РОЗДІЛ ІІІ. ПРОБЛЕМИ ЗАГАЛЬНОЇ ПЕДАГОГІКИ

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THE METHODOLOGY OF APPLYING ATHLETIC EXERCISES FOR INCREASING MOTIONAL CONDITIONS OF THE 11-13 YEARS OLD BOYS AT PHYSICAL EDUCATION CLASSES

The analysis and generalization of scientific literature and sports practice data allows us to assert that the development of recommendations regarding the high-quality organization of physical culture classes with children of different ages is an urgent and practically significant problem of a modern society. The innovative methodology for the development of motional abilities of the 11-13 years old boys was developed using the combined method and the circuit training method in a cycle of physical education classes, as well as using additional basic athletics exercises and the game method. The effectiveness of the developed methodology was tested in a molding experiment lasting three years. Classes in the control group were conducted on the basis of the curriculum, and in the experimental one using the developed innovative methodology based on the use of the combined method of development of motional abilities and the circuit method of training in the cycle of physical education classes, as well as using additional basic athletics exercises and the game method. During three years (grades 4-6) the dynamics in the following speed and speed-strength tests were recorded: long jump and triple standing jump, high jump standing, long jump with a running start, running 20 m with a maximum speed and running 30 m from a high start. It should be noted that the results in the presented tests considering boys of 10-13 years old in two groups are constantly increasing. However, these increases are uneven. Thus, for example, the greatest increase in the standing long jump among the trainees in the EG was recorded at the age from 10 to 11 years old (15 cm), and among the representatives of the CG the improvement was 8.0 cm. In general, over a three-year period, the shifts among those who practiced according to the innovative methodology in this test are 36.3 cm (20.4 %), and among their peers - 16.0 cm (10.0 %). Thus, it can be assumed that the increase in a standing jump, determined by the method, was 10.4 % (statistically significant at 5 % significance level). Moreover, the smallest increase is observed at the age of 12-13 years. The results of testing the indices of motional abilities which were carried out according to the "Eurofit" testing system indicate that when conducting training sessions using the innovative methodology, the indices of motional conditions ($p < 0.05$) of 11-13 years old boys increased statistically to a greater extent, in comparison to those involved in the control groups. Moreover, the statistically significant (for a 5 % significance level) fact is that the best results of boys of grades 4-6 in the experimental group were observed when estimating the increase in running and jumping exercises, as well as strength and speed-strength indicators of muscles, leg extensors in the knee and hip joints.

Key words: *methodology, strength characteristics, speed-strength abilities, indicators, athletics exercises, game method, 11-13 years old boys.*

Introduction. The analysis of the data (Бальсевич, 2000; Костюкевич, Врублевський, Вознюк, 2017; Лубышева и др., 2017; Яковлев и др., 2020; Misyura & Vrublevskiy, 2018; Misjura & Albarkaayi, 2020) of physical fitness as an important indicator of the state of somatic health and the level of motional activity of school-age boys gave grounds to state a tendency towards their decrease. In our opinion, the foresaid has two reasons. The first one is a catastrophic ecological state of the environment, a high level of radioactive substances in the air, in food etc. All of this damages the children's health to a great extent and disrupts the proper development of their bodies.

The second reason is connected with the fact that we live in the era of scientific and technological progress, in which the motional activity of many individuals, including children, decreases in every possible way (Логвина и др., 2016; Маркова и др., 2015; Misjura et al., 2019). In order to keep modern children away from the TV or computer, pick them up from the street and bring them to a stadium or a sports ground, it is necessary to have qualified physical education specialists who could organize classes in school or the sports club in such a way, so that children would be interested in them and gladly attend such trainings. During such classes, development of motional qualities and learning of many motional actions would be carried out.

All of the foresaid predetermines the necessity to make adjustments to the process of physical education in the form of attracting students to the use of various games, relay races and athletics exercises for the improvement of both their health and overall physical condition. The athletic exercises in particular allow to develop all physical qualities to the required degree, to expand the range of motional abilities and skills, to increase working capacity and, ultimately, to induce the children involved in motional activity.

Athletics exercises are capable of influencing the human body in the most balanced way and ensuring the development of all vital body systems. They provide such effect without interfering, but on the contrary, by strengthening the natural development, which makes such exercises indispensable in the learning process of schoolchildren. In addition, athletics is, in fact, a basic form of training for any type of sport (Балахничев и Зеличёнок, 2013; Врублевский, 2005; Врублевский, 2016; Гусинец, Костюченко, 2012; Никитушкин, Ахапкин, 2014; Федоскина, Врублевский и Мирзоев, 2009; Vrublevskiy et al., 2019; Vrublevskiy et al., 2020).

The aim of the research is to develop and introduce an innovative methodology for the development of motional abilities of middle school age boys based on the dominant use of basic athletics exercises and the game method.

Analysis of relevant research. The analysis of scientific and methodological literature shows, that in the theory of physical education many works are devoted to the study of the development of individual components of the motional preparedness of middle school age children. The experts consider the age-related changes in the motional preparedness of children of middle school age in the aspect of the formation of motional function (Анпилогов и Врублевский, 2011; Бальсевич, 2000; Фролова, 2017; Wychowański, 2008).

