

SPEED CONTROL OF AN ATHLETE IN THE DEVELOPMENT OF HIS PHYSICAL QUALITIES

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Abstract:

The article presents the most reliable tests for opening samples measured by mechanical dynamometers. Parameters such as strength gradients and maximum strength measured by strain gauge systems are characterized by relatively high reliability.

Keywords: Sport, speed, quality, reaction, maximum speed, endurance, flexibility, strength.

КОНТРОЛЬ СКОРОСТИ СПОРТСМЕНА В РАЗВИТИИ ЕГО ФИЗИЧЕСКИХ КАЧЕСТВ

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Аннотация:

В статье приведены самые надежные тесты для вскрытия проб, измеряемых механическими динамометрами. Такие параметры, как градиенты прочности и максимальная прочность, измеряемые системами измерителей деформации, характеризуются относительно высокой надежностью.

Ключевые слова: Спорт, скорость, качество, реакция, максимальная скорость, выносливость, гибкость, сила.

The qualities of an athlete's agility are manifested in ability perform actions in a minimum time . It is common to distinguish between elementary and complex forms of manifestation of speed qualities [5; 7].

Initial forms include:

- reaction time;
- single movement Time;
- frequency (tempo) of local movements.



Complex forms are represented by the speed of performing sports movements (forward flick in football or hockey, kick or defensive movement in boxing, etc.) and control exercises (30 m run, shuttle run). (3 x 10 m), etc.

The time required to perform any exercise is usually added - it consists of two variables - reaction time and action time. For example, the running time for 100 m equal to 10.15 s is the sum of the runner's initial reaction time (0.15 s) and running time (10.00 s). The contribution of reaction time is the reaction of the greatest movements in exercises whose values are comparable to the following time (this situation is most characteristic in sports games and martial arts). Can distinguish between simple and complex reactions; the latter, within them, are divided into selection reactions and reactions to the moving object.

Noreflexometer signals can be light, sound, tactile (temperature) stimuli. In competitive conditions, the method of measuring a simple reaction is determined by the characteristics of the start or the conditions for performing elements of competition training. For example, contact sensors are placed in starting blocks (pool starting block, etc. The starting pistol, the sensors, and the timing device are connected, and the pistol's firing triggers a simple reaction measurement system.

A complex reaction is characterized by the anonymity of the type of signal and the resulting method of response (such reactions are characteristic, first of all, of games and martial arts, in which the response actions of the athlete are determined entirely by the actions of the player. opponent). In competitive conditions, it is very difficult to record the timing of such a reaction. Measuring the reaction time to a moving object is carried out as follows: in the field of vision of the athlete, an object appears (it can be an opponent, a ball, a shayba, a point on the screen, etc.), which you will need to react with a certain action. The duration of such reactions ranges from 300 to 800 ms. The nature and duration of all types of motor reactions depends on many factors (Sport, age, qualifications and the state of the athlete at the time of measurement, the complexity and skill of the movement that responds to the signal, the type of signal)., et al.). In this regard, the volatility of the motor reaction time as an indicator of speed qualities turns out to be very important.

The results of tests on the frequency of single movements make it possible to assess the state of physical quality of speed as a reflection of the functional mobility of nervous processes and the ability of motor neurons (corticospinal) to create effector impulses. This is the lability of the skeletal muscles involved in the movement.

The results of tests on the frequency of single movements make it possible to assess the state of physical quality of speed as a reflection of the functional mobility of nervous processes and the ability of motor neurons (corticospinal) to create effector impulses. The endurance of the skeletal muscles involved in this movement refers to the elementary forms of the manifestation of speed qualities, the frequency of single movements, which can be estimated by the number or tempo in a unit of time.

Relatively simple methods can be used when instrumental methods are not available to measure the frequency of a single movement. For example, performing five high jumps or five stretches with a given amplitude at the maximum possible speed, when using a stopwatch, the time for



completing the task is recorded, and then counting one movement time. Similarly, tests are used with maximum possible movements of the hands in the vertical and horizontal plane, or with oscillating movements of the feet in the unit of time [3].

For these qualities, an exercise in the form of running in place with a high increase in the number (parallel to the support) at the maximum pace for 10 seconds is widely used. The number of stages is calculated visually (it is more convenient to perform under one leg, and then double it).

