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Development of special motor training of young gymnasts

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Abstract

Purpose: Improving the special motor training of young gymnasts based on the analysis of the results of special motor training of gymnasts at the stage of initial training.

Methods: The article widely uses the analysis of scientific and methodological literature, pedagogical observation, pedagogical experiment, testing, methods of mathematical statistics and video surveillance based on the improvement of special motor training of young gymnasts.

Results: During the analysis of data on the preparation of young gymnasts for special actions, the complex developed by gymnasts 5-7 years old when developing training for special actions was scientifically substantiated, and its effectiveness was determined in pedagogical experience.

Conclusion: Of the 9 tests studied in the control group, only three (long jump, 90° leg lift on a gymnastic wall with and a bridge exercise) were accompanied by low statistical reliability ($R<0.05$), and the rest were statistically unreliable ($R>0.05$). However, in the experimental group, the changes in all the tests studied were statistically significant at good ($R<0.01$) and high ($R<0.001$) significance levels.

Keywords: Training, preparation, physical qualities, speed, flexibility, special movements, timing, coordination, movement, means.

Introduction

Decree of the President of the Republic of Uzbekistan Sh. M. Mirziyoyev, dated 30.10.2020 № PD-6099 “On measures for the widespread introduction of a healthy lifestyle and the further development of mass sports”, regular physical education and mass sports, ensuring that every citizen has a strong immune system against the disease by forming vital healthy lifestyle skills, abandoning bad habits, in this regard, a number of tasks were set to create appropriate infrastructure and other necessary conditions.

The role of physical education and sports in strengthening the health of the population has increased in our country, which is an effective stage in the development of physical culture and sports culture of children, and this process continues.

The growth of sports results aimed at early specialization and improvement of training processes of young gymnasts puts before the pedagogical science of sports the need for a system for managing types of training in large and small training cycles and plans to increase the effectiveness of further training facilities. At the initial stage of preparation, a clear implementation of the issues of progression of the quality of movement and assimilation of exercises in the program in a qualitative sequence is required. This problem is relevant in all sports, as well as in gymnastics, which is considered a sport focused on an early specialist (Rozin E.Y., Smolevsky V.M., Menkhin V. and others).

An analysis of the state of the mentioned problem in this sport indicates that its full scientific elaboration is insufficient. Until now, the main focus has been on special technical training. The distribution of training facilities in multidisciplinary types of gymnastics, the content of training, the periods of appearance of young gymnasts during specialized training have not been studied enough.

Gymnasts have no “end” in the dialectical sense. It develops and becomes more complicated without a break, here the future will be only for a constantly moving athlete, you only need to know this in advance. There is a clearly defined beginning and end of the preparatory periods. All this is due to the growing popularity of the Olympic Games, the expansion of their medals and programs, the professionalization of the main sports, the increase and intensity of the load, the growth of the skill of the main athletes, the introduction of new effective methods and means, the improvement of sports equipment, the expansion of the calendar of international competitions, the professional development of coaches and athletes, the creation of scientific sports centers and training bases.

Methods

The article defines the statistical characteristics of the results of physical training of young gymnasts of the control and experimental groups at the beginning of the pedagogical experiment. Then 3 control exercises were taken from the subjects to determine speed and strength qualities, 4 exercises to determine the quality of strength and 2 exercises to determine flexibility. The obtained results were summarized and compared with the statistical reliability data estimated on the basis of the critical values of the coefficient of variation and the Student's distribution.

Results and discussion

The developed complexes are aimed at improving the fitness of gymnasts for movement and have a positive effect on the sports and technical result.

As a result of the conducted research, significant adjustments were made to the normative part of the training program for 5-7-year-olds in gymnastics.

But it should be borne in mind that the body of children at this age is not yet fully formed, and by many indicators it is weaker than that of adults.

During the period of special training , 2 main tasks are set:

1) development of special physical qualities based on improving general physical fitness;

2) mastering very complex elements and combinations associated with fine coordination of movements and the formation of high-level physical qualities.

The proportions of time allocated for general, special, technical, etc. training by types of chrometry training conducted during one year of pedagogical supervision and training are given (see table 1).

The volume of work of GPT, in turn, is much larger than that of SPT. GPT tools (athletics, GPT, outdoor games) are used throughout the year, in most cases for the purpose of recovery.

It is widely used to complicate the training process in order to develop special physical qualities.