Numerous studies have established the relationship between the development of the body's functional capabilities and motional abilities (Бальсевич, 2000; Верхошанский, 1988; Врублевский и др., 2019; Шилько, 2016; Vrublevskiy et al., 2019). At the same time, it is emphasized that one of the important regularities in the development of a child's body is the uneven growth of morphological and functional indicators (Бальсевич, 2000; Верхошанский, 1988; Врублевский и Козьмин, 1983; Яковлев и др., 2020). The muscular activity serves as a source that transforms the work of the most important systems of the body (Верхошанский, 1988; Dasteridis et al., 2011), and the structure together with the qualitative features of this activity act as a factor providing the direction of the developing functional evolution. This can explain the intensive development of motional qualities of children involved in physical exercises.

According to V. G. Nikitushkina and V. N. Akhapkin (Никитушкин и Ахапкин, 2014), the motional skills that get retained for the longest time are which were mastered faster and which study provoked the increased interest of students. It takes a long time to master complex coordination sports, and even a short break leads to a loss of kinesthetic sensitivity and a decrease in the perception of the action environment. The methodology for the development of motional abilities should be based on the capability and ability of the body to accumulative adaptation, during which, under the influence of actions, they are regularly repeated, an exact adaptation to the nature and strength of actions occurs and the functional capabilities of the body increase in this specific direction.

In scientific research (Бальсевич, 2000; Балахничев и Зеличенок, 2013; Маркова и др., 2015; Wychowański, 2008) it has been established that in the indicated phases (stages) the child’s body differently reacts to the means of physical education. The same means and methods with the same volume and intensity of physical activity can give a different pedagogical effect. The effectiveness of physical education of schoolchildren depends on how systematically the means and methods are used to influence the development of motional abilities in these very sensitive periods. The most effective means of

developing speed and speed-strength abilities among the children involved in sports are outdoor and sports games, exercises that develop the ability to perform fast movements, running at short distances, relay races and various jumps.

The main content of practical classes is the motional activity of students, which is aimed at the formation of a system of motional skills and abilities, as well as the development of physical qualities of students. This involves the application of the obtained physical culture knowledge and methods of physical culture thinking in practice. The classes of this type are the most common and are conducted on the basis of physical culture and sports facilities of an education institution.

It is generally accepted (Фролова, 2017; Шилько, 2016) that the qualities necessary for the implementation of sportsmanship in mature years are developed during the school age, under the influence of a wide range of physical exercises with the use of game and sports-game methods of physical education. At this stage, the necessary morphological, functional, psychological and pedagogical preconditions for the further in-depth sports specialization are established.

The analysis and generalization of scientific literature and sports practice data (Бальсевич, 2000; Круцевич и др., 2016; Никитушкин и Ахапкин, 2014; Шилько, 2016; Dasteridis et al., 2011) allows us to assert that the development of recommendations regarding the high-quality organization of physical culture classes with children of 11-13 years old is an urgent and practically significant problem of modern society. At the same time, the innovative activity of theorists and practitioners of physical education should lead to the emergence of a new pedagogical paradigm of physical education lessons, which can qualitatively increase their effectiveness.

Methods and organization of the study. To solve the set tasks, the following research methods were used in the work: analysis of literary sources, pedagogical testing, pedagogical experiment, methods of mathematical statistics.

The pedagogical experiment was carried out in order to reveal the effectiveness of the developed innovative methodology based on the use of the combined method of development of motional abilities and the circuit method of training in the cycle of physical education classes, as well as using additional basic athletics exercises and the game method. The equivalent experimental (EG) and control (CG) groups were formed from students of two 4th grades (11 years old), who were taught by teachers which used different methodologies for three years. Classes in the control group were conducted on the basis of the curriculum, and in the experimental one using the

developed innovative methodology based on the use of the combined method of development of motional abilities and the circuit method of training in the cycle of physical education classes, as well as using additional basic athletics exercises and the game method.

The main athletics means which were used during the training sessions with schoolchildren from the EG for 3 years are presented in Table 1.

Table 1

The list of basic training means used during the training sessions in the experimental classes

The sections of preparation	The main means
Technical training and training of the basics of athletics techniques:	- running at various distances; - long jump: standing; with a running start; - multiple jumps; - high jumps: standing; with a running start; - throwing the ball: at a distance; to the target.
General physical preparation (GPP)	- various general developing exercises; - sport games; - outdoor games aimed at developing speed, strength, endurance, flexibility, speed-strength and coordination abilities

The assessment of the indices of motional abilities was carried out according to the "Eurofit" testing system (Годик и др., 1994). The latter included: *hand dynamometry* (determination of the strength of the flexor muscles of the hand), *standing long jump* (assessment of the speed-strength capabilities of the muscles of the lower extremities), *sit-ups in 30 seconds from a prone position* (determination of the strength endurance of the abdominal muscles), *shuttle run 4×9 m* (determination of speed and coordination abilities), *a test for the frequency of hand movements* (measurement of the speed of movement of the upper extremities), *tilt of the body forward while holding the arms up* (determination of mobility (flexibility) in the hip joint), *"Flamingo" – balancing on one leg* (assessment of the ability to maintain static body balance for a long time), *hanging on the bar on bent arms* (a test to determine the strength and endurance of the arms and shoulder girdle), *catching the "falling ruler"* (a test to determine the speed of reaction).

