

DYNAMICS OF MORPHOLOGICAL INDICATORS IN THE PHYSICAL DEVELOPMENT OF LONG-DISTANCE RUNNING

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Abstract: *The dynamics of morphological indicators of physical development of long-distance runners, effective means of training young runners at different stages of the annual cycle, quantitative indicators of physical development have been studied.*

Key words: *running, physical development, morphology, growth acceleration, muscle mass, throwing, long jump, sports.*

One can see the health and effectiveness of the work carried out in our country on the regular inclusion of the population, especially the young generation, which is the future heir, in physical culture and mass sports. "At the same time, the implementation of specific programs in the field of physical culture and sports, which will help improve the health of the population, attract young people to sports and select talented athletes from them, will ensure high results in sports. This is the need for the formation of national teams with athletes and the creation of additional conditions for coaches.

It should be noted that at present the country is developing methodological recommendations for managing the training of athletes, and their implementation is widely used. Although the works of domestic and foreign scientists are devoted to the topical issues of the selection of athletes for sports, the search for new ways of effective management of the training process of athletes at various stages of long-term training is now relevant. Problems. Long-distance runners' athletic performance is more dependent on the fact that they have learned the most important laws inherent in their training at different stages of their long-term training, and are focused on scientific research. While acknowledging that there has been scientific work to develop multi-year training, it should be noted that distance runners also have problems that have not been scientifically solved in the multi-training phase. The need to improve the training system in this area (Yu.M. Yunusova, F.P.Slov, V.M.Dyachkov, M.S. Olimov and others). [14; 312.11; 448.8; 656.4; 231.2; 318]

Researchers have shown that the identification of effective means of training young runners at different stages of the annual cycle involves the use of training loads over a period of time, the determination of the possible volumes of special training in the annual cycle and its individual stages. This suggests the need to have sufficient information about the relative importance of the effectiveness of specific exercises on mesocycles in different directions.[15] Physical development is the process of changing the shape of the body and improving its functions, which is expressed in quantitative terms. The growth and development of the human body continues continuously and unevenly until the end of puberty. Growth is an increase in the linear dimensions of the body, the mass of substances between tissues and cells. These processes lead to morphological and functional changes in the body [5; 239-241, 6; 26-34].

The length and weight of a person's body is an important indicator of physical development and the level of maturity of the body. Their development is uneven, and the difference in some stages

is reflected not only in quantitative changes, but also in qualitative changes. It is believed that the characteristics of the growth processes are due to the hormonal characteristics of a person. Therefore, the author emphasizes that it is necessary to pay attention not to the age of the passport, but to the biological age. BA Nikityuk, MN Umarov conclude that the growth process is influenced by hereditary factors associated with a person's place of residence, nationality, diet.[17] The growth of the whole organism and its other parts indicates that this process occurs at different rates and durations. In our study, we focus on linear and circumferential body measurements and increases in body productivity, as these are the basis for predicting the choice and direction of sports. In general, speaking about the growth processes in humans, we can distinguish three phases of uneven growth of certain segments. At the age of 11 to 14, the legs increase significantly, at the age of 9, the volumes of the trunk and chest increase, and at the age of 19, the proportions of the trunk are achieved, which is typical for the elderly. D. J. Wilmore, D. L. Costils [12; 245-256] reported that the disharmonious growth of the legs and trunk (trunk) occurs in boys and girls at different intervals and lasts 2-3 years. In boys, the peak of disharmony occurs at the age from 10-11 to 14-15 years. The first is a sharp increase in the length of the legs, and the second is a sharp increase in body length. The peak of disharmony in girls is observed 1-2 years earlier than in boys. Suslov F.P. and others [11; 21-23] connects growth with the phenomenon of acceleration, which claims that uneven growth of different parts of the body leads to changes in the average body structure in both children and adults.

The rate of change in body weight during individual growth and development is reflected in the B-curve. The study of body weight in combination with anthropometric data is very promising. This allows you to think about the influence of environmental and social factors on the structure of the body. B.A. Nikityuk's research revealed the following patterns of muscle strength formation: -People who do not think that there is a very low correlation between muscle mass and muscle strength. - In people who are involved in sports that require strength, as their athletic skills increase, the correlation between muscle strength and muscle mass increases and reaches the functional level. -People with strong muscle mass show much greater gains in strength with the same physical activity. -Each person reacts in his own way to physical activity - a norm that moderately connects muscle mass and growth processes. The physical development of long distance runners is important to their morphology. Especially in long distance runners, the body structure should be well developed across chest width because it has a special place in the training process. Athletes 19-20 years old, running long distances, have an average body size of 172-178 cm. Athletes must be tall. Body weight should be 58-65 kg. Chest width should be 90-92 cm. Athletes with a leg length of 90-95 cm can achieve great results.

It has a physiological property, showing particular endurance as the main physical condition for long distance runners [7; 222-223, 6; 56-68, 3; 81-86]. Specific resistance develops when determining the ability to work due to its ability to control motor skills and improve the coordination mechanism in achieving high results. Improvement in physical qualities depends on functional and morofunctional changes. Develops when performing high-speed exercises. Physical qualities develop when running for short, medium and long distances, throwing, long jump, playing sports. In long-distance running, the athlete reaches 10 meters every second. can cover a distance of about He noted that the speed of movement of antagonist muscles in the nerve centers and the speed of displacement of inhibitory processes are necessary when performing cyclic dynamic work at high speeds. Yu.V. Verkshansky [3; 84-86, 13; 149-156, 10; 85-88), etc. Will depend on addition. The main training method is maximum tension, at which running resistance should not differ by more than 10% from running in running. Under these conditions, intermuscular harmony develops at the highest level, which corresponds to the development of harmonious movements at both maximum and minimum tension. Various ways of obtaining energy, increasing working hours are characterized by the importance of aerobic energy production.[16] According to many scientists, the analysis of the state

of the nervous system of long-distance runners involves the use of a mixed running regime in the first and second mesocycles of the autumn-winter period, aerobic, anaerobic running in the third mesocycle. In the first year of the annual training of distance runners 1600-2000km. 300 km in mixed mode when performing aerobic activity. made. In anaerobic mode, it is 100 km. indicates that long distance running loads can be performed. In the second year of training, the volume of aerobic exercise is 2200-2600 km, and combined - 500 km. while it is possible. In anaerobic mode, the load can be up to 120-125 km. In the third year, aerobic exercise is 2800-3400 km, and mixed - 600 km. in anaerobic mode, you can carry out loads up to 150 km. 3400-3800 km in the 3rd year of study and 3000 km in the 4th year of aerobic load 600-800 km in mixed mode. anaerobic exercise. The task of the in-depth specialization stage is to lay the foundation for full-fledged physical fitness. The increase in athletic performance in long-distance runners is due to their well-developed physical fitness, as well as to the fact that all organs of the body work in long-distance runners. This was primarily due to the activity of the cardiovascular respiratory system and the central nervous system.

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