j=1 \dots m$ behind which values it is possible to come to a conclusion about the efficiency of the schedule of trainings made earlier and modify it. So, the logical addition of vectors of R_i ($r_{i1}, r_{i2} \dots, r_{im}$), $i=1 \dots n, j=1 \dots m$ and Z_i ($z_{i1}, z_{i2} \dots, z_{im}$), $i=1 \dots n, j=1 \dots m$ will give the vector R'_i ($r'_{i1}, r'_{i2} \dots, r'_{im}$), $i=1 \dots n, j=1 \dots m$.

At first the whole information that circulates in the system, is diverse. For its generalization it is offered to enter the regression equations which take such form:

$$\begin{aligned} \bar{X}_i &= a_1 x_{i1} + \dots + a_j x_{ij} + \dots + a_m x_{im}, \\ & i=1 \dots n, \\ & j=1 \dots m, \end{aligned}$$

where x_{ij} – the j indicator from a database i of the serviceman (cadet) who trains,

a_{ij} – the weighing coefficient of this ij of an indicator.

The determination of the weighing coefficients is possible on the basis of ranging of expert estimates.

Then the value \bar{X}_i will be some generalized value which characterizes i of the serviceman (cadet) who trains.

In the similar way Y_i, Z_i, D_i and R_i values are admitted. The analysis of these values will allow to give an express assessment to each serviceman (cadet) on each hour interval of its preparation. The statistics is collected on the basis of values of vectors Y_i, Z_i, D_i and R_i will allow to analyze data and to find interrelations between them.

Conclusions:

1. The main task of the offered ACS consists in accumulation of information, processing of this information and establishment of caused and effected relationships, between the implementation of standards or their non-performance for the purpose of the subsequent correction and the elimination of factors which disturb.

2. The introduction of ACS in the process of physical training of the military personnel (cadets) will allow to provide a concrete orientation, the correct selection of means and methods for physical improvement of the military personnel, and also the management of this process.

Prospects of the subsequent researches. The application of an automated control system for physical training of military personnel in educational process of physical training of higher military educational institutions.

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JUSTIFICATION OF THE PROBLEM OF IMPROVING THE ORGANIZATIONAL AND MANAGERIAL TRAINING OF COACHES ON SPORTS

Abstract. Objective: *justification ways to improve the professional activity of the future coaches in the new organizational and management conditions. Materials and methods:* *is used the theoretical analysis and compilation of references and documents that reflect the experience of physical culture and sports organizations. Results:* *in the present conditions the content of training future coaches reduced only to the formation of them as experts in the planning and implementation of the training process. Conclusion:* *the future coaches should receive sufficient organizational and management training, including in the field of project management in order to successfully fulfill the role of managers to ensure the organization of sports training.*

Key words: *next coach, organizational and management training coach, management in sport, professional competence.*

Introduction. Reorientation of the area of physical culture and sport from traditional for the USSR administrative-plan model of management to competitive, provoked by the Ukraine transition to the market type of management, strengthening of economic motivation and increasing of the value of commercial interests produces high demands to organizational and management training of the future sports coaches. O.V. Borisova notes that “Conceptual grounds of development of physical education are inseparably connected to the determination of strategic objectives and operational tasks, development of the technology of social-pedagogical designing and didactic modeling, humanization of educational practice.” Nowadays there is a decrease in availability of traditional models of education that are directed onto the realization of reproductive ways of education” [1, c. 9].

Apparently, in modern conditions, highly qualified sport managers are one of the major factors in the reforming of the country’s sports life. Unfortunately, training of such specialists realizes with the evident lagging from the practice requests, and its improvement in many ways depends on the activization of the development of new educational courses, using information technologies and interactive methods of studying. The defined features of a new pedagogue are the creative activity; reflexivity; constant maintaining need in self-education and self-perfection. The uniqueness of competences of a specialist in physical culture and sport among other pedagogical professions is in a specific width of professionally important qualities and sides of professionalism.

It also should be noticed, that there is no separate specialty “sport management” in high school in our country, and the existing technology of managerial training of students in universities of physical education on the grounds of reproductive methods of education doesn't foster to forming independence and initiative as the important qualities of a modern sport pedagogue and organizer. Meanwhile modern trainer should have not only the necessary level of professional knowledge, abilities and skills in the area of planning and realization of the educational-training process, but also be ready to take grounded and competent decisions, to form the team of specialists for providing different sides of a sportsmen training.

That is exactly why the question about improvement of professional activity of coaches – teachers under new organizational- managerial conditions on the grounds of development of existing theoretical approaches, and also generalization and using of important domestic experience has sharply arisen during the last decades after the regular stage of immediate development of sport and scientific management, and also donations into the independent development of the area of projects managing. To this topic there are dedicated works by N. G. Dobrusheva (2013), M. V. Dutchak (2009), Yu. P. Mitchuda (2007), V. I. Mudrik (2008), V. V. Prihodko (2010, 2011), G. N. Putyatina (2012) and others.

Connection of the research with scientific programs, plans and topics.

The research is conducted under the combined plan of the research in the area of physical culture and sport onto the years 2011 – 2015 on the topic 2.6 “Theoretical-methodical grounds of improvement of training process and competitive activity in the structure of many years’ training of sportsmen” (number of state registration 0111U001168)

The objective of the research: explanation of the ways how to improve the professional activity of future coaches-teachers in new organization and management conditions.

Materials and methods of the research. Was used the theoretical analysis and generalization of literary sources data, and also of the documents, that reflect the practical experience of physical – sportive organizations.

The results of the research and their discussion. Appealing to the topic of improving sport organization and management in the results of scientific research and examples of leading experience, we could mark the following.

T. V. Kazakova notes, that on practice professional – pedagogical orientation of students of the institute of physical culture (IPC) displays in individual objectives and plans of their future activity that is very diverse by its character. It can be pedagogical, administrative-organizational and methodical. Professionally-pedagogical orientation in IPC students “...can be formed during the process of studying different theoretical disciplines” [3, c. 8–9].

At this, the formed practice of teaching justifies that academic subjects have not sufficient attention to forming of professional-pedagogical abilities. Z. P. Pletneva writes, that students and working specialists admit that in the list of 16 particular professionally-pedagogical abilities (designing-constructive, organizational, communicative, gnostical) – 11 abilities are formed during the sport

specialization and not during lectures [6]. This is can be said also about the part of professionally-pedagogical abilities as organization and management training of future coaches.

At this, in the Russian Federation there was held first scientific research, dedicated to the forming of managerial competences of future coaches by example of football specialization [8], and also to forming of managerial readiness of future managers of physical culture during learning special disciplines [5]. The important experience of managers' training is accumulated in universities of other world countries.

It is shown that "... the achievement...of high level of managerial competence – it is not only the basis of further professional growth of specialists, but the obligatory condition for the development of system of physical education. The managerial competence of manager can be examined as a system-forming factor of efficiency of functioning of the set institution, ensuring the integrity of its vitality and development of organization. This competence of manager ensures the effectiveness of strategic management of institution about its self-development in the long term and providing qualified and highly professional services to people. The managerial competence is a security for successful professional self-realization of specialists in the area of physical culture and sport under the conditions of competitive environment of market economy" [4, c.153].

These circumstances just fix the presence of keen scientific and practical problem, because according to the working occupational classification DK 003-2010 there are about 30 positions of sport workers relating to the category of managerial positions. That's why graduate from the "sport" specialty, apart from various competences, necessary for ensuring educational-training process, should be prepared for the innovations that relate to research, management and designing almost in all areas of future professional activity of coach.

Meanwhile there is a rupture between the content of coaches training, traditionally oriented onto the improving of educational-training process, and the necessity of their acquisition of competences for designing modern sport organizations, adapted for market conditions, ensuring the development of mass sport as well as sport of high achievements. Because coach, whether he is prepared or not, fulfills the functions of manager, ensuring the united process of different kinds and aspects of sport training. There is a need in improving for organizational conditions of sportsmen training system in Ukraine as well as acquirement of grounds of sport management by future coaches during their university studies. This is possible because of learning and using the whole country's experience of optimization of construction of training system for sportsmen, and also as a result of improving that part of content of organizational-managerial training of coaches, the important part in which must be dedicated to acquiring sport development projects' management.

M. V. Dutchak notes: "The elimination of sharp deficit of sport managers in Ukraine... proposes the creation of training system of this category of specialists. At the same time the decision of this task is significantly complicated either because of the little experience of educational activity in this area, or because of the absence of scientific research of this problem" [2, c. 3].

V. V. Prihodko strengthens this thesis: “There are problems with emphasis of the research subject, searching and applying adequate methods of the research and in the specialty “Olympic and professional sport”. Referring to the theory of sport training, being present on the defense thesis, catching myself at the thought that priority is now given to the emphasis of subject of the research and applying the complex of methods, mostly typical for thesis in biological science. Because first thing discussed here is maximum, during aging, development of body potential of sportsmen and sportswomen, about heightening of reserve abilities of their body, about ensuring the sportsmen to take their most important starts at the point of their best functioning state etc” [7, c. 376].

Agreeing with justice of such question statement, we should also notice the remark of V. N. Shamardin: “Today football develops in the direction of high mobility of players, speed techniques, intuitively-creative actions, that are put in the foundation of improvisation. Further intensification, displayed in the increasing of the game speed that ensures the necessary result” [9, c. 133].

As it is seen, the uniting of the object and subject of the research, which is observed in the science about sport, does not allow to find answers to the question about ways to improve the sport skills, that at the relative equality of the forces defines the winner.

Unfortunately, notes V. V. Prihodko, there are known ways, that are used in that kinds of sports, where professional Ukrainian clubs have significant success. It is not a search of personnel and methodical reserves inside Ukraine, but the solution of problems of game strengthening with the help of inviting coaches and players from Europe and America, which were formed without influence of domestic theory of sport training. Theory of sport, as a definite imperative, proposed by its developers and oriented on the set requirements for carrying out the educational-training process of coaches of the definite country, sets on its authors great responsibilities. There is no doubt, that coaches and other specialists abroad, ensuring together with the sportsmen high competitive result, are based on different scientific and methodological knowledge, that helps them to win [7, c. 376–377].

To sum it up, the following conclusions can be formed, that set the perspective of further research on the topic of improving of organizational-managerial training of future sport coaches.

38. It is important to research, analyze and generalize existing in the country intuitively-empirical experience, concerning the development of Olympic sports, to reveal the causes of failures with the help of project method during the process of training the range of Ukrainian cities for EURO – 2012.

39. Study and value the level and peculiarities of designing competences of students of faculties Olympic and professional sport, develop and experimentally check the pedagogical conditions of forming the organizational-managerial competences, including mastering the grounds of project managing by future coaches.

40. Identify, disclose and adapt to the use under the conditions of sport practice and peculiarities of methodology and technology of projects managing in forming in future coaches the group of specific organizational – managerial competences.

41. Ground, that under the modern circumstances there is no way to set the content of professional training of future coaches like only forming them as specialists in the area of planning and executing of educational-training process. Future coaches should receive the sufficient organizational-managerial training, also in the area of projects managing, to fulfill the role of managers that provide organizational sport training.

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**THE CONCEPTUAL PRINCIPLES OF THE DEVELOPMENT OF
NON-OLYMPIC SPORT IN THE EUROPEAN SPACE IN THE
CONDITIONS OF NEW ECONOMY**

Abstract. Purpose: *to identify strategic prospects for the development of non-Olympic sports in Ukraine. Materials and methods:* *the analysis of literary sources and documents, systems analysis, organizational analysis, marketing tools, SWOT - analysis, organizational modeling, methods of mathematical statistics. 57 representatives of the regional federations of non-Olympic sports participated in the survey. Results:* *the model of sustainable development of non-Olympic sports is proposed. Objective necessity of the implementation of the results obtained in the practice to the state, branch and regional management in the sphere of physical culture and sports is proven. Conclusions:* *the livelihoods and development of non-Olympic sport involves the development and application of organizational projects, management of technology, "integrators" of local resources, the study of internal resource of sport movement, the development program funding.*

Key words: *strategy, sustainable development, reform, reorganization processes, organizational and managerial techniques.*

Introduction. The modern state of social and economic development of Ukraine has a difficult and inconsistent character. This process passes in sharp interaction of conservative and innovative tendencies. Such situation concerns practically all branches of national economy, but the priority as such that directly influences citizens by the prevention of diseases, strengthening of health, the improvement of physical activity and vital activity, are a sport sector. It should be noted that this sector is financed by the residual principle at the present stage, the sports infrastructure became outdated, the personnel problem, the state takes place though indirectly, but maintains the development unhealthy kinds of activity for a person (advertisement of alcoholic and various energy drinks, tobacco, but other). At the same time the branch structure of management is difficult and branched out. The sector of sport makes various organizations on types of economic activity, namely: sports organizations of Olympic, Paralympic, Deaflympics sport for everybody, and Non –Olympic sport. At the present stage Non- Olympic sport develops promptly and dynamically both at the professional level and at the mass level, that is defines the relevance of the research.

The works of native and foreign experts, namely Y. Shumpeter [15], U. Edvard Deming [16], Thompson jr. A. [12], V. Seminozhenko, V. Geyetsya [3], Popkov V. V. [14] but other contain the synthesis of achievements of modern administrative and

economic thought on theoretic-methodological questions of the innovative approach to the solution of strategic social and economic problems of the development of branch structures and regions.

The significant contribution to the solution of different aspects of the development of the sphere of physical culture and sport and separate its components (in particular Non -Olympic sport) were brought by I.L. Gasyuk [2], N. G. Dolbysheva [4], M. V. Dutchak [5], Yu.P. Mitchuda [10]. By authors it is investigated the conditions of the innovative development of the sphere of physical culture and sport as a segment of regional policy [7, 8, 9]. However there are unresolved problems of the formation of valuable measurement of the state and public administration, the creation theoretic-methodological, philosophical, social and organizationally economic conditions of the formation of policy of the development of Non-Olympic sport in the conditions of new economy.

Communication of work with scientific programs, plans, subjects. The research is executed according to the direction of the research work of Kharkiv state academy of physical culture during 2013 - 2015 1. The basic scientific researches on the most important problems of the development of scientific and technical, social and economic, political, human potential for ensuring the competitiveness of Ukraine in the world and the sustainable development of the society and the state. The priority thematic direction: 1.5. The basic researches on actual problems of public and humanitarian sciences, the subject: "Methodological bases of the strategic development of the sphere of physical culture and sport in the region" The number of the state registration is 0113U004615.

The aim of the research. To create the conceptual principles of the development of Non - Olympic sport in the European space in the conditions of new economy.

Material and methods of the research. The research methods were used in the work: the analysis of references and documents, the system analysis, the organizational analysis, marketing tools, SWOT - analysis, organizational design, methods of mathematical statistics. The theoretical basis of the research is methods, techniques and the general scientific principles of the implementation of complex social and economic researches, the theory of the innovative development, generally native and foreign experience of the complex analysis of the control system of Non - Olympic sport. Methods of the empirical level of the research allowed to prove the functional importance of Non - Olympic sport as a social and economic phenomenon. Results of the market research allowed to define modern problematic issues of functioning of sports organizations of Non -Olympic sport and to prove the conceptual principles of the development of Non - Olympic sport in the European space.

The statement of the main material. In Ukraine the state policy is focused on social and economic and humanitarian development of the society and the personality. The development of mass physical culture and sport for everybody is one of the main means of the performance of this policy. The condition of realization of this policy is an introduction of the economic, pedagogical, psychological,

sociological and philosophical principles, approaches, methods, mechanisms and technologies modern organizationally, in administrative practice. The sector of sport and the sports industry is the effective tool for the social integration of unity in the European society. At the present stage the effective development to the region provides European, to a human-centric system of values. Under the present conditions of a person takes the central place in civilization, European development. The creation "societies for all" becomes the purpose of social integration, in which all urged to play an active role. It is promoted by politicians of the development to the sector of sport and the sports industry (in particular Non - Olympic sport). The European liberal and democratic system is focused on it, which is based on the principles of the General declaration of human rights of the UNO (1948), International covenant about the civil and political rights (1966), Conventions of the Council of Europe on protection of the rights and fundamental freedoms of a person (1950), Agreements about European Union (1992), Agreements on functioning of the EU, European social charter (1961), Helsinki act of Meeting on safety and cooperation in Europe (1975), Parisian Charter for new Europe (in 1990), Lisbon agreement (2009) [9], Agreements about association between Ukraine, on the one hand, and European Union, The European commonwealth on atomic energy and their member states, on the other hand (in 2014) [13] according to which people are allocated with the right for worthy life and the right for freedom as which guarantor the constitutional state acts.

The prompt growth of the popularity of sports which aren't included into the Olympic program, their staginess, commercial appeal, profitability of resource providing cause development of qualitatively new paradigm of the development of Non - Olympic sport in Ukraine which will promote strengthening of a role of physical culture and sport in the development of regions, to all-round and harmonious development of society, the personality, and formation of the healthy nation (tab. 1).

The table 1

Assessment of the development of Non - Olympic Sport in Ukraine during 2009-2013

Year	Quantity of sports, units.	Quantity of federations, associations, leagues, units.	Quantity of those who is engaged at sports schools, persons.	Quantity of those who is engaged in sports clubs, persons.	Total amount of those who is engaged, persons.
2009	64	38	64468	28540	272717
2010	70	38	61576	91003	292074
2011	70	38	61729	134396	309656
2012	70	38	62817	128736	311729
2013	70	39	64274	131631	318392

The source is made by authors on the basis of the analysis of statistical reports of the Ministry of youth and sport of Ukraine

As we see from data of table 1 the positive dynamics of changes of some indicators that testifies to promoting of this phenomenon is observed. However

certain data isn't displayed in official statistics which complicates the process of definition of current trends of the policy concerning the development of Non - Olympic sport in a regional context. It is connected, in our opinion with imperfection of use organizationally administrative and financial and economic technologies in activity of primary cells (sports clubs, federations, associations, leagues) and governing bodies (state, branch, regional, municipal levels).

There are such components of Non - Olympic sport at the formation stage in Ukraine for this time:

- control system of Non - Olympic sport at the state and regional levels;
- formation and realization of the policy of the development of Non - Olympic sports;
- system of effective preparation and security of national teams.

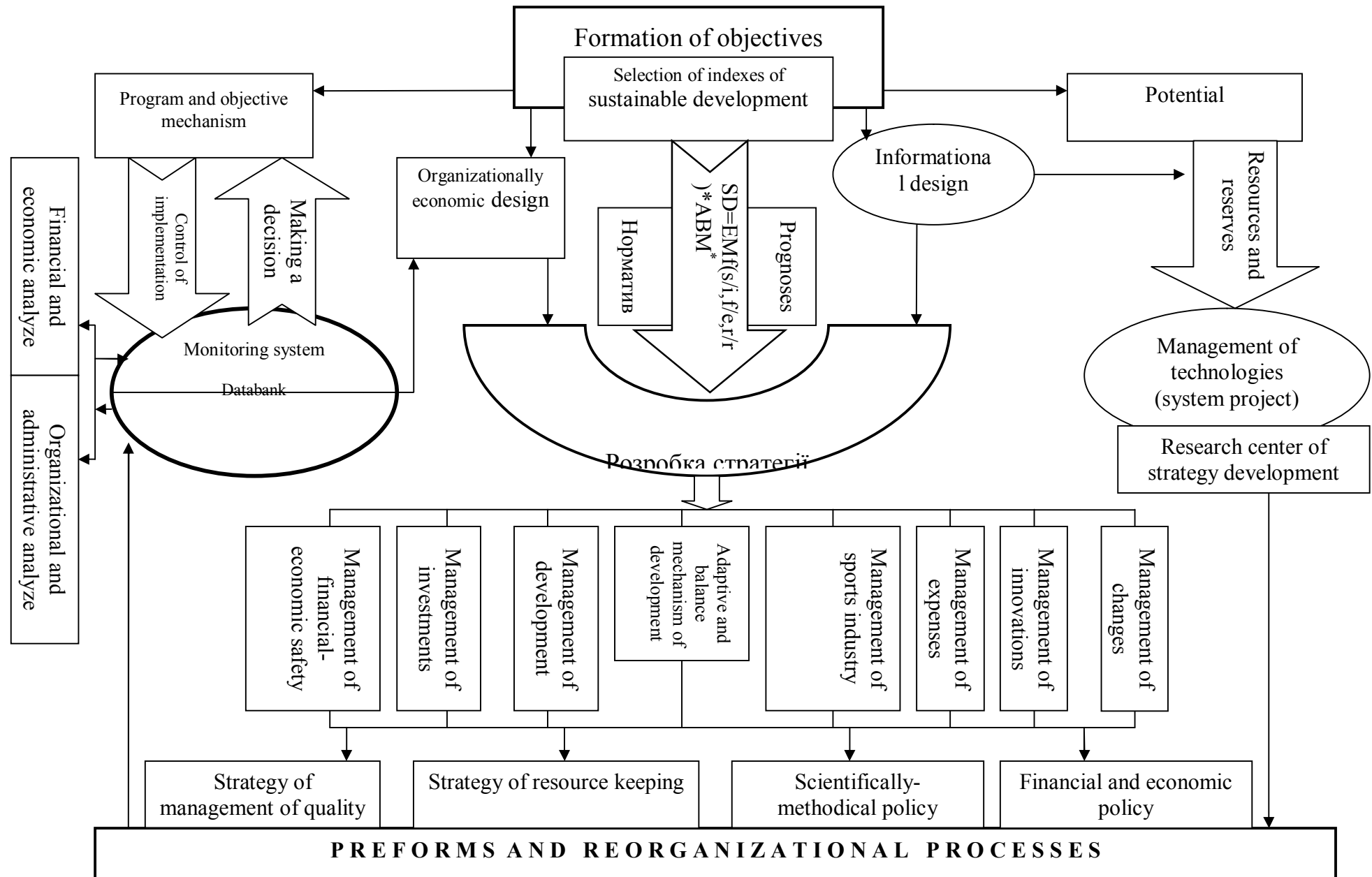
The reforming of the sector and the reorganization of processes induce the creation of system of the effective management which is a condition for an autonomy and self-regulation of the sports and sports organizations that has to seek to develop the culture of trust and economic management, based on the latest knowledge, acceptance, and feasible strategy of integration, interaction, with youth groups, monitoring and the analysis of indicators of the activity. Besides, the extremely actual is the innovative approach to the development of priority components to the sport sector.

Just Non - Olympic sport has positive dynamics of growth on indicators of the popularity, mass character, "hipness", number of the held events, rates of distribution, profitability, appeal to spectators, satisfaction of requirements of television, innovation, investment appeal, realization of new initiatives, development of sports infrastructure. Results of the conducted market research, poll of experts and carrying out the strategic analysis, allowed to create matrix of SWOT-analysis of functioning of Non - Olympic sport (tab. 2).