For the instrumental assessment of the strength and speed-strength capabilities of the muscles of sprinters, the method of computer tensodinamography was used, which made it possible to record the "strength-time" curve, as well as to observe the rate of the increase in muscle strength (Анпилогов и Врублевский, 2011; Верхошанский, 1988; Vrublevskiy и др., 2019). The absolute strength was determined, recorded during the

manifestation of isometric tension of a muscle group without fixing the time, the “explosive” muscle contraction in the isometric mode was assessed – the force gradient (the ratio of the maximum manifested muscle effort to the time it was reached) and those values of power indicators that sprinters could develop in 0,1 sec. The recording and processing of the obtained tensodinamograms of the strength characteristics of those muscle groups that are involved in the extension of the leg in the knee and hip joints were made.

During three years (grades 4-6) the dynamics in the following speed and speed-strength tests were recorded: long jump and triple standing jump, high jump standing, long jump with a running start, running 20 m with a maximum speed and running 30 m from a high start.

Research results and their discussion. An innovative methodology for the development of motor abilities of school boys included a 6-week cycle of physical education classes with the expectation of 2 classes per week. 6 classes of physical education were conducted using the combined method and 6 classes were based on the circuit method of training. The first 6 classes (using the combined method) were aimed at developing the strength of the local muscle group of the body, upper and lower extremities. The exercises were performed using dynamic and maximum effort methods, as well as the repetition method.

After that, 6 classes were carried out according to the circuit training method. These classes were aimed at developing the endurance of the local muscle group of the body, upper and lower extremities using athletics exercises. We used exercises with weights, the weight of which was selected taking into account the maximum capabilities of students of grades 4, 5, 6. According to a number of authors, when performing exercises using the maximum effort method, the weight should be such so that children could only perform the exercise about 3 to 5 repetitions.

In the EG and the CG, the testing of the indices of motional abilities was carried out according to the “Eurofit” testing system, as well as with the help of the instrumental control of strength and speed-strength capabilities of the muscles of the lower extremities using the method of tensodinamometry.

Among the boys of the experimental group, after a cycle of physical education classes, when testing motional preparedness according to the “Eurofit” testing system, in most cases, a statistically significant improvement in the results of the complex of tests was noted ($p<0.05$). Table 2 illustrates this using the example of grade 6 students.

Table 2

The changes in physical preparedness indices of boys of grade 6 in the experimental (EG) and control (CG) groups for the annual period of physical culture classes

Groups	At the beginning of the experiment			At the end of the experiment			p^3
	$\overline{X}$ ±σ	t^1	p^1	$\overline{X}$ ±σ	t^2	p^2	
Standing long jump, cm							
EG	153,91±12,32	0,91	>0,05	170,87±12,41	2,23	<0,05	<0,05
CG	150,1±10,41			155,52±11,21			>0,05
Seated forward bend, cm							
EG	6,67±3,28	1,62	>0,05	8,46±2,13	1,87	>0,05	<0,05
CG	5,11±1,93			7,90±1,21			<0,05
Hand dynamometry, kg							
EG	13,34±2,82	1,05	>0,05	15,23±2,21	2,35	<0,05	<0,05
CG	13,29±1,93			14,41±1,52			>0,05
Balancing ("Flamingo"), number of times							
EG	8,11±1,31	1,81	>0,05	5,42±1,38	0,72	>0,05	<0,05
CG	8,07±1,93			6,12±1,83			<0,05
Reaction speed (catching "the falling ruler"), cm							
EG	15,11±1,93	0,93	>0,05	12,82 ±1,15	2,31	<0,05	<0,05
CG	15,94±2,41			15,04±1,93			<0,05
Hanging on bent arms, s							
EG	16,39±2,72	1,62	>0,05	24,35±1,83	2,79	<0,05	<0,05
CG	15,82±2,17			16,53±2,11			>0,05
Shuttle run 4x9 m, s							
EG	11,28±0,83	0,73	>0,05	9,92±0,32	3,34	<0,05	<0,05
CG	11,41±1,21			11,62±1,39			>0,05
Sit-ups in 30 seconds from a prone position, number of times							
EG	21,96±2,41	0,89	>0,05	25,74±2,54	2,33	<0,05	<0,05
CG	22,37±2,83			23,93±3,45			>0,05
The speed of hand movements, s							
EG	12,17±0.96	0,13	>0,05	10,29±0,83	2,48	<0,05	<0,05
CG	12,29±0,51			13,98±0,39			>0,05

Note: p^1 - reliability of the difference in indicators in the EG and CG at the beginning of the academic year;

p^2 - reliability of the difference in indicators in the EG and CG at the end of the academic year;

p^3 - reliability of the difference in indicators at the beginning and end of the academic year in each of the groups.

Table 3 shows the change in strength preparedness among boys of school age of two groups after a cycle of physical education classes.

