

SWIMMING AS AN EXTRACURRICULAR ACTIVITY AS A MEANS OF IMPROVING ARMS AND SHOULDER GIRDLE STRENGTH FOR GIRLS AT THE AGE OF 14

Notes

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Abstract

A static lifestyle is possibly the most significant problem of modern physical education nowadays, which leads to several issues for the physical and mental development of the young generation. The age between 12-16 years is one of the most challenging periods in human development. This is the period of transition from childhood to adulthood. Leading a physically active life at that age and doing different exercises is the most significant part of preventing adverse changes in physical and psychological health conditions. The hours of physical education at school in Bulgaria are insufficient to cover the WHO recommendations for health prevention and physical activity. Carrying out the extracurricular activity of physical education and sports with the students is the only possibility for additional motor activity.

Keywords: *swimming, extracurricular activities, motor skills, strength*

INTRODUCTION

We are witnessing a significantly reduced physical capacity of the children population age compared to previous generations. The online form of study/training over the last two years, the anti-epidemic measures related to the "Covid-19" pandemic, and the closure of sports halls and playgrounds (<https://coronavirus.bg/bg/>) further strengthened the insufficient physical activity. Considering the problem of making sense of and fully utilizing young people's free time is essential to the „neural points“ in the education and socialization of today's young generation in our country (Chonova & Ganeva (Чонова & Ганева), 2006). Only when free time becomes a space where young people feel content and happy and recognize themselves contribute to the development of the young person (Minarevic, Milisa & Prorokovic, 2007). According to Sivevska & Boshkova (2014), in order for children to be controlled and for the family to properly direct their aspirations and ambitions, help from the social environment, and especially from the school, is also needed. Parents without knowledge of the culture of free time could hardly achieve positive results in this area for children (Sivevska & Boshkova (Сивевска & Бошкова), 2014). The timely and high-quality solution to this problem is particularly relevant now at the established disproportion between physical development and physical ability to act, with significantly reduced motor activity and impaired balance between mental and physical exertion. According to several authors, sports activities are one of the various means for successful educational and professional training (Ignatov, Popeska, Siveska & Ilieva (Игнатов, Попеска, Сивеска & Илиева), 2016). They are the human neuromuscular apparatus's functions that contribute to developing and improving motor qualities – speed, strength, endurance, flexibility and agility. Their manifestations have a different form and several specific features and are determined by several factors, general biological regularities, systems and functions of the human body. The age between 12-16 is the transition period from childhood to adulthood. They step into it

significant changes in the nervous and mental development of the body. Knowledge of adolescents' anatomical-physiological and psychological characteristics during this period makes it possible to build a correct approach to work for physical development and legal capacity. Without considering this knowledge, it is impossible to apply a scientific approach, rational planning and management of the educational process (Kadiiski & Popovska (Кадийски & Поповска), 1982). According to Minchev (2014), the age stage between 12 and 20 years, also called adolescence divided into an early and a late period, which impacts the manifestation of physical qualities and is the reason for the realization of the organism's full potential (Minchev (Минчев), 2014). According to Kostov (1987), motor activity is the totality of a person's movements for a certain period (Kostov (Костов), 1987). When it is increased and realized through various extracurricular activities, it will help improve the state of health and physical development, psychological state, construction and shaping self-esteem, ability to integrate, teamwork and sense of solidarity, and for better concentration in the learning process. According to A. Atanasov (2010), in the development of extracurricular forms of sports, we see one possibility for purposeful and organized implementation of physical education tasks with children during their free time (Atanasov (Атанасов), 2010). On the other hand, students' physical activity outside of school is also low. From the surveys conducted by Belomazheva and Dimitrov (Belomazheva-Dimitrova & Dimitrov (Беломъжева-Димитрова & Димитров), 2018, as well as Kozleva & Belomazheva (2021)(Kozleva & Belomazheva-Dimitrova (Козлева & Беломъжева-Димитрова), 2021), we understand that non-athletes represent on average 30% of the students surveyed in 2018 and almost 40% in 2021 (Kozleva & Belomazheva-Dimitrova (Козлева & Беломъжева-Димитрова), 2021). In their research, Ignatov & Yordanov (2022) found that a major problem facing our public is that the young generation in Bulgaria suffers from immobility and obesity. Exercising is one way to avoid this major problem in our modern age (Ignatov & Yordanov, 2022).

The conduct of the extracurricular activity of physical education and sports with the students is the only opportunity for additional physical activity and participation in various sports and competitions. Motor qualities manifest complexly but differ according to their learning and purposeful development.

The working hypothesis: we suggest that our self-developed extracurricular application program for the expansion of motor skills (strength of arms and legs, and flexibility in the hip joint, shoulder girdle and spine) through the means of swimming sport, the physical fitness of the 14-16 years old students will improve.

Study purpose: The study aims to apply a program we developed for additional motor activity – swimming – to improve the physical fitness of 14-16-year-old students. Scheduled after-school swimming lessons can be arranged by schools, in sports teams or clubs, and take place outside the curriculum.