Table 2

Matrix of SWOT- analysis of functioning of Non - Olympic sport

<p style="text-align: right;">Environment</p> <p>Internal environment</p>	<p style="text-align: center;">Opportunities</p> <ol style="list-style-type: none"> 1. Creation of the research center of the strategic development. 2. Legislative regulation of the activity. 3. Interaction with the state and public governing bodies of PCS. 4. Organization of preparation, retraining and professional development of specialists. 5. Weakening of positions of competitors. 	<p style="text-align: center;">Threats</p> <ol style="list-style-type: none"> 1. Change of wishes and level of the income of the population. 2. Appearance of competitors. 3. Increase in death rate of children. 4. Economic crisis in the country. 5. Political crisis in the country. 6. Cultural crisis. 7. Social crisis.
<p>Strong sides</p> <ol style="list-style-type: none"> 1. Appeal and interest in "fashionable" sports. 2. Promoting of Non-Olympic sports. 3. Satisfaction of needs of spectators and television. 4. Sporting achievements of pupils. 5. Quality of PSP. 6. Mass character of embracing of the contingent of different groups of the population. 7. Profitability of resource providing. 	<p style="text-align: center;">Field of "Forces and opportunities"</p> <ol style="list-style-type: none"> 1. Possibility of the improvement of quality of providing sports services and introduction of administrative technologies modern organizationally in the activity increases thanks to the effective management. 2. Licensing and certification of the activity. 3. Providing with additional workplaces. 4. Mass attraction to sports classes. 	<p style="text-align: center;">Field of "Forces and threats"</p> <ol style="list-style-type: none"> 1. Close cooperation with government bodies of the management of physical culture and sport minimizes corruption actions. 2. The qualified and safe work on educational and training classes are competitive advantage to the population.
<p style="text-align: center;">Weak sides</p> <ol style="list-style-type: none"> 1. Qualification of trainer and teaching structure 2. Existence of all necessary organizational components 3. Use of innovative technologies of the organizationally administrative activity. 4. Organization and carrying out the educational and training process 5. Systematic collecting and analysis of statistical data on the activity of primary cells. 6. Lack of experience on carrying out sports multi - projects 7. Effective funding mechanism. 8. Lack of strategy of the development. 	<p style="text-align: center;">Field of "Weak sides and opportunities"</p> <ol style="list-style-type: none"> 1. Lack of continuous international contacts reduces competitiveness. 2. Use of interaction with government bodies of management of PCS will allow to use ethical and social responsibility of Non-Olympic sport on the basis of the principles of the sustainable development. 	<p style="text-align: center;">Field "Weak sides and threats"</p> <ol style="list-style-type: none"> 1. Increase in the competition from other organizations which provide similar services. 2. Lack of branched sports infrastructure constrains possibility of carrying out rating international competitions.



Pic. 1 Cybernetic model of the sustainable development of Non - Olympic sport

* *SD – sustainable development*

EM – effective management

s/ i – sports industry

f/e – financial and economic factors

r/r – reforms, reorganization

ABM – adaptive and balance mechanism

Non-Olympic sport is dynamic and quickly changing economy sector with underestimated macro - and mesoeconomic consequences. In the solution of tasks of life support and to the development of Non - Olympic sport we suggest not to miss a number of the major moments: to develop and to apply organizational projects, administrative technologies, "integrators" of local resources, models of a attraction of attention and financial means of sports organizations, to investigate an internal resource sports to the movement, to develop programs of financing. The necessity of the creation of system of licensing and certification of sports organizations are evident.

The cybernetic model of the sustainable development of not Non-Olympic sport (pic. 1) is developed. The objective block "Program and objective mechanism" (model entrance) through "resources", "databank", administrative technology, and the research center of the strategic development, are set by parameters and standards of the development. Mechanisms of "decision-making" and organizationally economic design play a role of instruments of management, and the block of "management" (updating of technologies, managements of innovations, development, expenses, financial and economic safety but other) works by the functional principle (constantly, with tracking of the reached norms and deviations, with the direction in the informational and administrative contour of information, which is necessary for the introduction of amendments).

The effective management has to be based on the principles of subsidiarity and autonomy of structures of Non-Olympic sport; informing and educational the relevant interested parties about the nature and existence of noted principles. Regional sports monitoring will allow to trace two different directions of information and analytical communications: on the hierarchy in the most sports system and in the structure of bodies of regional self-government. The state and public governing bodies of physical culture and sport have to introduce more actively new administrative programs and models, financial and economic mechanisms and social technologies, that are more suitable for integration of efforts of population, the power and business.

Thus, organizationally economic conditions of the effective functioning and the development of Non-Olympic sport are:

- development of a technique of an assessment of resource potential of the development of Non-Olympic sport;
- formation of the strategy and innovative technologies of management of Non-Olympic sport at the state, sector and regional levels;
- development of the concept of marketing policy and economic development of subjects of Non-Olympic sport.

Conclusions. Results of the conducted research allowed to draw conclusions that the conceptual principles of the development of Non-Olympic sport are:

- improvement of standardly legal, scientifically methodical and biomedical support of a training system of athletes;
- optimization of management of the activity of the organizations in a training system of athletes;
- activation of the economic activity;

- innovative development of the resource providing;
- integration of Non-Olympic sport to the international commonwealth;
- carrying out basic and applied researches on problems of the definition and the improvement of resource potential of subjects of Non-Olympic sport.

Social and economic responsibility of functioning of Non-Olympic sport provides:

- maximizing positive influence on the development of regions;
- minimization of negative influence of the environment;
- assistance of the balanced continuous growth of economy;
- participation in education and employment of youth;
- use of sports for the purpose of warning the conflicts and creation of the world;
- acceleration of integration of the principles of the sustainable development in the context of holding sporting events.

Prospects of the subsequent researches. The development and the deployment of a technique of an assessment of resource potential of the development of Non-Olympic sports are provided; the development of the program concerning the balancing European sports policy with the Ukrainian practice.

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CHANGES TO STUDENT ATTITUDES SPORTS AND SPORTS ACTIVITIES, AND TO THE ASSESSMENT OF THEIR HEALTH DURING THEIR UNIVERSITY STUDIES

Abstract: Purpose: *Based on the analysis results of the survey highlight the changing attitudes to sports and sports activities and their health in students of Law University during their university studies. **Material and Methods:** The study involved students of the first and second courses The Prosecutors' Training Institute and faculty number 9 of the National Law University named after Yaroslav the Wise and students of the Kiev National University of Culture and Arts and Zhytomyr State University named after Ivan Franko. **Results:** revealed that the overall level of health in students of Law of the University, the highest compared to students studying in several universities not a sports profile. Also confirmed that the period of studies in university students of the law increased interest in physical culture in comparison with students enrolled in other non-core university. **Conclusions:** This study suggests that during the period of study in law university in the second year compared with the first reduced the number of students who have an interest in physical culture is growing and students assess their health as good. The analyzed data indicate that the period of study at the University of the number of students who engaged in physical activity outside the classroom increases by 12.5%.*

Keywords: *physical education students, sports students education, health, sports activities, driving mode, a sociological study.*

Problem statement and analysis of recent research and publications.

Organization of physical education of students provides students the basic distribution of medical group to organize practical training in study groups – physical education and sports training [11]. Among the selected forms of organization of physical education students are the most common sports-oriented [12]. Such an organization of physical education students, as practice shows, does not solve the full problem of preserving and strengthening their physical health [8, 13], because at present over 70% of students with low and lower-middle level of physical health [7] for the period of study in higher education students increased the number of patients 2-3 times [9], with years of training in high school students also observed the negative dynamics of their physical fitness [5].

The following statistics show the need for new approaches to the organization of physical education students. In this area carried out considerable work of the National Law University named after Yaroslav the Wise. Yes, four hours a week, which are assigned to students of the first and second courses in the discipline «Physical Education», one academic classes focused on general physical training of students in traditional sports: athletics, sports games, gymnastics and others. Second session – sectional, that students choose their own sports in which they wish to self-improvement [4]. V.S. Muntjanom [10] proposed to embed a system of physical education students of higher educational institutions (HEIs), the author's program of physical, technical, tactical, moral, volitional and aesthetic development of students – Fight-fitness, which consists of the following sections: 1) single combats / self-defense, 2) physical special training; 3) kick-boxing aerobics; 4) special moral and volitional training / psychological training. However, such innovations as evidenced by work leading experts university does not fully solve the problem of optimization of health and physical fitness of students, as at present in 42,8% of university students observed dysfunction of the cardiovascular system [2], 52% of students have developed a deviation from the norms of physical development [1], and level of physical fitness of university students is average [6].

The purpose of the article. Based on the analysis results of the survey highlight the changing attitudes to sports and sports activities and their health in students of Law University during their university studies.

Relationship of academic programs, plans, themes. Research conducted as part of a comprehensive research project on the 2013-2014 year. «Theoretical and methodological basis for the formation of personal physical training in children and young people as the basis of their health» (state registration 0113U001205).

Research Methods. For the task was made a special sociological research. It was attended by students of first and second courses IPCOP and faculty number 9 of the National Law University named after Yaroslav the Wise (NLU). The study was conducted at the end of the school year. The study used a mixed-type questionnaire, which has passed the practical testing in previous studies [14]. During the comparative analysis of the survey results of students of the first and second courses assumed that the difference between the aggregate responses is significant if it was greater than 5%. For a more objective assessment of the results of a survey of students legal academy, they were compared with the generalized results of a similar study conducted by the Kyiv National University of Culture and Arts (KNUCA) and Zhytomyr State University named after Ivan Franko (ZSU).

The main material. The results of the study are presented in table 1. They indicate that during the period of study in the Law School Student evaluation of the level of their health significantly reduced. Thus, in the first year 66,9% of respondents rated their health as «good». In the second year students of less than 7,5% (59,4%). The number of students who rated their health as «satisfactory» and «undecided» for the period of training does not change. As can be seen from the data in their assessments difference is within 5% error. Comparison of the generalized results of the assessment of their health made a law student of the University with the

results obtained in the course of special studies conducted in several universities not a sports profile indicates that the first 63,2% of the students assessed their health status as «good», and 30,5% as «satisfactory», while in the second, respectively, 48,4% and 43,5%. Results of the study also show that the number of absenteeism due to illness, a law student of the University is a constant in the first and second years (the difference in estimates of less than 5%). Thus, due to illness never missed a school day 55,0% of university students, while other non-core universities such students was only 16,4%. Students law school and a significantly better quantitative absenteeism due to illness. From 1 to 10 days of missed classes 38,8%, and more than ten days, only 6,6%, while in other non-core high schools, these figures are, respectively, 50,3% and 33,2%. Conducting research results showed that during the period of study at the University number of students, who engaged in physical activity outside the classroom increased by 12,5% and amounted to 52,4% of the students of the first and second courses in non-specialized high schools, the figure is only 31,5%.

According the rules of hygienic norms students at the present mental stress should be dealt with physical activity at least 1,5 hours per day [3]. This provision, according to a study by most students of the first and second year law university almost unfulfilled. Thus, only 44,8% of university students engaged in leisure time physical activity more than 4 hours per week. It should also be noted that in the second year compared with the first, 21,3% increase in the number of students who spend on sports activities from 1 to 4 hours, while the number of students who spend a activity more than 4 hours per week reduced by 20,4%. During the period of study at the university, according to results of a survey of students in them comes the realization that their driving mode is insufficient for optimum life and preserve their health. This fact was noted by 13,5% of first-year students and 30,9% other. It should also be noted that on average, 57,3% students of Law University (66,1% in the first and 48,5% in the second year) find their optimal driving mode, while in other non-core institutes of higher number of students lectures in 39,2%.

Table 1

The attitude of students towards the health and to sports and sports activity

№	Questions and versions of answers		The generalized results of answers of students (%)				
			NLU				KNUCA та ZSU (n=246)
			1 course (n=84)	2 course (n=64)	Difference	Average value	
1	How you estimate a condition of the health?						
	a	Good	66,9	59,4	- 7,5	63,2	48,4
	b	Satisfactory	28,8	32,2	+ 3,4	30,5	43,5
	c	Not defined	4,25	8,4	+ 4,15	6,3	8,1
2	How many days in the last year of training you missed due to illness?						
	a	Not one	54,5	55,5	+ 1,0	55,0	16,4
	b	From 1 to 10 days	40,5	36,2	- 4,3	38,4	50,3
	c	More than 10 days	5,0	8,3	+ 3,3	6,6	33,2
3	Do you practice in physical education and sport outside the classroom?						
	a	Yes	46,1	58,6	+ 12,5	52,4	31,5
	b	No	9,0	16,1	+ 7,1	12,6	24,7

	c	Not regularly	44,9	25,8	- 19,1	35,4	43,7
4	Your spending free time on sports and sports activities for the week:						
	a	From the 1 to 4 hours	45,0	65,4	+ 20,4	55,2	50,6
	b	More than 4 hours	55,0	34,6	- 20,4	44,8	49,4
5	Your motive mode is sufficient for normal activity and preservation of health?						
	a	Yes	66,1	48,5	- 17,6	57,3	39,2
	b	No	13,5	30,8	+ 17,3	22,15	39,2
	c	Difficult to answer	20,4	20,7	+ 0,3	20,5	21,5
6	Your interest in physical culture during training in higher education institution changed?						
	a	Increased	72,5	40,0	- 32,5	56,3	25,0
	b	Remained unchanged	21,0	47,2	+ 26,2	34,1	55,0
	c	Decreased	6,5	12,8	+ 6,3	9,6	20,0
7	What would increase your interest in sports and sports activities?						
	a	Improving the quality of lessons	25,6	28,4	+ 2,8	26,9	12,5
	b	Choice of the sport in the classroom	30,8	38,8	+ 8,0	34,8	37,5
	c	Modern sports facilities	39,4	29,6	- 9,8	34,5	45,0
	d	Advertise discipline «Physical Education»	4,3	3,2	- 1,1	3,7	5,0
8	What form of physical training would you choose?						
	a	Classes in physical culture interests	16,2	10,4	- 5,8	13,3	20,7
	b	Self-employment	9,8	7,8	- 1,8	8,7	19,5
	c	Sports-oriented forms of employment	33,8	46,4	+ 12,6	40,1	17,7
	d	Active recreation	28,9	21,3	- 7,6	25,1	35,0
	e	Mass physical culture and sports activities	11,4	14,1	+ 2,7	12,7	7,0

Results of the survey show that students in the Law School during the period of study is somewhat reduced interest in physical education. This conclusion follows not only from the results of direct students' answers to this question («down») (the second year these students were 6,4% more than the first), but also from the fact that at the end of the first year of study at the University of 72,5% of students note the increasing interest in physical education, and training in the second year the number of students decreased to 40,0%, this increases to 47,2% the number of students who have an interest in exercise has not changed. Generalizing, the results shows that for the period of study, on average 56,3% of students in Law School increased interest in physical training while in other non-core university number of students is about 25,0%.

An important factor that affects the volume increases motor activity of students is their interest in sports and sports activities. As the results of studies about 26,9% students of Law University believe that the possible increase in interest by improving the quality of studies on the subject «Physical Education». In other non-core universities the number of such students is about 12,5%. As shown in Table 1 materials presented in advertising employment does not affect the formation of such

interest in them. A similar pattern is typical for students of other universities. Draws attention to a fact that the factor «modern sports facilities» although significant from the standpoint of increasing interest to students of Law University of sports activities, but its weight is reduced by the period of study is 9,8%. The role of such factors as «the choice of sports in the classroom» is growing in the second year compared with the first at 8,0%. The significance of this factor is similar to that in the estimates Law School students (34,8%) and other non-core university students (37,5%).

Assessing the impact of students' choice of forms of employment in the discipline «Physical Education» to raise their interest in sports and recreation activities shows that for them the most important are the «sport-oriented forms of employment». This form of employment support 33,8% and 46,4% of first-year students enrolled in the second year of Law of the University, which is much higher than in other non-core universities (17,7%). High enough percentage of students supporting reactive holiday – 28,9% in the first year and 21,3% in the second. This form of physical training is attractive to students and other non-core schools (35,0%). Proposed by students to assess five forms of employment such forms as «physical culture classes interests», «independent study» and «mass sports events» great interest in the students of the law has caused no university.

Conclusions.

1 The studies suggest that the overall health of the students of the University of Law, based on their estimates higher compared to students studying in several universities not a sports profile.

2. Duration of the first and second years of university by 7,5% reduced the number of students who assess their health as good. This is almost the same number of students who assess their health as «fair» (30,5%) and «undecided» (6,3%).

3 Studies have shown that many students first (66,1%) and second (48,5%) courses find their optimum driving mode. However, most of them (55,7%) engaged in physical exercise from 1 to 4 hours a week, which does not meet current standards of hygienic norms.

4 Based on the results of a survey of university students of the law can be stated that the amount of absenteeism due to illness in students of first and second courses is a constant.

5 During the period of study in law university in the second year compared with the first at 32,5% reduced the number of students who have an interest in physical training increases.

6 In the system of physical education of students in groups of physical and sport education sport-oriented forms of employment, in terms of most university students are not the most attractive. Only 34,8% of students state that to improve their interest to sports and sports activities must use the free choice of the sport in the classroom, and only 40,1% of students choose sport-oriented forms of employment.

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MIKHNOV A.*National university of physical education and sport of Ukraine***THE STRESS-STABILITY AND ITS INFLUENCE ON THE EFFICIENCY OF THE COMPETITION ACTIVITY OF HOCKEY PLAYERS OF HIGH CLASS**

Abstract. Purpose: *to define the level of stress-stability of hockey players of high class and expose its influence on the efficiency of competition activity of sportsmen. Materials and Methods:* *sixteen sportsmen of high class, taking part in the matches of the Kontinental hockey league (KHL) for a club «Atlas» (Moscow obl.) in a season 2013–2014, took part in researches. The level of stress-stability of hockey players and his influence was analyzed on efficiency of competition activity of sportsmen. Methods were used: pedagogical supervisions and analysis of competition activity, psychological testing, analysis of data of the special scientific-methodical literature, an analysis of data is the Internet, methods of mathematical statistics. Results:* *it is set in researches, that the hockey players of high class have a moderate level of personality and situation anxiety, high motivation to success and propensity to the risk. Correlation analysis showed that the level of stress resistance affects the efficiency of hockey players technical and tactical actions in the game. What below for sportsmen the level of stress was marked, the higher there were indexes of the neglected pucks and effective transmissions in a match ($r=-0,583, -0,542$). Conclusions:* *the level of stress-stability of hockey players of high class influences on efficiency of competition activity of sportsmen. The exposed results can be drawn for the correction of psychological preparedness of sportsman.*

Keywords: *stress-stability, motivational-volitional sphere, competition activity, technique-tactical actions.*

Introduction. In modern sport the steady increase of sports competition at ice hockey competitions is observed. This process involves constant increase in both physical, and mental loads of sportsmen that imposes special requirements to a search of new methods of psychological training of hockey players for competitions [1; 5; 8].

At the same time today the competition level on the international sports scene and the importance of sports result are so obvious that the relevance of the questions connected with the increase of efficiency of the competitive activity in hockey doesn't raise doubts [2].

At the level of the highest sports skill specific psychological features of players come to light more distinctly, than at lower levels that, in turn, finds the confirmation in researches of many experts [3; 4; 7].

The competitive activity in ice hockey is followed by the highest emotional and

mental tension. Psychophysiological features of this sport substantially are defined not only the necessity of the fast analysis of a situation and the emergency neuromuscular answer to it, but also the existence of an element of danger [6].

In this regard the research of the level of the stress-stability of high-class hockey players is represented actual. The definition of interrelation between the stress-stability and the efficiency of the competitive activity of high-class hockey players is represented also important.

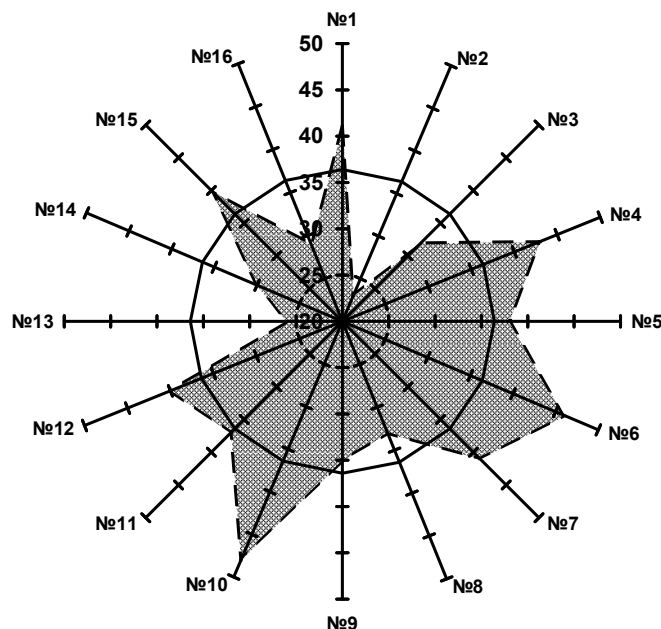
Communication of the research with scientific programs, plans, subjects.

The work is performed within a research subject 2.4. "Theoretico-methodological bases and an individualization of educational and training process in game sports" according to the Consolidating plan of RW in the sphere of physical culture and sport for 2011-2015.

The aim of the research: to determine the level of the stress-stability of high-class hockey players and to reveal its influence on the efficiency of the competitive activity of sportsmen.

The material and methods of the research: pedagogical supervision and analysis of the competitive activity, analysis of data of special scientific and methodical literature, analysis of data Internet, methods of mathematical statistics. Sixteen high-class sportsmen took part in the researches, participating in matches of the Kontinental Hockey League (KHL) for the club "Atlant" (The Moscow Region) in a season of 2013-2014.

Results of the research and their discussion: Personal uneasiness of hockey players (pic.1) was the first indicator which we studied in the researches for the level assessment of the stress-stability.



Pic. 1. Level of personal uneasiness at high-class hockey players

In pic. 1 The data of the level of personal uneasiness on each studied sportsman are submitted. The painted area on graphics reflects specific features of hockey players in this drawing and on others in this subsection, and in the form of a circle the

average level of the studied indicator is given which was received as a result of data processing of group (n=16).

So, it is possible to note that the high level of personal uneasiness was revealed at the hockey player No. 10, low – at players of No. 2, 13, 16.

The assessment of the level of personal uneasiness for all studied hockey players is presented in tab. 1.

It is possible to note that the greatest part of the group had the moderate level of personal uneasiness – 75%, the low level of uneasiness was noted at 18,75% of the group and the high level – at 6,25% of hockey players.

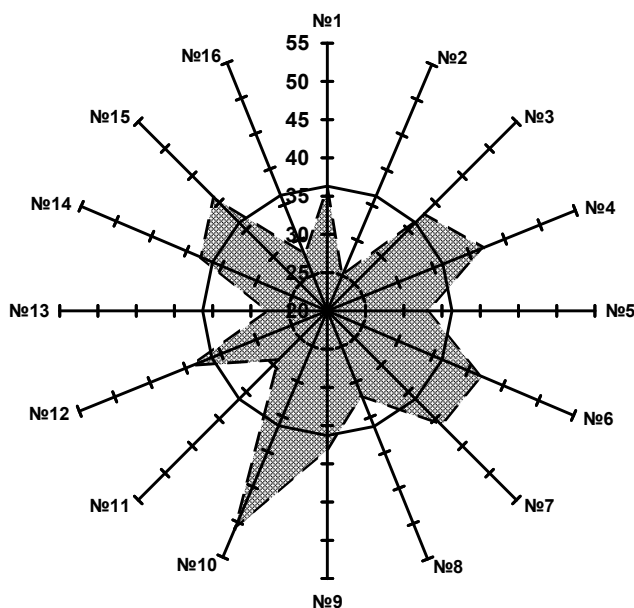
It is also interesting to note that from three players at whom the low level of personal uneasiness was observed, two carried out the function of a hockey goalkeeper on a platform.