Table 3

The level of strength preparedness after the experiment among the boys of grade 6 in the experimental and control groups for a year of physical education classes

The title of the test	Experimental group (n=20)		Control group (n=20)		The difference	p
	X	s	X	s		
Strength and speed-strength indicators of muscles, leg extensors in the knee and hip joints						
Absolute strength, kg	95,43	2,58	81,03	2,89	14,40	<0,05
Strength gradient, kg / s	179,41	9,45	162,82	8,61	17,59	<0,05
Strength, showed in 0,2 s, kg	55,48	2,89	45,82	3,30	9,66	<0,05

The results of strength and speed-strength preparedness of the 11-13 years-old boys indicate that during the training sessions using the combined method and the circuit training method with the use of athletics exercises, the indicators of leg muscle strength increased significantly ($p<0.05$) and complement the results of some authors (Шилько, 2016; Dasteridis et al., 2011) in the case of using one training method the strength characteristics increase insufficiently or their growth stops altogether. According to Yu. V. Verkhoshanskiy (Верхошанский, 1988) muscle strength is a basic physical ability necessary for the implementation of any types of physical activity.

So, as a result of the conducted studies, it was found that the speed and speed-strength abilities of boys from 11 to 13 years old (grades 4-6) are constantly changing. The dynamics of indicators characterizing them is also changing, which is presented in tables 4 and 5.

Table 4

The dynamics of speed and speed-strength abilities growth among 11–13 years old schoolchildren (EG) during classes using the combined and circuit training method and with the use of athletics exercises

Types of testing	The dynamics of the results						
	10 years old	11 years old		12 years old		13 years old	
	$\overline{X}$	$\overline{X}$	%	$\overline{X}$	%	$\overline{X}$	%
Standing long jump (cm)	166,9	181,9	9,0	195,1	7,8	203,2	3,6
Standing triple jump (cm)	465,4	503,4	8,2	528,4	4,7	558,4	6,1
Standing high jump (cm)	27,3	29,0	6,4	32,5	12	35,7	9,8
Long jump with a running start (cm)	291,6	322,3	10,5	325,6	1,0	350,1	7,5
Running 20 m with a maximum speed (s)	3,36	3,17	4,4	3,10	2,6	3,09	0,3
Running 30 m from a high start (s)	6,30	5,86	7,5	5,62	4,3	5,56	2,5

It should be noted that the results in the presented tests considering boys of 10-13 years old in two groups are constantly increasing. However, these increases are uneven. Thus, for example, the greatest increase in the standing long jump among the trainees in the EG was recorded at the age from 10 to 11 years old (15 cm), and among the representatives of the CG the improvement was 8.0 cm. At the same time, the smallest increase in the result was observed during the second stage (12-13 years old). Here the change as a result was 8.1 cm for schoolchildren from the EG and 5.7 cm for their peers ($p>0.05$).

Table 5

The dynamics of growth of running and jumping exercises among schoolchildren of 11-13 years old (CG) before and after physical education classes according to the school curriculum

Types of testing	The dynamics of the results						
	10 years old	11 years old		12 years old		13 years old	
	$\overline{X}$	$\overline{X}$	%	$\overline{X}$	%	$\overline{X}$	%
Standing long jump (cm)	160,3	168,3	4,9	170,6	1,3	176,3	3,7
Standing triple jump (cm)	458,2	480,2	4,8	491,3	2,4	502,6	2,2
Standing high jump (cm)	25,9	27,0	4,2	29,6	9,1	31,2	6,5
Long jump with a running start (cm)	282,3	307,8	8,8	310,6	0,9	320,1	3,2
Running 20 m with a maximum speed (s)	3,40	321,0	4,1	3,17	0,3	3,15	0,3
Running 30 m from a high start (s)	6,42	6,10	5,5	6,09	1,6	6,12	0,4

In general, over a three-year period, the shifts among those who practiced according to the innovative methodology in this test are 36.3 cm (20.4 %), and among their peers – 16.0 cm (10.0 %). Thus, it can be assumed that the increase in a standing jump, determined by the method, was 10.4 % (statistically significant at 5 % significance level). Moreover, the smallest increase is observed at the age of 12-13 years.

The performances in the triple standing jump between the ages of 10 and 13 are steadily increasing. Moreover, at the age of 10 to 11 years, the largest increase was also recorded. So, at the first stage of observations among those engaged in a dominant orientation by means of athletics, the increase in the result in a triple standing jump was 38.0 cm, and at the second - 23.0 cm, while for those who trained according to the school curriculum, this numbers are 22.0 and 10.9 cm respectively. The total increase of the result in a triple standing jump in three years was 93.0 cm among those engaged in the innovative method, and 44.4 cm among those not engaged, that is 19.0 and 9.7 % respectively. Thus, the 9.3 % shift can be explained by the influence of the developed methodology.

The analysis of the dynamics of results considering high standing jump shows that from the age of 10 to 13 there is a steady increase in the ability of boys to show the maximum muscle efforts in minimum periods of time ("explosive strength"). Over the year, this indicator among schoolchildren from the EG increased from 27.3 to 29.0 cm, the increase is 6.4 % ($p>0.05$). Considering the children from the CG, the changes among boys from 10 to 13 years old in the high standing jump were 5.3 cm (20.4 %), and as for their peers - 8.4 cm (23.2 %). Thus, if at the age of 10 the initial result was almost the same, then the effect of the specialized load in this test added up to be 3.1 cm.

