



Improving the general physical fitness of children 7-9 years old in sports acrobatics

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Abstract

Objective of the study was to improve the general physical training of children 7-9 years old in sports acrobatics.

Methods and structure of the study. The experiment took place in the municipal budgetary institution of additional education in Rostov-on-Don "Sports School No. 6". The participants in the experiment were 12 acrobats aged 7-9 years, 6 of whom were included in the experimental group and 6 athletes in the control group. Scientific research methods included: pedagogical observation, pedagogical testing, pedagogical experiment, methods of mathematical statistics.

Results and conclusions. The results of the conducted pedagogical experiment clearly demonstrated the effectiveness of the developed sets of physical exercises in sports acrobatics, aimed at improving the general physical training of young acrobats aged 7-9 years. Therefore, it can be argued that supplementing the content of general physical training programs in sports acrobatics for this age group with experimental complexes of physical exercises will significantly increase their level of physical and functional readiness.

Keywords: physical training, functional training, exercises, acrobatics.

Introduction. The importance of general physical training as a separate component of the structure of the training process of various sports disciplines is reflected in the research of domestic and foreign authors in the field of physical culture and sports.

Since the primary task of training young acrobats is the development of physical qualities important for the sport, especially at the stage of initial training, namely: coordination abilities, muscle strength, speed, flexibility, endurance, balance, it would be appropriate to say that the key to determining the effectiveness of performance at competitions is a high level of physical fitness of athletes. Often, a trainer-teacher is faced with the problem of selecting means and methods for students aged 7-9 years that contribute to more effective development of physical qualities in sports acrobatics. Therefore, improving the general physical fitness of acrobats of the age

group we are considering will be considered a priority area of research work.

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Educational and training sessions in the control group were held in accordance with the approved sports training program at the initial stage. In parallel, during the training sessions of the experimental group, developed sets of physical exercises were used, mainly aimed at the comprehensive physical development of young acrobats, namely: speed qualities, strength abilities, strength endurance, coordination, flexibility and speed-strength qualities.



The purpose of the pedagogical experiment was to test the effectiveness of the complex of physical exercises we developed aimed at improving the general physical training of young acrobats at the stage of initial training. The participants in the experiment were 12 acrobats aged 7-9 years, 6 of whom were included in the experimental group and 6 athletes in the control group. All participants in the experiment were assigned to the main health group and had a doctor's permission to participate in training sessions.

In order to solve the problems posed in the experimental study and obtain the necessary information, the following scientific research methods used in pedagogy and in the theory and methodology of physical education were used:

- theoretical analysis of literary sources;
- pedagogical testing;
- pedagogical experiment;
- methods of mathematical statistics.

Our study using experimental sets of physical exercises aimed at improving the general physical fitness of acrobats aged 7-9 years at the initial stage of sports training was organized in the period from 04/01/2023 to 11/20/2023. The research work was divided into three stages.

At the first stage, from 04/01/2023 to 05/01/2023, an analysis of scientific and methodological literature on the research topic was carried out, physical exercises were compiled and physical activity complexes were developed. Also at this stage, pedagogical testing of the level of physical and functional readiness of young acrobats in the control and experimental groups was carried out.

Tests of general physical fitness of acrobats:

- 1) 30 meter run.
- 2) Shuttle run 3x10 meters.
- 3) Strength endurance of the trunk flexor muscles

Test results at the beginning of the experiment

No.	Tests	Unit	Average value		Difference in %
			Control	Experimental	
Physical fitness					
1	Running at 30 m	Seconds	6,4±0,5	6,5±0,7	1,5
2	Shuttle run 3x10 m	Seconds	9,4±0,5	9,3±0,5	1,0
3	Raising the body from a supine position	Number of times in 30 s	21,1±3,9	22,0±3,6	4,0
4	Flexion and extension of the arms while lying down	Number of times	11,8±1,7	11,9±1,7	0,8
5	Bend forward from a standing position on a gymnastic bench	cm	3,7±1,9	3,5±1,3	5,7
6	Standing long jump	cm	129,6±4,8	130,6±3,8	0,7
Functional readiness					
1	Stange test	Seconds	31,3±4,5	30,8±3,5	1,6
2	Harvard step test	Number of times	71,3±8,5	65,5±5,9	8,8
3	Orthostatic test	Number of times	13,2±2,1	11,5±2,7	14,7

was assessed by the standard "raising the body from a supine position."

