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THE INFLUENCE OF SANITARY TECHNOLOGY ON CHILDREN AT ELEMENTARY SCHOOL

Physical culture in the field of education is based on stated educational standards approved in accordance with the law, aimed at providing scientifically-based norms of motor activity of children and young people taking into consideration their state of health and level of physical development. Health is an integral characteristic of an individual and determines the quality of life. Nowadays a high level of morbidity is recorded in Ukraine, especially among children and adolescents. In particular, during the period of schooling, the number of healthy children from the first to the eleventh grade is reduced by 3–4 times. The unsatisfactory level of physical preparedness of young Ukrainians is largely due to the lack of serious incentives for the development of sports culture for younger generations. That's why, preservation and strengthening of students' health, increase of motor activity level, development and further improvement of basic physical qualities are the main tasks of physical education of elementary school students and priority directions of development of our society. Health-improving, pedagogical and educational tasks during physical education sessions should be solved in a complex, only in this case effective multipurpose influence and development of elementary school students will be effective. The aim is to investigate the impact of the developed technology on both health and physical fitness levels of students 8–9 years old. Material: Students from 8–9 years old took part in the research. Out of the four surveyed classes four homogeneous groups were formed. Experimental groups consisted of 20 boys and 16 girls; control groups consisted of 19 boys, 17 girls who were classified into the main medical group for health condition. The rate of morbidity in experimental groups (boys, girls) decreased by 53,74%, in control groups (boys, girls) by 41,65%. An increase in the indicators of physical fitness was found in experimental and control groups. But in the experimental groups (boys, girls) – the indicators improved by 46,11%, in the control groups (boys, girls) the indicators improved by 29,76%. The obtained results testify about the effectiveness of technology developed by us, which consisted of two blocks with the priority use of health-improving exercises, as a new tool for the formation of a healthy lifestyle.

Key words: *technology, health, elementary school, development, physical qualities.*

In modern conditions of development of our society there is a decrease in the health state of the population and life expectancy. According to various studies, only about 10 percent of young people have a normal level of physical fitness and health, life expectancy declined by 7-9 years, as a result, the production potential of society is reduced [1]. «Physical Education» is taught in general educational institutions as a separate subject. Its main goal is preservation and strengthening of health, development of basic physical qualities and motor abilities, and growth of physical preparedness among students [8].

Health-improving technologies are a way of realization activities aimed at achieving and supporting physical development and reducing the incidence of diseases by means of physical education and health improvement. These are the basic rules for the use of knowledge and skills, ways of organizing specific actions necessary for the implementation of physical culture and recreational activities. During exercise, there is a purposeful impact on the complex of natural properties of the body, which belongs to the physical qualities of a person. With the help of recreational physical exercises and other means of physical education, it is possible to strengthen the functional state of the organism in a certain range, leading to progressive adaptation changes in it [6]. Affecting physical qualities, under certain conditions, a significant change in the level and direction of their development is achieved. It is expressed in the progression of certain motor abilities (power, speed, etc.), increase of general level of efficiency, health strengthening, body building improvement, positive influence on the development of memory, thinking, children's attention, improvement of physical qualities, motor preparedness and physical readiness for life, increase and diversify their physical abilities [9; 12].

In order to solve problems in health-improving direction, organization of a rational motor regime is necessary. Adequate physical activity contributes to the activation of phagocytises (and, consequently, to the increase of immunity), and excessive – its suppression, which coincides with a decrease in a number of other vital functions of the body [12; 23].

In fundamental works: O. Dubogai, T. Rothers, L. Shuba – an integration of cognitive and motor activity in the system of educating and upbringing schoolchildren is established [2; 4; 10; 20]; T. Krutsevich and L. Sergienko – a systematization of researches used to determine the level of physical development, physical fitness and functional state of children and athletes aged from 6 to 21 years [3; 5]; A. Tsios, I. Bakiko, V. Dmitruk and B. Shiyan – on the basis of studying the current state of physical education at school, they considered ways of forming the national system of physical education of schoolchildren [7; 8]; R. Apache and H. Williams, K. Pfeiffer, J. O'Neill, M. Dowda, K. McIver, and W. Brown – identified varieties of motor activity and its influence on the development of motor qualities [11; 21]; J. Fisher, L. Reilly, C. Kelly, A. Montgomery, J. Williamson and Rink J. – the influence of common forms, methods and principles on the development of mobile skills and skills that contribute to increasing the level of motor activity among primary school students [13; 18]. These studies reflect the main aspects of the influence of various ways of using physical education for the harmonious development of a young person.

