

Enhancing the physical fitness of young men through the practice of martial arts

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Abstract

Objective of the study was to create and empirically evaluate the efficacy of a series of exercises designed to enhance the physical abilities of young males in grades 10-11 through the use of martial arts in the school's physical education curriculum.

Methods and structure of the study. The research project was conducted at St. George Secondary School in Rostov-on-Don from October 1, 2023, to May 20, 2024. Ten young men participated in the study, with five assigned to the control group and the same number to the experimental group. The research methods employed included a review of scientific and educational literature, pedagogical observation, testing, a pedagogical experiment, and statistical analysis.

Results and conclusions. The outcomes of the experiment revealed that the performance of the experimental group in the test trials was significantly superior in almost all aspects compared to the control group. This suggests that the compiled set of physical exercises proved to be highly effective and efficient, outperforming traditional basic exercises and games aimed at enhancing physical qualities in the context of physical education for young men in grades 10-11.

Based on the findings, it appears advisable to recommend the hand-to-hand combat exercise complexes developed and employed in the research work, particularly for the initial stage of training, as a more effective approach to addressing physical education objectives for high school students.

Keywords: *students, hand-to-hand combat, physical fitness.*

Introduction. One of the main tasks of physical education of young men in the senior school period is the acquisition of motor experience by mastering new physical exercises and the ability to apply them in their future work activities. However, not only the choice of further professional activity is a priority issue facing young men aged 16-17, but also serious preparation for military service. Thus, both the preparation for the upcoming transition to military service and future work activities require a sufficient level of development of physical fitness of schoolchildren. It is important to note that the rules and terminology of hand-to-hand combat are written in Russian and are deeply rooted in domestic sports theory and practice. Training methods and competitions are based on domestic schools of wrestling and boxing. Hand-to-hand combat has a huge impact on the revival of patriotic consciousness,

a positive image of the defender of the Fatherland. It should be emphasized that hand-to-hand combat as a martial art is based on a solid, time-tested national philosophy based on the humane moral and spiritual norms of our people.

Objective of the study was to create and empirically evaluate the efficacy of a series of exercises designed to enhance the physical abilities of young males in grades 10-11 through the use of martial arts in the school's physical education curriculum.

Methods and structure of the study. The research was conducted at the St. George Secondary Comprehensive School in Rostov-on-Don from 01.10.2023 to 20.05.2024. The participants in the pedagogical experiment were 10 young men, 5 of whom were in the control group and the same number in the experimental group.

Results of tests for physical and functional fitness at the beginning of the experiment

№	Tests	Unit of measurement	Average value		Difference in %
			Control	Experimental	
Physical fitness					
1	60m Run	Sec	8,7±0,3	8,5±0,4	1,1
2	3000m Run	Min, sec.	13,75±0,79	13,7±0,6	0,29
3	Pull-ups on a high bar	Number of times	9,2±1,8	8,4±2,7	6,6
4	Bending and unbending arms in a lying position	Number of times	29,1±5,6	28,2±5,3	2,7
5	Forward bend from a standing position on a gymnastic bench	cm	7,7±1,8	8,4±1,6	10,5
6	Long jump from a place	cm	210,6±18,6	213,0±14,7	1,1
Functional fitness					
1	Genchi test	Sec.	37,2±6,5	34,8±5,4	6,4
2	Stange test	Sec.	82,4±7,3	76,4±11,3	7,2
3	Harvard step test	Number of times	77,8±7,1	77,6±5,2	0,2
4	Orthostatic test	Number of times	13,2±2,5	12,4±2,6	6,0

The study was conducted in several stages:

1. At the first stage, from 01. 10.2023 to 31. 10.2023, we were faced with the task of reviewing and analyzing scientific and methodological literature on the topic of physical education of students, the specifics of the training process in hand-to-hand combat, and the impact of physical activity on the human body. Based on the literature studied and our own experience, we compiled approximate sets of exercises based on the means and methods of physical training in hand-to-hand combat.

Also, at the first stage, both groups of subjects were tested for the level of physical and functional fitness. 2. The second stage of the study, organized from 01.11.2023 to 10.05.2024, involved the use of the compiled sets of exercises in physical education lessons in grades 10-11 and in extracurricular classes on general physical training. Also, at the end of the second stage, both groups were re-tested for physical and functional capabilities using similar tests. 3. At the third, final stage of the study from 11.05.2024 to 20.05.2024, an analysis of all the results obtained during the experimental study was carried out. All numerical data were subjected to mathematical and static processing. Theoretical and practical conclusions were formulated. The tests for determining the level of physical fitness of students were selected from the VFSK GTO complex, namely: pull-ups on a high bar, bending and unbending arms in a support position lying on the floor, running 60 meters, running 3000

meters, bending forward from a standing position on a gymnastic bench, and long jump from a standing position with a push-off with two legs.

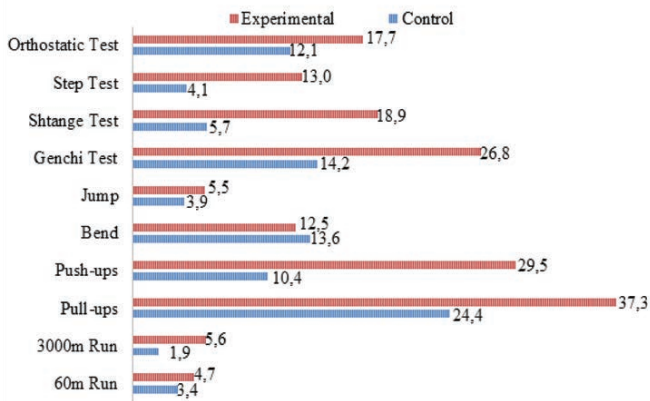
The functional fitness of the respiratory and cardiovascular systems of the students was checked by the following tests: Stange test, Genchi test during exhalation, Harvard step test, orthostatic test.

The developed set of physical exercises with hand-to-hand combat means for students of grades 10-11 in the experimental group was used to develop the basic motor skills of young men. Exercises from the set were used in the main part of both physical education lessons and extracurricular activities. Physical education lessons were held three times a week. Additionally, one hour a week was allocated for general physical training classes.

This set of physical exercises, developed using hand-to-hand combat means and technical elements, differs significantly from traditional methods of conducting physical training classes for senior schoolchildren.

Results of the study and discussion. When organizing an experimental study with young men in grades 10-11, we conducted testing at the beginning of the experiment, which allowed us to determine the initial level of physical and functional fitness of the students (see table).

Repeated testing of the subjects revealed a difference in both the physical and functional fitness of the young men of the experimental group in relation to the



Dynamics of physical and functional fitness based on the results of passing tests

control group. The results in the experimental group were significantly higher than in the control group. The young men of the experimental group showed a less significant difference in the performance of tests for flexibility and speed. During the analysis of the data after the performance of functional tests, the students of the experimental group showed the best indicators of the reaction of both the cardiovascular and respiratory systems in relation to the subjects of the control group, where the results, although lower, indicated a fairly good level of functional fitness (see figure).

Conclusions. As a result, the test results of the experimental group were significantly higher in almost all indicators compared to the control group. Based on this, we can say that the compiled set of physical exer-

cises turned out to be quite effective and efficient, and thus proved its advantage over traditional basic exercises and games aimed at improving physical qualities in the process of physical education of young men in grades 10-11. Based on the results of the work carried out, it seems possible to recommend the hand-to-hand combat exercise sets developed and used in the research work, the initial stage of training, for a more effective solution to the problems of physical education with senior students.

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