Table 1

Level of personal uneasiness at high-class hockey players

№	Player	Level of personal uneasiness
1	K-in P.	moderate
2	D-ko Ya.	low
3	M-ov An.	moderate
4	N-ko K.	moderate
5	R-ov A.	moderate
6	N-in K.	moderate
7	S-ov N.	moderate
8	K-ov I.	moderate
9	B-in R.	moderate
10	Sh-ko A.	high
11	T-ets N.	moderate
12	K-in A.	moderate
13	L-ov A.	low
14	M-ov Al.	moderate
15	R-ov R.	moderate
16	M-er M.	low

The next indicator on which we conducted the research was situational uneasiness (pic.2). It is known that as property of the personality and alarm as a situational state mutually cause uneasiness each other as it isn't represented to personal uneasiness without its situational manifestations. It is confirmed with the high positive correlation of these factors revealed in researches of many experts by which it was convincingly proved that, the uneasiness as line of the personality is more expressed, the higher there is also a situational uneasiness.



Pic. 2. Level of situational uneasiness at high-class hockey players

In our researches we received the confirmation of the existing situation. Hockey players, who had the high level of personal uneasiness, had and the highest level of situational uneasiness among sportsmen of the group.

So, the high level of situational uneasiness was observed at the only one player of the studied group – No. 10 (this hockey player had also the high level of personal uneasiness).

The low level of uneasiness was noted at four sportsmen (No. 2, 11, 13, 16). Other players had the moderate level of situational uneasiness.

In tab. 2 it is possible to see results of an assessment of the level of situational uneasiness on each studied sportsman.

Also we analyzed a percentage ratio of players in the group who had low, moderate, and also high level of personal and situational uneasiness (pic. 3).

In pic. 3 it is visible that results of the level of personal and situational uneasiness practically coincide.

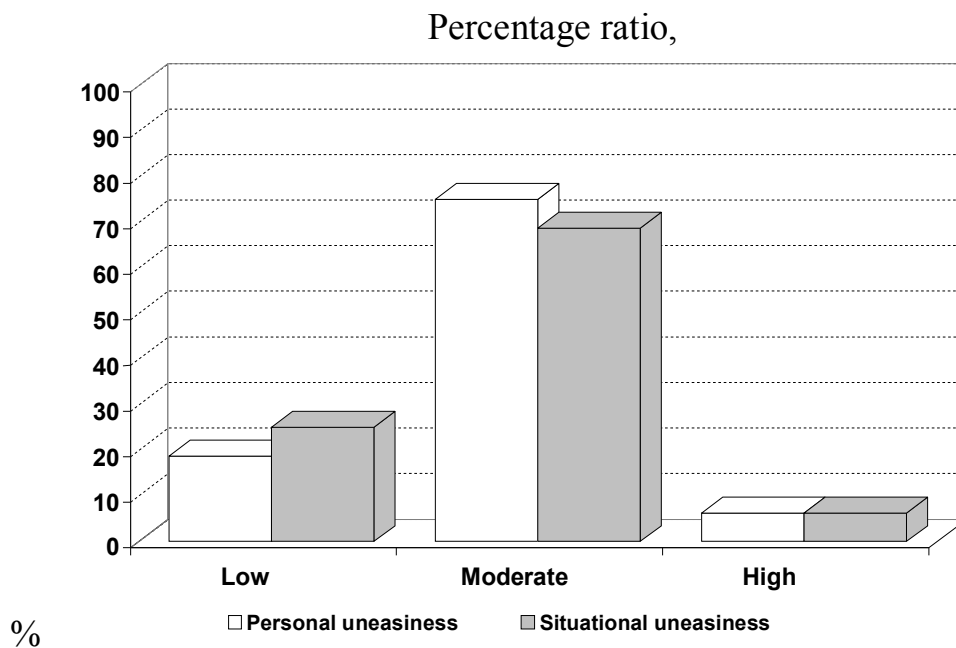
Table 2

Level of situational uneasiness at high-class hockey players

№	Player	Level of personal uneasiness
1	K-in P.	moderate
2	D-ko Ya.	low
3	M-ov An.	moderate
4	N-ko K.	moderate
5	R-ov A.	moderate
6	N-in K.	moderate
7	S-ov N.	moderate
8	K-ov I.	moderate
9	B-in R.	moderate

10	Sh-ko A.	high
11	T-ets N.	low
12	K-in A.	moderate
13	L-ov A.	low
14	M-ov Al.	moderate
15	R-ov R.	moderate
16	M-er M.	low

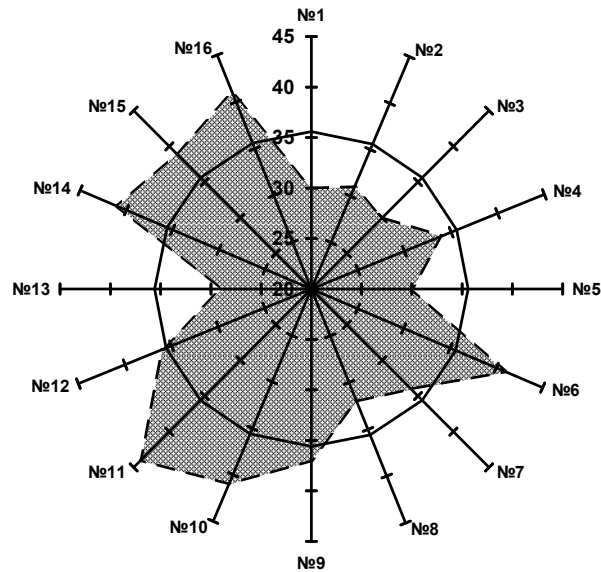
The greatest number of hockey players both on personal, and on situational uneasiness had the moderate level of manifestation of indicator.



Pic. 3. A percentage ratio of high-class hockey players on the level of situational and personal uneasiness

20% of hockey players had the low level of uneasiness on average, and the high level of uneasiness was revealed at one hockey player (6,25%).

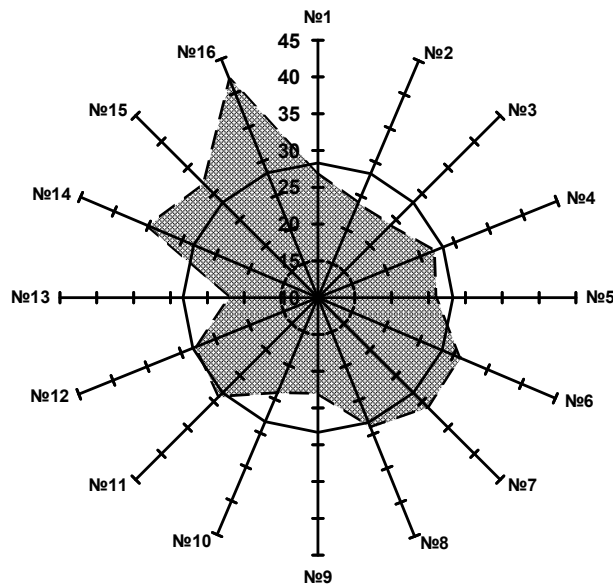
Results of the analysis of these hockey players on the level of manifestation of stress allowed to reveal that the low or average level of manifestation of the studied indicator (pic.4) is observed at the studied sportsmen.



Pic. 4. Stress level at high-class hockey players (in points)

Sportsmen with the high level of stress it wasn't revealed in the studied group. Four players had a low indicator of the level of stress (No. 1, 3, 5, 13), other hockey players had the average level of stress.

Also we offered to estimate own level of uneasiness to hockey players (on a scale of Tsung). Results of these researches are presented in pic.5.



Pic. 5. Self-assessment of uneasiness of high-class hockey players (in points)

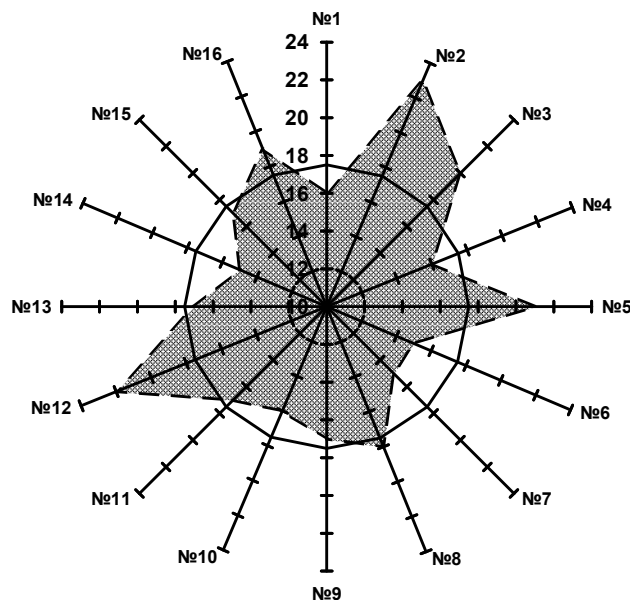
So, thirteen from sixteen studied hockey players had the low level of an assessment of uneasiness. The average level of the points gained by hockey players on the scale of assessment of the uneasiness level made – $28,37 \pm 5,12$ points.

The lowest indicators of self-assessment of uneasiness were observed at sportsmen No. 13 – 22 points, No. 9 – 23 points, 2 and 3 – 23 points, the highest values were noted at hockey players No. 16 – 42 points and No. 14 – 35 points.

An important psychological indicator which carries an orientation of behavior of the personality is the motivation to success. As show researches of many experts, for high-class sportsmen, the high level of motivation to success, irresistible aspiration to increase of the level of their skill, achievement of the highest results is characteristic.

The high level of motivation to success is quite often that key factor which distinguishes high-class sportsmen from the low-skilled sportsmen.

For a modern elite sport in general, and for professional hockey in particular, the intense competition for a place in structure and the achievement of sports result, large training and competitive loads is characteristic. Sportsmen with the low level of motivation to success will hardly manage to achieve serious progress at the highest level. The researches conducted in this work confirmed the existing hypothesis.

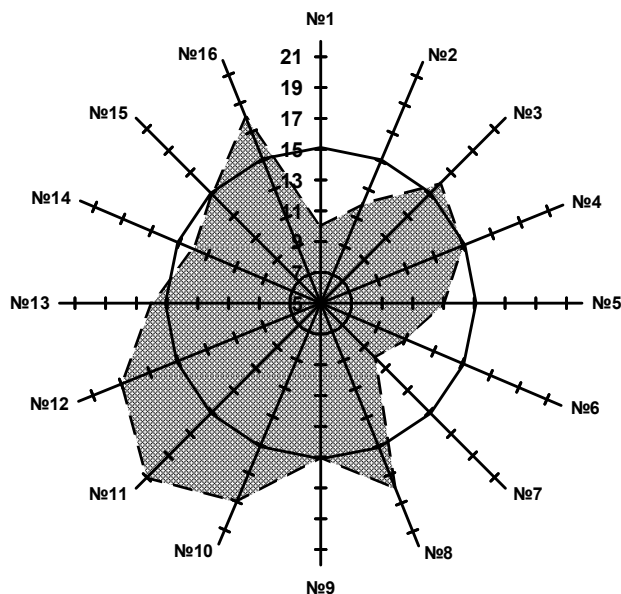


Pic. 6. Motivation level to success of high-class hockey players

In figure 6 it is visible that the high level of motivation to success is noted practically at all studied hockey players.

At three hockey players (No. 2, 5, 12) too high level of motivation to success is noted, seven players have moderately high level and at six – average. Among the studied hockey players it wasn't revealed any player who would have the low level of motivation to success.

The average level of motivation revealed by us to success on the group which was equal – $17,75 \pm 2,54$ points, corresponds to moderately high level of motivation to success.



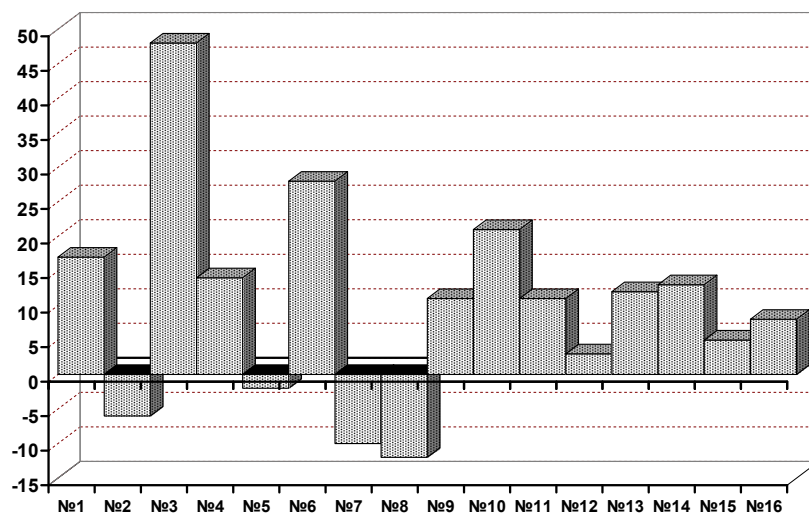
Pic. 7. Motivation level to avoid failures at high-class hockey players

As for the second indicator which is offered by experts for the definition of an orientation of the activity of the personality, the motivation to avoid failures, the following results were received here (pic.7).

At four athletes (No. 10, 11, 12, 16) the high level of motivation to avoid failures was revealed. Experts claim that sportsmen who are afraid of failures (high level of a defense), i.e. have the high level of motivation to avoid failures, prefer small or, on the contrary, excessively big risk where failure doesn't threaten prestige.

Domination at the identity of motive of avoiding of failures can lead to understating of a self-assessment and the level of claims that, in our opinion, it will be interesting to track in further researches at the identification of interrelation of the studied indicators.

It is also possible to note that only at two hockey players of the studied group the low level of motivation to avoid failures was observed, other players had average values.



The gained points

Pic. 8. Tendency to risk at high-class hockey players (an assessment in points)

The important indicator which we investigated in this work, was the tendency of sportsmen to risk (pic.8). According to experts (coaches and players), the level of the development of this psychological quality directly influences the efficiency of actions of the hockey player on a platform. The majority of sharp attacking and defense actions are carried out by hockey players in the conditions of risk, possibility of receiving a trauma or a fouling which, as a rule, leads send-off from a platform (penal minutes). Right these actions which are interfaced to risk, and are key in a match.

The received results allow to note that the average tendency to risk is noted on average at the studied group. Among the studied hockey players it wasn't revealed players who can be characterized as too careful. Individual data of certain players, in particular the hockey player No. 3, the tendency to which risk attract attention, almost twice surpasses the lower bound of the highest level. The lowest indicators are observed at sportsmen No. 7 and 8 that it will be considered by us of course during the carrying out further researches and the analysis of their competitive activity in championship matches.

Results of the correlation analysis testify to the existence of interrelations between the level of stress-stability of hockey players and the efficiency of their competitive activity. So, in table 3 it is visible that the positive correlation interrelation is observed between the tendency to risk and assists of a puck – $r=0,500$, the motivation to success and the won throw-ins of a puck – $r=0,653$. The negative interrelation is found between the level of stress and the thrown pucks ($r = -0,583$). I.e., the lower the stress level was at the hockey player, the higher the indicator of the pucks which are thrown by him was in a match, etc.

Table 3

The correlation matrix parrying the interrelation of stress-stability with the efficiency of the competitive activity of high-class hockey players (n=16)

Indicator	1	2	3	4	5	6	7
8	-0,583098	0,00388	-0,03838	0,04153	-0,12315	0,329201	0,193353
9	-0,54226	0,31753	-0,18651	-0,058	0,603739	0,569737	0,50091
10	-0,507049	0,25921	-0,19996	0,002064	0,241057	0,548527	0,23838
11	0,120312	0,00639	0,061457	-0,04205	0,245949	0,293563	0,56006
12	0,00826	0,07616	0,00381	-0,20537	-0,21816	0,058718	0,22775
13	0,055804	-0,56109	-0,48479	0,417013	0,14258	-0,06777	0,5231
14	-0,495309	0,288712	0,209756	-0,20202	-0,12816	0,329555	0,322943
15	0,12224	-0,42399	-0,27858	0,078025	0,717303	0,551536	0,47826
16	0,03958	0,38385	-0,21479	0,112255	0,616977	0,524257	0,51475
17	0,03266	0,35079	-0,13092	0,183001	0,245235	0,383982	0,36413
18	0,292071	- 0,653011	0,415525	-0,43199	0,314005	0,625037	0,0823
19	0,35614	0,22972	-0,4046	-0,17695	0,406942	-0,07815	0,19832

Notes. 1 – stress level; 2 – situational uneasiness; 3 – personal uneasiness; 4 – self-assessment of uneasiness; 5 – motivation to success; 6 – motivation to avoiding of failures; 7 – tendency to risk; 8 – the thrown pucks; 9 assists; 10 – points; 11 – conditional indicator (+/-); 12 – penal minutes; 13 – shots on goal; 14 – realization of shots on goal, %; 15 – total amount of throw-ins out; 16 – the won throw-ins of pucks; 17 – the lost puck throw-ins; 18 – percent of the won throw-ins, %; 19 – a playing time on a platform, min.

Conclusions:

1. The level of the competition and sports results on the international scene considerably increased in modern hockey. The special importance is gained by the management and the correction of psychological states of sportsmen in the course of training of high-class hockey players.

2. The research of the level and the motivational and strong-willed sphere allowed to establish the stress-stability that on average high-class hockey players had the adequate level of stress, personal and situational uneasiness. It should be noted that the tendency to risk at certain sportsmen obviously exceeded the upper bound of high level of manifestation of an indicator that in general it is possible to explain with requirements of the competitive activity in modern hockey.

3. The correlation analysis established the existence of interrelations between the level of stress-stability of sportsmen and the efficiency of their competitive activity. The positive correlation interrelation is observed between the tendency to risk and assists of pucks – $r=0,500$, the motivation to success and the won throw-ins of a puck – $r=0,653$. The negative interrelation is found between the level of stress and the thrown pucks ($r=-0,583$). I.e., the stress level at the hockey player was lower, the indicator of the pucks thrown by him in a match was higher.

Prospects of further researches are connected with the development of the specialized program of psychological influences directed on the correction of stress-stability of hockey players. Also it is planned to investigate the level of manifestation

of other psychological qualities and properties of hockey players (thinking, attention, specialized perceptions) for an assessment of their influence on success of the competitive activity in hockey.

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**STUDY OF STRUCTURE OF TECHNICAL AND TACTICAL
ACTIVITY OF HIGH CLASS HOCKEY PLAYERS OF DIFFERENT LINE
BY THE METHOD OF MAIN COMPONENT**

Abstract. Purpose: to study the factor structure of technical and tactical actions of hockey players of high qualification of different playing line of business. **Material and methods:** for the leadthrough of analysis of competition activity information of technical and tactical actions of hockey players was used NHL. Competition activity was in general complication analysed more than 800 hockey players of different line of business. Methods were used: pedagogical supervisions and analysis of competition activity, analysis of data of the special scientific-methodical literature, an analysis of data is the Internet, methods of mathematical statistics. **Results:** information is presented in relation to the specific of competition activity of hockey players of high class of different line of business in a match. The factor structure of technical and tactical activity of hockey players, executing in the command of function of extreme forward, central forward, defender and goalkeeper is set. for the players of line of attack most meaningfulness was had factors, related to the attack of gate of competitor, for defenders are power single combats, defense of gate and selection of puck, for a goalkeeper the most meaningful factor is characterized by efficiency of reflection of throws on a gate. **Conclusions:** the exposed features are in realization of technical and tactical actions the hockey players of high class of different playing line of business, it is necessary certainly to take into account in the process of estimation and control.

Keywords: competitive activity, technical and tactical actions, game role specializations, factor analysis, index of reliability.

Introduction. It is well known that a competitive activity in sports games is characterized by wide variety, complexity and inventiveness, and success is determined by an influence of a great number of factors and different sides of sportsmen preparedness [1]. At the same time, a specialization of the sportsmen is of no little significance for establishing leading sides of preparedness, given that in team sports the sportsmen fulfill different functions in a match, it is objectively expressed in different ratio of parameters of play activity, which in whole objectively reflects a specifics of fulfilled various motor tasks [2; 6].

During the last time, the specialists in various sports [3; 8; 7] widely use a factor analysis method, which allows eliciting a complex of dominant indicators, conditioning the sports result, indicating a level of interrelation between the indicators, and determining a contribution of separate factors to sports result

formation [2; 4; 5; 9].

The similar analysis was also carried out by the specialists in the field of sports games. Thus, in the researches of Kirichenko R. O. and Doroshenko Y.M. [2], the differences in grouping of the structure elements of technical and tactical actions in lost and won meetings of a team were revealed. Babushkin V.Z. [1], using a factor analysis method, discovered a complex of significant parameters and personality attributes in play activity of basketball players. At the same time, a factor structure of technical and tactical actions of highly skilled hockey players of various role specializations remains unresearched.

In the given research paper, an attempt of establishing more significant indicators of technical and tactical actions with a usage of factor analysis and confirming the specialists' opinion as for priority significance of the given indicators for hockey players, performing on various game positions, is made.

The connection of the research with scientific programs, plans and subjects. The research is conducted within the context of scientific subject 2.4. «The theoretical and methodological basis and individualization of learning and training process in team sports» of a research plan in the field of physical culture and sports for a period of 2011-2015.

The goal of the research: to study a factor structure of technical and tactical actions of highly skilled hockey players of various role specializations.

The material and methods of the research: the pedagogical observations and the analysis of special scientific and methodological literature data, the analysis of Internet data, the methods of mathematical statistics.

In order to determine the peculiarities of competitive activity of hockey players of various role specializations, the analysis of technical and tactical actions of the sportsmen, performing at National Hockey League (NHL) and Continental Hockey League (CHL), was carried out. In total, competitive activity data of more than fifty teams (30 NHL and 28 CHL) and nine hundred highly skilled hockey players (220 sportsmen with a role specialization of a centre forward, 160 – a goal-keeper and of 260 – a wing player and a defender) was analyzed.

For obtaining statistical data, the usage of official match reports took place, where the indicators of technical and tactical actions of hockey players in regular season competition of 2013-2014 were represented. For NHL hockey players, the used indicators were summarized according to the results of 82 games, and for CHL – 54 ones.

The conducted factor analysis of the indicators of technical and tactical actions, represented in a given sub-section, proved the experts' opinion and special literature data as for priority significance of separate technical and tactical actions for hockey players, performing on various game positions. The method of main components with Kaiser's normalization and V-max matrix rotation was chosen as a factor analysis procedure. A data processing was carried out with a help of a computer program «Statistica 6.0.».

The research results and their discussion. The factor analysis was conducted in order to obtain small number of factors, considering main dispersion, which is

contained in 15 variables. In this context, from 2 to 4 factors, the proper values of which exceed one, were singled out for hockey players of various role specializations.

According to the algorithm of main components method, a validity of the research results can be attained in case if a per cent of selection of the elements, which are essentially interrelated (correlated) between each other, is no less than 60% of the total dispersion. In this case, these parameters for wing forward are equal to 67,3%, for center forward – to 66,1%, and for hockey goal-keeper – to 88,7 %.

