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Methods of education of high-speed qualities of children 14-15 years old (teenagers)

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Abstract
*Purpose*To study the general state of involvement of schoolchildren in mass sports, to determine the effectiveness of a set of special exercises designed to develop the dexterity of a 14-15-year-old student in children's and youth sports schools (youth sports schools).
Methods: The level of children's need and interest in mass sports was determined by a pedagogical and psychological survey. Based on the specifics of the problems studied in the study, taking into account the availability of equipment and the level of professional training, the availability of scientific materials, the following pedagogical methods were used in the study. Analysis of scientific and methodological literature, coefficient of variation, pedagogical observation, pedagogical experience, mathematical and statistical analysis.
Results: The quality of agility of children aged 14-15 was determined, and at the beginning of the pedagogical experiment there were no statistical differences in the speed training of boys aged 14-15 between the results of the control group CG and the experimental group EG. However, according to the results of these groups, the values of the calculated coefficients of variation in the control CG varied between V=18.5% and V=19.93%, and in the experimental group EG between V=19.78% and V=19.99%.
Conclusion: To increase the agility of boys aged 14-15 in athletics, if you use the following exercises, "sport step" running with a small but high speed; Running lifting the knees at least 90°; running jumping off the ground, the foot is placed on the ground without bending; running in a straight line and in a circles of different radius; running up; the speed can be slightly improved if we run down.

Keywords: speed indicators, a set of special exercises, statistical characteristics, reliability.

Introduction

The pupils of the Youth Sports School (Youth Sports School) are the main foundation for the preparation of athletes capable of achieving high sports results in the future, through training and development of physical qualities, such as agility, strength endurance to agility.

The study of the problem led many scientists, including VI Konikov, OM Mirzoev, V Borzov, AN Begletsov, NG Ozolin, VN Nikitushkin, NT Tukhtaboev, KT Shakirdzhanova and others to conduct a number of scientific studies on the planning of the training process, organization and conduct of model training. However, with the participation of contingents of subjects from different age groups and regions, it is important to develop the agility of young athletes studying at the Youth Sports School, and the methods and means used in this process, as well as the results achieved. One of the main tasks of each coach is to develop physical qualities in children aged 14-15, such as speed and agility. These physical qualities allow the trainees to behave freely in any life situation, to determine their social living conditions and a worthy place in sports at an early stage. The development of these qualities, in turn, determines the state of dexterity of those engaged in this age. Therefore, it is important to develop a special complex exercise to improve the dexterity of 14 -15-year-olds and test its effectiveness in practice. When running, almost all muscle groups of the body are activated, the activity of the cardiovascular, respiratory and other systems increases, and metabolism significantly increases. In the process of running, the will is strengthened. The ability to distribute their forces, overcome obstacles, aim in an open area is formed.

Running is one of the main means of comprehensive physical development. There will be different types of running in athletics, including running on a flat surface, hurdling, relay race and running in natural conditions.

Smooth running. When running on a treadmill for a distance of 400 meters or less for a certain distance or time, each runner is allocated a separate track. The time required to cover a given distance is measured in seconds.

In one-hour and two-hour races, time is limited, so the distance traveled during this time is determined in meters.

Methods

To study and analyze the state of the problem on the basis of the following scientific and methodological literature, taking into account the availability of scientific materials obtained, based on the specifics of the problems studied in the study; pedagogical methods of pedagogical observation and pedagogical experience, questionnaires, interviews, anthropometry, heart rate monitoring, mathematical statistics were used.

Organization of research.

The experiment was conducted with the participation of teenagers aged 14-15 years, engaged in the initial stage of training in Children's and youth sports schools (youth sports schools) in Chirchik, Tashkent region. At the beginning of the pedagogical experiment, children of this age group with almost the same level of training were selected for the control group (CG, n = 10) and the experimental group (EG, n = 10).

"Sport step" running with a small, but high-speed free step in the composition with a group of 2 years of experience; running lifting the knees at least 90°; running jumping off the ground, the foot is placed on the ground without bending; running in a straight line and in a circles of different radius; running up classes were conducted with a special set of exercises.

Results and discussion.

At the beginning of the pedagogical experiment, the results of the subjects of the control group CG and the experimental group EG were recorded according to the selected tests and the results obtained were analyzed in order to study their capabilities at the beginning of the study. The results of this analysis are presented in Table 1, which compares the arithmetic mean of the results ($\overline{X}$), the arithmetic or standard deviation (σ), the coefficients of variation (V) and the relative differences in the arithmetic mean values of the experimental group in absolute relation to the control group.

Analysis of the data presented in the table at the beginning of the pedagogical experiment, there were no statistical differences in the speed of learning of boys aged 14-15 years between the results of the control group and the experimental group. However, the values of the coefficients of variation calculated from the results of these groups varied in the control group from V=18.5% to V=19.93%, and in the experimental group from V=19.78% to V=19.99%.

Table 1. Statistical characteristics of speed indicators of boys aged 14-15 years, included in the control and experimental groups

Test	Control group			Experimental group		
	$\overline{X}$	σ	V, %	$\overline{X}$	σ	V, %
Running at 60 m, s.	11.87	2.32	19.55	11.73	2.32	19.78
Running time for 100 m, s.	17.69	3.42	19.33	17.52	3.48	19.86
4x10 m shuttle run time, s.	14.96	2.77	18.52	14.81	2.81	18.97
The number of jumps on a rope in 1 minute, times	93.88	18.71	19.93	91.44	18.28	19.99
The number of basketball throws to the basket in 30 seconds, times	14.25	2.84	19.93	14.43	2.86	19.82

These facts mean that the level of training of the control group and the experimental group of subjects is close and, therefore, the pedagogical experience is organized correctly.

