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# MODERN METHODS OF DEVELOPING SPEED QUALITIES IN CADETS

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***Annotation:*** *Speed quality is a set of morphological and functional characteristics of a person, ensuring the execution of movements in a minimum period of time under given conditions.*

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The quick features of the movements are combined with a common name-speed. In the most general sense, it describes the quality of an individual's action at a minimum time interval for these conditions. In accordance with modern ideas, speed does not require a high level of movement performed in the absence of motor quality and significant external resistance characteristic of human emergency motor reactions, complex coordination of muscle work and high energy consumption.

In the first place, the physiological mechanism of speed associated with the high-speed operation of nerve processes appears to be a multifunctional feature of the central nervous system (CNS) and the peripheral neuromuscular apparatus (nma).

There are several elementary forms of manifestation of speed:

1. The rate of simple and complex motor reactions.
2. Single drive speed.

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3. The speed of a complex (multi-part) movement associated with changing the position of the body in space or moving from one movement to another.

4. The frequency of unloaded movements.

The isolated forms of manifestation of speed are relatively independent of each other and do not depend on the level of general physical fitness. At the same time, in everyday life, sports and professional activities associated with the implementation of physical activity, people should face other forms of manifestation of agility. It is, first of all, a variety of jumping exercises related to the movement of a person with the highest speed, the movement of his own body, martial arts and sports games. Such complex, fast-paced forms are generally referred to as human high-speed qualities. For their effective manifestation, in addition to the High properties of nerve processes, it is necessary to improve the motor skills of the motor system with high speed and strength, the power of anaerobic energy supply systems, as well as the exercises and movements performed.

The main tools for the development of various forms of speed are fast motor reactions, exercises that require high speed and frequency of movements. However, while all such exercises are aimed at developing speed, there are important methodological features of the development of its various forms. The relevance of this topic is due to the fact that the development of the speed of response to the actions of a partner or opponent, in professional activities and in sports is of great importance. The purpose of this work: to study the speed of movement as the physical quality of a person, as well as to describe the means and methods of its development.

Based on the stated goal, I will perform the following tasks:

1. Describing the speed of movement as the physical quality of a person;
2. Study of the quick qualities of a person;
3. Definition of the concept of "reaction in sport";
4. Study of methods for training high-speed qualities;

5. Learning the basics of developing speed qualities;

6. Determination of how the rate of action reaction develops;

7. Description of means of education of high-speed qualities

The rapid qualities of a person according to high-speed qualities are understood as the capabilities of a person who provides for the implementation of motor actions at a minimum interval of time for these conditions. There are elementary and complex forms of manifestation of high speed quality. Elementary forms include reaction speed, single movement speed, frequency (speed) of movements.

All human-mediated reactions are divided into two groups: simple and complex. To a pre-known signal(Eng., auditory, sensory) response to a pre-known action is called a simple reaction. Examples of this type of reaction are the beginning (beginning) of motor movement in response to the firing of a starting submachine gun in athletics or swimming, in response to the cessation of aggressive or defensive movement in a sports game in martial arts or when the referee whistles. a typical reaction rate is called a latent (latent) reaction period – a time interval from the time the signal appears until the action begins. The latency of a simple reaction in adults usually does not exceed 0.3 S. In sports, there are complex motor reactions characterized by constant and sudden changes in the state of Motion (sports games, martial arts, rock, etc. Most of the complex motor reactions in physical education and sports are the "choice" reaction (when one has to choose one that suits this situation immediately from several possible actions). In a number of sports, such reactions are reactions to an object (ball, wash, etc. The time interval spent performing an action (such as a kick in boxing) also represents a high speed quality. Frequency or tempo, the number of movements at the same time (for example, the number of steps running for 10 s).

The initial forms of the manifestation of high-speed qualities in different types of movement activity Act in different combinations and in combination with other physical qualities and technical actions. In this case, there is a complex demonstration of high-speed qualities. This includes: the speed of integrated

motor movements, the quality of obtaining the maximum speed as soon as possible and the quality of maintaining it for a long time.

The most important thing for the practice of physical education is not the initial forms of a person, but the speed of holistic motor movements in running, swimming, skiing, cycling, running, etc. However, this speed only indirectly represents a person's speed, since it is associated not only with the degree of speed development, but also with other factors, in particular, the technique of owning movement, the qualities of coordination, motivation, strong-willed qualities, etc.

The quality of obtaining the maximum speed as quickly as possible is determined at the initial or initial speed stage. The quality of maintaining the maximum speed achieved for as long as possible is called high speed endurance and is determined by distance speed. Another characteristic manifestation of high – speed qualities in games and martial arts-brake speed, in connection with a change in the situation, should immediately stop and start moving in a different direction. The manifestation of the forms of speed and speed of movement depends on a number of factors:

1) the state of the central nervous system and the human neuromuscular system;

2) morphological characteristics of muscle tissue, its composition (that is, the ratio of fast and slow fibers);

3) muscle strength;

4) the quality of rapid movement of muscles from a dense state;

5) energy reserves in muscles (adenosine triphosphoric acid-ATF and creatine phosphate-KTF);

6) amplitude of movements, that is, from the level of movement in the joints;

7) high-speed movement coordination quality;

8) biological rhythm of the vital activity of the body;

9) Age and sex;

10) rapid natural qualities of man.

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From a physiological point of view, the reaction rate depends on the rate of the next five steps:

1) receptors that are involved in the reception of signals (visually., auditory, Tactile, etc.;

2) transfer of excitation to the central nervous system;

3) transmission of signal information through the nerve pathways, its analysis and the formation of an efferent signal;

4) conducting an efferent signal from the central nervous system to the muscle;

5) the excitation of the muscle and the appearance of the mechanism of activity in it.

The maximum frequency of movements depends on the state of inhibition and the rate of transition of the motor nerve centers from the excitation state to the back, i.e. it depends on the lability of the nerve processes. The speed manifested in holistic motor movements: the frequency of the neuromuscular impulse, the speed of the transition of muscles from the tension phase to the relaxation phase, the speed of change of these stages, the degree of inclusion in the process of movement of rapidly contracting muscle fibers and their synchronous operation.

From a biochemical point of view, the speed of movements depends on the content of adenosine triphosphoric acid in the muscles, the rate of its division and resynthesis. In high-speed training, ATF resynthesis is caused by phosphorocreatin and glycolytic mechanisms (without anaerobic-oxygen involvement). The share of the Aerobic (Oxygen) source in the energy supply of various high-speed activities is 0-10% genetic studies (twin method, comparison of the Rapid Capabilities of parents and children, long-time observation of changes in speed indicators in the same children) show that motor qualities are significantly dependent on the factors of the genotype. According to scientific research, a simple reaction rate of about 60-88% is determined by heredity. The average genetic effect is considered the most favorable period for the development

of high-speed qualities in young boys and girls from 7 to 11 years, with a single speed of movement and the frequency of movement and the speed of manifestation in holistic movements, equal to the experience of running, genotype and environment (40-60%). Children from 11 to 14-15 years old continue to grow at a slightly lower rate of various speed indicators.

By this age, the results are stabilized at normal reaction rate and maximum action frequency indicators.

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