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THE INFLUENCE OF SWIMMING ACTIVITIES ON THE PHYSICAL AND PSYCHOPHYSIOLOGICAL DEVELOPMENT OF ELEMENTARY SCHOOL STUDENTS

Abstract

The article examines the influence of systematic swimming activities on the physical, functional, and psychophysiological development of elementary school students. Based on pedagogical observations, it is shown that swimming contributes to the harmonious development of the musculoskeletal system, improvement of cardiovascular and respiratory system indicators, formation of correct posture, and also has a positive effect on the emotional state, attention, and academic performance of younger schoolchildren. The expediency of including swimming activities in the system of physical education of elementary school students is substantiated.

Key words: elementary school students, swimming, physical development, psychophysiological development, children’s health, physical education, pedagogical experiment.

BOSHLANG‘ICH SINIF O‘QUVCHILARINING JISMONIY VA PSIXO-FIZIOLOGIK RIVOJLANISHIGA SUZISH MASHG‘ULOTLARINING TA’SIRI

Annotatsiya

Maqolada boshlang‘ich sinif o‘quvchilarining jismoniy, funksional va psixofiziologik rivojlanishiga muntazam suzish mashg‘ulotlarining ta’siri ko‘rib chiqiladi. Pedagogik kuzatuvlar asosida suzish tayanch-harakat apparatining uyg‘un rivojlanishiga ko‘maklashishi, yurak-qon tomir va nafas olish tizimlari ko‘rsatkichlarini yaxshilashi, to‘g‘ri qomatni shakllantirishi, shuningdek, kichik maktab yoshidagi o‘quvchilarning emotsional holati, diqqati va o‘quv ish qobiliyatiga ijobiy ta’sir ko‘rsatishi aniqlangan. Boshlang‘ich maktab o‘quvchilarining jismoniy tarbiya tizimiga suzish mashg‘ulotlarini kiritish maqsadga muvofiqligi isbotlangan.

Kalit so‘zlar: kichik maktab yoshidagi o‘quvchilar, suzish, jismoniy rivojlanish, psixofiziologik rivojlanish, bolalar salomatligi, jismoniy tarbiya, pedagogik tajriba.

ВЛИЯНИЕ ЗАНЯТИЙ ПЛАВАНИЕМ НА ФИЗИЧЕСКОЕ И ПСИХО-ФИЗИОЛОГИЧЕСКОЕ РАЗВИТИЕ УЧАЩИХСЯ НАЧАЛЬНЫХ КЛАССОВ

Аннотация

В статье рассматривается влияние систематических занятий плаванием на физическое, функциональное и психофизиологическое развитие учащихся начальных классов. На основе педагогических наблюдений показано, что плавание способствует гармоничному развитию опорно-двигательного аппарата, улучшению показателей сердечно-сосудистой и дыхательной систем, формированию правильной осанки, а также положительно влияет на эмоциональное состояние, внимание и учебную работоспособность младших школьников. Доказана целесообразность включения занятий плаванием в систему физического воспитания учащихся начальной школы.

Ключевые слова: младшие школьники, плавание, физическое развитие, психофизиологическое развитие, здоровье детей, физическое воспитание, педагогический эксперимент.

In the context of the modern educational environment, the problem of preserving and strengthening the health of the younger generation is becoming particularly relevant. An analysis of statistical data indicates an annual increase in morbidity rates, as well as a decrease in the level of physical development and physical fitness of children at the beginning of schooling [1]. At the same time, a stable tendency toward deterioration in the health status of preschool and elementary school children is observed, which causes justified concern among specialists in the fields of education and healthcare [7].

The solution to the identified problems is possible only through the implementation of a comprehensive approach that includes a system of health-promoting measures. These measures should be aimed at the prevention of functional disorders, reduction in the frequency of illnesses, decrease in the level of anxiety among children, as well as the formation of stable motivation for a healthy lifestyle. Of particular importance in this process is the interaction between educational institutions and the family, ensuring a holistic and consistent approach to preserving and strengthening the child's health [1,7].

Educational institutions are rightly regarded as the most favorable environment for organizing systematic health-promoting activities for children. The diversity of existing scientific and practical approaches to solving health-related tasks collectively expands and deepens the theory of physical education. At the same time, special attention is paid to the need for a comprehensive assessment of a child's individual health level and a well-founded selection of means and methods of health-related intervention [1].

