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Methods of developing the physical quality of speed in 14-year-old short distance runners

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Abstract

Purpose: Improving the high-speed quality skills of 13-14 year-old short-distance runners at the initial stage of training. Development of practical recommendations and proposals to improve the quality of high-speed equipment for the physical and functional training of student-athletes and the development of their physical abilities.

Methods: Development and implementation of mechanisms that help athletes aged 13-14 to win competitions by developing the quality of speed.

Results: Another standard distance is the 200 (m) run, which requires an athlete to have fast strength endurance. The subjects ran this distance in an average of 26.96 ± 3.38 seconds. The average result in the long jump from a standing position, reflecting the rapid explosive force of the leg, is 238.63±26.22 (cm). In another triple long jump from the spot, the subjects of the control group jumped an average of 704.25± 105.44 (cm). They managed to complete the test for five long jumps from a place of 11.429 ± 1.59 (cm). In the high jump on the "Spork" equipment, the subjects showed an average result of 37.04±5.18 (cm). In the test of shot-put 6 (kg), which corresponds to the strength of the hands, they threw over the head with two hands, an average of 784.96± 101.83 (cm).

Conlcusion: The results of a pedagogical study of the physical development of short-distance runners show that, although the physical development indicators of the athletes involved in the study are consistent with the data provided by leading scientists, we can see that our athletes are slightly lagging behind in some aspects of physical development. By identifying speed and strength qualities, the selection and orientation of short-distance runners in athletics will create the basis for their development as highly qualified athletes in the future.

In order to improve the quality of speed in short-distance running, athletes train at and near the maximum speed, as well as to prevent situations leading to the emergence of the so-called speed barrier. In speed exercises, the ability of students to perform loads without reducing speed was revealed.

Keywords: Speed, physical quality, starting speed, athletics, short distance, training group, selection of athletes, competitions, physical training, training process.

Introduction

In recent years, special attention has been paid to the popularization of athletics in many countries of the world. Short-distance running in athletics is considered a very important sport because of its speed and demands on physical abilities. As in all sports, the athlete's starting speed is of particular importance in short-distance running. Because if an athlete has the quality of speed, the chance of winning during the competition increases even more. Given the new technologies that are becoming more and more powerful these days, special attention is being paid to the development of the physical abilities of sprinters around the world. One of the priorities is the comprehensive maturation of today's youth, which is the foundation of the future of all countries. The sharp increase in athletic performance in athletics requires further optimization of training.

The system of training athletes in athletics around the world is improving year by year. Athletics competitions in short-distance running are distinguished by their versatility and popularity. The development of scientific and methodological training aimed at developing the quality of speed in short-distance runners gives athletes the opportunity to win competitions. Improving the comprehensive training of women and youth in athletics and the system of training highly qualified athletes in running, involving the development of their speed and strength qualities, is now considered one of the most important tasks at the global level.

In our republic, many researchers are doing a lot of work to develop the physical abilities of young people running short distances, to study the technical and tactical aspects of athletics, to study ways to perform individually selected exercises. Numerous studies are being conducted on the development of speed abilities in short-distance runners, winning competitions, and developing training processes. In the long-term training system, we need to pay attention to many aspects when training the quality of speed in short-distance running.

One of the important issues is the development of a methodology for timely and high-quality management of the training process of student-athletes aged 14 at each stage of the short distance. Based on many

years of theoretical and practical experience accumulated by highly qualified athletes-short-distance runners in the field of physical culture and sports, integrated methods based on combination with training in various non-traditional health systems, as well as the possibility of their control, are being put into practice. The development of speed in short-distance running among student-athletes is understood as the ability of a person to perform motor activity in a minimum time under certain conditions. The main forms of speed demonstration are the following.

The forms of demonstration of athletes' speed in short-distance running are not related to each other. This also applies to time indicators, which are often not related to the indicators of the reaction speed of movement at the start. The combination of these three forms in the formation of the speed qualities of short-distance runners determines all cases of speed. For example, the result in sprinting depends on the reaction time to the start, the speed of performing certain movements, moving the hip forward, etc., as well as the pace of steps. In practice, it is not the above-mentioned basic forms of speed that are of great importance, but the speed of general actions. The world practice of athletics shows that highly qualified sprinters for short distances are associated with a multi-year training program with a promising planning system. However, despite the research of many authors, special attention is not paid to the training loads of speed abilities in short-distance runners, there is a need for scientific research, given that the issue of an individual approach has not been sufficiently studied. In addition to the creation of multi-year training system to improve the physical qualities of sprinter runners, it is necessary to conduct research taking into account their functional and technical training in the effective management of the training process.