In addition to its traditional level of complex coordination, modern gymnastics, in a certain sense, largely assumes the character of a sport in the direction of strength intensity: to perform modern complex and interrelated auxiliary exercises, a powerful muscle surge is necessary, and static and dynamic strength is necessary to perform the elements of strength.
This implies the development of physical qualities, the achievement of higher indicators. Such

Table 1. The preparatory load of the annual training process (%).

Types of training	Years and stages	
	1st year	2nd year
General physical training (%)	25-37	25-37
Special physical training (%)	13-17	13-17
Technical training (%)	42-54	42-54
Tactical, theoretical, psychological	1-2	1-2
Participation in competitions and arbitration practice (%)	2-4	2-4
Recovery tools (%)	1-2	1-2

Table 2. Control and experimental groups results of physical training of young gymnasts at the beginning of the experiment.

№	Control exercises	Control group			Experimental group		
		$\overline{X}$	σ	V	$\overline{X}$	σ	V
Strength and speed							
1.	Shuttle run at 2x10 m (s)	10.24	1.46	14.26	10.36	1.52	14.67
2.	Running for 20 meters (s)	9.34	1.45	15.52	8.89	1.39	15.64
3.	Long jump (cm)	134.48	14.67	10.91	137.64	14.86	10.80
Strength							
4.	Pull-up on the horizontal bar (times)	3.96	0.49	12.37	4.33	0.55	12.70
5.	Bending the arms in two parallel on the seats (times)	8.74	1.27	14.53	9.63	1.42	14.75
6.	Lifting the legs by 90^0 while hanging on the gymnastic wall (times)	6.74	0.9	13.35	6.13	0.84	13.70
7.	Angular grip in a hanging position on the gymnastic wall (s)	11.26	1.79	15.90	10.84	1.72	15.87
Flexibility							
8.	Leaning forward in a sitting position (cm)	4.38	0.65	14.84	3.97	0.58	14.61
9.	Bridge exercise (cm)	41.68	5.56	13.34	42.49	5.86	13.79

Table 3. Dynamics of relative growth during the pedagogical experiment of statistical characteristics of the results of physical training of young gymnasts at the beginning of the experiment in the control group .

№	Control exercises	End of the experiment			Relative increase compared to the beginning of the	t	p
		$\overline{X}$	σ	V, %			
	Strength and speed						
1.	Shuttle run at 2x10 m (s)	9.25	1.31	14.16	9.67	1.75	>0.05
2.	Running for 20 meters (s)	8.38	1.25	14.92	10.28	1.74	>0.05
3.	Long jump (cm)	145.18	15.13	10.42	7.96	1.76	>0.05
Strength							
4.	Pull-up on the horizontal bar	4.39	0.51	11.62	10.86	2.11	<0.05
	Bending the arms in two parallel	9.67	1.36	14.06	10.64	1.73	>0.05
6.	Lifting the legs by 90^0 while hanging on the gymnastic wall	7.55	0.98	12.98	12.02	2.11	<0.05
7.	Angular grip in a hanging position	10.05	1.54	15.32	10.75	1.78	>0.05
Flexibility							
8.	Leaning forward in a sitting	4.86	0.69	14.20	10.96	1.75	>0.05
9.	Bridge exercise (cm)	46.63	5.98	12.82	11.88	2.10	<0.05