Therefore, in connection with the foregoing, we note that our research topic is relevant and timely.

The aim of the study is to investigate the impact of the developed technology on both health and physical fitness levels of students 8–9 years old.

Participants. Students from 8–9 years old took part in the research. Out of the four surveyed classes four homogeneous groups were formed. Experimental

groups consisted of 20 boys and 16 girls; control groups consisted of 19 boys, 17 girls who were classified into the main medical group for health condition. The study was conducted with the same students for two academic years.

Organization of the research. The study was conducted from September 2014 till May 2016, including summer break. Students of the control groups were engaged in the program proposed by the state, which provided for the development of only those physical qualities that are necessary for the successful assimilation of techniques of motor activity. Students of experimental groups were engaged in the developed technology.

The technology included four components that complement each other and thus have a comprehensive impact on the student:

1. The theoretical direction – included topics aimed at understanding the healthy way of life and the impact of physical exercises on the body, which was examined during the lesson: «Physical culture and healthy lifestyle», «Health systems of physical education», «Forms of work in the classroom of physical education, which contribute raising the children's health», «Ways of improving the efficiency of the lifestyle of elementary school students», «Physical culture as a component of a healthy lifestyle» and so on.

2. An implementation of general-developed exercises with various equipments and the usage of health-improving techniques during the training. General developmental exercises without a subject, with subjects: with gymnastic sticks, cubes, big balls, rope. Exercises were selected in a way that they were simple and easy to assimilate, consistently influencing the body of a child. In order for physical education classes with a well-directed orientation to affect the student only positively, we adhere to a number of methodological rules: the gradual increase in intensity and duration of the physical activity, the variety of the used facilities, and the systematic occupation [16; 19].

3. Musical accompaniment of the lesson. The process of doing exercises with the help of music is divided into three stages: 1st stage – initial training for new movements with music – the main actions at this stage of study include: the formulation of motor task; an indication of requirements for students; the allocation of a new movement link with the previously studied ones, an explanation and a display of the corresponding content of the pace and rhythm of motion using music; 2nd stage – advanced learning – students master the ability to correctly understand music and perform movements according to the means of musical expression, we constantly monitor the students' fulfilment of movements according to the pace and rhythm, correct mistakes; 3d stage – the consolidation and improvement of musical-rhythmic exercises – is aimed to stabilize and improve movements in correlation to music. We picked up the music, both for individual exercises and tasks and for completed groups or series of exercises and for the lesson overall, we used different kinds of music.

4. Active games of recreational purpose are aimed to develop physical qualities separately and in a complex [15].

Our proposed lesson was conducted according to a generally accepted scheme, which consisted of three parts.

The preparatory part of the lesson carries out an official function, since it provides only the creation of prerequisites for basic educational work. Its duration is 7–10% of the time allocated to the class.

The duration of the main part is 80-85% of the time. Each lesson have contributed to the education of physical qualities, which are an integral part of the whole process of learning, and the optimal emotional state of students – the main indicator of the interpersonal relationships of teachers and students in physical education classes. The effectiveness of mutual activity of a teacher and a student depends on: student's emotional mood; good or bad state at school; comfort during exercises; if pupil feels positive emotions when seeing his teacher; if there is a motivation to work in a class.

The final part of the lesson is 5–6% of the total time of the lesson. Because this part is aimed at organizing the completion of the educational process in order to bring the body to optimal, for future occupations, the state and preservation of a common working set.

The final part ends with a low impellent game, which reduces the excitability of the body, gradually brings it to the norm. Children were offered a game that caused only positive emotions (joy and pleasure), regardless of the outcome of the game (such as loser), easy jogging, «soothing» walking, exercises and games for attention, dance exercises with music (slow pace of music), exercises on relaxation (with objects and without objects), breathing gymnastics.

The aim of our research was not only studying the level of physical fitness, but also the impact of the developed technology on the level of health. The level of health was determined both by indicators of morbidity and by means of functional tests of the level of physical health [3; 5; 17].

Indicators of morbidity were determined by the method of analysis schoolchildren's medical cards, medical certificates for dismissal from physical education classes and attendance logs. The following indicators are taken into account: the number of illnesses per school year and the duration of each disease.