Tasks of the research:

1. Motor activity program creation - swimming in extracurricular time for 15-16-year-old students.
2. Tracking the changes in the motor qualities of arms and legs strength and flexibility in the hip joint, shoulder girdle and spine.
3. Analysis and presentation of the results in a series of reports.
4. Conclusions and recommendations.

METHODS

The research comprised 38 girls aged 14 years distributed in the Experimental Group (EG) – 18 and Control Group (CG) – 18. The research subject in this report is the effect of a program we developed on developing the quality strength of arms. Comparing the results obtained on the experimental (EG) and the control (CG) groups.

The following scientific methods were used to solve the set tasks: Research and analysis of literary sources, pedagogical observation, sports-pedagogical testing, and mathematical and statistical methods. Obtained data were analysed using analyses of variance.

For the sports-pedagogical testing, we chose the „pull-ups“ test (measurement unit- number of repetitions, accuracy – until failure), necessary equipment – dial lever. Test description: Starting position – standing. The lever is grasped with the palms facing inward. The distance of the hands should be at shoulder width. The abdomen is tight, and the legs hang limp or cross one on another. Execution: the shoulder blades are drawn to each other, the hands begin to pull the body up, and the chest should be level with the bar. When the head is shown above the lever, the body begins to descend, controlled with inhalation. It counts the maximum number of dials reached. The goal is to track changes in the strength of the arms and shoulder girdle. Table 1. presents the norms for the test.

Table 1. Strength assessment in boys

	Poor	Good	Excellent
Count	0-1	0-3	>3

RESULTS AND DISCUSSION

We tracked the changes in the strength of the participant’s arms and shoulder girdles in the experiment. According to the means from the analysis of variance,

participants from both groups at the beginning of the study (\bar{X} EG = 1,03; \bar{X} CG = 1,00) achieved a poor result in the studied strength indicator.

Table 2. Variation analysis of the strength indicator

Experimental group									
Indicator	n	Xmin	Xmax	R	\bar{X}	S	V%	As	Ex
pull-ups 1st research	18	0	6	6	1,03	1,542	80%	0,714	0,552
pull-ups 2 nd research	18	1	10	9	3,38	2,258	52%	0,800	0,420
Control group									
Indicator	n	Xmin	Xmax	R	\bar{X}	S	V%	As	Ex
pull-ups 1st research	18	0	5	5	1,00	1,510	71%	0,620	-0,128
pull-ups 2nd research	18	1	7	6	1,90	1,955	60%	0,802	-0,138

With a 100.0% guarantee probability (Table 3.), we can assume that experimental the program has significantly increased students' upper extremity strength gains.

The average value of EG of 1,03 number of repetitions Increases to 3,38 number of repetitions. They are **also with the students from KG changes that occurred, but in smaller sizes, an average value** of 1,00 number of repetitions increases to 1,90 number of repetitions. In the first study, the difference between the two groups increased from 0.03 to 1.48 in the second test.

Table 3. Comparative analysis of the strength indicator

Period	\bar{X}_{EG}	SEG	\bar{X}_{CG}	SCG	difference	T	P(t)
Pull-ups 1 st research	1.03	1.542	1.00	1.510	0.03	0.008	50.4%
Pull-ups 2 nd research	3.38	2.258	1.90	1.955	1.48	2.95	99.8%

According to the developed norms, the experimental group has increased to a rating of "excellent". The comparison of increments of the experimental and control groups confirms our hypothesis

(dEG = 3.35 a number of repetitions and dKG = 0.9 a number of repetitions). The difference from 1.45 is statistically significant, guaranteed by P(t) = 100% at $\alpha < 0.05$ (Table 4.).

Table 4. Comparative analysis of the growth of the strength indicator

Period	d EG	d CG	difference	t	P(t)
1-2 research	2.35	0.9	1.45	7.55	100%

The swimming program attached (lessons and exercises) is adapted to the age of the studied students, using an appropriate scientifically developed methodology and sport-specific activities outside of the pool and in the water. The training sessions are spread over a total of 6 months, two hours a week for 45 minutes.

CONCLUSION

The changes from the managing study, according to the considered by us indication, occurred in the experimental group, prove the effectiveness and efficacy of the program that we have developed for additional motor activity in extracurricular time to build on the results achieved in sports and physical education classes at school.

The obtained results found that the students who attended the organized extracurricular sports in swimming improved the indicator to a greater extent of the conducted test than the control group students. This gives us reason to conclude:

1. The loading dose must be slightly above the irritation threshold but within the human body's adaptive capacity for the training effect to be adequate.
2. Progressively increase the load in strength exercises to avoid habituation to a given stimulus.
3. Optimal length between workouts and breaks – the breaks between the individual exercises and activities should be neither too short nor too long.
4. Exercise specifications – physical exercises and methods should be close and specific for motor activity – swimming.
5. Unity between the general and the special preparation – reaching in advance to the required level of swimming training. Upon reaching optimal swimming skills move to specific work for individual motor skills.
6. Individual approach – each student has different physical development skills and sports techniques.

The working hypothesis was confirmed. Our program makes it possible to fight the looming negative trend of reducing students' physical activity in recent years.

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