The dynamics of the results in the long jump with a running start considering boys of 10-13 years old looks somewhat different. Along with the annual increase in the result, in the age interval from 11 to 12 years there is a certain falling of the curve, both among the participants of the EG and among the representatives of the CG. At this age, the increase was only 3.3 cm (1%) among those who were trained according to the experimental methodology and 2.8 cm (0.9%) among those with whom the classes were conducted according to the school curriculum. Moreover, the average result of boys of 11 years old shown by them at control competitions in September was only 3 cm lower than that of 12-year-olds. Hereinafter, there is an increase in the growth rate of results in this type of testing. The total increase of the result of the long jump with a running start was 59.5 cm (19.0%) among the athletes from the EG and 37.8 cm (13.3%) among the representatives of the CG. It can be assumed, that the effect of the increased training load in this test may be of 5.7%. Especially intensive growth of results was recorded among those who were training in the EG at the age from 12 to 13 years – 24.5 cm (7.5%). However, it should be noted that the result of jumps were significantly influenced by the technical preparedness of those involved in sport and their mastery of the methods of jumping.

The indicators of running 20 meters with the maximum speed, characterrizing the ability to move as quickly as possible in space, increase only up to 11 years, and then the results stabilize even among those who are engaged in the innovative methodology. Such nature of the dynamics of the change in the result of 20 m running with a maximum speed is explained, apparently, by the formation of a speed barrier, insufficient selection of means and methods of improving speed. The influence of the individual characteristics of the trainees is not excluded.

The analysis of the research results also shows an insignificant role of training influences in the process of improving speed: the average increase in the result for the academic year was 0.07 s (3 %) ($p>0.05$) among those who go

in for the EG and 0.04 s (0.3 %) among those with whom the classes were conducted in the CG. A decrease of the result in running 20 meters by the age of 13 does not mean that an increase is impossible at this age stage. This once again speaks of the need for a careful selection of means and methods for the education of such quality as speed. The overall increase in the result of three years was 0.27 s (8.5 %) among boys from the EG and 0.25 s (8.3 %) among schoolchildren from the CG.

The growth rates of 30 meters running from a low start increase only up to 12 years old, and by the age of 13 they noticeably decrease (which is unreliable, for the 5 % significance level). This is especially noticeable among those who are engaged in the school curriculum. In the course of the study, the influence of a factor of a subjective nature, as well as the characteristics of the contingent of the studied was not excluded. Nevertheless, it becomes obvious that the most favorable age for the development of speed in boys is 10-12 years old. So, over a three-year period of research, of the total increase of the average result in all age groups of 0.74 seconds (14.3 %), among those engaged in the innovative methodology, 0.30 seconds (4.9 %) corresponds with the age of 10-12 years.

Conclusions. It has been determined, that during the training sessions with children of secondary school age the use of athletics exercises deserves particular attention, which allows to expand the range of motional skills and abilities, increase the efficiency and, ultimately, involve children in active motional activity. Taking the stated above into account, it was suggested that conducting training sessions with children of a given school age at physical education classes should be aimed at developing their various motional qualities through games and athletics exercises.

The effectiveness of the developed methodology was tested in a molding experiment lasting three years. The results of testing the indices of motional abilities, which were carried out according to the “Eurofit” testing system indicate, that when conducting training sessions using the innovative methodology, the indices of motional conditions ($p < 0.05$) of 11-13 years old boys increased statistically to a greater extent, compared with those involved in the control groups. Moreover, the statistically significant (for a 5 % significance level) fact is that the best results of boys of grades 4-6 in the experimental group were observed when estimating the increase in running and jumping exercises, as well as strength and speed-strength indicators of muscles, leg extensors in the knee and hip joints.

Prospects for further research lie in the purposeful development of the methodology for the use of athletics exercises to improve the motional conditions of 11-13 years old girls during physical education classes.

REFERENCES

Анпилогов, И. Е., Врублевский, Е. П. (2011). Методика специальной скоростно-силовой подготовки юношей-спринтеров на основе применения средств локально-избирательного воздействия. *Теория и практика физической культуры, 4,* 72 (Anpilogov, I. E., Vrublevskiy, E. P. (2011). The method of special speed and strength training of young sprinters based on the use of means of local selective influence. *Theory and practice of physical culture, 4,* 72).

Бальсевич, В. К. (2000). *Онтокинезиология человека*. М.: Теория и практика физической культуры (Balsevych, V. K. (2000). *Ontokinesiology of man*. M.: Theory and practice of physical culture).

Бегай! Прыгай! Метай! Официальное руководство ИААФ по обучению легкой атлетике (2013). / Под общ. ред. В. В. Балахничева и В. Б. Зеличенка. М.: Человек (*Run! Jump! Throw it! The official IAAF Training Manual for Athletics* (2013). / Under the general editorship of V. V. Balakhnichev and V. B. Zelichenko. M.: Man).

Верхошанский, Ю. В. (1988). *Основы специальной физической подготовки спортсменов.* М.: Физкультура и спорт (Verkhoshanskii, Yu. V. (1988). *Fundamentals of special physical training of athletes.* M.: Physical culture and sport).

Врублевский, Е. П. (2005). Особенности подготовки спортсменок в скоростно-силовых видах легкой атлетики. *Теория и практика физической культуры, 7,* 60-63 (Vrublevskiy, E. P. (2005). Features of training of female athletes in speed-power types of track and field athletics. *Theory and Practice of Physical Culture, 7,* 60-63).

