

DEVELOPING PHYSICAL QUALITIES IN ATHLETES

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Annotation: This article examines the characteristics of developing physical qualities in athletes engaged in athletics, the methodological principles aimed at their improvement, and the factors that must be considered during the planning of training sessions. It provides a scientific explanation of the importance of fundamental physical qualities-speed, strength, endurance, agility, and flexibility-in different athletics disciplines and analyzes the system of exercises used to enhance them. The article is based on sports medicine, pedagogical theory, and modern training methodologies, and offers practical-methodological recommendations for shaping the physical preparedness of young athletes.

Keywords: athletics, physical qualities, speed, strength training, endurance, agility, flexibility, training methodology, sports physiology, physical development.

Athletics is one of the oldest and most widespread sports, formed on the basis of natural human movements such as running, jumping, and throwing. This sport discipline is important not only for achieving high results in competitions but also for the overall physical development of individuals and for promoting a healthy lifestyle. Regular engagement in athletics contributes to the comprehensive development of physical qualities in athletes. Physical qualities refer to the physiological capacities of the muscular system, cardiovascular system, nervous system, and motor coordination. These include strength, endurance, speed, agility, and flexibility. This article analyzes the theoretical foundations and practical approaches to the development of physical qualities in athletics training. The relevance of the study is determined by the increasing interest of youth in sports and the need to properly guide and individually improve their physical preparedness.

Each athletics discipline requires certain physiological abilities from the athlete. For example:

- Sprinters - speed and speed-strength qualities
- Middle-distance runners - speed endurance
- Long-distance runners - general endurance and energy management
- Throwers - maximal strength, static and dynamic power
- Jumpers - explosive power, balance, and coordination

The level of development of physical qualities directly affects the athlete's technical mastery, psychological condition, and ability to demonstrate high performance during competitions. Therefore, it is essential to select the physical qualities relevant to the specific discipline and improve them progressively. Speed is the ability to perform movements at maximum velocity in a short period. It is the primary physical quality for sprinters.

Methods of development:

- Sprinting short distances (10–60 m) at maximal speed

- Starting acceleration drills
- Plyometric exercises (jumps, explosive movements)
- Reactive strength exercises
- Uphill running or resistance-assisted sprinting

Endurance is the ability of the body to maintain work capacity for a long period. It is essential for long-distance runners.

Methods of development:

- Continuous moderate-intensity running (20–40 minutes)
- Interval training
- Fartlek (variable-pace running)
- Oxygen efficiency exercises

Strength is the ability of muscles to overcome external resistance. It is crucial in throwing, jumping, and sprinting events.

Methods of development:

- Weight training
- Exercises with weighted balls
- Explosive strength exercises
- Static exercises

Agility is the ability to change direction quickly and coordinate body movement efficiently.

Methods of development:

- Coordination ladders
- Hook-running technique
- Cone drills
- Reaction exercises

Flexibility is the ability to perform movements with maximum amplitude in joints.

Methods of development:

- Static stretching
- Dynamic stretching
- Gymnastic exercises

- Preparatory movements before jumping or sprinting

The physiological development of young athletes differs from adults; therefore:

- Ages 10–13 - agility and flexibility develop best
- Ages 14–16 - strength and speed-strength qualities intensively develop
- Ages 16–18 - endurance training becomes essential

Modern Innovative Approaches:

- Biomechanical analysis
- Heart-rate monitoring
- GPS tracking
- Psychological preparation programs

In conclusion, we emphasize that the development of physical qualities in athletics training directly affects the athlete's competitive results. Each of the following is a key factor for individual types of athletics: speed, endurance, strength, agility and flexibility. This article discusses the theoretical foundations of the formation of physical qualities, scientific methodology, planning based on age characteristics, as well as the possibilities of optimizing the training process using modern technologies. An athlete with harmoniously developed physical qualities is technically superior and is able to achieve high results in competitive conditions.

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