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Development of Speed and Strength Qualities of Young Athletes Sprinters

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Annotation: The problem of organizing the training process in short-distance running, despite the apparent simplicity of the competitive exercise itself, is quite complex and, perhaps, methodologically less developed than in other types of athletics.

***Keywords*:** short-distance running, young athletes, speed and strength qualities.

Introduction. Previously, it was believed that the most reliable way to improve athletic performance was to simply increase the volume of training work in all its parameters [1, 2]. This seemed like the right path, as most champions succeeded this way. Now the volume of loads has received significant values, and as we see, their further increase for high-class athletes is far from the only, and often simply ineffective, way to improve athletic performance [5, 7]. Therefore, it is important for the coach to understand this complex mechanism of the training system in order to train his students at the modern level [4, 6].

The search for ways to develop speed continues. There is no doubt that the record results in the sprint will be updated, since significant unused reserves are hidden in it [8, 9, 10]. Every year, coaches find something new and enrich the general methodology for training short-distance runners. However, the modern level of development of sports requires a thorough methodological approach to the training of athletes [14].

Thus, the topic of sports training and the development of speed-strength qualities, which play an important role in sprinting, is relevant and needs new research [11, 12, 13].

High-speed quality is the ability to show the greatest strength in the shortest possible time [5, 7, 15, 16]. The effectiveness of an athlete's performance over short distances is largely determined by the speed potential of the muscle groups that perform leg movements. Observations of the preparation of speed power by sprinters showed that runners have significant differences in the power characteristics of the take-off and flying legs [18].

Special training for short distances should be carried out gradually. Work continues to improve sprinting technique and increase the volume and intensity of training loads [17]. At this age, a runner should participate more often in control starts and competitions. Moreover, these performances must be completed in all races, relay and short distance. Practice shows that an athlete can start sprinting at a young age. This should be taken into account by teachers, coaches and sports schools. Depending on the age at which specialized sprinters began, the level of initial performance and the age of their highest changes respectively.

There are cases where teenagers began to specialize in short distances early. Their training arsenal consisted of a lot of fast work. Young 15-16 year old athletes ran 100 m in 11.2 - 11.3 s, which speaks of their great abilities. As adults, the same athletes showed results at this distance, which is only 10.9 - 11.1 s.

To develop speed abilities there is no need to admire working under standard conditions at the initial stage at maximum speed. On the contrary, running in difficult conditions with alternating running in

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normal conditions will provide greater benefit [12]. It turns out that teenagers study too much when preparing for performances. Such monotonous work stops their progress.

Despite the large amount of training work, runners have a stabilization of speed. Speed stabilization is apparently the main reason that prevents runners from significantly increasing their speed. A so-called “high-speed barrier” appears. One way to prevent this is to start using a large percentage of the mileage later - especially at high speeds. In theory and practice, it is recommended to use methods to overcome the “high-speed barrier”.

To solve this use repeated use of speed power exercises (dynamic effort method). The method is based on the extensive use of pushes and jumps. Essentially, these exercises should fit the runner's structure.

However, using only some speed-power exercises does not significantly increase maximum muscle strength levels. Strength, in turn, imitates an increase in speed. Therefore, other ways to overcome the barriers at high speed are needed [1]. During the progression phase of running, increased emphasis is placed on developing strength. Over short distances, strength combined with speed determines the level of athletic achievement. Strength not only complements, but also to some extent determines the development of speed. In sprinting you need to be able to detect power in a very short time. The force found in such movements is called explosive, and the movements themselves are reliable.

High-speed training includes a variety of tools and techniques aimed at developing the ability of athletes to overcome external resistance through the fastest movements, as well as acceleration and inhibition of the body and its connections.

Targeted and highly effective training of speed and proficiency in various strength and speed ratios is only achieved when you know the specific requirements and characteristics of the movements and your limiting connections in performing the selected types. Constantly focus on them when choosing appropriate sets of special preparatory exercises. In this case, you will be able to individually select movements that correspond to the specifics of the manifestation of qualities in the main competitive exercise. Speed training can develop speed and strength in a wide range of combinations. It includes three main areas.

In the direction of speed in preparation, the problem is solved to increase the absolute speed of performing the main competitive exercises or its individual elements (various movements of the arms, legs, body), as well as their combinations - the beginning of acceleration and running distance. It is necessary to facilitate the conditions for performing these exercises: there is not enough low launch and acceleration with decreasing the length of the stages, the distance between barriers, but increasing their pace, running or multi-level down, in the wind, pushing off from a height of 5-10 cm; Use special simulators with front traction and blocks, which lighten body weight by 10-15% (during push-off and running).

Movements should be performed as quickly as possible, as soon as possible, the main exercise or its element and alternate at a given speed - 95-100% of the maximum. Speed of movement is achieved by improving coordination of movements and consistency in the work of muscle groups.

With continuous repetition of the exercises, the speed can be gradually increased to a maximum - it will maintain freedom and range of motion. These exercises are best performed at the beginning of your workout. After thoroughly warming up the muscles in previous repetitions (at a lower speed) of the selected exercises. Consequently, the development of speed strength in young short-distance runners will be more effective the more high-speed loads are performed in training and the less long-term work at low speed of movements.

Considering the above, we can conclude that such qualities as speed and strength play an important, if not the main role in the training of young sprinters.

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Conclusions. Based on the reviewed scientific and methodological literature data, it was found that at the age of 13-14, it is more appropriate to begin training young short-distance runners. The main objective of the training process is to achieve versatile physical fitness and promote the development of special physical qualities. At this stage, the level of physical fitness of short-distance runners can be assessed by the results of: running 30 m, 60 m, standing long jump and upward push of both, deadlift dynamometry. It was revealed that in short-distance running, strength in combination with speed influences the level of sports achievements. Therefore, force not only complements, but also to a certain extent determines the development of speed. In sprinting you need to be able to exert force in a very short time. Consequently, the force found in movements is called explosive, and the movements themselves are called speed-strength.

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