The incidence was estimated by counting the number of days missed by a kid due to his/her illness per semester, per year. The resulting data was displayed in the form of tables. Mass-growth index Quetelet (IK), with the help of which estimated level of physical development of children, calculated by the formula:

$$IK = \frac{\text{body mass}}{\text{body length}^2} (\text{g} \cdot \text{cm}^{-1}), \quad (1)$$

Figures of this index allowed determining a periodic-oriented assessment of changes in the proportionality of the physical development of the surveyed students. With the help of the Skibinski index (IS_k), the combined function of

the respiratory and cardiovascular systems was assessed. A spirometer and a stopwatch were used to determine it. Child's VLC (Vital Lungs Capacity) was identified. Then, after a rest for 1–2 minutes, we determined his heart rate in a sitting position. After that, the child performed a breathless breath test. The Skibinski index (IS_k) was identified by the formula:

$$ISk = \frac{VLC, \frac{ml}{100} \cdot \text{breath holding, c}}{\text{heart rate, hold} \cdot \text{min}} \text{ (c.u.)} \quad (2)$$

The assessment of the functional status of the child was carried out on the basis of the results of the Skibinski index values: less than 5 – low; from 5,1 to 10 – below average; from 10,1 to 30 – average; from 30,1 to 60 – above average; more than 60 – high level [5; 22].

The obtained data was compared with the medieval norms for the children of the chosen age.

The study used standard tests:

– «bending forward from a standing position» (cm) – testing flexibility. The student stood on the floor without shoes, the distance between the feet was 20–30 cm. The partner, while on the right, kept his legs behind his knees to avoid bending them. By the command «Go» the student leaned forward, trying to reach out to his hands as far as possible. The maximum inclination was to hold for 2–3 seconds, fixing the fingers on the mark;

– testing of the abdominal strength abilities of the muscles – «lifting the body for 1 minute» (number of times), the result of the test was the number of uplifts from the position lying in position sitting in one minute;

– testing the hand muscle strength we offered a test of «flexing and expanding the arms in the emphasis» (number of times). The student flexed his hands in the elbow and touched the tennis ball, then returned to the starting position. The result of the test was the maximum number of times the tennis ball hit the breast;

– testing of speed-strength abilities – «jump in length from a place» (cm), the result of this testing was considered the range of jumps in centimeters, measured by tape measure from the two best attempts;

– the development of agility was studied by the «shuttle run 4x9» test (sec), the test result is the time from the start to the moment when the participant put the second cube in the starting semi-circle and is determined by the best attempt out of two;

– testing speed abilities was carried out with the use of «running 30 m» (sec), the result of it was the time running distance, which was fixed by the stopwatch, up to the tenth second and allowed only one attempt [3; 22].

At the beginning and at the end of the study, all students performed norms that allowed determining their level of development of physical qualities and the level of physical fitness. The testing was carried out at the beginning and at the very end of each school year. Statistical analysis of data was carried out using the SPSS Statistics program.

Research results. Children's health can be considered as a dynamic and functional state, as an indicator of the efficiency of their daily life. We examined the level of schoolchildren's health due to the number of missed days due to illness in school years throughout the study; the obtained data is given in Table 1.

Table 1

Dynamics of missed school days due to the student's illness during the study in percentage

Groups	Classes	2014–2015 school year		Total per year	2015–2016 school year		Total per year
		1 semester	2 semester		1 semester	2 semester	
		%					
Experimental	Boys (n=20)	50,79	58,13	54,46	42,76	50,08	46,26
	Girls (n=16)						
Controlled	Boys (n=19)	51,18	69,44	60,31	50,25	66,45	58,35
	Girls (n=17)						

For the first semester, the most critical month is November. Children have already adapted to the curriculum, but outdoor temperature differences can be reasons for the disease. The most critical semester for the academic year is the second one. This is found both in the first and the second year of the study. It is related to the epidemiological condition during this period and an underestimation of physical exercises of health-improving orientation, as a factor in the prevention of diseases.

It has been found that students from the experimental groups, the rates of morbidity are much lower due to the use of health-improving exercises at the lessons of physical education and correctly picked up mobile games that involve the work and mobilize all the features of the child's body. Also, it was possible to reduce the incidence rate in experimental groups in other semesters.