At the end of the pedagogical experiment, the results of repeated testing of the studied tests of boys aged 14-15 years, their statistical reliability of changes in the course of the experiment according to the critical values of the Student's distribution are shown in Tables 2 and 3. critical values of the Student's distribution are shown in Tables 2 and 3.

Table 2. Analysis of the results at the end of the experiment and changes during the experiment by a control group of subjects

Tests	At the end of the experiment			Increase		t	P
	$\overline{X}$	σ	V, %	absolute	relative, %		
Running at 60 m, s.	10.18	1.91	18.762	1.69	14.24	1.78	>0.05
Running time for 100 m, s.	15.2	2.84	18.684	2.49	14.08	1.77	>0.05
4x10 m shuttle run time, s.	12.91	2.32	17.971	2.05	13.7	1.79	>0.05
The number of jumps on a rope in 1 minute, times	113.56	21.95	19.329	19.68	20.96	2.16	<0.05
The number of basketball throws to the basket in 30 seconds, times	16.63	3.17	19.062	2.38	16.7	1.77	>0.05

Comparing the initial results in Table 1 with the results at the end of the experiment in Tables 2 and 3, it is possible to observe a positive change in the values of the coefficients of variation during the experiment, both in the control group and in the experimental group.

Table 3. Analysis of the results at the end of the experiment and changes during the experiment by a experimental group of subjects

Tests	At the end of the experiment			Increase		t	P
	$\overline{X}$	σ	V, %	absolute	relative, %		
Running at 60 m, s.	9.14	1.74	19.04	2.59	22.08	2.82	<0.05
Running time for 100 m, s.	12.37	2.36	19.08	5.15	29.39	3.87	<0.01
4x10 m shuttle run time, s.	11.65	2.12	18.20	3.16	21.34	2.84	<0.05
The number of jumps on a rope in 1 minute, times	140.23	26.23	18.70	48.79	53.36	4.83	<0.001
The number of basketball throws to the basket in 30 seconds, times	20.38	3.93	19.28	5.95	41.23	3.87	<0.01

In addition, the relative change in the results of CG and EG tests during the pedagogical experiment (see figure 1) was more (33.94%) compared with the control group (a relative increase of 15.94%) and statistically significant positive changes were detected.

significance (P<0.05), the rest were unreliable

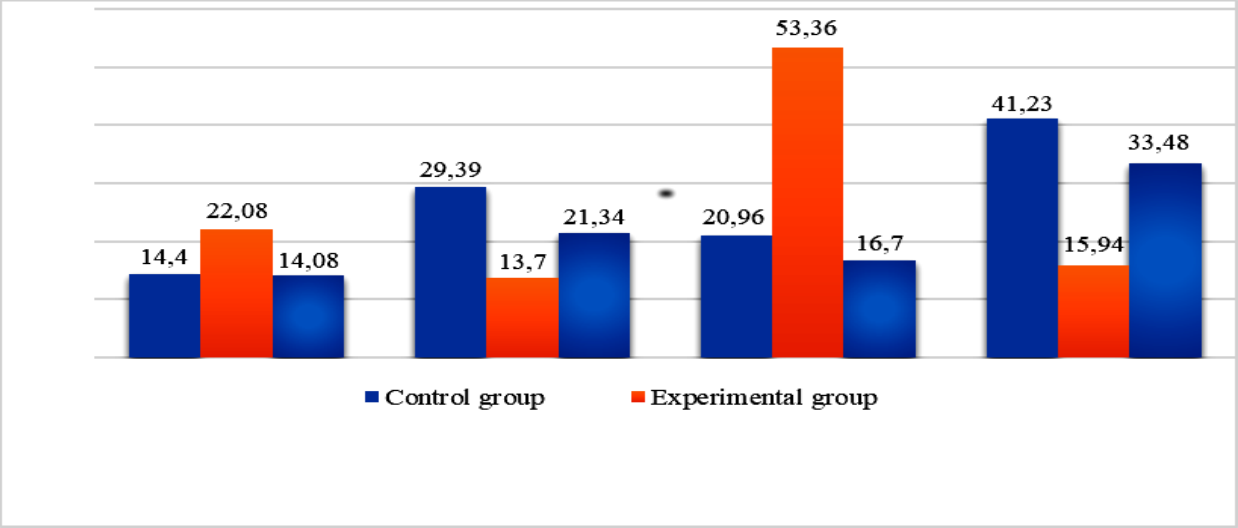


Figure 1. Relative growth dynamics (%) during the experiment of the results shown by the subjects CG and EG on the studied texts.

Conclusion.

Thus, during the analysis of experimental scientific and methodological literature, it turned out that there is extremely insufficient information about the development of the quality of dexterity and physical fitness of children aged 14-15 years. The organization of classes with students in sports schools is inefficiently developed, there is no scientifically based information in the areas of the pedagogical process, about which there is very little information. Experience, which has not been given much attention in the literature, has shown that the following exercises are used for the development of dexterity in 14-15-year-olds and for the development of dexterity in 14-15-year-olds in the process of developing physical fitness:

- running lifting the knees at least 90°;
- running jumping off the ground, the foot is placed on the ground without bending;
- running in a straight line and in a circles of different radius;
- running up;- running down can be recommended.

According to the results obtained in the experiment, in the control group, one test was statistically reliable at the level of normal

than twice as large in the experimental group (P>0.05); In the experimental group, statistically significant positive changes were observed in one of the five tests at a high (P<0.001), two at a good (P<0.01) and two at a normal (P<0.05) level of significance.

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