Врублевский, Е. П. (2016). *Легкая атлетика: основы знаний (в вопросах и ответах).* М.: Спорт (Vrublevskii, E. P. (2016). *Athletics: basic knowledge (questions and answers).* M.: Sport).

Врублевский, Е. П., Козьмин, Р. К. (1983). В помощь тренеру. *Легкая атлетика, 12,* 13 (Vrublevskii, E. P., Kozmin, R. K. (1983). To help the coach. *Track and field, 12,* 13).

Врублевский, Е. П., Хоршид, А. Х., Альбаркайи, Д. А. (2019). Влияние направленности тренирующих воздействий на рост силы мышц юных бегунов на короткие дистанции. *Теория и практика физической культуры, 9,* 22-24 (Vrublevskii, E. P., Khorshid, A. Kh., Albarkaii, D. A. (2019). The influence of the direction of training effects on the growth of muscle strength in young short-distance runners. *Theory and Practice of Physical Culture, 9,* 22-24).

Годик, М. А., Бальсевич, В. К., Тимошкин, В. Н. (1994). Система общеевропейских тестов для оценки физического состояния человека. *Теория и практика физической культуры, 5-6,* 24-32 (Godik, M. A., Balsevich, V. K., Timoshkin, V. N. (1994). The system of pan-European tests for assessing the physical condition of a person. *Theory and Practice of Physical Culture, 5-6,* 24-32).

Гусинец, Е. В., Костюченко, В. Ф., Врублевский, Е. П. (2012). Управление тренировочным процессом квалифицированных бегунов на короткие дистанции на основе миометрических показателей мышечной системы. *Ученые записки университета им. П.Ф. Лесгафта, 5 (87),* 30-34 (Gusinets, E. V., Kostyuchenko, V. F., Vrublevskiy, E. P. (2012). Management of the training process of qualified short-distance runners based on the myometric indicators of the muscular system. *Scientific Notes of the P. F. Lesgaft University, 5 (87),* 30-34).

Костюкевич, В. М., Врублевський, Є. П., Вознюк, Т. В. (2017). *Теоретико-методичні основи контролю у фізичному вихованні та спорті*: монографія. Вінниця: ТОВ «Планер» (Kostiukevich, V. M., Vrublevskiy, E. P., Wozniak, T. V. (2017). *Theoretical and methodological foundations of the control of the physical sport*. Vinnytsia: Planer).

Круцевич, Т., Трачук, С., Нападій, А. (2016). Планування навчального процесу з фізичної культури учнів середніх класів в загальноосвітніх навчальних закладах. *Теорія і методика фізичного виховання і спорту, (1),* 36-42 (Krutsevych, T., Trachuk, S., Napadii, A. (2016). Planning of the educational process on Physical Culture of Secondary School students in general education institutions. *Theory and methodology of physical education and Sports, (1),* 36-42).

Логвина, Т. Ю., Врублевский, Е. П., Костюченко, В. Ф. (2016). Организационно-методическая направленность процесса сохранения здоровья детей средствами физической культуры. *Ученые записки университета им. П.Ф. Лесгафта, 8 (138),* 116-121 (Logvina, T. Yu., Vrublevskiy, E. P., Kostiuchenko, V. F. (2016). Organizational and methodological orientation of the process of preserving the health of children by means of physical culture. *Scientific Notes of the P. F. Lesgaft University, 8 (138),* 116-121).

Маркова, И. А., Врублевский, Е. П., Севдалев, С. В. (2015). Основы двигательного режима младших школьников. *Современные технологии воспитания культуры здоровья участников образовательного процесса : сб. матер. межд. науч.-практ. конф. Липецк: ЛГПУ*, 69-71 (Markova, I. A., Vrublevskiy, E. P., Sevdalev, S. V. (2015). Fundamentals of the motor mode of junior schoolchildren. *Modern technologies of education of health culture of participants of the educational process: sat. mater. international scientific and practical conference. Lipetsk: LGPU*, 69-71).

Лубышева, Л. И., Загревская, А. И., Передельский, А. А. (2017). *Спортизация в системе физического воспитания: от научной идеи к инновационной практике*: монография. М.: НИЦ «Теория и практика физической культуры и спорта» (Lubysheva, L. I., Zagrevskaya, A. I., Peredelsky, A. A. (2017). *Sportization in the system of physical education: from a scientific idea to innovative practice*: monograph. M.: SIC “Theory and practice of physical culture and sports”).

Никитушкин, В. Г., Ахапкин, В. Н. (2014). Ранняя ориентация детей 10-13 лет в виды спорта скоростно-силовой направленности. *Наука и спорт: современные тенденции, 1 (2),* 52-57 (Nikitushkin, V. G., Akhapkin, V. N. (2014). Early orientation of children aged 10-13 years in sports of speed and strength orientation. *Science and Sport: Current Trends, 1 (2),* 52-57).

Федоскина, Е. М., Врублевский, Е. П., Мирзоев, О. М. (2009). Ценностные ориентации легкоатлетов-спринтеров и барьеристов высокой квалификации. *Теория и практика физической культуры, 10,* 16 (Fedoskina, E. M., Vrublevskiy, E. P., Mirzoiev, O. M. (2009). Value orientations of track and field sprinters and hurdlers of high qualification. *Theory and practice of physical culture, 10,* 16).