One of the main indicators of health is physical development, which is characterized by a set of indicators. Anthropometric indices were used in their work: Quetelet mass-growth index, Skibinski index (combined assessment of respiratory and cardiovascular functions) (Table 2). Indices of physical development reflect the relationships between individual anthropometric indicators and provide an opportunity to evaluate qualitative changes in physical development indicators. In our study, we used the Quetelet mass-growth index, which allows us to estimate the level of physical development; The Skibinski index, with the help of which you can combine the function of the respiratory and cardiovascular systems.

Table 2

Statistical values of the Quetelet index and the Skibinski index before and after the experiment in the study groups

Measurements		Quetelet index, $g \cdot cm^{-1}$				Skibinski index (conditional units)				
Statistical characteristics		\bar{x}	\square	V	m	\bar{x}	\square	V	m	
Boys										
Before	experiment	KG (n = 19)	223,52	14,18	7,36	2,83	48,68	3,00	6,16	0,6
		EG (n = 20)	222,04	10,10	5,17	2,02	50,92	3,08	6,04	0,61
After	experiment	KG (n = 19)	234,28	11,31	5,61	2,26	53,60	3,39	6,32	0,67
		EG (n = 20)	252,44	10,42	5,04	2,08	59,40	5,09	8,56	1,01
Girls										
Before	experiment	KG (n = 17)	221,01	10,72	5,76	2,77	46,53	2,87	6,16	0,74
		EG (n = 16)	221,66	10,66	5,68	2,75	46,73	2,43	5,20	0,62
After	experiment	KG (n = 17)	232,33	8,84	4,41	2,28	50,86	2,44	4,79	0,63
		EG (n = 16)	249,73	9,02	4,47	2,33	54,40	3,13	5,75	0,80

Analyzing the data in Table 2, we note that according to the coefficient of variation V to 7,36% in the Quetelet index and V to 6,16% in the Skibinski index, the fluctuations of the results were insignificant. Based on this, we can say that the groups are homogeneous. The Weight-Growth Index of Quetelet is within the normal range (220,0–236,4 $g \cdot cm^{-1}$) [3; 17] in both boys and girls in both groups. After the experiment, the Quetelet index data rose to above the average level of physical development in both experimental groups, and controlled groups remained at an average level. The increase in the results of the Quetelet index was in control and experimental groups, respectively: 10,4% and 13,3% in boys; 9,5% and 12,9% of girls.

In all examined groups, during the experiment, the figures of the Skibinski index were within the range – above the average level of functional state of the child (30–60 c.u). But in this index, the increase in results was in controlled and experimental groups, respectively: 10,0% and 12,8% in boys; 9,9% and 11,3% of girls.

Motor tests are used to help study the physical fitness of children, aimed at specific motor quality and the norms of its evaluation. L. Sergienko notes: «Physical preparedness is the result of physical activity of the child, its integral indicator, because when performing physical exercises practically all organs and systems of the organism join the interaction» [5; 22]. By selecting special exercises-tests it is possible to determine the level of functioning of individual body systems, the result of which directly depends on physical exercise. And when the appropriate exercises are included in health and exercise classes, one

can influence the stimulation of certain systems, thereby increasing their level of functioning, moreover, the level of health.

Considering that the experiment lasted for two years with the same contingent, we note that the testing was measured at the beginning (September) and end (May) of each academic year. Table 3 shows indicators of students' physical fitness throughout this experiment. Analyzing the data for the 2014–2015 academic year, we denote that at the beginning of the study, the indicators of physical fitness in all groups had a distribution at the level of average, below average, and several children were at a low level. This indicates a lack of development of the physical qualities of all students, regardless of gender. At the end of the academic year, the level of physical fitness has somewhat shifted. In experimental groups (boys, girls), the level moved to higher than average and average levels of physical fitness. In the controlled groups (boys, girls), the highest percentage of children was at an average level.

Data obtained for the 2015–2016 school year indicates that the experimental technology is fully disclosed. This is due to the fact that the systematic use of the developed technology has an «accumulation» effect and contributes to the disclosure of the maximum children's potential. Consequently, in experimental groups (boys, girls), the level of physical fitness has the highest indicators at the level – above the average, and the indicators of controlled groups (boys, girls) have the highest rates at the average level.

According to the results of the study, we can sum up that the different growth of the results of the development of physical qualities suggests that the use of the experimental technology for the development of basic physical qualities contributed to the more intensive development of physical abilities of the child, and experimental technology has the right to exist.