It is essential to mention that the indicator of assists and point shots by hockey players throughout a game is of great importance for all the game role specializations and belongs to the first most significant factor.

A procedure of a factor analysis formed a system of factor loads for a wing forward, where the indicators, characterizing the delivered pucks, assists and gained points ($r=0,901, 0,720, 0,925$), and also a per cent of shots realization ($r=0,781$) entered the first, general factor (27,8%) (Table 1).

In the second factor (22,4%), the indicators, reflecting a fight of a hockey player during face-off ($r=0,981, 0,976$ and $0,989$), are grouped.

Table 1

Grouping and allocation of the elements of technical and tactical actions of a wing forward with a help of main components method (n=260)

Components	Groups of factors		
	1	2	3
Delivered pucks	0,901	-0,109	-0,104
Assists	0,720	0,066	-0,345
Gained points	0,925	-0,004	-0,242
Success ratio +/-	0,576	0,071	0,058
Penalty minutes	-0,004	-0,147	0,835
Point shots	0,538	-0,248	-0,315
Per cent of realization of point shots, %	0,781	-0,022	0,033
Hip checks	-0,303	-0,112	0,791
Returned pucks	-0,348	0,261	0,338
Won face-offs	-0,010	0,981	0,003
Lost face-offs	-0,047	0,976	-0,041
Total of face-offs	-0,028	0,989	-0,017
Per cent of won face-offs, %	0,096	0,244	0,436
Playing time, min	0,490	0,062	-0,687
Total of load variables	3,90	3,14	2,39
Contribution of a factor to common dispersion, %	27,8	22,4	17,1

In the third factor (17,1%), the factor loads, which are higher than luminal ones, have variables, which characterize a power fight of the sportsmen (hip checks and penalty minutes) ($r=0,835$ и $0,791$).

The analysis of factor matrix for hockey players, performing on a position of centre forward, educed the following distribution of factors. To the first, the most significant factor (20, 2%), the indicators of delivered pucks, assists and point shots in a match are included ($r=0,930, 0,443, 0,825$) (Table 2).

Table 2

Grouping and allocation of the elements of technical and tactical actions of a centre forward with a help of main components method (n=220)

Components	Groups of factors			
	1	2	3	4
Delivered pucks	0,930	-0,028	0,070	0,027
Assists	0,443	0,116	0,625	0,050
Gained points	0,786	0,073	0,497	0,051
Success ratio +/-	0,504	0,039	0,102	0,001
Penalty minutes	0,081	0,066	-0,753	0,164
Point shots	0,500	-0,163	0,242	0,233
Per cent of realization of point shots, %	0,825	0,080	-0,058	-0,139
Hip checks	-0,184	-0,182	-0,766	0,111
Returned pucks	-0,389	0,300	-0,225	0,035
Won face-offs	0,026	0,967	0,088	0,077
Lost face-offs	0,068	0,938	0,093	-0,015
Total of face-offs	0,047	0,974	0,092	0,034
Per cent of won face-offs, %	-0,085	0,177	0,046	0,902
Playing time, min	-0,019	0,080	-0,081	0,911
Total of load variables	3,24	3,14	2,44	1,79
Contribution of a factor to common dispersion, %	20,2	19,5	15,2	11,2

In the second factor (19,5%), the indicators, characterizing a fight for a puck face-off ($r=0,967, 0,938, 0,974$) are grouped. The indicators of penalty minutes and power martial arts of hockey players ($r=-0,753, -0,766$) are included to the third independent factor (15,2%). The fourth factor (11,2%) includes the indicators, reflecting a per cent of won pucks and game time, spending by a hockey player on a playing ground ($r=-0,902$ и $0,911$).

The factor analysis of competitive activity of the defenders made it possible to single out three factors, the main values of which exceed one. In the first, the most constituent factor, the indicators of assists and gained points in a match with a high correlation coefficient ($r=-0,902$ и $0,911$) are centered, and a contribution of the first factor to a common dispersion is equal to 25,1% (Table 3).

Table 3

Grouping and allocation of the elements of technical and tactical actions of a defender a with a help of main components method (n=260)

Components	Groups of factors		
	1	2	3
Delivered pucks	0,244	0,937	0,049

Assists	0,886	-0,013	0,249
Gained points	0,807	0,459	0,216
Success ratio +/-	0,398	-0,088	-0,035
Penalty minutes	0,013	0,003	-0,893
Point shots	0,680	0,302	0,151
Per cent of realization of point shots, %	0,004	0,942	-0,019
Hip checks	-0,118	-0,040	-0,861
Returned pucks	-0,497	-0,266	-0,102
Playing time, min	0,358	0,049	0,599
Total of load variables	2,51	2,15	2,04
Contribution of a factor to common dispersion, %	25,1	21,5	20,4

In the second factor (21,5%), the indicators of delivered pucks and a percent of realization of point shots ($r=-0,902$ и $0,911$) are distinguished. The third factor (20,4%) includes the indicators, which characterize a power fight of the sportsmen on a playing ground ($r=-0,893$ и $-0,861$).

For a hockey goalkeeper, a factor analysis allowed receiving small number of factors, which consider a main dispersion, containing in six variables (a total number of point shots, a number of missed pucks, a percent of returned pucks, an index of reliability and playing time, spending on a playing ground). The conducted analysis for a high-level goalkeeper allowed establishing an allocation of the researched indicators in a following order (Table 4).

The first, general factor (a contribution of a factor to a common dispersion is equal to 52,2%) includes the indicators of missed pucks ($r=0,978$), a percent of returned pucks ($r=-0,978$), a coefficient of reliability ($r=-0,909$) and playing time on a ground ($r=-0,730$).

In the second factor (36,2%), the indicators, characterizing a total number of point shots and returned pucks ($r=0,985$ and $0,998$ correspondingly) are distinguished.

Table 4

Grouping and allocation of the elements of technical and tactical actions of a hockey goal-keeper with a help of main components method (n=160)

Components	Groups of factors	
	1	2
Total number of point shots	0,145	0,985
Returning pucks	-0,032	0,998
Missed pucks	0,978	0,062
Per cent of returned pucks	-0,903	0,392
Goals against average (LI), у. е	0,908	0,141
Игровое время, мин	-0,730	-0,165
Total of load variables	3,15	2,17
Contribution of a factor to common dispersion, %	52,5	36,2

According to our opinion, in a course of competitive activity control, and during planning and constructing a preparation of the sportsmen, it is necessary to take into account the differences of a factor structure of competitive activity of hockey players, performing on various game positions.

The perspectives for further researches are directed to studying a factor structure of various sides of the preparedness of highly skilled hockey players with account of their game role specialization (psychological, functional one, etc.). The complex research of various sides of a preparedness, according to our opinion, will make it possible to create a single idea of a preparedness structure for hockey players of various role specialization that, in turn, can be used both in a process of sporting selection and in a process of control and correction of a preparedness of high class sportsmen.

Conclusions:

1. An important condition in the process of assessing competitive activity of highly skilled hockey players in a match is a need for consideration of game role specialization of the sportsmen.

2. The conducted analysis made it possible to identify the most significant factors in technical and tactical activity regarding the game functions, which the hockey players perform on a playing ground. Thus, for the players of an attack line (wing and center forward), a priority meaning belongs to the indicators, directed to an active attack of the opponent's goal cage, and as for the players of defense, the power martial arts and active defense of the own goal cage have an important significance.

3. When assessing a competitive activity of the sportsmen and in the process of orientation to the subject selection of future game specialization, it is necessary, according to our opinion, to consider the differences of a structure of factor analysis of technical and tactical activity of highly skilled hockey players of various game role specializations.

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PLANNING OF THE EDUCATIONAL PROCESS FOR PHYSICAL CULTURE TAKING INTO CONSIDERATION THE DYNAMICS OF THE PHYSICAL CONDITION OF PUPILS OF 13–14 YEARS OLD

Abstract. Purpose: *to justify planning of the educational process for physical culture taking into consideration the dynamics of the physical condition of pupils of 13–14 years during the academic year. Material and Methods:* *assessment of the physical condition of pupils of 13–14 years old during the academic year was carried out with the help of pedagogical methods and rapid – assessment of the level of physical health of children. 62 students from the 7-th classes of Kremenets secondary school № 5, including 32 boys and 30 girls were selected. Results:* *the dynamics of the physical condition of pupils detected during the academic year. Periodization of physical preparation of middle school students which will contribute studying of the sequence content of the teaching material in variable modules during the year, and plan appropriate physical load of pupils physical fitness proposed. Conclusions:* *modified approach to the planning of the learning process of physical education in secondary schools is based on the division of the academic year into periods with clearly defined orientation: retracting, preparatory, basic, retracting, basic, interjacent.*

Key words: *periodization of physical fitness, physical education, physical condition, adolescents.*

Introduction. It is necessary to search new ways of the improvement of the system of physical education for the increase of the efficiency of teaching and educational process [1; 2; 10].

In the advanced theory and practice of physical education and sport [4; 8] physical preparation is considered as a complete pedagogical system, construction and functioning of which are carried out on the basis of the adequacy of regularities of the age-related development of a child's organism and the system of means and methods of pedagogical influence. The optimum performance of such system is reached due to the use of basic principles of management of difficult socially biological systems.

Analysis of modern scientifically methodical literature [4; 7] testifies to the lack of evidence-based approaches to providing a periodization of physical training of pupils in the conditions of educational process for a year for planning of physical activities adequate to physical condition of pupils of 13–14 years old, and it is a rather important component, considering features of physical condition of pupils of middle classes, and also a different orientation of modules of the program on physical

culture and requirements to the level of physical fitness of pupils.

The connection of the work with the scientific programs, plans, subjects.

The work is performed according to a subject of the Built plan of the research work in the sphere of physical culture and sport for 2011-2015 3.1 "Improvements of programmatically-normative of principles of physical education in educational institutions" (number of the state registration is 0111U001733).

The aim of the study: to prove the planning of the educational process of physical culture taking into account dynamics of physical condition of pupils of 13–14 years old during an academic year.

The material and the methods of the study: 62 pupils of 7 classes of Kremenets general education school No. 5 took part in the research, among them there were 32 boys and 30 girls. The following methods were applied: theoretical analysis and synthesis of data of scientifically methodical literature, anthropometrical methods, physiologic methods, pedagogical methods, express assessment of the level of somatic health of children, methods of mathematical statistics.

The results of the study and their discussion. The G-criterion of signs was applied for the clarification of direction of shifts and dynamics of indicators of a physical state and physical fitness at pupils of 13–14 years old, it allowed to analyze variables for the establishing period for academic year in details and to define, whether values of a variable change upon the transition from one measurement to another sideways improvements or deteriorations.

The research of a functional condition of cardiovascular system at boys and girls of 13–14 years old allows to define adaptation abilities of organism of pupils to physical activities, and also their functionality for the academic year. The reliable differences in HR (heart rate) indicators are observed during the period at teenagers: September – December, December – January and December – May (Gemp. <Gcrit., at $p < 0,05$). The reliable differences in indicators of APsyst. and APdiast. are observed at teenagers during the period: September – December, December – May ($p < 0,05$) (Gemp. <Gcrit., at $p < 0,05$). Boys and girls have the reliable differences in indicators of APsyst. – December and January, and boys also have in the period – March – May (Gemp. <Gcrit., at $p < 0,05$).

According to our previous researches, the dynamics of physiometric indicators testifies to their general tendency which is accurately shown both at boys, and at girls – the gradual improvement within the academic year and sharp deterioration after a long rest, that is in winter and summer holidays [6].

The assessment of physical fitness was carried out during the academic year, as behind the statements of experts [5; 7] it is one of the defining factors which characterize physical condition of children. The implementation of pedagogical control of indicators of manifestation of motive qualities which characterize physical fitness of children of 13–14 years old during the academic year, allows to define the readiness of pupils for the implementation of the program on physical culture.

In general for the established period as at children, and girls the fluctuation of manifestations of an athletic ability is accurately traced which are limited by a functional condition of pupils during the academic year.

Results of the previous researches allowed to prove annual and week cycles of the creation of educational process for children of 13-14 years old [6]. When planning an annual cycle it was considered that dynamics of a functional condition of an organism, physical fitness of teenagers of 13–14 years old has the expressed heterochronic character.

Planning of the periods of physical training of pupils is based on the following basic provisions [2–5; 8]: scientifically – based approaches to strengthening and preservation of health of pupils; to the complex development of physical, moral, ethical bases of the personality; to the purposeful development of all physical abilities and the formation of important motive skills; objective regularities of the individual development; sequences of the solution of educational, improving and educational tasks; applied efficiency of formation at pupils of physical culture of the personality.

Planning of the process of physical education in general education educational institutions is shown through the modified approach to the distribution of academic year (an annual macrocycle) for the periods (mesocycle) with the accurate expressed target orientation: I – the involving period (September); II – the preparatory period (October); III – the main (November-December); the transitional (1-9 January); IV – the preparatory (after the 10th of January till the 30th of January); VI – the main (February-May); VII – the transitional (June-August).

Concrete tasks, criteria of the efficiency, specific regularities, the importance of different principles and feature of their realization are characteristic for each of the allocated periods. However between the periods there is a resistant functional interrelation which provides the integrity and logicity of all system of physical education on the improvement of physical condition of pupils.

The involving period (September) lasts the first 3–4 weeks of the academic year (September), classes on physical culture have recreational and improving character with the moderate loading, for the ensuring an adaptation of an organism to academic loads both physical, and intellectual character.

The preparatory period (October and after the 10th till the 30th of January) lasts within 30 days of the first semester of the study. The purpose of the preparatory period is to prepare for loadings of the main period and the accounting of the period of adaptation of an organism of children after summer holidays. In the preparatory period the technical and tactical and functional foundation is laid for the successful preparation and the solution of the main tasks, the formation of different parties of readiness is provided.

The main period (November – December and February – May) lasts over than two months of the first semester of the study and four months of the second semester. However its duration depends on the initial level of a physical state and features of adaptation to physical activities.

The involving period (after the 10th of January till the 30th of January) takes the time period about one month and considers the period of adaptation of an organism of children after rest.

The transition period (1-9 of January and June-August) includes the period of summer holidays, provides the independent performance of home works of a teacher under the control of parents (data on the performance and shipping of loadings can be entered in the diary of self-checking).

In pic. 1 the structure of annual physical training of pupils of middle classes of general education educational institutions is presented where the main methodical approach to an individualization of the process of physical education of pupils of middle classes for a year is to the accounting of dynamics of a physical state, features of manifestation of motive qualities, seasonal fluctuations of physical activity.

In this regard formation of a periodization of physical training of pupils of 13–14 years old provides the management process on the basis of:

- planning of the general and selective direction of the pedagogical influence on physical training of pupils of 13-14 years old that is based on knowledge of the age-related dynamics of the development of physical abilities, the existence of the sensitive periods;
- harmonious combination of different types of specially organized physical activity which provides a broad motive "base" for modeling of programs of classes of teenagers on physical culture;
- techniques of education of physical abilities in the course of different kits of physical preparation by which features of the age-related development of children of 13–14 years old are considered;
- differentiations of physical exercises for the selective influence on high-speed and power and high-speed abilities, endurance, agility and flexibility;
- differentiations of the level of intensity of physical activities depending on the level of physical health of pupils of middle classes.

Conclusions: The modified approach to the planning of the educational process of physical education in general education educational institutions is based on results of our previous researches and data of the advanced practice and is shown at distribution of the academic year to the periods with accurately expressed target orientation (the involving, the preparatory, the main, the involving, the main, the transitional). Concrete tasks, criteria of efficiency, specific regularities, the importance of different principles and feature of their realization are characteristic for each of the allocated periods. When planning an annual cycle it was considered that dynamics of a functional condition of an organism of teenagers has the expressed seasonal nature (Gemp. < Gcrit., at $p < 0,05$).

Prospects of the subsequent investigations from this direction will be directed on the justification of recommendations which concern the mode of physical activity of pupils during their holidays for ensuring the optimum adaptation of an organism by the beginning of the academic year.

Semester	First semester														Second semester																					
Period	involving				preparatory				main						transitional	preparatory								main						transitional						
Month	September				October				November – December						1–9 January	after the 10 th till the 30 th of January								February – May						June – August						
Mesocycle	Involving				Basic (I)														S	I	B (II)														S	
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Motor density (loads) %	100																																			
	80																																			
	70																																			
	60																																			
	40																																			
	30																																			
20																																				
Main objective	To promote the adaptation of an organism to academic loads as to physical and intellectual character				To provide systematic training of pupils for the effective implementation of tasks in the main period of physical preparation				To provide the increase of the level of functional systems of an organism, the development of physical qualities and the study of bases of a technique of the performance of separate exercises, in variable modules						To keep the reached level of functional and physical fitness of pupils by the beginning of classes	To provide systematic training of pupils for the effective implementation of tasks in the main period of physical preparation								To provide the increase of the level of functional systems of an organism, the development of physical qualities and the study of bases of a technique of the performance of separate exercises, in variable modules						To keep the reached level of functional and physical fitness of pupils by the beginning of a new academic year						
Quantity of weeks	~ 4				~ 4				~ 8						~ 1	~ 3								~ 16						~ 12						
Ratio <i>TMK</i> : <i>GPP</i> : <i>SPP</i> : <i>TTP</i> , %	10:70:10:10				20:60:20				20:50:20:10						100 % (<i>GPP</i>)	20:65:15								20:40:30:10						100 % (<i>GPP</i>)						
The recommended volume of <i>IPA</i>	1–1,5 hours				1–1,5 hours				1–1,5 hours						1,5–2 hours	1,5–2 hours								1,5–2 hours						2–2,5 hours						

Pic. Model of a periodization of annual preparation on physical culture of pupils of middle classes of general education educational institutions:

I – the involving mesocycle; B – the basic mesocycle; B(I) – the first basic mesocycle; B(II) – the second basic mesocycle; S – the supporting mesocycle; TMK – theoretic-methodical knowledge; GPP – general physical preparation; TTP – technical and tactical preparation; IPA – improving physical activity during a day.

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ROLE OF THE COACH-MANAGER AND ORGANIZATIONAL FORMS TO MANAGE THE PREPARATION OF ATHLETES IN THE NEW SOCIO-ECONOMIC CONDITIONS

Abstract. Purpose: to reveal the role of the coach, to discharge the role of manager, as well as the importance of modern organizational forms to manage the preparation of athletes in the new socio-economic conditions. **Material and Methods:** the methods used in the study of the theoretical level, including the analysis and synthesis of literature and materials posted on the Internet. **Results:** it was shown that the characteristics of the problem of improving the training of trainers is the account of the variety and diversity of managerial situations. Core members of the athletic training are the coach and the athlete. Coach main participant in the project, in fact, the project manager. Object management training is the behavior of the athlete and his condition. **Conclusion:** during the studies confirmed the problem of the need to improve the organization and management of the development of sport in today's Ukraine.

Keywords: coach as a manager, project training athlete.

Introduction. By the end of XXI century, a process of adaptation of international Olympic movement to new socioeconomic realities and demands of world market has been mainly terminated. The Olympic movement proved itself in new capacity, namely as a real and self-sustainable socioeconomic phenomenon with an inherent inner self-development mechanism [3, p. 19–20]. The activity of its leaders, relating to implementation of market technologies of the management of Olympic sports structures, including marketing, is among the important subjective factors of such self-development [3, p. 20].

A necessity of reconsideration and search of new approaches to organization, management and administration in physical culture and sports system development is occasioned by uncertainty of such difficult problems as reorganization of a system of management and administration of physical culture and sports branch; the development of new regulatory basis, which is insufficiently perfect by now, at the domestic and regional level.

Kirilenko O.N. points out that the processes of formation and development of global sports culture and global sports organization considerably accelerate the changes in national sports systems. In the post-socialist states, such an influence is imposed to transformation processes of a previous model of sports organization and formation of new institutional bases of its functioning and development. In Ukraine, this process is followed by destructive and crisis phenomena, a manifestation of the

previous ones and an appearance of new dysfunctions in the development of sports institute. It is leading to reducing its social effectiveness, including a limitation of a role of a coach (an educator), undervaluation of the issues of youth education and preservation of population health [6, p. 1].

At the same time, during the first stage of post-Soviet transformations of Ukrainian sport (1990s), a collapse of state funding of the sphere took place, but, in the past decade, the positive changes, relating to increased investments in a sport, increased volumes and appearance of new sources of funding, began to emerge [6, p. 17].

Michuda Y.P. mentions that a gradual evolving of bureaucratic behavior pattern of a state and its transformation into a model of a «missionary» type is a determining direction of the perspective physical culture and sports sphere development in Ukraine. In other words, it is necessary to create conditions for functioning and developing of physical culture and sports organizations, which belong to state-owned legal entity and a privately owned one and to a property of non-governmental organizations, and also for providing a whole new content of state management of physical culture and sports, which meet the market requirements [8].

The appearance of a sum of these problems requires an optimization of an interaction between governmental, non-governmental and commercial organizations, realizing management, organization and administration of the development of physical culture and sports movement in a whole country and in every territorial subject at the present time.

During the last time, the fundamental changes in all life spheres of our society have occurred and a current situation had an impact on physical culture and sports branch. Evidently, a necessity for a transition to new conditions of economic management requires entering of adjustments to a management system «from top to bottom», in the forms of organization and a content of physical culture and sports work in country regions, and also enhancing a professional activity of both sports leaders, and sports coaches [3].

The connection of the work with scientific programs, plans and subjects.

The research is carried out in accordance with a research plan of the Ministry of Ukraine for family, youth and sports for 2011-2015 on a subject «The theoretical and methodological bases of improving a training process and a competitive activity in the structure of multiyear preparation of the sportsmen» (a state registration number is 0111U001168).

The goal of the research: to find out the role of a coach, objectively fulfilling the role of a manager, and, besides, a significance of the modern organizational form in managing the preparation of the sportsmen in new socioeconomic conditions.

The material and methods of the research. The methods of a theoretical level research, including analysis and generalization of special literature and materials, available in the Internet, were used.

The research results and their discussion. It was found out that the processes of decentralization and expansion of independence of the regions on the one part, and consolidation of state management role on the other part, actively influencing all life

spheres, are the peculiarity of the changes in management systems with account of modern sociopolitical, socioeconomic and cultural situation in Ukraine. These processes, reflecting the stable tendencies in the life of a state, give rise to a public need for active interaction and delineation of responsibilities of the several management levels simultaneously: of a center and the regions, and, besides, on a level of local government and public organizations [5].

In the conditions of searching the ways of increasing a competitive performance of Ukrainian sportsmen, a solving of the existing problems depends firstly on a level of sportsmen's preparation efficiency. It concerns both of material and technical support, and human resourcing, a level of a preparation of the coaches and their ability to make effective decisions in a process of sportsmen's preparation. That is why, «a process of a preparation of qualified sportsmen is increasingly attaining a character of scientific search of trainings organization and sports loads planning. ...The one of the perspective directions of improving a system of sportsmen's preparation is a development and practical realization of new highly effective means, methods, complex control technologies and the management of training process [9, p. 7].