Фролова, С. С. (2017). Урок физической культуры в условиях частного учреждения общеобразовательной организации. *Проблемы педагогики, 6,* 33-35 (Frolova, S. S. (2017). A lesson of physical culture in the conditions of a private institution of a general education organization. *Problems of pedagogy, 6,* 33-35).

Шилько, В. Г. (2016). Воспитание физических качеств средствами элементов спорта для организации деятельности человека в экстремальных условиях. *Теория и практика физической культуры, 8,* 91-93 (Shylko, V. G. (2016). Education of

physical qualities by means of elements of sports for the organization of human activity in extreme conditions. *Theory and practice of physical culture, 8,* 91-93).

Яковлев, А. Н., Врублевский, Е. П., Стадник, В. И., Кравченин, А. А., Яковлева, М. А., Глушенко, Н. А. (2020). Восприятие будущего в процессе занятий физкультурно-спортивной деятельностью: проблемы и перспективы. *Теория и практика физической культуры, 1,* 98-100 (Yakovlev, A. N., Vrublevskiy, E. P., Stadnik, V. I., Kravchenin, A. A., Yakovleva, M. A., Glushenko, N. A. (2020). Youth physical education and sports: visions of future, problems and prospects. *Theory and Practice of Physical Culture, 5,* 58-59).

Dasteridis, G., Piliandis, T., Mantzouranis, N. (2011). The effect of different strength training programmes on young athletes' sprint performance. *Stud Phys Cult Tourism, 18 (2),* 141-147.

Misyura A., Vrublevskiy E. (2018.). Dynamics of intellectual efficiency indicators of the second step pupils of general secondary education at the english lessons during regular use of physical minutes. *Фізична культура, спорт та здоров'я нації, 5 (24),* 339-345.

Misjura, A., Vrublevskiy, E., Albarkaayi, D. (2019). Physical culture in the life of elementary school pupils. *Спортивний вісник Придніпров'я (Sports bulletin of Prydnistrovia), 3,* 197-202.

Misjura, A., Albarkaayi, D. (2020). Motivational sphere of elementary school pupils in the field of physical culture. *Спортивний вісник Придніпров'я (Sports bulletin of Prydnistrovia), 1,* 317-322.

Vrublevskiy, E. P., Sevdalev, S. V., Lashkevich, S. V., Gerkusov, A. S. (2019). Modelling of the competitive activities of qualified female short-distance runners, taking into account their individual characteristics. *Physical education of student, 6,* 269-275.

Vrublevskiy, E., Albarkaayi, D., Khorshed Ahmed, H. (2019). Restructuring of special preparedness of sprinters with increasing of spostsmanship. *Педагогічні науки: теорія, історія, інноваційні технології (Pedagogical Sciences: theory, history, innovative technologies), 3 (87),* 200-210.

Vrublevskiy, E. P., Khorshid, A. Kh., Albarkaii, D. A. (2019). Focused strength and speed-strength trainings of sprinters. *Teoriya i Praktika Fizicheskoy Kultury, 4,* 3-5.

Vrublevskiy, E., Skrypko, A., Asienkiewicz, R. (2020). Individualization of selection and training of female athletes in speed-power athletics from the perspective of gender identity. *Physical education of students, 24, 4,* 227-234.

Wychowański, M. (2008). *Wybrane metody oceny dynamiki układu ruchu człowieka.* Warszawa: AWF.

РЕЗЮМЕ

Альбаркайи Дульфикар, Врублевский Евгений. Методика применения легкоатлетических упражнений на уроках физической культуры для повышения двигательных кондиций мальчиков 11–13 лет.

Анализ и обобщение данных научной литературы и спортивной практики позволяет утверждать, что разработка рекомендаций относительно качественной организации проведения физкультурных занятий с детьми различного возраста является актуальной и практически значимой проблемой современного общества.

Разработана инновационная методика развития двигательных способностей для мальчиков 11–13 лет с использованием комбинированного метода и кругового метода тренировки в цикле уроков физической культуры, а также дополнительного использования основных легкоатлетических упражнений и

игрового метода. Эффективность разработанной методики была проверена в формирующем эксперименте продолжительностью три года. Занятия в контрольной группе проводились на основе учебной программы, а в экспериментальной, с использованием разработанной инновационной методики, основанной на использовании в цикле уроков физической культуры комбинированного метода развития двигательных способностей и кругового метода тренировки, а также дополнительного применения основных легкоатлетических упражнений и игрового метода.

На протяжении трех лет (4-6 класс) регистрировалась динамика в следующих скоростных и скоростно-силовых тестах: прыжок в длину и тройной прыжок с места, выпрыгивание вверх с места, прыжок в длину с разбега, бег на 20 м с ходу и бег на 30 м с высокого старта. Следует отметить, что результаты в представленных тестах у мальчиков 10-13 лет двух групп постоянно увеличиваются. Однако, эти увеличения неравномерны. Так, например, наибольший прирост в прыжках в длину с места у занимающихся в ЭГ зафиксирован в возрасте от 10 до 11 лет (15 см), а у представителей КГ улучшение составило 8,0 см. В целом, за трехлетний период сдвиги у занимающихся по инновационной методике в этом тесте составили 36,3 см (20,4 %), а у их сверстников - 16,0 см (10,0 %). Таким образом, можно предположить, что прирост в прыжке с места, определяемый методикой составил 10,4 % (достоверно при 5 % уровне значимости). Причем в возрасте от 12-13 лет наблюдается наименьший прирост.