4) Flexion and extension of the arms while lying on the floor.

5) Bend forward from a standing position on a gymnastic bench (from the level of the bench).

6) Standing long jump with a push with two legs.

The functional readiness of acrobats was assessed by the following tests:

1) Stange test with breath holding. It is used to judge the oxygen supply of the athlete's body and general fitness.

2) Harvard step test. This test determines the degree of fitness of the cardiovascular system of those involved.

3) Orthostatic test. This test characterizes the excitability of the sympathetic division of the autonomic nervous system. The difference in heart rate due to a change in body position during the transition from horizontal to vertical is determined.

The second stage of the experimental study, organized from 05/03/2023 to 11/10/2023, involved the use of developed sets of physical exercises in the training process of the experimental group.

At the third stage of the pedagogical experiment, both groups were retested using similar tests that were used at the beginning of the study. All data obtained during the study were subjected to mathematical processing.

Results of the study and discussion. Based on the primary data obtained at the beginning of the study, sets of exercises were compiled with the predominant use of game, competitive and repeated methods and taking into account the level of training of athletes from the experimental group.

Special attention was also paid to the preparatory part of the training sessions in the experimental group. In the warm-up, to prepare the body for the up-



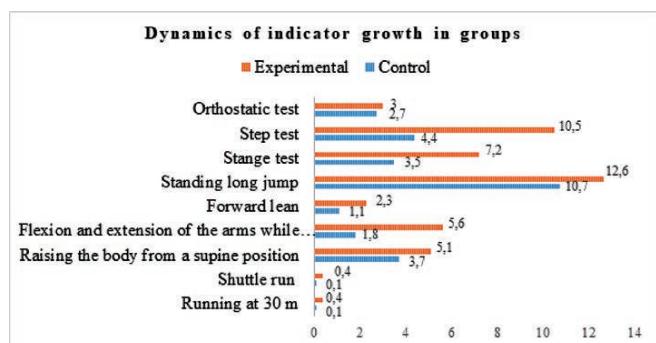
coming physical activity, warm up the muscles, ligaments, tendons, as well as optimize the functioning of the cardiovascular and respiratory systems of young acrobats, general preparatory exercises and various outdoor and sports games were used. Game warm-up motivates children to physical activity, shows creativity, and also does not cause psychological fatigue at the beginning of training.

The selection of general physical training exercises was carried out depending on the level of preparedness of the students. As the load was mastered, the exercises became more complex. At the end of the training session, exercises were used to restore breathing and gymnastic exercises to relax muscles.

Monitoring of the cardiovascular system during exercise was carried out using a heart rate monitor; heart rate was calculated at the beginning of the workout, in the main and final parts. For more effective control in both groups, a diary was kept for recording each lesson, and the training load and functional state of the body of young acrobats were analyzed.

Based on the initial data of physical fitness in both groups, no significant difference was observed. The level of functional readiness of young acrobats is between low and medium levels (see table).

At the end of the pedagogical experiment in November 2023, after the implementation and use of the compiled sets of exercises in the training process of the experimental group, both groups were re-tested using the same tests under similar conditions, the results are presented in the figure.



Conclusions. As can be seen from the presented table and figure, in control tests for the development of speed, coordination, strength, strength endurance, flexibility, speed-strength qualities, general fitness of the body, fitness of the cardiovascular system, the degree of excitability of the sympathetic division of the autonomic nervous system, comparing the results, obtained at the beginning of the pedagogical experiment and upon completion in both groups, we observe that in the experimental group there were significant changes in almost all indicators of physical fitness and indicators of the level of functional fitness of the body.

Thus, the results of the conducted pedagogical experiment clearly demonstrated the effectiveness of the developed sets of physical exercises in sports acrobatics, aimed at improving the general physical training of young acrobats aged 7-9 years. Therefore, it can be argued that supplementing the content of general physical training programs in sports acrobatics for this age group with the presented experimental sets of physical exercises will significantly increase their level of physical and functional readiness.

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