The major peculiarities of the problem of coaches' preparation improvement are a variety and a diversity of management situations, management cycles, interrelations between them, the impossibility of unambiguous determination of efficiency criteria, a high level of a dynamics of the changes of the indicators factors and their influence on the management effectiveness in a process of development [7; 10].

Fedorov A.I., together with the co-authors, point out the actuality of objectification of training process management, which can be achieved by means of receiving large quantities of information on personal characteristics and various sides of sportsmen's preparedness [7].

Redreyev V.A mentions that an urgency of the problem is growing in connection with an increase of an amount of information, which is a basis for making decisions, a complication of objects, processes, situations, and with an increase of a responsibility for the consequences of the decision made [10].

However, as Sergienko and his co-authors mention, in spite of an attention to the issues of the management efficiency in a field of physical education and sports that was quite obvious more than ten years ago, there is no a confirmation of the fact that the given problem is continuing to be researched in native specialists' works in accessible literature [9, p. 8].

It is known that human factor problems mainly affect a process of making decisions as for the training process management. Among them, on the one part, it is necessary to single out a technological aspect, consisting in the usage of the out-dated management technologies, retardation in a delivery of a new level of information services for a system of the training process management. On the other part, it is a problem of professionalism, which consists in insufficient preparedness of the coaches for the usage of new information technologies in their professional activity [9, p. 10].

A principally new approach, based on the management of the projects in sports, was proposed by Gladchenko T.N. and Sidorov O.I. They have come to a conclusion that a sportsman is a new product of a certain type of activity, no other one except the sports project. «The main participants and partners of the project are a coach and a sportsman. A coach is a major participant of the project; he can be called a project manager. The goal of the work of a coach lies in preparation of a sportsman, who will not only possess sporting potential, but also will be able to realize it at large scale competitions. It is impossible to list special knowledge, skills and abilities of a coach, because there is a great number of them. For forming an idea of it, it is necessary to list the weightiest and obvious functions of a coach. ...In the whole, all the functions of a coach can be reduced to the following ones: a training and learning, educational one, a function of planning, accounting and correction of a preparation, selection of sportsmen on various stages of multiyear preparation, a function of material and technical support and classes security support» [12].

The object of the sports training management is a sportsman's behavior and his state: operative, current, staging state, which is a consequence of the used training and competitive loads, all the complex of influences in the sports preparation system. The training process management means a complex usage of both the capabilities of the sports training system (regularities, principles, statements, means and methods, etc.), and out-of-training and out-of-competition factors of a system of sports preparation (a stock, an equipment, training devices, recovery means, climate factors, organizational moments etc.) (Fig.).

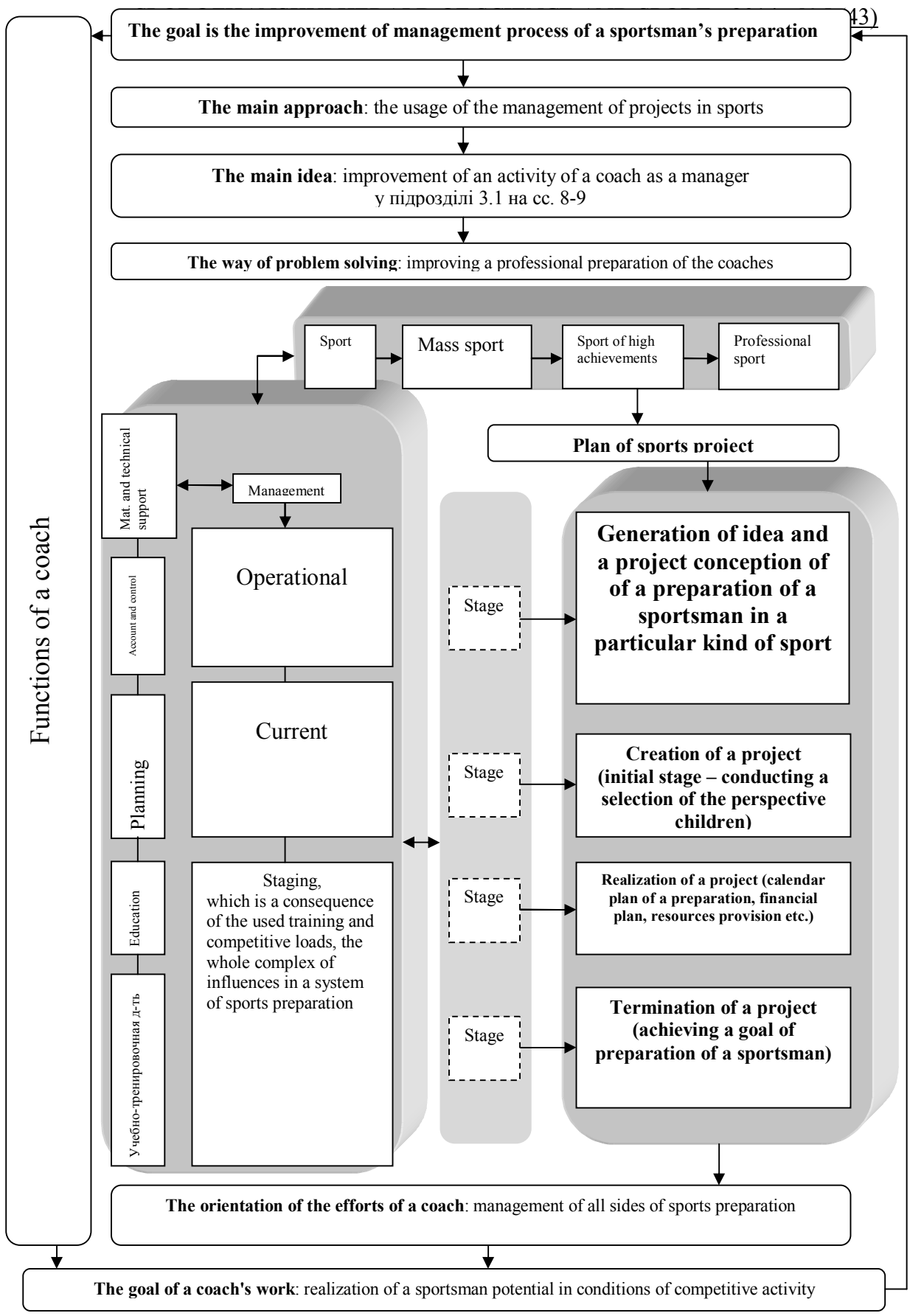


Fig. A scheme of a training process management

In the results of the researches, the authors come to a conclusion that for effective management of a process of high-class sportsman's preparation, the usage of projects management methods is necessary. The whole process of a sports project promotion can be conditionally divided into several consecutive and sometimes parallel stages: generation of idea, development of a project conception, the initial stage of a project creation – conducting a selection of the perspective children, termination of a project – achieving a high planned result by a sportsman [12]. The stages of multiyear preparation of the sportsman and the stages of life cycle of a product have a particular similarity. It determines a conception of a supposed project, which has to be planned with an account of a complex usage of capabilities of sports training system, out-of-training and out-of-competition factors of sports preparation system, the analysis of concurrence in the given sports and resource support of a project.

Thus, the conducted analysis of special scientific literature and practices of administration and management of physical culture and sport system convince in a presence of a range of contradictions:

- between modern requirements to administration and management of physical culture and sports development under new conditions of administrative and managerial relations of a region and a center and imperfection of regional regulatory, economical, social and pedagogical mechanisms for solving the new tasks, dictated by time;

- between a necessity of consolidation of a role and significance of physical culture and sports as efficient factors of education and training, health promotion of a population, increase of its working capacity, organization of a reasonable leisure, prevention of negative social phenomenon and insufficient effectiveness of an existing practice of organization and management of physical culture and sports, ineffectually considering specific socioeconomic and culturological peculiarities of the territories [5; 11];

- between a key role of a coach in achieving a high sports result by means of skillful and effective organization of the whole multi-aspect process of a sportsman's preparation under new socioeconomic conditions and an existing practice of narrowing of a content of their practical activity to the borders of planning and realizing the learning and training process [9].

Alekseyev V.N. comes to an important conclusion: «The condition for a successful functioning of a preparation system is a high level and professionalism of the coaches. A preparation of the coaches in education institutions, retraining and professional improvement in organizational forms, and a process of self-education are of primary importance». A material and technical support of a system (of a sportsman's preparation) should be on a modern level [1, p. 17].

It is evident that the global processes, occurring in modern sports and reflecting a tendency of a transition of a majority of the countries to a model of a market method of economy management, are common for the most of Olympic sports. Further, tennis as a kind of sports, in which quite an efficient organizational and management system is created, is considered as an example.

In spite of the fact that tennis until 1988 was excluded from the Olympic program, a nonprofessional direction is developing in it according to existing Olympic canons, whereas a professional direction exists in accordance with market's laws. At the same time, a structure, which corresponds to professional box versions (the absence of a single international organization, a single system of the competitions and so on), is forming [2, p. 97].

The organizational and management system, existing here, is characterized by a compromise character: «The presence of various leading organizations of professional tennis players (ATP), Woman Tennis Association (WTA) and International Tennis Federation (ITF), democratization of a sports, determined by a role of the sportsmen, their independence from national federations in solving a wide range of law matters» [2, p. 98].

The law matters, the sportsmen's rights, their status and interaction with other market entities has been regulated on an international level that makes it possible to remove the issues of a dictate from national federations side, as a result of which tennis players are freer in legal relation and make independent decisions. Nowadays, tennis players are not only the creators of a sporting show; they are also taking active part in tour administration and are the owners of tournaments [2, p. 98].

As a result: "Usage of the best practice of organizational management and conducting tennis tourneys... not only promoted popularization of kinds of sport, but also allowed to turn them into the greatest commercial organizations, the basic income of national federations and municipal governance, which is an effective model for usage in the other kinds of sport. And if major tournaments in swimming, commercial stratum shift around the world, the stability of the tennis competition calendar, attachment to sport (complex) constructions result in attraction of sportsmen, spectators, sponsors to increase the income of all participants" [2, p. 98].

One should notice another important detail, which must be correctly regarded as the global development tendency of the modern sport. Sport globalization allows us solve many of the abovementioned problems, that occur in Ukraine on the national level, in particular, establishing the competitive environment and preparation of the reserves. "Today such questions are being effectively solved in professional tennis, where the preparation of the elite players is realized by international academies that compensate limited abilities of the national federations in the development of the junior sport with its activity. They have their advantages both for sportsmen and for government, which is determined by the high price cap of the sport service and constructions, financial and organizational instability of the functionality of the national systems in the sphere of reserve sport, increase of popularity of tennis among the population" [2, p. 98].

This experience has been already used in wrestling development which is the international sport around here and generates a great interest on the part of officials and commercial organizations. Bulgaria's impact on the wrestling development in the world is carried out not only by representation in the governing and subsidiary bodies of FILA (International Federation of Associated Wrestling Styles) and CELA (European Council of Associated Wrestling), but also in response to the opening of

the international training center FILA/CELA. “The fundamental distinction of the competition system in Bulgaria is the operation of the club system that assists not only sports commercialization but also the wrestling development in the country, the promotion of the stature of the city-owners of sports clubs and their state support...The bulk of International Centers are situated in the USA” [2, p. 98]

The wrestling progress in Bulgaria is fairly legitimate, seeing that sports-veterans give evidence that Bulgarian experts have intimately studied for a long time the experience of formation and functioning of one-departmental development centers of Olympic sports in Odessa that have existed there since early until the mid-1970s.

Conclusions. In the course of scientific researches, the problem of the necessity of the organization development and management of the sports development in the conditions of modern Ukraine was verified. This applies both to the level of state and regional managements, and coaches activities it selves who are to be examined as entry managers no matter whether they work with groups of initial training, staffed by young athletes, or members of the national teams.

The creation of International Centers is the general tendency for all sports, great motivation for its development and creation of competitive landscape; there is an objective need for create similar centers in modern Ukraine. Moreover, precisely for those sports which have good traditions (e.g. gymnastics) [2, p. 99].

The creation of such centers contributes not only to the integration into the world community, but also is profitable both politically and economically. In fact, firstly, the activity of the International Center is prestigious for the country, and, secondly, if the country, and Ukraine is not an exception, is funding its sportsman's preparation in the leading world center, the winning of the Olympic medals becomes more real. At the same time, there appears an opportunity of using methodological approaches of different schools of sports by means of the sportsmen's trainings in different clubs, including multiyear experience of leading experts, as well as training with world-class sportsmen, which cannot be collected in one club.

From the financial point of view, the similar structures are used not only for the preparation of high-class sportsmen, but also for earning money, attracted to sport development. Therefore, the sport of high achievements cannot function effectively without careful theoretical basis of governance issues, legal and financial support of its operations" [2, p. 99].

The perspective for further researches is connected with the activation of the search of improving the training of coaches in the field of management.

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IMPROVING THE TRAINING PROCESS OF POWER SPORTS ATHLETES BASED ON THEIR BIORHYTHMS

Abstract. Purpose: *improved methods of planning the training process for strength sports athletes with regard to their biorhythms. Material and Methods:* *the study included 16 athletes qualified yaks were members of the team of Kharkiv region in weightlifting and powerlifting. Results:* *it is revealed that the experimental group of athletes who used to planned training load calculations biorhythms improved power rates by 7,2% in compare with the control group who exercised without calculating biorhythms improved results on the power – 4,6%. It was also shown that athletes are more or less manifest Biorhythmic dependence. Conclusions:* *it was established that the planning of the training process, taking into account jet lag has a positive effect on the result of more than planning the same load without jet lag.*

Keywords: *training process, biorhythmic addiction, training load, weight indicators, positive impact.*

Introduction. There are different thoughts concerning training loads, their creation of distribution in the training process and their combinations to intervals of rest and renewal in scientifically methodical literature [2; 3; 10]. But in a large number of scientific literature on the matter there isn't enough information concerning the account in sports practice of biorhythms of sportsmen who go in for power sports [1; 3; 12]. The problem of biorhythms is one of the most important problems of the present because a foul of rhythmical activity as an organism in general, and its separate organs and systems has a very great importance not only for physiology, medicine and valueology, but also for other social and economic processes which happen in society [4–9; 11].

Recently in our country and also abroad researches concerning biorhythms of a person, their interrelation with health are carried out [1; 3; 12].

Searches of researchers are directed generally on the definition of opportunities of the management of biorhythms for the purpose of the elimination of fouls of biorhythmic cycles, and consequently, the improvement of health of a person.

The analysis of scientifically methodical literature testifies that today the young science biorythmology didn't find the wide appendix in sport. Famous experts V. I. Sivakov, D. V. Sivakov, V. I. Shaposhnikova and others dealt with issues of the application of biorythmology in sports practice [12; 14]. In works of these authors only general provisions about the use of biorythmology in sport are opened and consequently, planning of a training load in a close connection with biorhythms remains an actual problem which demands the careful research.

Communication of the work with scientific programs, plans, subjects. The scientific research is executed on a subject of the Built plan of the research work in the sphere of physical culture and sport for 2011-2015 on a subject 3.7 "Methodological and organizationally methodical bases of the definition of individual norm of physical condition of a person" (number of the state registration is 0111U000192).

The aim of the research: the improvement of a technique of planning of the training process for sportsmen of power sports taking into account their biorhythms.

The material and the research methods. *Methods of the research:* the program of the researches included a complex of methods of the research according to the methodological approach in the solution of the problem and the formulated tasks: the analysis of scientifically methodical literature, the definition of biorhythms by means of the computer version, testing taking into account biorhythms, pedagogical experiment) and methods of mathematical statistics.

The organization of the research: members of a national team of Kharkiv area on weightlifting and powerlifting took part in this research. 16 qualified sportsmen were drawn to the experiment, all of them were the Masters of Sports of Ukraine on weightlifting and powerlifting of the age of 18-24 years old. Participants were distributed on sports qualification on two groups – control and experimental. Participants of the experiment trained 4 times for a week.

The experiment was made on the educational and training base of Communal Institution "Children and Youth Complex Sport School" (Kharkiv Tractor Plant).

Results of the research and their discussion. The research included two stages at itself. Graphics of individual biorhythms of sportsmen (of physical biorhythm – 23 days and emotional – 28 days) are counted and created at the first stage (pic.1, 2).

	A	B	C	D	E
1	Дата рождения	14.01.70			
2	Текущая дата	27.09.09			
3	Расчет производится на 30 дней				
4	День	Физ.	Эмоц.	Интел.	
5	27.09.09	0,14	-0,62	0,74	
6	28.09.09	-0,14	-0,43	0,59	
7	29.09.09	-0,40	-0,22	0,41	
8	30.09.09	-0,63	0,00	0,21	
9	01.10.09	-0,82	0,22	0,00	
10	02.10.09	-0,94	0,43	-0,21	
11	03.10.09	-1,00	0,62	-0,41	
12	04.10.09	-0,98	0,78	-0,59	
13	05.10.09	-0,89	0,90	-0,74	
14	06.10.09	-0,73	0,97	-0,87	
15	07.10.09	-0,52	1,00	-0,95	
16	08.10.09	-0,27	0,97	-0,99	
17	09.10.09	0,00	0,90	-0,99	
18	10.10.09	0,27	0,78	-0,95	
19	11.10.09	0,52	0,62	-0,87	
20	12.10.09	0,73	0,43	-0,74	
21	13.10.09	0,89	0,22	-0,59	
22	14.10.09	0,98	0,00	-0,41	
23	15.10.09	1,00	-0,22	-0,21	
24	16.10.09	0,94	-0,43	0,00	
25	17.10.09	0,82	-0,62	0,21	
26	18.10.09	0,63	-0,78	0,41	
27	19.10.09	0,40	-0,90	0,59	
28	20.10.09	0,14	-0,97	0,74	
29	21.10.09	-0,14	-1,00	0,87	
30	22.10.09	-0,40	-0,97	0,95	
31	23.10.09	-0,63	-0,90	0,99	
32	24.10.09	-0,82	-0,78	0,99	
33	25.10.09	-0,94	-0,62	0,95	
34	26.10.09	-1,00	-0,43	0,87	
35	27.10.09	-0,98	-0,22	0,74	

Pic. 1. An example of calculation of biorhythms of the qualified sportsmen



Pic. 2. An example of graphic calculation of biorhythms of the qualified sportsmen

The experiment lasted in the precompetitive and competitive periods of the preparation. Within 61 days there was the introduction of the developed technique of planning of loading taking into account biorhythms. The introduction was carried out only in the experimental group (8 sportsmen). Other 8 sportsmen of the control group trained without biorhythms.

It is necessary to set the date of birth (center B1) and start date of calculation (center B2) for the creation of the graphic of biorhythms. Formula for the calculation of a physical state: $=\text{SIN}(2 \times \text{III}) \times (\text{Date of a day of calculation} - \text{Date of birth}) / 23$.

It is necessary to change the number 23 on 28, and for the intellectual – on 33 for the calculation of an emotional state [13]. At the same time daily within a month at sportsmen indicators of the class dynamometry were measured which results were fixed in the form of graphics. At the first stage only sportsmen of the experimental group took part in the research.

The second stage of the research represented the pedagogical experiment. The purpose of carrying out the pedagogical experiment was the determination of efficiency of the introduced technique of planning of a training load for sportsmen taking into account their biorhythms.

The statistical processing of the obtained data by the method of the rank correlation of Spirmen showed that all studied sportsmen show biorhythmic dependence to a greater or lesser extent. The data of statistical processing are provided in tab. 1.

Table 1

The data of the rank correlation of indicators of class dynamometry of sportsmen and their biorhythms

Number of sportsman	1		2		3		4		5		6		7		8	
	Emotion.	Physical	Emotion.	Physical	Emotion.	Physical	Emotion.	Physical	Emotion.	Physical	Emotion.	Physical	Emotion.	Physical	Emotion.	Physical
Class of dynamometry	0,342	0,521	0,786	0,70	0,435	0,470	0,549	0,562	0,401	0,676	0,851	-0,065	0,704	0,422	-0,38	0,794

For the biorhythmic dependence, proceeding from the data of correlation, it is visible that sportsmen were divided into two groups: biorhythm-dependent are more dependent from the physical biorhythm and dependent more from the emotional biorhythm. Two sportsmen (5 and 3) showed low and average correlation dependence respectively, but thus on graphics of biorhythms and indicators it is visible that the main decrease of their results falls on critical days.

Thus, it is possible to draw a conclusion that the dependence of physical skills is on biorhythms.

The essential difference of techniques is that in the experimental group of planning was carried out taking into account the biorhythmic dependence of the sportsman which was defined at the first stage of the experiment. Also it was offered in the precompetitive period in the phase of the biorhythmic rise to apply shock training in the experimental group by the intensity in draft class till 120%. There weren't differences between the control and the experimental group on the volume of the carried-out loading in the number of raising of a weight (NRW). Results of the pedagogical experiment were fixed in class draft. Three measurements were made:

1. At the beginning of the experiment.
2. At the end of the precompetitive period.
3. At the end of the experiment.

From these tables (tab. 2, 3) it is visible that in the control group the greatest gain of the result for the end of the experiment made 7,8%, the smallest – 1,6%. In the experimental group the greatest gain – 10,2%, the smallest – 3,4%. The average-grouped gain of the result on the second measurement made 2,4% in the control group and 2,5% in the experimental one. Until the end of the experiment, between the second and the third measurement, the gain of the result made in the control group 2,2%, in the experimental – 4,7%. Thus, the general gain of the result during the experiment made 4,6% in the control group and 7,2% in the experimental. Statistical processing of results showed that in the 1st and 2nd measurements of group were uniform, that weren't the essential differences in the shown results. In the 3rd measurement the difference between indicators of the experimental and the control groups are statistically reliable.

Table 2

The relative units of results of sportsmen of the control group

№ of a sportsman		1	2	3	4	5	6	7	8
The best result in a dead lift, kg		275	275	245	245	320	320	310	310
Measurement 1	Tugging, kg	260	255	242,5	240	300	300	290	295
	%	94,5	92,7	0,99	98,0	98,3	98,3	93,5	95,2
Measurement 2	Tugging, kg	265	275	235	245	307,5	320	300	295
	%	96,4	100	95,9	100	96,0	100	96,8	95,2
Measurement 3	Tugging, kg	275	272,5	247,5	247,5	315	325	310	300
	%	100	99,0	101,0	101,0	98,4	101,6	100	96,8

Table 3

The relative units of results of sportsmen of the experimental group

№ of a sportsman		1	2	3	4	5	6	7	8
The best result in a dead lift, kg		275	275	245	245	320	320	310	310
Measurement 1	Tugging, kg	262,5	237,5	240	285	290	265	237,5	290
	%	95,5	96,9	98,0	96,6	93,5	89,8	96,9	93,5
Measurement 2	Tugging, kg	272,5	245	245	282,5	292,5	280	240	305
	%	99,1	100	100	95,8	94,4	94,9	98,0	98,4
Measurement 3	Tugging, kg	280	257,5	257,5	295	312,5	295	255	315
	%	101,8	105,1	105,1	100	100,8	100	104,1	101,6

Results of statistical data processing of pedagogical experiment by the method of comparison of two selective arithmetic averages which are presented in tab. 4.

