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Research Article

METHODS OF DEVELOPING PHYSICAL QUALITIES

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Annotation. The article provides insights into the development of physical qualities in sports, its methods and mistakes.
Key words: musculoskeletal system, physical qualities, physical culture.

Physical training of young athletes is one of the most important components of sports training and is understood as a process aimed at creating a solid functional base for the overall development of the body, strengthening health, improving physical abilities and all other types of training. Modern sports place high demands on the physical fitness of athletes. This can be explained by the following factors:

1) The growth of achievements in sports always requires a new level of development of physical abilities from the athlete;

2) A high level of physical fitness is a necessary condition for increasing the training and competition load. General physical fitness (GFT) of young athletes is the foundation, the necessary foundation for achieving high results.

It is aimed at solving the following tasks:

1) increase the functional capacity of the body of young athletes;

2) physical qualities - the development of strength, speed, endurance, agility and flexibility;

3) elimination of defects in the physical development of the body of young athletes.

Auxiliary physical training of young athletes is designed to create the functional basis necessary for effective activities aimed at developing specific physical abilities. It has a special direction and is aimed at solving the following tasks:

1) development of the athlete's functional capabilities, which are reflected in the movement activities specific to the chosen sport;

2) improving the body's ability to withstand high levels of special loads;

3) increase the intensity of recovery processes.

Special physical training of young athletes solves the following tasks:

1) improvement of physical abilities specific to the chosen sport;

2) deepening and development of movement skills necessary for successful technical and tactical improvement in the chosen sport;

3) selectively develop individual muscle groups that are more involved in performing specialized exercises.

Basic laws of development of physical abilities. There are a number of laws that are specific to the directional development of all physical abilities. They include:

1. Movement is a leading factor in the development of physical abilities.
2. Dependence of skill development on the mode of movement activity.
3. Stages of development of physical abilities.
4. Uneven and heterochronous development of abilities, belonging to different times.
5. Reversibility of skills development indicators.
6. Migration of physical abilities.
7. The relationship and unity of movement skills and physical abilities.

Power qualities, their manifestation occurs as a result of exposure of the organism, it occurs on the basis of the qualities of mental, muscular, motor, vegetative, hormonal functions and other physiological systems of the organism.

Hence, the qualities of strength do not depend on the simplified concept of 'muscle strength', as this would only be a mechanical description of their contractile properties. Muscle strength is an evolving component of every movement. It can have a quality description depending on the speed at which it is displayed, the external resistance, and the duration of the work.

Muscle strength as an indicator that characterizes a person's physical capabilities is the ability to overcome or resist external resistance due to muscle tension. One of the important aspects that determine muscle strength is the way these muscles work. Exercises can show muscle strength:

- when reducing its length;
- in its elongation;
- without changing the length;
- changes in length and muscle tension.

The ability to exhibit muscle strength in a submissive order is less than in an isometric order. It should be borne in mind that the greater the rate of muscle contraction, the less pronounced and, conversely, the inversely proportional relationship between the apparent force and the force of contraction of the muscle.

The qualities of agility are manifested in situations where power as well as speed of movement are required. In this case, the higher the external weight, the stronger the movement, the lower the weight, the faster the movement. Forms of manifestation of rapid-strength abilities depend on the description of muscle strength in this or that movement. This description is manifested in the increase in

strength in various movements, in its magnitude, and in the rate at which its duration develops.

Absolute force describes the potential of human strength and is measured in the isometric order by the magnitude of the maximum free muscle movement or by the maximum weight of the lifted load when not limited.

Relative strength is measured by the ratio of the magnitude of the absolute force to the mass of the body, i.e., the magnitude of the force corresponding to one kilogram of body weight. This figure is convenient for comparing the training of people of different weights.

Means of developing strength qualities. Exercises with high resistance are used to develop strength qualities. In terms of the nature of resistance, they are divided into three groups:

1. Exercises related to external resistance.
2. Exercises related to overcoming your own body weight.
3. Isometric exercises.

Exercises related to external resistance include:

- Exercises with weights, including barbells, dumbbells, stuffed balls, packers, including simulators. This exercise is convenient with its versatility and choice;
- Rubber shock absorbers, harnesses, expanders, block devices, exercises performed with the resistance of flexible bodies;
- Exercises to overcome the resistance of the external environment, running in the mountains, running in the sand, snow, water, wind.

