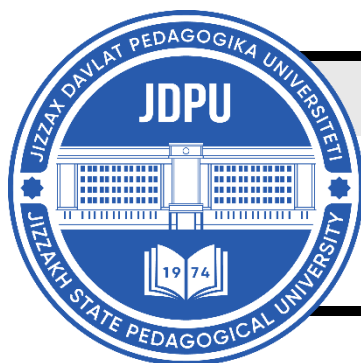


## MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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## THE FORMATION OF THE QUALITY OF RAPID STRENGTH OF A SHORT-DISTANCE STUDENT YOUTH

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### ABOUT ARTICLE

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**Abstract:** This article explores the problems that arise in the development of speed-strength qualities of short-distance runners and the methods of their solution. The study analyzes techniques and exercises that are especially relevant in ensuring the growth of speed-strength qualities in the process of training students and athletes aged 18-20 years. During the study, the results of the exercises performed between the experimental and control groups were compared, and effective results were obtained in this process. The importance of scientific approach and methodological tools in the further development of physical fitness of athletes is also emphasized.

**Introduction.** Careful consideration of young and anatomical-physiological characteristics characteristic of various phases of short-distance running student athletes is an important criterion for the high efficiency of training fast-strength skills in runners. Optimization of loading and observation of functional indicators in the sport of athletics is the foundation of successful learning of an athlete. At a certain age, it is very important to determine

the laws of rapid growth of sports results, since the indicator of movement is created in childhood and adolescence, and the foundation for future sports results is laid. A short-distance runner 18-20-year-old student is observed to need research on the development of agility in young people.

Since the human organism is still in the formation phase in student youth, the positive and negative effects of physical exercise at this age can be significantly manifested. Understanding it will become the basis for active work in the context of a changing modern world. Because it shows that development and growth have not reached their end either.

Many experts believe that in the process of physical education of the growing generation, great attention should be paid to the development of speed and strength abilities of children, since the high level of development of these abilities contributes in many ways to a person's successful labor activity and achieving high sports results in the future.

Relevance of the topic: The development of speed-strength qualities in the process of training short-distance runners is one of the pressing issues and is important for achieving high results in modern sports. The harmonious development of high speed and strength prepares athletes to successfully participate in high-level competitions. Especially in student athletes aged 18-20, the need for the use of special techniques and exercises for the development of fast-strength qualities is growing. This topic is important and relevant for sports educators, coaches and scientific researchers.

Research objectives and objectives:

The purpose of the study is to identify effective methodological methods for the development of fast-strength qualities in short-distance runners and develop pedagogical foundations for their use.

The study includes the following tasks:

1. In the process of training short-distance runners, the study of factors affecting the development of speed-strength qualities.
2. Development of training methods designed to develop speed-strength, taking into account the age and physiological characteristics of athletes.
3. Rapid-introduction of exercises for the development of strength qualities into a special training program and analysis of their effectiveness.

4. To determine effective exercise methods by performing a comparison between experimental groups and control groups.

One of the problems in the development of fast-strength abilities of short-distance runners is that in some respects it is increasingly difficult to systematize and generalize the process of training short-distance runners, therefore, the main tasks facing physical education and sports are the following:

- it is appropriate to educate not only physically developed athletes, but also to educate in them cultural and moral qualities that will become the basis for the harmonious development of the individual as a whole.

The order of sports training should be designed for the age of athletes in order to properly develop their speed-strength abilities. At a certain age, it is especially important to determine the patterns in the development of speediness, since the indicator of movement is created in childhood and adolescence, and the foundation is laid for future sports results. Obviously, short-distance runners have a need to research the development of speed-strength qualities in athletes aged 18-20 years. We conducted a pedagogical study on this.

The focus of the study is on the training process of athletes who are student youth who specialize in short-distance running.

As with all running disciplines, the athlete's main goal is to cross the finish line first, so all movements in the distance must be coordinated from start to finish. The entire running process can be divided into four components: start, start acceleration, distance running, entry to the finish line. But to carry out a different action, the quality of the instantaneous force is well developed, which must be done.