Table 4

Results of statistical data processing of pedagogical experiment by method of comparison of two selective arithmetic averages

№ of measurement	1		2		3	
	Control.	Experim.	Control.	Experim.	Control.	Experim.
X	95,06	95,08	97,5	97,5	99,7	102,3
$\bar{\sigma}$	2,26	2,69	2,09	2,25	1,59	2,15
V%	2,38	2,83	2,14	2,31	1,6	2,10

Thus, it is possible to draw a conclusion that the gain of the result was more significant during this experiment in the experimental group, that is it was bigger. During the whole experiment the uniformity of group structure in both groups was observed about what allows to judge the coefficient of variation (V), which fluctuations didn't exceed 10%. From what it is possible to draw a conclusion on a uniform gain of results during the experiment at all its participants.

Conclusions:

1. The analysis of references showed that the application of data of a biorythmology and the use of biological rhythms when planning training loads doesn't find the wide appendix in sports practice today.

2. At the calculation of individual biorhythms (physical and emotional) sportsmen were divided into two groups: 1 – in which positive and negative phases of biorhythms coincided and 2 – in which the positive phase of an emotional biorhythm coincided with a negative phase of a physical biorhythm.

3. Sportsmen of the experimental group to a greater or lesser extent showed biorhythmic dependence ($p =$ from 0,704 to 0,825), except for two sportsmen who showed weak and average dependence ($r=0,475$ and $r=0,676$).

The sportsmen were divided into two groups by the biorhythmic dependence: 1 – dependent more from an emotional biorhythm and 2 – dependent more from a physical biorhythm.

4. As a result of the made experiment the average-grouped gain of result made 7,2% in the experimental group, in the control group – 4,6%, the difference of results is statistically reliable ($p<0,05$).

5. During the statistical analysis of the experimental data it is established that the planning of the training process taking into account biorhythms has the positive impact on result more than the planning of the same loading without biorhythms ($p < 0,05$).

The subsequent researches: the justification and the development of a new technique which is intended for renewal in a transition period taking into account biorhythms.

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REBAZ SLEMAN*Kharkiv State Academy of Physical Culture***TECHNICAL AND TACTICAL TRAINING TEAM «HELIOS»
KHARKIV IN THE FIRST ROUND OF 23 UKRAINIAN FOOTBALL
CHAMPIONSHIP IN THE PREMIER LEAGUE 2013–2014**

Abstract. Purpose: was to determine the characteristics of the model command of technical and tactical training team participating in the Ukrainian championship first division for further improvement and correction of the training process, which were obtained by the method of peer review. **Results:** the mean values for the analyzed variables in 10 games. The various technical and tactical actions and their percentage in the overall structure of the game team statistics for 20 games, as well as some indicators of team play «Helios» Kharkov. **Conclusions:** The quantitative and qualitative indicators (coefficient of marriage) as a team on technical and tactical actions, as well as separately for each technical-tactic.

Keywords: technical and tactical actions, the total number of operations, the ratio of marriage, the percentage of the various technical and tactical actions in the overall team play.

Introduction. There is no doubt that the priority of domestic specialists is in building model characteristics of competitive activity in football [3; 4; 7]. Nowadays, during the development of qualitative indicators, that are typical for the set level of sport mastery, there can be marked three different methods [5; 6]. The first one is connected with simple averaging of data of prominent sportsmen with indicating of individual differences or of the range of possible deviation. The second one is connected with learning of a big amount of sportsmen of different qualifications, setting the dependence between the level of sport mastery and dynamic of changes of one or another indicator. The third one foresees receiving, in several prominent sportsmen during the registration, the highest available values of some of the indicators, that are used in the quality of model characteristics. With a difference between data, that are received from a definite sportsmen and model values, there are marked the reserves of further improvement.

The characteristics of technical mastery of the strongest football players are: ability to precisely and in good time fulfill any pass at the limited time and space, high accuracy of kicks, excellent head play, high accuracy of ball take with any part of the body in difficult situations, on a high speed with obligatory pushing, knowledge of a big range of ways of dodging, ball grasping and regrasping [1; 2; 8].

Hereby, the necessity of further studying of the problem of peculiarities of technical and tactical training of qualified football players is evident.

Work connection with scientific programmes, plans, topics.

The research is fulfilled according to consolidated plan NDR in the area of physical culture and sport 2011-2015 MES of Ukraine for the topic 2.3 “Scientific and methodological grounds for improving the system of sportsmen training in football with a glance on peculiarities of competitive activity”, according to the list of priority themed ways of research and developments on the years 2013 – 2015 by Kharkiv State Academy of Physical culture on the topic: “Scientific and methodological grounds of training process and competitive activity”, and also according to the Initiative topic of scientific research of the football and hockey department of Kharkiv State Academy of Physical Culture onto the years 2011-2015 “Optimization of the learning and training process of football players of different qualification”.

Purpose of the research. The main purpose was to detect model characteristics of technical and tactical readiness of the team which participates in Ukraine championship premier league for further improvement and correction of learning and training process.

Material and methods of the research. Research was conducted with the help of expert assessment method. 5 football specialists were taken as the experts. Among them were: 1 master of football sport, 1 – candidate to be maser of sport, others were players of professional sport teams. All specialists in past worked with professional and amateur football teams as coaches. From experts’ list: 1 professor, 1 candidate of pedagogical sciences, associate professor; 2 candidates of sciences of physical education, associate professors of football and hockey department; 1 postgraduate student from football and hockey department of Kharkiv State Academy of Physical culture. If, during the registration of competitive activity of team “Helios” Kharkiv, there arose debatable questions, they were solved by the majority votes. During the time of pedagogical observations the methodology itself conceded mutual control over the indicators of competitive activity that allowed getting more objective data. So, 1 of the specialists calculated the general number of passes and the other, at the same time, recorded what exact players (player №) and what way and distance pass was made.

Team “Helios” Kharkiv in the Ukraine championship 2013/2014 in the premier league participated in 20 games (10 on its pitch and 10 out matches), from them 15 were in the first circle and 5 in the second. It scored 20 and had 15 place out of 16. Team “Helios” Kharkiv got 4 victories, 9 drawn games and 8 loses. Team “Helios”, Kharkiv scored 16 goals and missed 29.

Statement of the main material of the research: table 1 has indicators of technical and tactical activity of the team “Helios” Kharkiv on the 10 home games in the 23rd Ukraine football championship.

Table 1

Indicators of technical and tactical activity of team “Helios” Kharkiv for the first circle of the 23rd Ukraine football championship in the premier league (n=10)

№	Technical and tactical actions	Quantity of positive ones in general for a game $\bar{X} \pm m$	Quantity of negative ones in general for a game $\bar{X} \pm m$	Defects coefficient, % $\bar{X} \pm m$	Percent of usage, %
1.	Ball reception	77,1±3,37	19,4±1,46	20,2±1,5	13,0
2.	Short and middle ball passes forward	156,4±16,23	64,4±2,43	30,67±2,69	29,0
3.	Short and middle ball passes backwards and across	132,8±11,21	17,2±1,7	12,48±1,94	20,0
4.	Long ball passes forward	17,2±1,7	20,6±1,55	68,5±1,75	5,0
5.	Long ball passes backwards and across	4,0±0,95	6,4±0,74	64,16±4,61	2,0
6.	Single combat overhead	33,7±1,52	23,8±1,5	41,3±1,86	7,5
7.	Competitor by-pass	16,2±2,3	12,7±1,8	43,9±2,57	4,0
8.	Ball interception	26,2±2,24	10,7±1,28	29,2±2,71	5,0
9.	Ball take-off	26,7±2,3	27,8±1,54	51,4±2,71	7,4
10.	Kicks on the goalposts	3,1±0,45	4,8±0,62	60,39±4,33	1,0
11.	Head strikes on the goalposts	1,22±0,36	2,0±0,5	61,5±10,77	0,4
12.	11- m penalty kicks	-	1,5±0,5	100	0,2
13.	Penalty kicks in the attack zone	1,75±0,36	2,28±0,35	51,11±11,07	0,5
14.	Angle kicks	3±0,61	3,8±0,75	55,27±5,3	1,0
15.	Ball throwing in from the sidelong line	23,2±2,01	5,7±0,53	20,24±2,25	4,0
16.	Positive and negative TTD	525±24,26	244,9±6,07	32,06±1,43	100
17.	Overall	770±21,99		32,06±1,43	100
18.	Coefficient of efficiency	67,94±1,43		32,06±1,43	-

Also we should overlook the percentage correlation of different technical and tactical actions in general structure of team play (fig. 1). The biggest contribution into the general structure of the game of team “Helios” Kharkiv is done by the short and middle ball passes forward – 29%, short and middle passes back and across – 20%,

ball reception – 13%. Actions that identify the final result of the game – kicks and head strikes on the goalposts are accordingly – 1,0% and 0,4%.

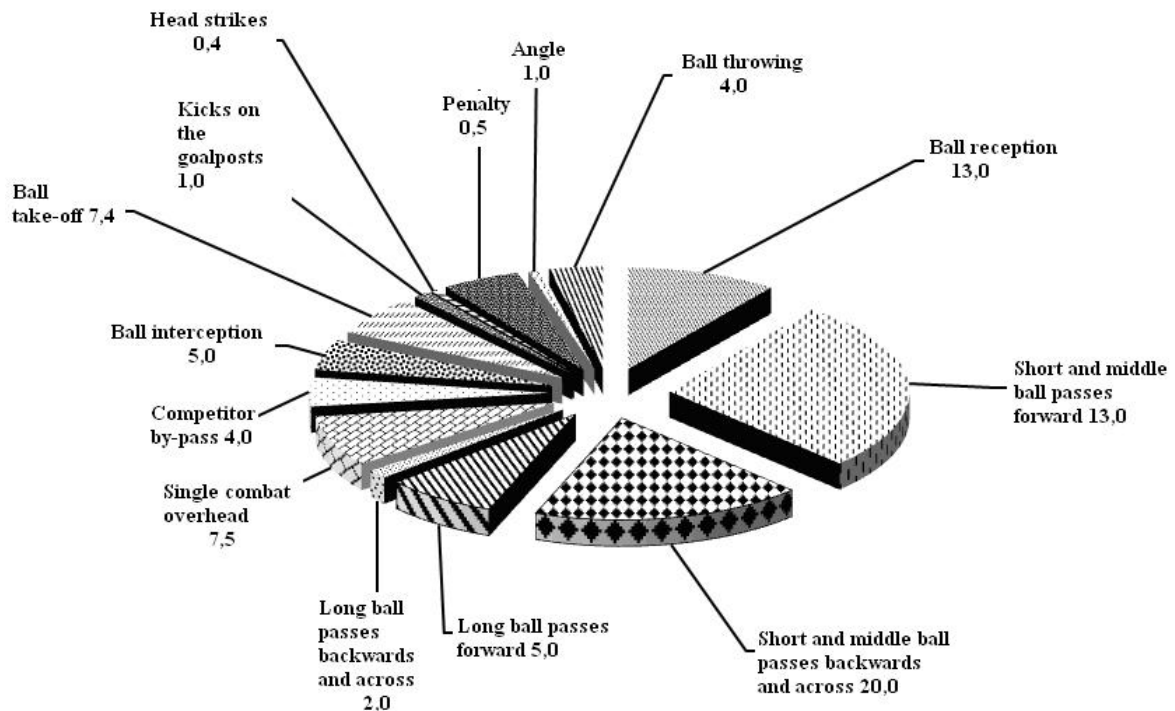


Fig.1. Percentage of different technical and tactical actions in general structure of the game of team “Helios” Kharkiv for the first half of 23rd Ukraine football championship in the premier league, %

There was taken comparative analysis of defects coefficient of fulfillment of technical and tactical actions of team “Helios” for 20 and 23rd Ukraine football championships (table 2)

Table 2
Comparative indicators of defects coefficient of fulfillment of technical and tactical actions of team “Helios” Kharkiv for 20 and 23rd Ukraine football championship in the premier league

№ з/п	Technical and tactical actions	Defects coefficient, % over the 20 th championship $\bar{X} \pm m$ (n=11)	Defects coefficient, % over the 23 rd championship $\bar{X} \pm m$ (n=10)	P
1.	Ball reception	21,84±1,3	20,2±1,5	>0,05
2.	Short and middle passes forward	36,6±2,31	30,67±2,69	>0,05
3.	Short and middle ball passes backwards and across	13,7±1,27	12,48±1,94	>0,05
4.	Long passes forward	64,17±2,16	68,5±1,75	>0,05
5.	Long passes backwards and across	56,3±6,33	64,16±4,61	>0,05

6.	Single combat overhead	46,77±1,81	41,3±1,86	<0,05
7.	Competitor by-pass	42,83±2,21	43,9±2,57	>0,05
8.	Ball interception	34,7±3,15	29,2±2,71	>0,05
9.	Ball take-off	58,6±2,66	51,4±2,71	>0,05
10.	Kicks on the goalposts	47,4±0,05	60,39±4,33	<0,01
11.	Head strikes on the goalposts	66,03±4,39	61,5±10,77	>0,05
12.	11- m penalty kicks	0	100	–
13.	Penalty kicks in the attack zone	54,6±7,05	51,11±11,07	>0,05
14.	Angle kicks	56,2±7,38	55,27±5,3	>0,05
15.	Ball throwing in from the sidelong line	25,4±4,34	20,24±2,25	>0,05
16.	Overall:	35,62±1,56	32,06±1,43	>0,05

In the majority of indicators of technical and tactical actions of the team “Helios” Kharkiv for the first half of the 23rd Ukraine championship there is a noticeable tendency to the decrease of defects coefficient compared to the 20th championship. To such actions belong: ball reception, short and middle ball passes forward, short and middle ball passes backwards and across, ball interception, ball take-off from a competitor, head strikes on the goalposts, penalty kicks in the attack zone, angle kicks, ball throwing in from the sidelong line, and overall quantity of technical and tactical actions over the game. But significantly decreased only the defects coefficient at single combat overhead action.

The quality of performing kicks on the goalposts has significantly decreased. Also during observations over the home matches there wasn't realized any 11-m penalty kick, unlike the 20th championship when all 11-m kicks, that were set in the competitor's goalposts ended with a goal.

Among team indicators were registered indicators of different attack and defensive actions and their efficiency (table 3).

Table 3

Attack and defensive technical-tactical actions of the team “Helios” Kharkiv over the 1 circle of the Ukraine football championship in the premier league (n=10)

№ з/р	Indicators of technical-tactical actions	Average for a game $\bar{X} \pm m$	
1.	Number of attacks of the team	Successful	21,5±2,29
		Spoilt	103,9±7,1
		Overall	125,4±8,8
2.	Efficiency of the attack actions, %	16,95±1,19	
3.	Efficiency of the defensive actions, %	84,8±1,1	
4.	Number of attacks of competitor's team	Successful	17,2±1,55
		Spoilt	97,1±7,0
		Overall	114,3±7,9
5.	Efficiency of the attack actions, %	15,01±1,07	
6.	Efficiency of the defensive actions, %	82,97±20,3	
7.	Number of penetrative attacks of the team	Successful	20,3±2,2
		Spoilt	63,0±4,15

		Overall	83,3±5,2
8.	Efficiency of the attack actions,%		24,2±1,88
9.	Efficiency of the attack actions, %		78,86±1,34
10.	Number of penetrative attacks of competitor's team	Successful	16,3±1,12
		Spoilt	61,2±2,97
		Overall	77,5±3,36
11.	Ефективність атакуювальних дій, %		21,05±1,34
12.	Efficiency of the defensive actions, %		75,7±1,88

During registration attack actions were divided onto quick and positional attacks (table 4).

Table 4

Average indicators of quick and positional attacks of the team “Helios” and their efficiency over the 1 circle of the 23rd Ukraine football championship in the premier league (n=10)

Overall quantity	Quick attacks			Positional attacks		
	Quantity $\bar{X} \pm m$	% among all attacks, $\bar{X} \pm m$	Efficiency, %, $\bar{X} \pm m$	Quantity, $\bar{X} \pm m$	% among all attacks, $\bar{X} \pm m$	Efficiency, %, $\bar{X} \pm m$
119,7±6,67	84,0±4,95	70,27±2,09	17,09±1,26	35,7±3,43	29,73±2,09	17,84±2,5

There were registered ball passes in one touch, that were performed in different zones of football pitch [4]:

1. In the defense zone (not far than 35 meters from the own goalposts line)
2. in the attack zone (not far than 35 meters from the competitor's goalposts line)
3. in the middle zone (between the attack and defense zones).

All passes in all three zones were classified as:

1. attack passes, when ball's direction is forward;
2. passes, that are constructed when ball's direction is backwards or across the pitch.

During the data processing was calculated the quantity of ball passes and detected its efficiency at the zones of their performing and direction (table 5).

Table 5

Volume and efficiency of ball passes in one touch, that were performed by players of team “Helios” Kharkiv over the first circle of the 23rd Ukraine football championship in the premier league (n=10)

№ 3/p	Passes direction	Passes in the defense zone		Passes in the middle zone		Passes in the attack zone		Overall	
		Quantity, $\bar{X} \pm m$	Ef.%, $\bar{X} \pm m$	Quantity, $\bar{X} \pm m$	Ef.%, $\bar{X} \pm m$	Quantity, $\bar{X} \pm m$	Ef.%, $\bar{X} \pm m$	Quantity, $\bar{X} \pm m$	Ef.%, $\bar{X} \pm m$
1.	Attack (forward)	22,5±1, 39	50,9±4, 39	36,2±2, 41	49,7±2, 06	8,72±0, 94	29,09±6, 84	67,4±3,1 3	48,09±2, 33

2.	The constructed ones (backwards and across)	9,18±1,25	97,7±2,27	30,0±3,99	90,3±1,33	6,54±0,49	74,88±2,4	45,7±5,05	89,5±1,0
3.	Overall quantity of passes	31,7±1,8	64,6±3,35	66,2±5,57	67,3±2,15	15,3±1,33	49,7±3,57	113,2±7,29	64,4±2,0

Also were received the indicators of ball delivery to the penalty zone of the competitor's goalposts (table 6).

Table 6

Average data on ball delivery to the penalty zone by players of the team “Helios” Kharkiv over the first circle of the 23rd Ukraine football championship in the premier league (n=10)

First time		Second time		Overall for a game	
Quantity, $\bar{X} \pm m$	Defects coefficient, $\bar{X} \pm m$	Quantity, $\bar{X} \pm m$	Defects coefficient, $\bar{X} \pm m$	Quantity, $\bar{X} \pm m$	Defects coefficient, $\bar{X} \pm m$
13,1±1,52	34,14±2,69	16,5±2,83	33,77±4,83	29,6±3,18	33,17±2,45

In the table 7 there are general statistical data of the team “Helios” Kharkiv over the first circle.

Table 7

Indicators of the team “Helios” Kharkiv over the first circle of the 23rd Ukraine football championship in the premier league

Games altogether	20
Goals altogether	16
Goals in home games	9 (56,25%)
Goals in away games	7 (43,75%)
Total missed	29
Missed in home games	10 (34,48%)
Missed in away games	19 (65,52%)
Goals in general for a game	0,8
Missed in general for a game	1,45
Scores at home	14/30 (46,67 %)
Scores away	6/30 (20 %)
The biggest victory	3:2 – «Нафтовик-Укрнафта»
The biggest fail	1:4 – МФК «Миколаїв»
Games without misses	6 (30%)
Games without goals	8 (40%)
Will victories	0
Will drawn games	4
Outwill fails	1
Outwill drawn games	1
Big victories	0
Big fails	2
Autogoals (made/missed)	0/0

warnings (in general)	53 (2,65)
Withdrawns (in general.) – At once/2 YC	4 (0,2) — 1/3
Players performing	27
Attendance (overall/average)	30871/1544

There was examined the overall quantity of goals, made during matches (home and away) of the team “Helios” Kharkiv (fig. 2).

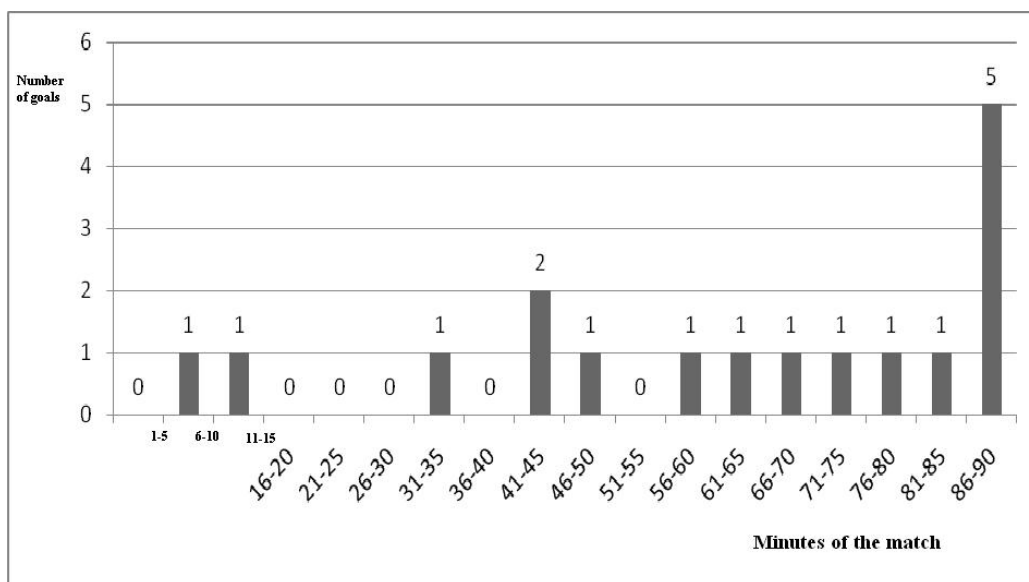


Fig. 2. Number of goals, made in different game periods of time by the team “Helios” Kharkiv over the first circle of the 23rd Ukraine football championship in the premier league

In time period from 1 to 5 minute and from 16 to 30 minutes, and also from 36 to 40 minutes of match there wasn't made any goals. From 41 minute to 45 there were made 2 goals. In the second time team “Helios” scored in each 5 minutes, except time periods from 51 to 55 minutes. The biggest number of goals was made at the end of the game (from 86 to 90 min).

The biggest number of goals (fig. 3) in the first time team “Helios” missed from 16 to 20 minutes (4 balls).