The development of motor abilities is an important factor in optimizing both the physical and mental development of children and contributes to the improvement of their overall health status. In this context, swimming occupies a special place due to its significant health-promoting potential. Mastery of swimming skills is among the vital life skills, as it combines opportunities for harmonious physical development, pronounced preventive effects, and high emotional attractiveness of the aquatic environment. As an effective means of physical education, swimming is widely used in practice with children and is included in physical fitness, health-promoting, and extracurricular programs of educational institutions [5].

The multifaceted influence of swimming on the human body is confirmed by the results of numerous scientific studies. According to N.Zh. Bulgakova [4], swimming fundamentally differs from other physical exercises due to the specific conditions of performance associated with the effects of the aquatic environment and the hori-

zontal position of the practitioner's body. During swimming, large muscle groups are actively engaged, body balance is formed, strength and coordination abilities are developed, and joint mobility is increased, which collectively ensures the harmonious physical development of participants [6,8].

Swimming as a form of physical activity has a pronounced health-promoting effect and can be used in work with elementary school children without the risk of excessive physical loads. Activities in the aquatic environment contribute to the harmonious development of the musculoskeletal system, improvement of the functioning of the cardiovascular and respiratory systems, and also have a positive effect on the psycho-emotional state of students [2,3].

The **purpose** of this study is to analyze the influence of swimming activities on the physical and psychophysiological development of elementary school students.

The study involved 60 students of grades I–II, who were divided into a control group and an experimental group, with 30 participants in each. The control group (CG) followed the general education school curriculum and attended only compulsory physical education classes. The experimental group (EG), in addition to physical education classes, additionally attended swimming section sessions.

The swimming section, operating on the basis of the private school “Eureka” in Tashkent, creates favorable conditions for compensating for the deficit of physical activity, strengthening students' health, and forming a stable interest in physical education.

The **relevance** of selecting this research base is determined by the contemporary conditions of organizing the educational process in general education schools, which are characterized by an increased academic workload, a reduction in the volume of spontaneous motor activity, and a growing number of children who frequently suffer from acute respiratory diseases. Elementary school students are a particularly vulnerable group under these conditions, as elementary school age is characterized by intensive processes of growth and development, as well as the active formation of the main functional systems of the body. Insufficient motor activity during this period may have a negative impact on physical development, the level of working capacity, and the overall health status of children.

The duration of the pedagogical experiment was 6 months, which made it possible to assess the dynamics of indicators of physical and psychophysiological development of elementary school students (tables 1, 2).

Table 1

Indicators of physical development and physical fitness of elementary school students in the control and experimental groups before and after the conduct of the pedagogical experiment, ($\bar{x} \pm \sigma$)

Indicators	CG, (n = 30) before	EG, (n = 30) before	CG, (n = 30) after	EG, (n = 30) after	P
Body height, (cm)	127,9 ± 2,4	128,4 ± 2,3	128,5 ± 2,3	129,6 ± 2,2	P>0,05
Body weight, (kg)	27,4 ± 2,1	27,6 ± 2,0	27,9 ± 2,0	28,2 ± 1,9	P>0,05
Body mass index, (kg/m ²)	16,6 ± 0,5	16,7 ± 0,5	16,7 ± 0,5	16,8 ± 0,4	P>0,05
30 m run, (sec)	5,3 ± 0,4	5,2 ± 0,4	5,2 ± 0,4	4,9 ± 0,3	P>0,05
Shuttle run 3×10 m, (sec)	10,7 ± 0,5	10,6 ± 0,5	10,5 ± 0,5	10,0 ± 0,4	P>0,05
Push-ups with both arms from the floor, (number of repetitions)	8,6 ± 1,9	8,9 ± 2,0	9,1 ± 2,0	12,1 ± 2,2	P>0,05
Standing long jump with two feet, (cm)	120 ± 10,0	121 ± 9,0	123 ± 9,0	133 ± 8,0	P>0,05
Forward bend from a seated position, (cm)	6,7 ± 2,0	6,9 ± 2,1	7,2 ± 1,9	10,4 ± 2,0	P>0,05
Single-leg balance hold, (sec)	11,8 ± 3,0	12,1 ± 2,9	12,6 ± 2,9	15,8 ± 3,1	P>0,05
«Stange» test, (sec)	24,5 ± 2,7	24,8 ± 2,8	26,1 ± 2,8	31,2 ± 3,0	P>0,05
Vital lung capacity, (ml)	1400 ± 105	1410 ± 100	1430 ± 100	1530 ± 95	P>0,05