According to information in the literature, these two ways of developing the strength abilities of athletes are fundamental in the process of training them.

The athlete who performed the standard program-the athlete who used the means of jumping training in relation to the group of sprinters-observed a high increase in results in all control exercises that represent the level of running training in the group of sprinters;

The results of pedagogical experience confirm the effectiveness of the set of exercises used to increase the level of development of fast-strength qualities of athletes aged 18-20 years.

An athlete will be able to achieve high results in short-distance running only if a successful course of physiological and biochemical processes is ensured, corresponding to the

nature of running at the selected distance, its speed and duration. This sets out the requirements for the training styles of short-distance runners. In the short-distance runner training system, physical fitness occupies one of the leading places. The fact that sprinters achieve a high level of physical quality development suggests that they are associated with increased functionality in short-distance running.

At the same time, the physical fitness of athletes is carried out in close connection with the improvement of the sprint running technique.

In the process of developing the physical qualities of short-distance runners, it is important to train fast-strength qualities, since their high level of development helps to achieve sports results. The arsenal of modern training of short-distance runners includes a wide range of tools and methods. Including one of them is rapid-force training.

In short distance running, the athlete performs work at maximum power. In this case, the marginal voltages are repeated at much longer intervals. Short-distance running is carried out mainly at the expense of anaerobic processes.

Fast-strength training not only has a positive effect in the sense of improving strength and agility, but also forms a rational Constitution of the athlete's body, strengthens the musculoskeletal apparatus, develops cardiovascular and respiratory systems, helps to form running techniques.

However, the effectiveness and goal orientation of the development of speed-strength qualities is achieved when not only the coach, but also the athlete himself knows the exact features of his actions when performing the competition exercise and is guided by them when choosing and performing special exercises.

Based on a careful consideration of the age, level of physical development and readiness of those involved before the start of the experiment, we developed a complex of physical exercises aimed at the comprehensive physical fitness of student athletes. This set of exercises is divided into three large groups:

are general physical training tools that include all-around exercises and exercises in other types of sports;

special physical training tools Group-the use of a special arsenal of special training, fast-strength, approach and technical-tactical special exercises.

A special force performed with weights applied according to the "circular training method" is a group of physical exercises.

When choosing exercises, we came up with the fact that the comprehensive physical development of short-distance runners is the basis of their further specialization in this sport. At the same time, we also tried to take into account the special direction of the selected exercises, which during the experiment made it possible to form student athletes with the necessary physical qualities, skills and qualifications.

Rapid strength quality development of short – distance runners is a process aimed at increasing the athlete's ability to move with maximum force in a short period of time, increasing the efficiency of start speed, acceleration to speed, and exploitative movements in high-intensity running.

The following are the main routes:

1. Special physical exercises Exercises that improve starting movements (low start, jumps in the starting position). Sprinter jump exercises (jumping from place or running). Plyometric exercises (jumping on a slope, jumping obstacles, climbing boxes). Explosive movements performed with weights (quick squat, press with sanding).

2. Speed strength training (explosive strength) Exercises with low weights, but at maximum speed. Fast lifting of the barbell at a weight of 30-70% (power clean, jump squat). Exercises with rubber bands – fast movement under resistance.

3. Sprints and speed training Short distance maximum speed running (10-30 m). Speed acceleration exercises (acceleration zones). Work on low start and fast reaction.

4. Coordination and reflector exercises Exercises that increase the reaction rate (running to the signal). Development of eye-control coordination.

5. Training order Rapid strength training requires a high level of concentration, so it is performed at the beginning of training. Exercises are performed 3-5 repetitions, in 4-6 approaches, with maximum strength. Rest intervals are long-for complete recovery (2-3 minutes).

During the experiment (preparatory period), athletes of the first group used up to 30% of the time to develop the qualities of speed-strength, agility, quick endurance in training, while in the second group such exercises were applied according to the usual program.