Discussion. The child's health is a manifestation of the resistance of the growing organism to extreme and painful influences, and the stability in this case is determined by the achievement of optimal matching of the basic physiological functions at a certain stage of ontogenesis. According to the Ministry of Health of Ukraine, about 90 percent of children have different deviations in their health; more than 59% have poor physical state [1; 6]. The children's health can be considered as a dynamic and functional state, as an indicator of the efficiency of their daily life. It can also be a reflection on child's lifestyle, his interests [2; 14].

The incidence of children is not the same in different seasons of the year – it is less during the fall period, but increases closer to the winter and at the beginning of spring. In connection with reduced light, the decrease in the outdoor temperature of the environment in the winter time falls adaptive capacity of the child's body. That is why it is important not to ignore the preventive and recreational means of physical education, which enable to support and adapt the child's organism to different climatic manifestations. Our studies supplemented existing studies [22; 23] in this direction (Table 1).

Table 3

Change in the condition of students' physical preparedness during the study

year	sex	group	month	High		Above average		Average		Below average		Low	
				Amount of students	%	Amount of students	%	Amount of students	%	Amount of students	%	Amount of students	%
				2014-2015 s.y.									
Boys		EG (n = 20)	09	1	5	2	10	11	55	5	25	1	5
			05	3	15	6	30	9	45	2	10	-	-
		KG (n = 19)	09	1	5,2	1	5,2	12	63,2	4	21,2	1	5,2
			05	1	5,2	3	15,8	12	63,2	3	15,8	-	-
Girls		EG (n = 16)	09	-	-	2	12,5	9	56,25	4	25	1	6,25
			05	1	6,25	6	37,5	7	43,25	2	12,5	-	-
		KG (n = 17)	09	-	-	1	5,9	11	64,7	4	23,5	1	5,9
			05	-	-	3	17,6	11	64,6	3	17,6	-	-
2015-2016 s.y.													
Boys		EG (n = 20)	09	3	15	5	25	11	55	1	5	-	-
			05	6	30	8	40	6	30	-	-	-	-
		KG (n = 19)	09	1	5,2	2	10,4	12	63,2	4	21,2	-	-
			05	2	10,4	4	21,2	10	52,6	3	15,8	-	-
Girls		EG (n = 16)	09	2	12,5	7	43,25	6	37,5	1	6,25	-	-
			05	4	25	8	50	4	25	-	-	-	-
		KG (n = 17)	09	1	5,9	2	11,9	11	64,6	3	17,6	-	-
			05	2	11,9	4	23,5	9	52,7	2	11,9	-	-

An important feature of the various stages of the growth and development of the child is the cyclicity of age changes and, accordingly, these cycles, certain qualitative and quantitative indicators in the development of organs and systems of the body, which is completely impossible to underestimate. Understanding the mechanisms underlying age-related changes helps to avoid errors in the methodology, selection and dosing of physical exercises [6; 7].

Analyzing the data obtained according to the Skibinski index and the mass-growth index of Quetelet, we note that all of them statistically significantly increased, which means the functions of the respiratory and cardiovascular systems of schoolchildren were within the norm (Table 2) and developed in accordance with the laws of child's age physiology [5]. The formation of child's health is known to be a managed process, so health can be purposefully influenced by means of physical education. But this requires profound knowledge of the functional, age-related characteristics of children.

Rationally organized process of physical education should be directional to the versatile and simultaneously proportional development of motor qualities. High indicators of physical fitness, serve as a functional foundation for expanding the body of motor skills and skills, as well as significantly increase the reserve of functional systems of the body. The most common and accessible method of pedagogical control are motor tests. Physical preparedness of the subjects was determined by the results of pedagogical testing, which showed the level of basic motor qualities: flexibility, strength, endurance, speed, speed-strength qualities.

The data obtained (Table 3) in the research process of 2014–2016, that is two academic years, indicates that the level of physical preparedness at the beginning of the study was the same in all groups, regardless of the article. During the study, we observed a positive dynamics in all groups, but experimental groups gave a more positive growth rate due to the developed health-improving technology. In the experimental groups (boys, girls) – the indicators improved by 46,11%, in the controlled groups (boys, girls) the indicators improved by 29,76%.