The analysis of the data presented in table 1 indicates the presence of statistically significant positive dynamics in the indicators of physical development and physical fitness of grade I–II students in the EG after the completion of the pedagogical experiment ($P < 0.05$). The greatest increase during the experimental period was observed in flexibility indicators: the indicator “forward bend from a seated position” showed an increase of 50.7%. In the test “push-ups with both arms from the floor” the increase amounted to 36.0%. The increase in the indicator of coordination abilities, “single-leg balance hold,” was 30.6%. A substantial improvement among students was also identified in the functional indicators of the respiratory system: breath-holding time according to the “Stange” test increased by 25.8%, and vital lung capacity increased by 8.5%, which indicates an increase in the functional capabilities of the organism of elementary school students in the EG.

Indicators of speed and coordination abilities, assessed by the results of the “30 m run” and the “3 × 10 m shuttle run” improved by 5.8% and 5.7%, respectively, which reflects the positive influence of swimming activities on the develop-

ment of motor qualities of elementary school students in the EG.

Anthropometric indicators of the students were characterized by a slight increase of 0.6–2.2%, which corresponds to the age-related characteristics of growth and development of elementary school children and indicates the harmonious nature of their physical development.

As for the results obtained in the CG, in general, the identified changes reflect the age-related dynamics of the indicators and the influence of traditional forms of physical education. The less pronounced nature of the increase in the testing results compared with the EG confirms the effectiveness of systematic swimming activities in the EG as a means of targeted influence on the physical and functional development of elementary school students.

The analysis of psychophysiological indicators presented in table 2 showed that before the start of the pedagogical experiment, the results of the CG and EG were comparable in terms of attention stability, fatigability, and emotional state. No statistically significant differences between them were identified.

Table 2

Psychophysiological indicators of elementary school students before and after the conduct of the pedagogical experiment in the control and experimental groups, ($\bar{x} \pm \sigma$)

Indicators	CG, (n = 30) before	EG, (n = 30) before	CG, (n = 30) after	EG, (n = 30) after
Attention stability (points)	3,0 ± 0,5	3,1 ± 0,4	3,4 ± 0,4	4,3 ± 0,3
Level of fatigability (points)	4,1 ± 0,4	4,2 ± 0,3	3,8 ± 0,3	2,9 ± 0,2
Emotional state	sat.	sat.	sat.	good

After the completion of the experimental period, positive dynamics of psychophysiological indicators were recorded among students of the EG, manifested in an increase in attention stability by 1.2 points and a decrease in the level of fatigability by 1.3 points. The obtained data indicate a favorable influence of regular swimming activities on the psychophysiological state of elementary school students, their functional readiness for educational activity, as well as their ability for more stable involvement in the learning process and perception of educational material.

In the CG, changes in the studied indicators were less pronounced and did not have a stable direction. The emotional state of students in the EG after the completion of the pedagogical experiment was assessed as good, whereas no significant changes in the emotional background were identified among students of the CG.

The assessment of psychophysiological indicators was carried out on the basis of pedagogical observation and a scoring scale, which made it possible to comprehensively characterize the influence of swimming activities not only on the functional

and emotional state of elementary school students, but also on the characteristics of their academic activity and involvement in the educational process.

The results of the conducted pedagogical study indicate that systematic swimming activities have a pronounced positive effect on the physical and psychophysiological development of elementary school students.

An important outcome of the study is that students in the EG who systematically participated in swimming activities were absent from classes less frequently due to acute respiratory diseases, which indicates increased overall bodily resistance and improved health status of children.

Thus, the obtained findings confirm the appropriateness of incorporating swimming activities into the system of physical education and extracurricular programs for elementary school students. Swimming may be regarded as an effective means of strengthening health, enhancing the physical and psychophysiological readiness of children for academic activity, and preventing frequent illnesses in elementary school age.

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