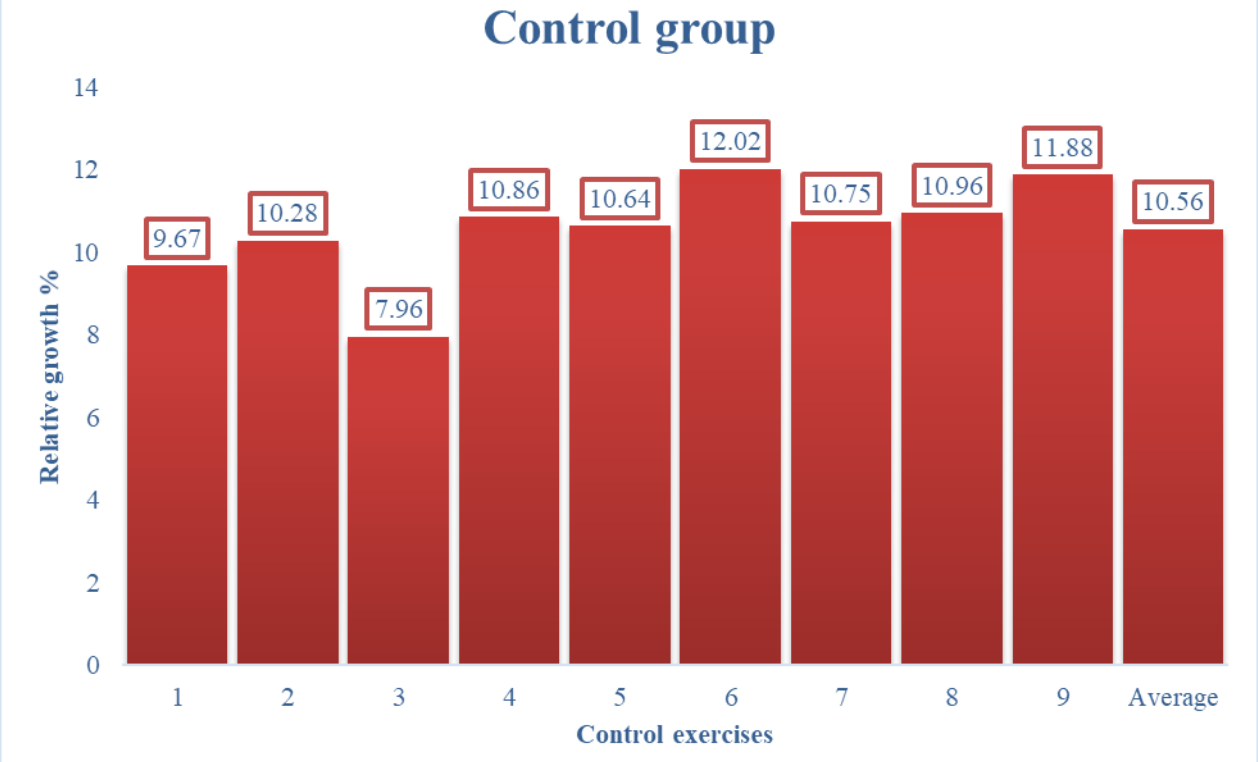


Figure 1. Dynamics of relative growth of statistical characteristics of the results of physical training of young gymnasts of the control group during the pedagogical experiment (%).

Table 4. The relative dynamics of the growth of statistical characteristics of the results of physical training of young gymnasts at the beginning of the experiment in the experimental group during the pedagogical experiment.

№	Control exercises	End of the experiment			Relative increase compared to the beginning of the	t	p
		$\overline{X}$	σ	V, %			
Strength and speed							
1.	Shuttle run at 2x10 m (s)	8.32	1.15	13.82	19.69	3.71	<0.01
2.	Running for 20 meters (s)	7.04	1.04	14.77	20.81	3.69	<0.01
3.	Long jump (cm)	168.46	17.46	10.36	22.39	4.66	<0.001
Strength							
4.	Pull-up on the horizontal bar	5.44	0.62	11.40	25.64	4.64	<0.001
5.	Bending the arms in two parallel	11.98	1.66	13.86	24.40	3.73	<0.01
6.	Lifting the legs by 90^0 while hanging on the gymnastic wall	7.91	1.03	13.02	29.04	4.64	<0.001
7.	Angular grip in a hanging position on the gymnastic wall	8.54	1.3	15.22	21.22	3.70	<0.01
Flexibility							
8.	Leaning forward in a sitting	5.17	0.69	13.35	30.23	4.61	<0.001
9.	Bridge exercise (cm)	51.97	6.65	12.80	22.31	3.71	<0.01