Measuring the time (speed) of the fastest movements is carried out in two ways: manual (using a spring stopwatch) and automatic (electromechanical speed measuring instruments, photoelectronic devices, Doppler effect-based devices, lasers, etc.), reliable results can be achieved if you use photoelements, a photoelectronic device consisting of an amplifier and a recording device (electronic clock, oscilloscope, tape recorder, etc.). In most cases, comprehensive control of the speed of movement - the reliability of tests is carried out using tests previously determined by specialists in the field of sports metrology. When using a new test, it is necessary to check its reliability. To obtain a quantitative assessment, it is necessary to determine the reliability coefficient. You can use two methods for this:

- 1) dispersion analysis, which allows you not only to calculate the reliability coefficient, but also to determine the influence of various factors on the variability of test results;
- 2) calculation of the correlation coefficient of two attempts tests with reliability indicators less than 0.7, use - calling is not recommended.

Metrological control using unreliable tests leads to errors in assessing the state of athletes. if this misinformation is used as a reference parameter for building a curriculum, it can lead to errors throughout the learning process. In this regard, it is always tasked with monitoring the training process and improving the reliability of the tests used to assess the readiness of athletes. To do this, it is necessary to eliminate the causes that lead to an increase in the variability of measurements, use adequate and accurate instruments, encourage athletes to achieve maximum results in the test, and take into account the initial functional state of the individuals being examined.

Control of power qualities the ability to overcome external resistance or resist it through muscle tension is called Achievement in almost all sports that depend on their level of development, so much attention is paid to methods of controlling and improving power qualities. When observing power qualities, three groups of indicators are usually taken into account:

- 1) Basic (instantaneous values of strength at any moment of movement, in particular, maximum strength, average strength);
- 2) integral-force momentum;
- 3) differential - force gradient.

The maximum force is visual, but in fast movements it is a relatively poor indicator of the final result of the movement (for example, the relationship between the maximum thrust and the height of the jump can be close to zero). According to the laws of mechanics, the final effect



of a force, in particular, the force achieved by a change in the speed of an object, is determined by the momentum of the force.

The average Force is a conditional indicator in which the coefficient of force momentum is divided by its duration of action. The inclusion of the mean force is equivalent to the assumption that a constant force (equal to the mean) acted on the body at the same time. There are two ways to register power qualities:

- 1) without measuring devices (in this case, the assessment of the level of strength training is carried out depending on the maximum weight that the athlete can raise or hold);
- 2) with the help of measuring devices - dynamometers or dynamographs, as well as systems of tenzometers (with built-in deformation meters, you can record the reaction forces of support, pushing, shock movements, etc.).

There are two ways to control power qualities-directly mine and indirectly . in the first case, the maximum strength of various forms of movements (flexion, expansion, static forces) is measured. here it is necessary to use more complex actions in coordination. This is appropriate, since the result in them largely depends on technical skill. in the latter case, they measure not absolute strength, but speed-strength qualities or strength endurance. For this purpose, standing, jumping to length and high, throwing grenades or medicine balls, pulling on a pole , etc.are used, in these cases the level of development of qualities is metric (m, s) and evaluated. non-metric (number of times) parameters [3].

Measure maximum power. the concept of " maximum force " is used to describe the absolute force acting regardless of time, as well as the force whose duration is limited by the conditions of action. Maximum strength is measured in special tests, when strength indicators are recorded in competitive exercises or the structure of movements close to it, and strength stations that measure muscle strength are often used in non-specific tests. groups in standard movements (bending or expansion of body segments) maximum small dynamic or static force, depending on the learning goals.

Strength indicators recorded during measurements are called absolute ; relative indicators (the ratio of absolute strength to body weight) are determined by calculation to the data content of strength tests with respect to time - according is not the same. the composition of athletes also changes when they change (in different sports). in some cases, the informational content of strength tests can be determined by the ratio of the dynamics of their results to the dynamics of a particular athlete in competitive exercises. in turn, the reliability of strength tests depends on their complexity and the way in which the results are measured. The most reliable tests are those measured with mechanical dynamometers. Parameters such as force gradients and maximum strength measured by deformation meter systems are characterized by relatively high reliability.



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