Consequently, the consideration of age-related anatomical and physiological features and the development of physical qualities is the basis for the construction of a health-improving technology that promotes better planning of physical exercises, the selection of tools and methods for maximally correct and effective development of physical and physiological qualities of elementary school students.

Conclusion. The established problem of the investigated issue allowed defining and developing experimental technology of teaching motor skills and skills of elementary school pupils at physical education lessons. It is determined that the greatest number of missed academic days because of illness in the academic year falls on the second semester. This is due to a decrease in immunity, resulting in viral and general respiratory diseases.

It was found that by the Quetelet index before the experiment; all groups had an average level of this indicator. After the experiment, the index data rose to above the average level of physical development only in experimental groups, while the controlled ones remained at an average, although the figures slightly increased. According to the indices of Skibinski, we note that all groups were normal and had a level above average and consistent with age standards.

Qualitative characteristic of physical preparedness level showed that the use of experimental technology in virtually all indicators ensured the achievement of the highest values of the standards of physical state. The prospect of directed formation of motor skills and skills among elementary school pupils based on the level of their physical development and the state of physical preparedness is substantiated. It is based on experimental health-improving technology and the results of our experimental study.

The authors state that there is no conflict of interest.

Reference

1. Державна доповідь про становище дітей в Україні (за підсумками 2015 року). Київ, 2016. 200 с.
2. Дубогай О. Д., Пангелов Б. П., Фролова Н. О. Інтеграція пізнавальної і рухової діяльності в системі навчання і виховання школярів. Київ : Оріяни, 2001. 152 с.
3. Круцевич Т. Ю. Методы исследования индивидуального здоровья детей и подростков в процессе физического воспитания. Киев : Олимпийская литература, 1999. 232 с.
4. Ротерс Т. Т. Ритмическое развитие школьника. Луганск : Знания, 1998. 169 с.
5. Сергієнко Л. П. Тестування рухових здібностей. Київ : Олімпійська література, 2001. 439 с.
6. Фізична культура в школі : метод. посібник / за заг. ред. С. М. Дятленка. Київ : Літера ЛТД, 2009. 176 с.
7. Цьось А. В., Бакіко І. В., Дмитрук В. С. Співвідношення державного та шкільного компонентів у програмі із фізичної культури учнів загальноосвітніх шкіл. *Науковий вісник Волинського національного університету ім. Лесі Українки. Серія: Педагогічні науки*. 2009. № 21. С. 3–8.
8. Шиян Б. М. Теорія і методика фізичного виховання школярів. Тернопіль : Богдан, 2007. Ч. 1. 272 с.
9. Шуба Л. В. Рухливі ігри як засіб розвитку рухових якостей у школярів початкової школи. *Наука і освіта. Серія: Педагогіка і психологія* : зб. наук. пр. Одеса : Південноукраїнський національний педагогічний університет імені К. Д. Ушинського, 2014. № 8/СХХV. С. 212–216.
10. Шуба Л. В. Сучасний підхід до впровадження здоров'язберігаючої технології для дітей початкової школи. *Педагогіка, психологія та медико-біологічні проблеми фізичного виховання і спорту*. 2016. № 2. С. 66–71. <http://dx.doi.org/10.15561/18189172.2016.0210>.
11. Apache RR. Activity – based intervention in motor skill development. *Percept Mot Skills*. 2005; 100 (3 Pt 2): 1011-20.
12. Evans J., Davies B., Wright J. Body knowledge and control: *Studies in the sociology of physical education and health*. London, England : Routledge. 2004. P. 100–105.
13. Fisher J. J., Reilly L. A., Kelly C., Montgomery A., Williamson J. Y. Fundamental movement skills and habitual physical activity in young children. *Med Sci Sports Exerc*, 2005. P. 684–688.