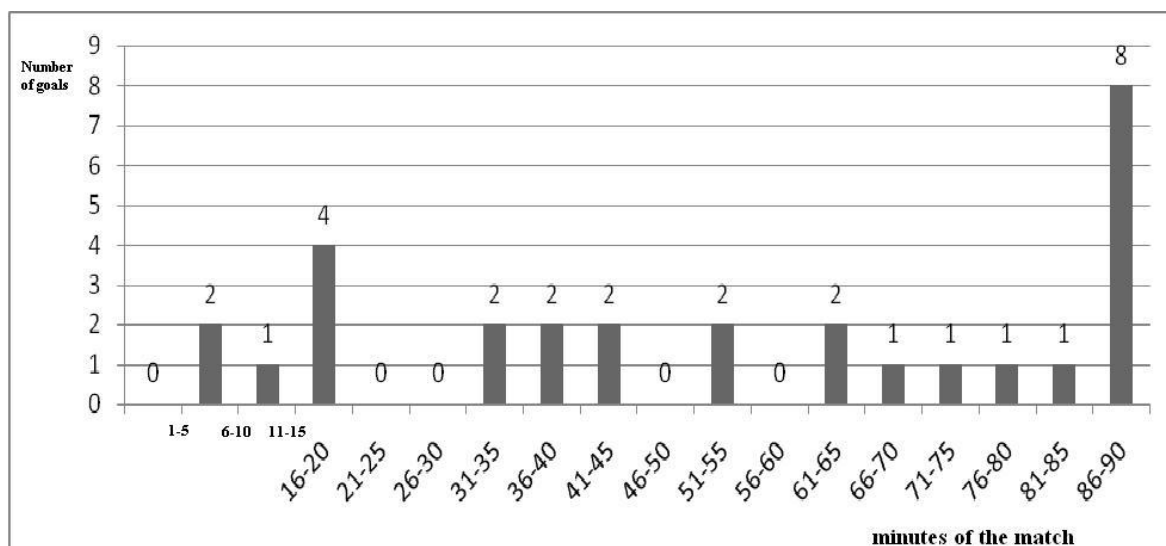


Fig 3. Number of balls missed in different periods of time by the team “Helios” Kharkiv over the first circle of the 23rd Ukraine football championship

Although the biggest number of goals (8) was made into the goalposts of the team from 86 to 90 minutes of the match.

Conclusions.

3. There were detected team characteristics of technical and tactical readiness, that can be compared to indicators of previous championships, where team “Helios” Kharkiv took part, and also with that pointed in literature source by specialists.

4. Except quantity data, there were received quality indicators (defects coefficient) team, as well as separate for each technical and tactical action.

5. The received characteristics allow to make corrections into educational and training process of this team for improving sport mastery.

Perspectives for further research. There will be continued pedagogical observations over the game activity of this team for correction of educational and training process and successful games in future.

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IMPROVEMENT OF PHYSICAL CULTURE AMONG CHILDREN AND YOUTH IN EXTRACURRICULAR EDUCATION INSTITUTIONS

Abstract. *Objective* is to improve the physical culture extracurricular education institutions. **Materials:** The study employed a range of scientific methods, including literary sources and documents analysis; expert evaluation method; methods of system analysis; sociological methods; statistical methods, pedagogical experiment. The study involved 20 managers, 120 coaches from sport organizations, as well as 4 managers of physical culture and sports administration, 20 top-scientists experts in the problem under study. **Results:** The "Complex of arrangements that are supposed to involve children and youth to extracurricular education institutions" was developed the main problem during the pedagogical experiments. **Conclusions:** the complex introduction and the decision of its main objectives was to increase financial profit by 33% (UK «Ayumi»), the number of involved students increases by 24% in the UK «Ayumi» and by 2,2% for the initial training of "SC Youth School in Aquatics von Yana Klochkova". The effectiveness of implementing measures confirm the results of expert evaluation scholars and practitioners in the physical culture and sport sphere. Experts from both groups appreciated the level of expected efficiency (4,6 and 5,0 points out of 5 points).

Keywords: children, youth, an arrangement complex, extracurricular education institutions, development, experiment.

Introduction. Physical and sport education solve some urgent problems of moral, spiritual, values among the younger generation, prepare for creativity work, and social identity. So the development the proper conditions for the sport organization or development of sports activities for children and young people is supposed to solve these important problems to our society.

Article 31 of the United Nations Convention on the Rights of the Child (1989) guarantees the right of the child to rest and leisure, the right to participate freely in cultural life and the arts. To meet these requirements and ensure proper organization of entertainment of children and young people under the current legislation of Ukraine, namely the law of Ukraine "On promoting the development of young people in Ukraine" (1993), "On General Secondary Education" (1999), "On Education" (1991), "On school education" (2000), "On Physical Culture and Sport" (1993). Nowadays, the educational network educational institutions, including schools and sport non-school institutions are operating.

Today, there are a number of scientific papers on the leisure arrangement through the use of various fitness and recreational forms. (O.V. Andreeva, 2010;

G.V. Bezverkhni, 2010; T.Y. Krutsevych, 2010; O.A. Tomenko, 2011, 2013).

Today, scientists continue to search the activity of individual sport schools (O.M. Vateba, 2009; V.I. Mudryk, 2010; A.V. Nesterova, 2009; G.M. Putiatina, 2007; S.M. Rodak, 2009; N.V. Sereda, 2014). However, the problem of development of sports leisure activities for children in after-school educational institutions is still unexplored.

The research was conducted as a part of the Consolidated Research Plan in the field of sport in 2011-2015. "Healthy lifestyle paradigm in physical education and sports discourses"(code 1.3), in a comprehensive research project for 2013-2014". Theoretical and methodological basis for the children personal physical training formation as the basis of their health"(state registration 0113U001205).

Objectives, material and methods.

The aim is to improve sport non-school education.

The Objects of research:

1. To develop a set of arrangements that will encourage youth into the leisure activities in sport non-school educational institutions.
2. To verify an arrangement complex by an experiment that will encourage children and young people in leisure activities in sport non-school education institutions.

Methods and studies arrangement. The study employed a range of scientific methods, including literary sources and documents analysis; expert evaluation method; methods of system analysis (organizational, systemic-functional, comparative analysis); sociological methods (questionnaire); mathematical statistics methods, pedagogical experiment. The research was based on sport organizations, the State Administration Department of Youth and Sports in Kharkiv Region, Department of Physical Culture and Sports, Department of Family, Department of Youth and Sport in Kharkov City Council, SC «Ayumi», MC "City Complex Children and Youth Sports School of Aquatics Yana Klochkova". During the 2012-2013the organizational and pedagogical experiment and expert evaluation of complex arrangements took place. Due to these experiments the activity of experimental club and sport school was corrected, the interim results of an experiment found out, sociological research among the Physical Education professionals of Kharkov region was held. The study involved 20 managers, 120 coaches of sports organizations and 4 managers of sport department administration, 20 leading scientists who have knowledge about the investigated problem. During the expert evolution of arrangements complex were 40 people: 20 scientists and 20 specialists in physical culture and sports.

Research results.

The survey of physical culture and sport specialists showed that 98% of professionals feel the need to develop recreational activities for children and young people in sport non-schools institution of Ukraine. They recognize that the priority functions of non-school is to educate children and young people (24%) , youth rehabilitation (30%) and reserve preparation (46%). Regular attendance in school educational institutions will improve the health of our population – say 99% of

respondents. It is showed that first junior sports school develop recreational activities for youth (87%) and sport clubs of residence (37% of respondents). The survey results confirm the special role of sport school educational institutions directly to provide recreational activities for children and youth.

The effectiveness of sport non-schools institutions in education was determined according to the regulations for the following parameters: number of training groups; number of people involved in groups; number of professional athletes of general rankse , and first rank, rank of KMSU (as a percentage to the total number of athletes involved in groups of basic training); number of athletes who completed the ISU regulations, MSUMK (as a percentage to the total athletes involved in the groups prior basic training, preparation for higher achievements); number of coaches.

As a result of the research a set of institutional arrangements was developed that will help to improve recreational activity for children and young people in sport non-school. The effectiveness of the developed complex arrangements that will help to improve recreational activities for children and young people in sport non-school institutes was shown in the experiment during 2013 by the introduction of non-school education institutes in complex arrangements with further analysis of their impact on the main organization indicators. As a result , an action plan (calendar) was developed and included to the annual work plan. Arrangement complex s were introduced to the work of MC "City Complex Children and Youth Sports School of Aquatics Yana Klochkova" and sports club «Ayumi». The experimental results confirmed by the annual reports analysis for 2012 and 2013.

The complex includes: 1) sports events involving pupils in their organization, including volunteer; health training camps involving parents; educational and training sessions with famous athletes to promote comprehensive physical development, providing recreation for children and adolescents, the diversion of street children and youth; 2) thematic lectures and work with pupils to ensure cleanliness in gyms and locker rooms to raise the knowledge of students in the of hygiene and first aid field; 3) control the taken of HR training courses to strengthen human resource capacity; 4) promotions, sport celebrations, free trial classes, updating official website information; 5) meetings, interviews with sponsors and parents, expanding the list of paid services to strengthen the material and technical base and increase funding.

During the experiment the set of measures was to promote comprehensive physical development and provide recreation for children and adolescents, a distraction from the streets, increasing the number of students involved in regular sport training, promote the acquisition of experience and skills in the particular sport, strengthen interdependence 'bonds in secondary schools with the Sports Society and extracurricular educational institutions on the methodology and sport work organization, to improve the system of the youth talented selection to further enhance their sport skills, increased students knowledge in field of hygiene and first aid, as well as getting theoretical knowledge of methods of assessing their condition, strengthening the material-technical base and increase funding to strengthen human resource.

Analyzing sport non-school education institutes in the activities of which were implemented complex of the organizational measures found out: increase the number of those who involved in the SC «Ayumi» Kharkov regional federation of karate – 24%, while the MC "City Complex Children and Youth Sports School of Aquatics Yana Klochkova" increased number of children in groups of initial training by 2.2%. More over the increase of advertising information on the Internet, banners in kindergarten, preschool educational institutions, general education institutions actively carried out the work to find additional sources of funding, work with the parent team due to which the amount of financial income increased by an average of 33%. Increased cost of 1 student in the sports club «Ayumi» 8% allocated for training and sports activities in the amount of 4000.0 UAH, MC "City Complex Children and Youth Sports School of Aquatics Yana Klochkova" increased spending on educational and sports activities for 35%, and allocated funds for sport equipment the purchase of and purchase to buy equipment amounting to 11100.0 UAH. The experimental results confirmed according to the annual reports SC «Ayumi» and MC "City Complex Children and Youth Sports School of Aquatics Yana Klochkova" for 2012 and 2013.

Thus, the experimental results confirm the positive impact of the introduced complex arrangements for the extracurricular activities sport schools institutes to provide youth entertainment and involvement into these institutions.

The developed complex arrangements effectiveness confirmed by the method of peer review. The experts who were generally divided into two groups: Scientific experts (20 people) and practitioner (20 people) were evaluated 7 indicators desired effect (Table. 2).

Table 2

The results of expert evaluation of the effectiveness from the complex arrangements implementation of (n=40, n¹=n²=20)

The indicators that were measured, n = 7	Total score of Scientific experts (n = 20)	Total score of expert practitioners (n = 20)
Promoting comprehensive physical development, providing recreation for children and adolescents, a distraction from the street	92	100
Increase the number of students involved in regular physical training and sports, promote the acquisition of experience and skills in the particular sport	95	99
Strengthening relationships with secondary schools Children and youth sports organizations in sphere of organization and methodical mass sports work	76	94
Improving the selection of	83	96

talented children and young people to further enhance their sports skills		
Increased hygiene and first aid knowledge of students, as well as mastering the theoretical principles and basic techniques of assessing their condition	77	91
Strengthening the material and technical base and increase funding	87	94
Strengthening human resource capacity Children and youth sports organizations	91	92
Average value (\bar{X})	85,86	95,14
The coefficient of concordance (W)	0,73	0,71
p	<0,01	

The results of expert evaluation showed that and physical education and sport experts appreciated the opportunity to improve the performance of sports non-schools institution. Scientists have identified the possibility of increasing the number of students involved in regular physical training and sports, gain experience and skills in the chosen sport, as for experts – to promote comprehensive physical development, providing recreation for children and adolescents distraction from the street.

Among the group of scholars and practitioners there is the same of opinion on the benefits from the arrangements complex in sport planning of after-school education. The level of coordination of expert opinion in each group was high, confirming the reliability of expert evaluation. Thus, groups of indicators concordance rate among scientists was $W=0,73$, and specialists $W=0,71$. In all groups concordance coefficient $W \geq W_{gr}$, which means consistency of expert opinion.

Conclusions.

1 The "Complex of arrangements that are supposed to involve children and youth to extracurricular education institutions" was developed the main problem during the pedagogical experiments. Conclusions: the complex introduction and the decision of its main objectives was to increase financial profit by 33% (SC «Ayumi»), the number of involved students increases by 24% in the SC «Ayumi» and by 2.2% for the initial training of MC "City Complex Children and Youth Sports School of Aquatics Yana Klochkova".

2 The effectiveness of implementing measures confirm the results of expert evaluation scholars and practitioners in the physical culture and sport sphere. Experts from both groups appreciated the level of expected efficiency (4.6 and 5.0 points out of 5 points).

Comparing the activities in these groups was found out high evaluation experts and practitioners with respect to estimates of scientists.

Prospects for future research are to find ways for improving the scientific activities extracurricular education in sports direction, providing recreational activities.

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WU LINNA*Kharkiv State Academy of Physical Culture***THE ROLE OF SPORT TOURISM FOR THE RECOVERY OF THE CHINESE YOUTH**

Abstract. Purpose: *to identify the variability tactics of the sport tour for the development of sport tourism. Material and methods:* *analysis and generalization of literature and electronic sources, official web-sites. Results:* *the identified peculiarities of sport tourism and the basic needs of adolescents in China leisure. It is noted that the emergence and development of associations of sport tourism indicates mass popularity among young people. Conclusions:* *addressing health of Chinese youth depends on the development of systematic and comprehensive approaches to sports and health tourism.*

Key words: *youth, sport, tourism, tour, China.*

Introduction. The value of sports and wellness tourism (SWT), affecting the health of young people is large enough, so the analysis, development and effective improvement of the tourism requires an adequate scientific justification. The study of sport and wellness tourism, determining the effectiveness of the health of Chinese youth, devoted quite a lot of work [1-12; 14-16], while existing research in this area has focused largely on the study of individual sport tours in varying degrees, affect the health of a person.

The experience shows, sports and wellness tourism occupies an important place in the life of modern society. From the point of view of its content and relevance are highlighted in a number of areas: economic, social, sporting, cultural, social, professional and pedagogical. These areas attract the attention of domestic and foreign researchers, which contributes to a qualitatively new level study of the problems of sport tourism.

As noted by many researchers (A. Ya. Bulashev, O. Y. Dmitruk, V.A. Kwartalnov and others) that meet the objectives of personal development is a sports and wellness tourism, aimed at fostering sustainable lifestyles, ethical and moral values, holistic perception of the world, worldview. In proceedings V.A. Kwartalnov, A. Ya. Bulashev, O. Y. Dmitruk, T. I. Grynova, T. E. Khrystova, Ma Tsingan, Zhu Fen methodological foundations of sport tourism in solving complex problems in educational, training, developing personality.

Purpose. The purpose of this study is to identify the variability tactics of the sport tour for the development of sport tourism in the country.

Objectives of the study.

1. Based on the analysis of literary sources to consider the features of sport tourism as an integral part of the training of the sportsman.

2. To determine the role and explore the objects of sport tourism for the rehabilitation of youth.

Material and methods: analysis and generalization of literature and electronic sources (books, articles, dissertations and abstracts of conference proceedings), analysis of official web-sites.

Research results and their discussion. Natural resources of China contribute to the development of a new type of tourist activity in the sphere of tourism and sports – sports and wellness tourism. The lack of influence of SWT on culture, health and life processes of Chinese youth leads to the development of the market of SWT in China. Sports tourism is adapted to the needs of modern Chinese youth who actively takes part in various events [9].

Sports and wellness tourism combined activities that effectively affects physical and psychological health. A substantial core of education in sports and recreational tourism is the combination of physical and moral education. Here is the physical perfection of a person with a simultaneous improvement of its moral sphere: consciousness, behavior, feelings, attitudes. Also SWT combined the most effective wellness recreational activities for children and the elderly [12].

Over the last 25 years of sports and wellness tourism was formed in major cities of China, such as Beijing, Shanghai, Guangzhou and other. The media popularize the subject of SWT of youth and the older generation throughout China. For example, in Beijing University for 25 years there is an Association of SWT “Shan In” [14].

In addition, there is a Chinese mountaineering association, which organizes various competitions for some types of tourism: hiking, mountaineering, climbing, extreme sports, skiing. The majority of associations SWT was created by students: Association "Shushan" (Chengdu), the Association Zamanskogo University, Association "Shan" (Beijing), the community of "Chi Chi" (Cintzen), Association "Lu E" (Samani), the Association of "Hong Ying" (Beijing). The emergence of associations and communities in the cities of China contributed to the development of other types of sport tourism: cycling, canoeing, security and environmental protection, paragliding, "survival in the wilderness", etc.

The emergence and development of associations SWT shows mass popularity of sport tourism among the Chinese population, attract capital, and the constant growth of the student. Across the country, favorable conditions for the development of sport tourism for the population of China.

Unfortunately, the tragic incidents that happened with tourists engaged in extreme sports (hiking, mountaineering, climbing, and others), affect the popularity of sport tourism that led to the renewal and the search for new ways of safe sports tourism. Lack of research and production base, proven safe routes, experienced instructors, specialized literature, necessary equipment, trained personnel and staff creates problems for sport tourism and affects its popularity. Therefore, for the development of SWT in China need to solve these problems.

As showed the last researches in the area of sport tourism, it is necessary to conduct a comparative analysis of personnel of different countries, to exchange experience, to improve training in China, conduct ongoing experimental review of the current frame, to support the initiative SWT coaches, to develop young talent.

Based on the analysis of leisure of youth, teen organization of tourism in an educational institution through research activities is of great importance in the development of creative abilities of the personality of adolescents, and most importantly helps to activate their cognitive activity, recovery.

Modern trends in the development of adolescent leisure and tourism indicate increasing its impact. It becomes apparent transformation teenage tourism and active summer holiday in the world's largest single industry that focuses on the specific needs of pupils. The diversity of these needs can be satisfied not only the tourism industry, but also by educational institutions. Moreover, teenage tourism is among the basic needs of the learner contributes significantly to reduce the emotional and mental stress, recovery, and the inclusion of adolescents in research activities.

Preparing athletes-tourists – long educational process in which the actual training period (provision of general and special physical, technical, tactical and psychological preparedness of participants sport tourist campaigns and competitions) is an integral part. Another part of it is training, including theoretical, methodical and special training (natural geography, history, pedagogy), as well as methods of organization, preparation and carrying out tourist activities, refereeing, hygiene, first aid, etc. [1; 7]

Many years of training (under the program of tourism public training and sports training) splits into a one-year cycles and is based on forward planning and the annual cycle – based operational planning [8].

In the year-round cycle there are three period – preparatory, main and transition. The longest – first period (over 10 months) aims at a comprehensive training of participants in tourism activities (sports campaign, competitions); relatively short (up to one month, during holidays or student holidays), the second period of participation in sport campaign (competitions). Even shorter (one to two weeks) the third period includes the passage of participants in tourism activities, medical and pedagogical control after hiking, activity and results of the campaign (competition) – review and analysis, preparation of report, the definition of goals and objectives for the next annual cycle, acquisition of group (team) to prepare for participation in sporting events of the next major period of plan preparation.

China has a vast territory with a diverse landscape, with its unique natural monuments and architectural masterpieces created by the Chinese people for thousands of years. The concept of development of physical culture, sport and tourism in the country over the last 10 years has attracted about 40% of the population for sports and tourism, which promotes good health of Chinese citizens. The introduction and mass development of sport tourism in China has enabled us to obtain positive results: reduced overall morbidity, increased productivity, increased life expectancy, increased cultural level of the population, has partially solved the problem of a healthy lifestyle and recreation. The media got an interesting, unique

materials about China from travelling, which attracted through tourism to a healthy lifestyle and also foreign tourists. When the last successful achievements in sport also contributed to the attraction of Chinese youth to the sport and tourism.

China is first of all a huge layer of history, memory, time, and everything that should be dear to all humanity to understand its significance in this world in general and the preservation of memory and the development of human civilization as a whole. This is a unique historical incident merge one in many ways, and seemingly incompatible, the place of concentration of all things, the treasure of monuments and treasures, the contact of the past and future and mutual touching symbiosis, an ancient civilization, and at the same time the Communist Paradise. Its vast territory from the resort of Hainan to the dead sands of the Gobi desert from touching the clouds skyscrapers of Shanghai to the glaciers of Tibet scattered unique places, included in the UNESCO world heritage list, just at the moment 42.

Table 1
Tour objects in China by UNESCO

№	Name	Location	Year
1.	Imperial Palaces of the Ming and Qing Dynasties (Forbidden City)	Beijing	1987
2.	Peking Man Site at Zhoukoudian	Beijing	1987
3.	The Great Wall		1987
4.	Mausoleum of the First Qin Emperor	Shaanxi	1987
5.	Mount Taishan	Taishan	1987
6.	Mount Huangshan	Anhui	1990
7.	Wulingyuan Scenic and Historic Interest Area	Hunan	1992
8.	Jiuzhaigou Valley Scenic and Historic Interest Area	Sichuan	1992
9.	Huanglong Scenic and Historic Interest Area	Sichuan	1992
10.	Mountain Resort and its Outlying Temples	Chengde	1994
11.	Ancient Building Complex in the Wudang Mountains	Hubei	1994
12.	Temple and Cemetery of Confucius and the Kong Family Mansion	Qufu	1994
13.	Lushan National Park	Jiangxi	1996
14.	Mount Emei Scenic Area, including Leshan Giant Buddha Scenic Area	Sichuan	1996
15.	Ancient City of Ping Yao	Shanxi	1997
16.	Old Town of Lijiang	Yunnan	1997
17.	Classical Gardens of Suzhou	Jiangsu	1997
18.	Summer Palace, an Imperial Garden in Beijing	Beijing	1998
19.	Temple of Heaven: an Imperial Sacrificial Altar	Beijing	1998
20.	Mount Wuyi	Fujian	1999
21.	Dazu Rock Carvings	Dazu	1999

22.	Imperial Tombs of the Ming and Qing Dynasties	Beijing	2000
23.	Ancient Villages in Southern Anhui – Xidi and Hongcun	Anhui	2000
24.	Longmen Grottoes	Luoyang	2000
25.	Mount Qingcheng and the Dujiangyan Irrigation System	Sichuan	2000
26.	Yungang Grottoes	Shanxi	2001
27.	Three Parallel Rivers of Yunnan Protected Areas	Yunnan	2003
28.	Capital Cities and Tombs of the Ancient Koguryo Kingdom	Ji'an	2004
29.	Historic Centre of Macao	Macao	2005
30.	Yin Xu	Henan	2006
31.	Sichuan Giant Panda Sanctuaries – Wolong, Mt Siguniang and Jiayin Mountains	Sichuan	2006
32.	Kaiping Diaolou and Villages	Guangdong	2007
33.	South China Karst	Yunnan	2007
34.	Mount Sanqingshan National Park	Jiangxi	2008
35.	Fujian Tulou	Fujian	2008
36.	Mount Wutai	Wutai	2009
37.	Historic Monuments of Dengfeng in “The Centre of Heaven and Earth”	Henan	2010
38.	China Danxia		2010
39.	West Lake Cultural Landscape of Hangzhou	Hangzhou	2011
40.	Site of Xanadu	Xanadu	2012
41.	Chengjiang Fossil Site	Yunnan	2012
42.	Cultural Landscape of Honghe Hani Rice Terraces	Yunnan	2013

Listed tour objects do not require significant physical exertion from tourists, but at the same time they are included in the program of recreational and sports trips, as part of the planned route. Sports tourism is that when developing a route in advance will visit not only natural monuments, but also a tour of the facilities and attractions located on the territory chosen for the selected campaign.