The weekly training cycles during this period are structured as follows.

#### Developing microcycle

Day 1 Monday - the development of quickness and fast-strength qualities,

Tuesday 2nd-development of strength and quick endurance,

Wednesday 3rd day-rest,

Thursday 4th-development of speed and speed-strength qualities,

Friday the 5th-development of strength and quick endurance,

Saturday 6th-increasing general physical fitness,

Sunday on the 7th-rest.

#### Introductory microcycle

Day 1 Monday-fast-develop strength qualities, work on techniques and overall durability,

Tuesday 2nd-development of strength and quick endurance,

Wednesday 3rd day-rest,

Thursday 4th-fast-developing strength qualities, working on techniques and overall endurance,

Friday the 5th-development of strength and quick endurance,

Saturday 6th-increasing general physical fitness,

Sunday on the 7th-rest.

During the preparation and competition period, athletes from both groups trained in weekly microcycles.

#### Methods of organizing research

The focus of the study is on the methodology and effectiveness of the development of physical qualities. For this, the following styles are used:

1. Literature analysis-scientific literature available in the field of physical fitness and methodology is studied.
2. Experimental method-analysis of efficiency by taking several groups of runners and applying various methodologies to them.
3. Analytical method-analysis of the data obtained and determining the effectiveness of the methods.

Research results and discussion. An analysis of the effectiveness of the special training tools used in the study for experimental group student athletes showed that the same exercises

were used in some cases as general exercises, depending on the tasks to be solved, and in others as special exercises. At the educational stage of the 1st Year, information about how special training tools (grouped by directions) are distributed in the training group of the experimental group is presented.

At the beginning of the experiment, statistical reliable differences in the level of physical fitness of the participants in the experiment were not detected.

It should be noted that at the beginning of our study, young short-distance runners of two groups (control and experience) showed approximately the same results in test tasks describing the level of development of fast-strength qualities.

At the end of the experiment, control tests were carried out again, subject to all the conditions of the initial control tests.

The results of the experiment allow us to confirm that work on the development of agility in student athletes should be carried out not only during the competition period of training, but throughout the entire macrocycle. Because the main physical quality of a short-distance runner is fast strength.

The structure of the results of the research conducted on the development of operational-power quality of the testers of the experimental and control group (Table 1).

**Table 1**

<b>Control exercises</b>		<b>Before the study</b>	<b>After the study</b>
Run for 30 ga (seconds) pre-start	Experimental group	3,9	3,6
	Control group	3,9	3,7
Run for 60 m (seconds)	Experimental group	8,2	7,4
	Control group	8,1	7,8
Standing long jump (m)	Experimental group	2,42	2,58

	Control group	2,46	2,56
Triple jump from where standing (m )	Experimental group	7,12	7,63
	Control group	7,18	7,29
Five-point jump from where standing (m )	Experimental group	11,62	12,04
	Control group	11,74	11,97
High jump on "Sport" equipment (cm)	Experimental group	29	34
	Control group	30	31

In the process of training short-distance runners, the use of goal-oriented means and methods of developing fast-strength qualities has a positive effect on fast-strength training.

In young short-distance runners, the development of speed-strength qualities does not go smoothly. The highest increase in results will continue until the age of 18.

At the initial stage of many years of training, great attention should be paid to the development of physical qualities, first of all, quick-strength and strength qualities.

**Conclusion:** The results of the study show that in the process of training short-distance runners, special exercises and methodological approaches are necessary to develop fast-strength qualities. In the development of these qualities in student athletes aged 18-20 years, specific pedagogical and physiological characteristics should be taken into account. The results of the exercises with experimental groups, in turn, confirmed that they give tangible results in the development of speed-strength. It was also emphasized that it is necessary to correctly and effectively choose exercises to improve the physical fitness of athletes and make them achieve high results. This study demonstrated the importance of a scientific approach to the



development of effective methodological tools and training systems in the training of short-distance runners.

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