14. Kirk D. Physical education futures. London, England : Routledge. 2010. P. 45–51.
15. Kuffner T. The Fitness Fun Busy Book: 365 Creative Game & Active to Keep Your Child Moving and Learning. Meadowbrook Press, 2013. 351 p.
16. Lancaster S., Teodorescu R. Athletic Fitness for Kids. Human Kinetics, 2008. 184 p.
17. Reiman M. P., Manske R. C. Functional Testing in Human Performance. Champaign, IL. : Human Kinetics, 2008. 308 p.
18. Rink J. E. Designing the physical education curriculum: promoting active life styles. Boston, McGraw-Hill Higher Education, 2009, 250 p.
19. Shepherd J., Antoniadis M. Youth fitness drills age 7–11. A&C Black Publishers Ltd, 2010. 128 p.
20. Shuba L. V. Optimization of physical culture lessons in primary school on the base of mobile games' application. *Pedagogics, psychology, medical-biological problems of physical training and sports*. 2017. № 2. P. 87–93.
21. Williams H. G., Pfeiffer K. A., O'Neill J. R., Dowda M., McIver K. L., Brown W. H. Motor skill performance and physical activity in preschool children. *Obesity (Silver Spring)*, 2008. P. 121–126.
22. Winnick J., Short X. Brockport Physical Fitness Test Manual-2nd Edition with Web resource: A Health-Related Assessment for Youngsters with Disabilities. Human Kinetics. 2nd edition, 2014. 160 p.
23. Wojnar J., Macarenco N., Nawarecki D., Menshyh E., Petrenco Y., Pustovalov B. Sense-motor reactivity and physical development of schoolchildren. *Annales Universitatis Mariae Curie-Skłodowska «Promocja zdrowia w hierarchii wartosci»*. 2006. Vol. LX. Suppl. XVI. № 8. P. 325–331.

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Шуба Л. В., Шуба В. В. Вплив оздоровчої технології на дітей початкової школи

Здоров'я є інтегральною характеристикою особистості й визначає якість життя. Сьогодні в Україні фіксують високий рівень захворюваності населення, особливо серед дітей і підлітків. Зокрема, за період навчання в школі кількість здорових дітей з першого до одинадцятого класу зменшується в 3–4 рази. Тому збереження та зміцнення здоров'я дітей, формування духовних потреб і навичок здорового способу життя є пріоритетними напрямками розвитку суспільства. У статті розкрито вплив розробленої технології на рівень здоров'я та рівень фізичної підготовленості учнів 8–9 років. У дослідженні взяли участь учні 8–9 років. Із чотирьох обстежених класів було сформовано чотири однорідні групи. До експериментальних групи увійшли 20 хлопців та 16 дівчат; до контрольних – 19 хлопців, 17 дівчат, які за станом здоров'я належать до основної медичної групи. Результати засвідчили, що знизився рівень захворюваності в експериментальних групах (хлопці, дівчата) на 53,74%, у контрольних групах (хлопці, дівчата) – на 41,65%. Виявлено приріст показників фізичної підготовленості в експериментальних та контрольних групах. Але в експериментальних групах (хлопці, дівчата) показники покращились на 46,11%, у контрольних – на 29,76%. Отримані результати свідчать про ефективність розробленої технології, яка містить два блоки з пріоритетним використанням вправ оздоровчої спрямованості як нового засобу для формування здорового способу життя.

Ключові слова: технологія, здоров'я, початкова школа, розвиток, фізичні якості.

Шуба Л. В., Шуба В. В. Влияние оздоровительной технологии на детей начальной школы

Здоровье является интегральной характеристикой личности и определяет качеством жизни. На сегодняшний день в Украине фиксируется высокий уровень заболева-

мости населения, особенно среди детей и подростков. За период обучения в школе количество здоровых детей с первого по одиннадцатый класс уменьшается в 3–4 раза. Поэтому сохранение и укрепление здоровья детей, формирование духовной потребности и навыков здорового образа жизни является приоритетным направлением развития общества. В статье рассмотрено влияние разработанной технологии на уровень здоровья и уровень физической подготовленности учеников 8–9 лет. В исследовании приняли участие ученики 8–9 лет. Из четырех классов исследуемых детей сформировали четыре однородные группы. В экспериментальные группы вошли 20 мальчиков, 16 девочек; в контрольные – 19 мальчиков, 17 девочек, которые по состоянию здоровья были в основной медицинской группе. Результаты показали, что снизился уровень заболеваемости в экспериментальных группах (мальчики, девочки) на 53,74%, в контрольных – на 41,65%. Был определен прирост показателей физической подготовленности в экспериментальных и контрольных группах. Но в экспериментальных группах (мальчики, девочки) показатели улучшились на 46,11%, а в контрольных – на 29,76%. Полученные результаты свидетельствуют об эффективности разработанной технологии, которая состоит из двух блоков с приоритетным использованием упражнений оздоровительной направленности как нового способа формирования здорового образа жизни.

Ключевые слова: технология, здоровье, начальная школа, развитие, физические качества.