Результаты тестирования показателей двигательных способностей, которое проводилось по системе тестов «Еврофит», свидетельствуют о том, что при проведении учебных занятий по инновационной методике статистически достоверно выросли показатели двигательных кондиций ($p<0,05$) мальчиков 11–13 лет в большей степени, по сравнению с занимающимися в контрольных группах. Также статистически достоверно (для 5 % уровня значимости) лучшие результаты мальчиков 4–6 классов экспериментальной группы наблюдаются при тестировании прироста беговых и прыжковых упражнений, а также силовых и скоростно-силовых показателей мышц, разгибателей ноги в коленном и тазобедренном суставах.

Ключевые слова: *методика, силовые характеристики, скоростно-силовые способности, показатели, легкоатлетические упражнения, игровой метод, мальчики 11–13 лет.*

АНОТАЦІЯ

Альбаркаї Дульфікар, Врублевський Євген. Методика застосування легкоатлетичних вправ на уроках фізичної культури для підвищення рухових кондицій хлопчиків 11-13 років.

Аналіз і узагальнення даних наукової літератури та спортивної практики дозволяє стверджувати, що розробка рекомендацій щодо якісної організації проведення фізкультурних занять із дітьми різного віку є актуальною і практично значущою проблемою сучасного суспільства.

Розроблено інноваційну методику розвитку рухових здібностей для хлопчиків 11-13 років з використанням комбінованого методу та кругового методу тренування в циклі уроків фізичної культури, а також додаткового використання основних легкоатлетичних вправ та ігрового методу. Ефективність розробленої методики була перевірена у формувальному експерименті тривалістю три роки. Заняття в контрольній групі проводилися на основі навчальної програми, а в експериментальній – із використанням розробленої інноваційної методики, заснованої на використанні в циклі уроків фізичної культури комбінованого методу

розвитку рухових здібностей і кругового методу тренування, а також додаткового застосування основних легкоатлетичних вправ і ігрового методу.

Протягом трьох років (4-6 клас) реєструвалася динаміка в таких швидкісних і швидкісно-силових тестах: стрибок у довжину і потрійний стрибок з місця, вистрибування вгору з місця, стрибок у довжину з розбігу, біг на 20 м з ходу і біг на 30 м з високого старту. Слід зазначити, що результати в представлених тестах у хлопчиків 10-13 років двох груп постійно збільшуються. Однак, ці збільшення нерівномірні. Так, наприклад, найбільший приріст у стрибках у довжину з місця у хлопців, які займаються в ЕГ, зафіксований у віці від 10 до 11 років (15 см), а у представників КГ поліпшення склало 8,0 см. У цілому, за трирічний період зрушення у тих, хто займався за інноваційною методикою в цьому тесті склали 36,3 см (20,4 %), а у їхніх однолітків – 16,0 см (10,0 %). Таким чином, можна припустити, що приріст у стрибку з місця, який визначається методикою склав 10,4 % (достовірно при 5 % рівні значущості). Причому у віці від 12-13 років спостерігається найменший приріст.

Результати тестування показників рухових здібностей, які проводилося за системою тестів «Єврофіт», свідчать про те, що під час проведення навчальних занять за інноваційною методикою статистично достовірно зросли показники рухових кондицій ($p<0,05$) хлопчиків 11-13 років більшою мірою, порівняно з тими, що займаються в контрольних групах. Також статистично достовірно (для 5 % рівня значущості) кращі результати хлопчиків 4-6 класів експериментальної групи спостерігаються під час тестування приросту бігових і стрибкових вправ, а також силових і швидкісно-силових показників м'язів, розгиначів ноги в колінному і тазостегновому суглобах.

Ключові слова: *методика, силові характеристики; швидкісно-силові здібності; показники; легкоатлетичні вправи, ігровий метод, хлопчики 11-13 років.*

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ОРГАНІЗАЦІЯ ПОЗАНАВЧАЛЬНОЇ ЕКОЛОГО-ОРІЄНТОВАНОЇ ДІЯЛЬНОСТІ В ЗАКЛАДІ ДОШКІЛЬНОЇ ОСВІТИ

У статті розглянуто планування, форми та способи організації позанавчальної еколого-орієнтованої діяльності в закладі дошкільної освіти, що допоможе розширити педагогічно організовані контакти дітей з природою, організовувати цілеспрямоване спілкування дошкільників між собою та з дорослими в умовах навчальних ситуацій з допомогою загальноприйнятих та інноваційних форм організації дитячої діяльності. Висвітлено роль вихователя закладу дошкільної освіти в пошуку нових шляхів екологічного виховання дошкільників. Схарактеризовано сутність еколого-орієнтованої діяльності, визначено й охарактеризовано основні вимоги щодо її організації. Зазначено, що ефективність формування екологічної культури дошкільників підвищиться, якщо в комплексі будуть використовуватися заняття з екологічної освіти і позанавчальна еколого-орієнтована діяльність, що дозволить використовувати додатковий інформаційний матеріал, розширить природоохоронний кругозір і конкретизує знання дітей дошкільного віку.