Methods

The research uses scientific and theoretical analysis of data from domestic and foreign literature, questionnaires, generalization of the experience of specialists in training wrestlers of different levels, pedagogical experience, pedagogical observations, pedagogical tests, heart rate monitoring, instrumental method and methods of mathematical statistics.

Results and discussion

To do this, during training, the physical fitness of athletes increases in various ways. We determined the physical fitness of short-distance runners using special tests, such as running before the start at 30 (m), running from the bottom start at 30 (m), running from the top start at 30(m), running at 60 (m), running from the bottom start at 100, 150, 200 (m). The obtained preliminary results of the research are expressed as follows. According to this, in the running before the start for a distance of 30 (m), representing a fast strength, the testers of the control group ran this distance in an average of 3.97 ± 0.50 seconds. While the run from the lower start to the distance of 30 (m) took 4.43 ±0.60 seconds, the result of running from the upper start to the distance of 30 (m) was 4.73±0.00 seconds, the result of running from the lower start to the distance of 60 (m) averaged 7.97 ±0.92 seconds. The result of running a short distance of 100 (m), which is the standard distance, was 13.58±1.98, 12.50±1.52 seconds. In the 150 (m) test, the participants of this group recorded a result of 21.50± 2.70 seconds.

Since athletic performance is largely related to the perfection of acquiring physical qualities, running is the most convenient model for determining speed in the initial training of short-distance runners. Movements performed at maximum speed over short distances differ in their physiological characteristics from slower movements. Initially, the development of speed and strength qualities becomes important and is one of the urgent tasks today.

Improving the physical qualities of athletes aged 13-14 through the use of special speed-strength, high-quality health-improving ladder exercises to improve their physical performance. In addition, the instrumental methods used can be grouped together, and new tools can be divided by generality. Long-term research shows that short-distance running requires special physical training from an athlete. Because if athletes do not develop the qualities of speed and strength well, they will not be able to record a high-level sports result. Therefore, during sports training with them, it is necessary to develop special physical training. That is why it is advisable to develop the qualities of speed and strength in training.

This indicates the need to make changes to the composition of the preparatory plans. That is, it is necessary to use the means of developing speed and strength qualities. Only

Fig 1. Comparison of statistical characteristics of speed indicators of student-athletes of the control (n = 24) and experimental groups (n = 24) at the beginning of the pedagogical experiment

Beginning of the experiment	Control group			Experimental group						
Test	$\overline{X}$	σ	V, %	$\overline{X}$	σ	V, %	Absolute	Relative, %	t	P
1	3,97	0,50	12,50	3,88	0,50	12,99	0,09	2,31	0,63	>0,5
2	4,14	0,60	14,58	4,08	0,61	14,99	0,07	1,61	0,38	>0,7
3	4,36	0,59	13,53	4,49	0,67	14,98	0,13	2,97	0,71	>0,4
4	7,97	0,92	11,55	7,82	0,94	11,99	0,15	1,92	0,57	>0,5
5	13,58	1,98	14,55	13,39	2,01	14,98	0,19	1,41	0,33	>0,7
6	21,50	2,70	12,57	20,84	2,71	12,99	0,66	3,06	0,84	>0,4
7	26,96	3,38	12,54	27,75	3,60	12,98	0,79	2,94	0,79	>0,4
								2,32		

then will we be able to achieve high sporting results.

Conclusion

The results of the study of the athletic performance of short-distance runners allowed us to draw the following conclusions.

1. In the course of our research on this topic, the results of the analysis of many scientific journals, training programs and literature showed that at the annual stages of training athletes, a number of scientific studies were also conducted on the training of short-distance runners, however, there is the lack of a scientifically based methodology for changing the ratio of special means to the loads set in the training program, improving the training process based on the introduction and maintenance of athletic fitness, through the development of special training, developing the speed qualities of short-distance runners determines the relevance of our research.

2. The development of speed and strength techniques in athletes of primary school age with changes in the age and pace of short-distance runners at the stage of initial training, abilities for speed, muscle strength, technique, turning, acceleration, strongly associated with the degree of willpower. As a conclusion, we can say that the development of physical fitness in the development of speed qualities is achieved through an annual training plan, tasks, a cyclic structure, special exercises and speed-strength qualities, as well as rational planning of rehabilitation measures.

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