Conclusions. Study and analysis of the literature allowed us to identify the features of sport tourism and the basic needs of adolescents China in fellowship, fun, and a movable holiday. All these requirements can be implemented for athletes adolescents in tourism and summer vacation. A distinctive feature of adolescence and youth tourism is the fact that teenagers are the most unassuming socio-demographic group. For young people optional high-class conditions in the tourist trip, it increasingly interested in a certain level of comfort, reasonable prices and a rich cultural and recreational activities appropriate to their age needs. The implementation of the available capacity is possible only through a systematic and comprehensive approach to solving problems hindering the development of tourism.

The study of sport and health tourism for the purpose of rehabilitation of youth. In the process of achieving that goal was studied and analyzed special literature, which allowed us to consider the structure of adolescent and youth tourism, to reveal its features, and to define the role of associations of sport tourism. It was revealed 42 tour of the object throughout China by UNESCO, which will carry out the leisure activities of adolescents and young people because of the specific needs and inherent socio-psychological characteristics of youth consciousness, elevated emotion perception and reactions. In the basis of its content not only entertainment, but also the problems of life, because there is an active process of self-discovery, self-realization, self-expression. Value orientation on cultural and leisure activities depend on the ability to meet the personal needs of Chinese youth, based on different approaches.

Prospects for further research. Definition of the role of sport tourism, affecting the health of Chinese youth, will allow you to change the training of tourists in adolescence and increase efficiency during tours and competitions. Further research will allow us to prioritize the greatest impact on performance.

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EXPERIMENTAL BASUS OF EFFICIENCY OF USE OF TECHNICAL DEVICES IN IMPROVING OF METHODS OF OFFENDERS ARREST

Abstract. Objective: *To increase the quality of training receptions of arrest by means of involving in the training process of MIA personnel of technical devices of urgent information. Material and Methods:* *The study involved 60 third-course cadets of Kharkov National University of Internal Affairs. Were used:* *a theoretical analysis of the literature sources; method of expert evaluations; pedagogical testing and pedagogical experiment. Results:* *It was determined that the use of means of urgent information reliably increases the quality of mastering of the arrest's techniques in the process of special training by the cadets. Conclusions:* *The use of means of emergency information by the personnel of Armed Forces of Ukraine in the professional training is promising direction and requires further continuation.*

Keywords: *special training, techniques of arrest, offenders, personnel.*

Statement of the problem. The reforming of armed structures conducted in present days foresees the all-round reorganization of all armed formations in that number in the Ministry of Internal Affairs. According to this, the requirements to professional training of personnel of MIA has increased sharply, in that number to its special physical training, one of the sections of which is the techniques of arrest offenders.

Increasing of quality requirements of special training of law enforcement officials had activated search of unused reserves, that was reflected in the relevant publications of Y.I. Artemyev, I. Kh. Garipova, V.G. Yevnevich, O.V. Koba etc. [1, 4, 5, and 6]. In their works the questions were raised how to improve the entire system of law enforcement. However, the special physical training of personnel of the Armed Forces of Ukraine was not considered by the research group.

In the conditions of sharply complicated crime situation in the present, the existing problem of improving the quality of special training particularly of operational level of law enforcement still requires attention. During the execution of the service-fighting tasks arise extreme situations requiring of law enforcement officers solely the fast, precise, adequate technical actions Accordingly the technique of special physical training of law enforcement requires the significant improvement.

In our view a significant increasing of quality of the special training of the personnel of Armed Forces of Ukraine is possible when using technical means of urgent information. Sport has the experience of their using in the preparation of sportsmen of different specialization. S So V.P. Bizin had used means of getting

urgent information to the rapid analysis of biomechanical parameters in the process of improving the technical mastery of athletes, disc throwers and kernel throwers that allowed timely to eliminate emerging errors. [2]

V.V. Romanenko [7] in the study and correction of biomechanical indexes of the hitting leg segments in the exercise of the technical techniques in taekwondo had used the device Panasonic NV – GS 47 in conjunction with ASUSZ 53 S computer for urgent processing of the received materials.

N.V. Boitchenko [3] has successfully used your own technical device designed to receive urgent information in training and improvement of technical and tactical actions sportsmen karate (kyokushinkai version).

M. Savchin [8] used the specialized shock ergometer (SPUDERG) in the preparation of the boxers, which measures the strength of a single blow and a total index of series of blows, SPUDERG was used for a definition of time of the simple and complex sensormotor reactions of the Karatists (Shotokan Karate version).

As the analysis of publications, use of technical devices, representing the urgent information in the process of special physical preparation of human rights defenders, in the present, in our opinion, are not actively. Famous work of O.V. Hatsayuk, who had used technical means of obtaining urgent information for improving the techniques of unarmed combat by the personnel. [9]

Thus, analysis of scientific works published in the Armed Forces of Ukraine showed insufficient use of technical means in special training of personnel. Available theoretical elaborations are poorly implemented in practice.

Communication of the work with academic programs, plans, themes. The research was performed in accordance with Summary Plan NIR of Ukrainian Institute of Scientific-Technical and Economic Information (code "model RB", the number of state registration 0108U007536).

Objective: To increase the quality of training of arrest through the introduction of technical devices urgent information in teaching-training process by involving the personnel of MIA.

Objectives of the research:

- 1) to study the experience of using of emergency information in the technical training of sportsmen;
- 2) to test the using of means of emergency information in improving techniques of arrest offenders.

Material and methods. In process of researching it was carried out a theoretical analysis of the literature sources, revealing of the experience of using of means of the emergency information in improving of the techniques of arrest offenders by employees of MIA of Ukraine.

It was studied the experience of using similar devices in the technical training of sportsmen. The method of expert assessments, pedagogical testing and pedagogical experiment were used.

60 cadets of the third course of Kharkiv National University of Internal Affairs took part in the research: the experimental and the control groups of 30 people each. The tested cadets did about three ways of arrest after eight lessons: node with hands

up, bend of hand behind a back and the lever of a hand outside. The quality of performing the methods was evaluated on a five- ball scale by three experts (the teachers of special physical preparation of a University). The last estimates were discarded; the average estimates were taken into account.

The difference between the groups was in that the quality of performing of the methods in the process of the indicated ways in experimental group was monitored by a video camera of company «Sumsung» and by a video computer system «Katsumoto». These devices which allowed to perform rapid analysis of biomechanical parameters of the methods, identify emerging mistakes and correct them promptly, were used in each of the eight lessons. In the control group any errors that occur were identified by the teacher and eliminated by his order in accordance with the established procedure of special physical training. At the end of each of the eight lessons on improving methods of arrest (node with hands up, bend of hand behind a back and the lever of a hand outside), a control test was conducted, the results of which were processed by the methods of mathematical statistics.

Results and discussion. Differences in assessments of techniques of the arrest between the experimental and control groups during the experiment are shown in Table 1.

Analysis of the received results showed a constant, still more increasing superiority of the experimental group over the control group in quality of performing techniques of arrest. During the first five lessons, statistical significance of differences between treatment groups has not been established.

Table 1
Expert evaluations of methods of arrest, marks

Group	Number of lessons / Rating							
	№1	№2	№3	№4	№5	№6	№7	№8
EG	3,6±0,7	3,9±0,7	4,1±0,4	4,3±0,3	4,4±0,1	4,4±0,1	4,7±0,1	4,8±0,1
KG	3,7±0,7	3,8±0,7	3,9±0,6	4,0±0,5	4,0±0,3	4,1±0,2	4,1±0,1	4,1±0,1
t	0,09	0,10	0,27	0,51	1,3	2,27	4,28	5,00
p	>0,05	>0,05	>0,05	>0,05	>0,05	<0,05	<0,001	<0,001

At the sixth session advantage of the experimental group reached statistical confidence ($p < 0,05$). In the seventh and eighth lessons, it increased ($p < 0,001$).

Quantitative indicators of the dynamics of the level of technical readiness of the tested cadets during eight lessons are shown in Figure 1

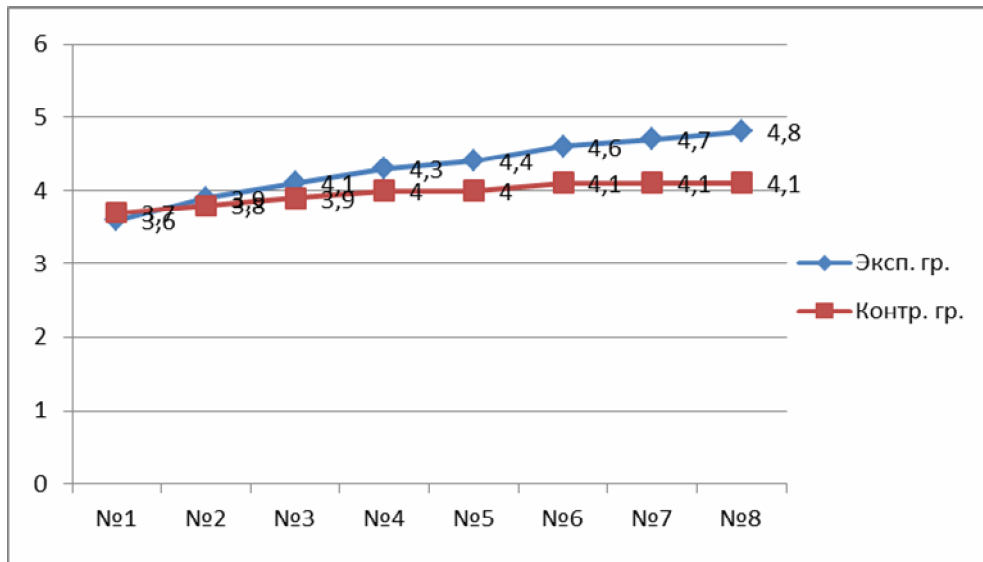


Fig.1. Dynamics of ratings of subjects in the process of pedagogical experiment, the marks .

Analysis of the figure showed the outstripping stability of the experimental group in the level of technical readiness during the second-eighth lessons. It should be noted that, starting from the fourth lesson, positive increasing in valuations of techniques arrest of tested cadets of the control group actually has stopped, i.e. group has reached their "ceiling", corresponding to 4.1 points.

In the experimental group there was an increasing of the estimates in each of the eight lessons. Starting from the second lesson the experimental group constantly outstripped the control group. The maximum mark of the group – 4.8 balls – was reached at the eighth lesson. The superiority of the experimental group over the control group has reached 0.7 points.

The indexes of variances of marks of the arrest techniques

Group	Number of lesson / Rating							
	№1	№2	№3	№4	№5	№6	№7	№8
EG	14,7	14,7	4,8	2,7	0,3	0,3	0,3	0,3
KG	19,2	14,7	10,8	7,5	2,7	1,2	0,3	0,3
F	1,3	1,0	2,25	2,8	9,0	4,0	1,0	1,0
p	>0,05	>0,05	<0,05	<0,01	<0,001	<0,001	>0,05	>0,05

Analysis of variance of evaluations of tested cadets showed that the spread of the received individual marks relatively of average mark in the experimental group statistically was significantly lower than in the control group on the third to sixth lessons.

Statistically reliable differences in the variances of the tested persons during the first and the second and the seventh-eighth lessons has not been established. This is explained as follows. During the first and second lessons the heterogeneity in the level of preparedness of the cadets in the experimental and control groups was large

enough, but approximately the identical. This is evidenced by the value of variance (in the experimental group –14, 7, in the control group-19, 7).

By the seventh – eighth lessons the tested cadets in both groups have achieved the highest level of preparedness, showing the same spread of the individual marks relatively of average group mark, as evidenced by the same values of the variances of 1.0. However, by the end of the pedagogical experiment the indicators of possession by the techniques of arrest of the offenders were statistically significantly higher ($p < 0,001$) in the experimental group.

Conclusions: The using of urgent information by the personnel Armed Forces of Ukraine in the professional training is promising and requires the further continuation.

Prospects for further research: It is supposed to explore the use of technical devices of the urgent information and in other types of special training of law enforcement officers.

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STUDY OF THE LEVEL OF ADAPTABILITY AND PHYSICAL PREPAREDNESS OF FOREIGN STUDENTS

Abstract. Purpose: *the study regarding problems of adaptability and physical preparedness of foreign students. Materials and methods:* *the study involved 33 students from Israel, 25 students from India. All surveyed foreign students – men, studying at the Odessa national medical university. Survey was conducted using a multi-level personality questionnaire "Adaptability", developed by A.G. Maklakov and S.V. of Chermyanin and testing physical fitness. Results:* *found that majority students from Israel and India had a medium and low level of physical fitness and adaptability. Conclusions:* *in connection with violations of adaptability and physical preparedness of foreign students, particularly acute issue is the organization of physical culture and sports-mass work, as a means of improving adaptation to conditions of life and learning.*

Key words: *adaptation, foreign students, physical preparedness.*

Statement of the problem. Analysis of recent publications. Connection of work with the scientific programs, themes. Our government approves on educating many groups of foreign students. Among the many problems encountered by foreign students, the principal, is to adapt to our society, because, life and health are largely determined by the level of adaptability – congenital and acquired ability to adapt, adapt to the whole variety of life in all conditions [1].

Adaptation of students is a complex dynamic process, which is associated with various biological, psychological and social factors. Foreign students from the first days of stay in the universities of Ukraine begin to experience difficulties, which differ significantly from the domestic difficulties faced by the students [1, 2].

Traditionally, the modern scientific literature considers adaptation to one or two factors. For example: adaptation to physical loads, climatic adaptation, social adaptation, etc. However, foreigners arriving to study in Ukrainian universities have to adapt to many different factors. The problems associated with the occurrence of the individual in the new conditions of life, has been actively developed by domestic and foreign scientists, but the problem of adaptability and physical preparedness of foreign students remains poorly understood. Therefore, the study of these problems is an important task of Ukrainian universities. From the solution of this problem depends on the efficiency of the organization of the process of adaptation of foreign students [3].

The study was performed according to theme of the scientific-research work of the department plan of the Ministry of health of Ukraine, 2014-2018 year on the

theme "Research of features of the adaptive reactions of human organism to physical exercises depending on the level of physical development, functional state and state of health for the development of the optimum program of correction by methods of physical rehabilitation and functional food." (№ of state registration 0113U006426).

Purpose of work: it was the study of the problems of adaptability and physical preparedness of foreign students.

Task of research:

1. To systematize and generalize the modern scientific-methodical knowledge about working with foreign students in Ukrainian universities.

2. To examine the level of adaptability and physical preparedness of foreign students of I course of Odessa national medical university.

Material and research methods. To achieve the objectives of the study the following methods were used: literature review; assessment of physical fitness according to the standards of the program of the discipline "Physical education and health students of higher medical educational institutions of III-IV levels of accreditation of Ukraine; questionnaire using multilevel personality questionnaire "Adaptability", developed A.G. Maklakov and S.V. Chermanin. The methodology of the survey is based on a vision about adaptation as a continuous process of active adaptation of humans to the changing conditions of the social environment and professional activities. The questionnaire is designed to assess adaptive capacity of individual socio-psychological and some physiological characteristics, reflecting the generalized features of the mental and social development.

The study was conducted at the beginning of 1st semester, with the participation of 33 students from Israel, the average age $20,45 \pm 1,12$ years old, 25 students from India, the average age $18,59 \pm 0,52$ years old. All of the surveyed foreign English students – men, who studied at the Odessa national medical University.

Results of the Research. Overview of scientific and methodological literature suggests that researchers adaptation of foreign students, as a rule, there are several groups of adaptive problems: academic associated with the educational process; individual as a result of personality characteristics; socio-cultural arising in the new social environment [3, 4]. The reasons that determine the level of adaptation of foreign students can be divided into three categories: objective, which is due to educational activities and living conditions in the separation from family and homeland (new forms of training and supervision practice, new team, new environment etc); objective-subjective (weak skills of independent work and self-control, etc.); subjective (desire to learn, shyness and so on). But practice underestimate the adaptation associated with physical activity of foreign students. Here are the reserves for increasing the efficiency of the adaptation process [4, 5].

Most researchers (D.G. Arseniev, 2003; L.N. Boronina, 2001; M.A. Ivanov, 2001; Titarenko, 2003) converge on the view that adaptation is a multi-level, dynamic process, with its structure, sequence and peculiarities associated with certain restructuring of the personality in the framework of inclusion in the new social role, shaping a sustainable positive attitude to the future profession, to overcome the

"language barrier", increased feelings of academic equality. The difficulties of adaptation of foreign students excellent content from the difficulties of Ukrainian students depend on national and regional characteristics [6, 7].

In the process of adaptation of foreign students in the university has the effect of environment in the study group, from its psychological climate, how interesting, comfortable, safe feeling of a student during class, in situations of interaction with friends and teachers. The peculiarity of the student group the first course is that it has not yet formed a team and there is still no established rules and norms of behavior. In this group everyone is a new person for each member of the group [6].

Among foreign students studying in Odessa national medical university currently occupy a significant part of English-speaking students from Israel and India, which teach the subjects in English. Physical education is taught in I and II courses, program, approved by the Ministry of health of Ukraine and the Central methodological study [8].

For evaluation of physical preparedness of foreign first-year students were selected motor tests, which allowed to evaluate the development of dynamic strength endurance of various muscle groups, speed-strength endurance and flexibility. Thus, dynamic power endurance of various muscle groups was determined by the results of the test lifting straight up and 90° angle from a position lying on the back. Students from Israel performed this test in an average of 3,95±0,04 points; students from India □ 2,74±0,46 (p < 0.05). Squat on two legs students from Israel performed on average 4,22±0,18; students from India 3,53±0,41 (p < 0.05). The tilting and lifting of the body from a position lying on the hips on an exercise bench students from Israel performed, on average, 4,14±0,22 points; students from India is 3,45±0,26 (p < 0.05). Flexion and extension of the arms in the emphasis lying on the floor with students from Israel were completed in an average of 3,23±0,27 points; students from India – 2,44±0,25 (p < 0.05). Test that determined the speed-strength endurance was transitioning into a sitting position from a lying position on back for 1 min. Students from Israel were fulfilled in the average 3,87±0,23 points; students from India 2,07±0,16 (p < 0.05). The quality of flexibility was determined by test – circular motion back in the shoulder joints straight arms from the original position of the hand with a measuring tape down. Students from Israel, the distance between the hands was on average 2,76±0,17 points; students from India and 3,16±0,27 (p < 0.05).

Testing parameters of adaptability suggests that personal adaptive potential students from Israel amounted of 3,94±0,88 points, 3,59±1,05 points of students from India (p < 0.05). Mental stability was 4,13±0,71 scores of students from Israel, 3,82±1,03 points of students from India (p < 0.05). Communicative ability in students from India – 3,41±0,89 points. Moral normativity of students from India was 3,06±0,52 points (p < 0.05). The data obtained correspond to the fact that most students from India have characteristics different accentuations, which in usual conditions, partially offset can occur when changing activities. Students from Israel communicative ability was 5,56±0,61 points, moral normativity of 5,25±0,63 points (p<0.05). This indicates that students from Israel have expressly accentuate character and some signs of psychopathy and mental state can be described as a border (Fig. 1).

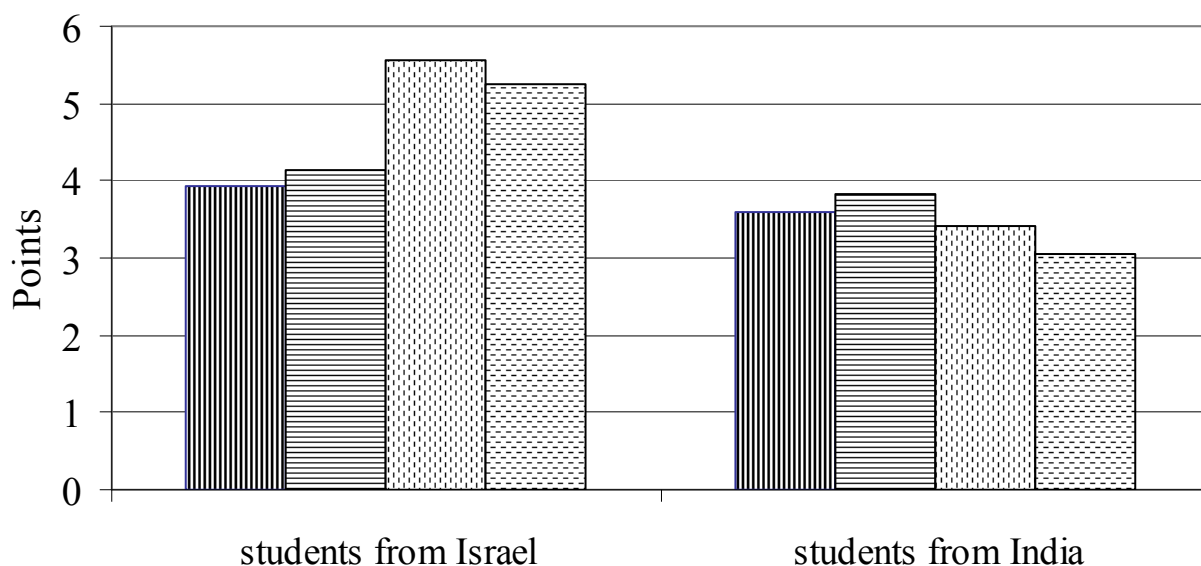


Fig. 1. Indicators of adaptation of foreign students of 1 course of Odessa national medical university

▨ personal adaptive capacity; ▨ psychological stability; ▨ communicative skills; ▨ moral normativity.

The resulting data revealed that most of the surveyed foreign English students experienced difficulties in learning due to differences in socio-economic, political, religious, linguistic and other characteristics of the countries from students came to Odessa national medical university.

Difficulties in adapting to the conditions of life and education were also due to the fact that the results of the survey adaptability of most students from India had a satisfactory level of adaptability, which is characterized by the features of various accentuations, which in usual conditions, partially offset can occur when changing activities. These individuals generally had low emotional stability. Were possible social disruptions, acts of aggression and conflict. The majority of students from Israel had a low level of adaptability, which is characterized by signs of obvious accentuate character and some signs of psychopathy and mental state can be described as a border. Possible mental breakdowns. This group required an individual approach, continuous monitoring, corrective action.

Physical training of foreign students according to the test results had a medium and low level indicators of physical qualities. Requiring a special approach to physical education. In the first year of stay of foreign students in the country, in the period of socio-biological adaptation is particularly acute is the issue of physical culture and sports-mass work, which should provide students with the knowledge, skills, and abilities to maintain a healthy lifestyle. Exercises that are included in the program in physical education support physical fitness, teach knowledge and understanding of the rules, concepts, strategies, educate students to work in a team and individually, which has a positive effect on physical development, physical preparedness, adaptation and health.

Conclusions: 1. Up to the present time there are no practical studies about the impact of numerous factors of adaptation, determining the level of training of foreign students for further study in Ukrainian universities.

2. Students from Israel and India had a medium and low level of physical preparedness and adaptability that may be accompanied by increased conflict, disruption of relationships, decrease disability and ill health.

3. Particularly acute problem is organization of physical culture and sports-mass work for foreign students of I course, as a means of development, physical preparedness and functional status and health, improve adaptation to conditions of life and learning.

Further research will be the study of the dynamics of adaptability and physical preparedness of foreign students in the learning process at the Odessa national medical university.

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