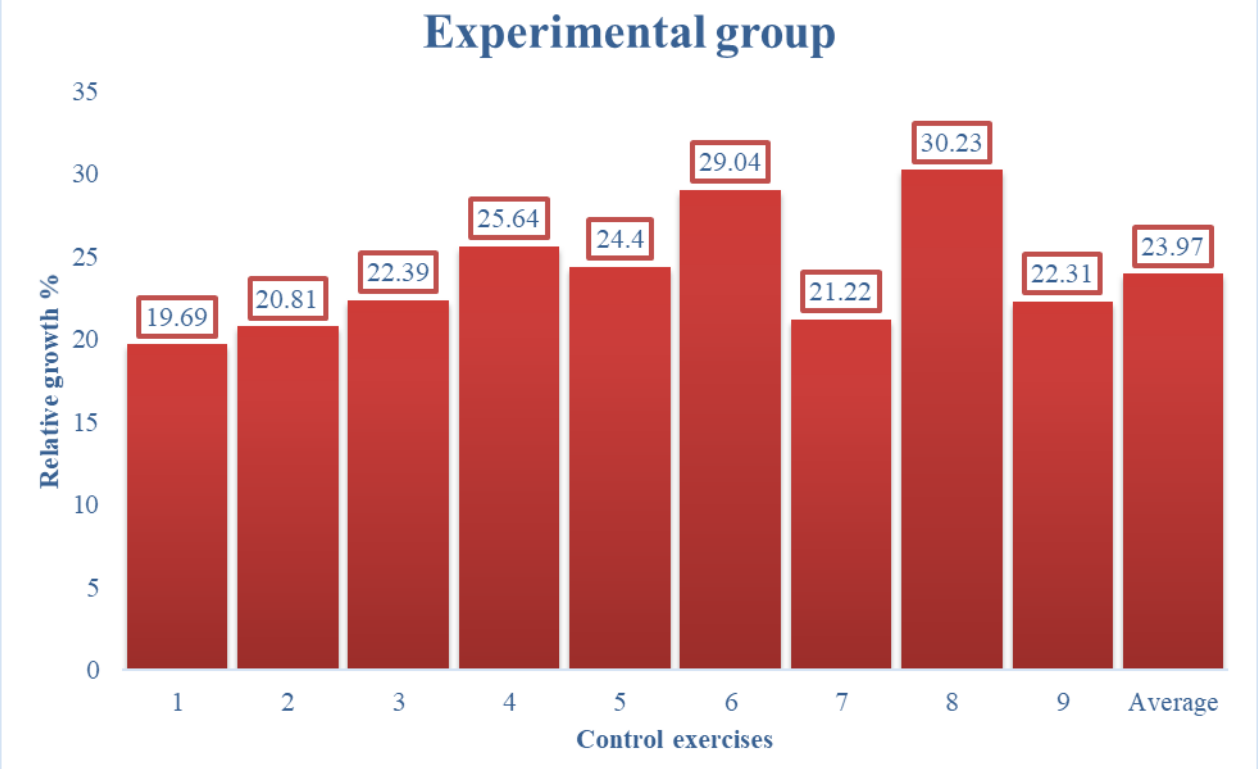


Figure 2. Relative dynamics of statistical characteristics of the results of physical training of young gymnasts of the experimental group during the pedagogical experiment (%).

a task is typical in many cases for the second academic period of study. The task of maintaining the level at which physical characteristics are achieved is largely eliminated during the competition period.

Statistical characteristics of the results of physical training of young gymnasts at the beginning of the experiment in the control and experimental groups at the beginning of the pedagogical experiment were developed in Table 2. These data show that the values of the coefficients of variation calculated based on the results of the control and experimental groups of all the studied control exercises are very close to each other (from 10.91% to 15.90% in CG and from 10.80% to 15 in EG), ranges up to 87%) and this fact indicates that at the beginning of the experiment, subjects with almost the same level of training were taken, which means that the pedagogical experience was properly organized.

The statistical characteristics of the retesting results at the end of the pedagogical experiment in CG and EG and the statistical reliability of their changes during the pedagogical experiment, estimated on the basis of the critical values of the Student's distribution, are given in Tables 3 and 4 and in Diagrams 1 and 2.

The analysis of the presented data (see tables 1, 2 and diagrams 1, 2) showed that the values of the coefficients of variation determined by the end of the pedagogical experiment for all the studied control exercises, both with CG and with EG, changed positively relative to the beginning of the experiment, as well as the trend of positive changes in the arithmetic mean values in all the studied tests in both groups.

However, it was noticed that the corresponding indicators in EG were significantly higher and statistically more reliable than the relative changes in CG of the statistical characteristics determined in the tests during the pedagogical experiment. In particular, the shuttle run of 2x10 m (s) in the control group was 9.7%, in the experimental group 19.7%, running for 20 meters (s) in the control group was 10.3%, in the experimental group 20.8%. As a result of the tests, it was found that the long jump (cm) increased by 8% in the control group by 22.4% in the experimental group, the indicators of the experimental group increased to a reliable level compared to the control group.

Conclusion

The developed set of exercises was used in the training of young gymnasts, and the data on the

statistical characteristics of the CG and EG test results at the beginning and end of the experiment and the statistical reliability of their changes during the pedagogical experiment are based on the critical values of the Student's distribution also showed greater reliability.

The relatively high average increase of each test in the experimental group and statistically significant positive changes in the experimental group compared to the control group confirm the effectiveness of adjusting the normative part of the training program in the experimental group.

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Research interests

Sport Science, Physical Education, Development of special motor training, theory and methodology of gymnastics.

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