External resistance exercises are one of the most effective means of developing strength. By selecting them, if the load is determined correctly, it can develop all muscle groups and muscles. Isometric exercises have the ability to increase the maximum number of units of motion of working muscles at once. They are divided into:

- Exercises for slow muscle movement, weight control in the arms, shoulders, waist;
- Exercises for active strengthening of muscles for a certain period of time and in a certain position, correction of half-bent legs. Such exercises, which are performed by stopping breathing, teach the body to work in very difficult conditions without oxygen. Exercises with isometric exercises take less time, and the equipment needed to perform them is very simple. They can be used to act on different muscle groups and create significant tension in a short time using special equipment.

Methods of developing strength qualities. Oriented development of strength qualities occurs only when the muscles are at maximum tension. Therefore, the main problem of the strength training method is to ensure the highest level of muscle tension during the workout. Methodologically, there are different ways of

generating maximum stresses: multiple lifting of very heavy loads, multiple lifting of small weight loads, multiple lifting of small weight loads; overcome external resistance without constant breakdown of muscles. There are the following ways to generate these muscle tensions:

1) method of maximum attempts;
2) method of non-border attempts;
3) method of isometric experiments;
4) method of isokinetic attempts;
5) method of dynamic attempts;
6) "Jadal" method.

The concept of speed quality. The term "speed" has been used for several years to describe a person's ability to perform movement tasks at a rapid pace. Given the existence of many forms of motion speed and their specificity, the term has recently been replaced by the concept of 'speed quality'. There are elements and complex forms of speed quality. The elementary form includes four types of velocity qualities:

1) The quality of quick perception of a given message.
2) The quality of individual local performance of high-speed movement.
3) The quality of quick start of action is sometimes referred to as abrupt execution in practice.
4) The quality of the movement at maximum speed.

A number of scientific factors that have accumulated so far show that these qualities also have a complex system. The maximum speed of movement of the elements is not the only form of speed quality. This is evidenced by factors such as the performance of the initial condition between the high velocity values of the movement, the different weights of the load, and the lack of correlation between changes in the amplitude of the motion without overweight.

Cases involving complex forms:

- Ability to get the maximum speed in sports. Increase the starting speed in sprinting, rowing, football, jumping, tennis;
- Ability to reach high levels at long distances in running, swimming.

Factors to improve the quality of speed:

1. Mobility of the nervous process, ie the rate of transition of the nerve center from the excited state to the decelerated state.
2. The relationship between the flexibility and elongation of different muscle tissues.
3. Coordination efficiency of internal and middle muscles.
4. Perfection of movement technique.
5. The level of development of willpower, strength, coordination skills, flexibility.

6. The amount of ATF in muscle, its resynthesis and breakdown rate. A method of developing the perception of speed movement. The speed of sensing movement is simple and complex. Simple perception is an unexpected message to perform a previously known action. For example, according to the expected message, start running, throw fast, throw the ball over the chest or head. The rest of the type of perception is all complicated. The latent period of perception consists of four elements relative to the moving body:

1. A person must see a moving body;
2. It is necessary to evaluate the direction of movement speed;
3. Select an action plan;
4. Implementation.

Most of the time is spent observing 80% of the time, i.e. observing an object moving at great speed. It is necessary to practice the ability to see, to pay special attention to the exercises, as well as to use the moving object in the exercises.

In managing them:

- it is necessary to gradually increase the speed of the object;
- the distance between the object and the occupants should be reduced;
- reduce the size of the moving object.

One way to develop these skills is to use balls in sports such as basketball, soccer, and handball, which means smaller balls are used than usual. Single movement speed is manifested in the ability to perform individual movement actions at high speeds. For example: the movement of the hand when throwing a spear, hitting a volleyball, stabbing in fencing, the movement of the legs when kicking a soccer ball. In the absence of additional external resistance, the maximum speed of individual movements is achieved. An example of this is the ability of muscles to explode. In these cases, it would be expedient to combine the speed of individual movement with the development of power qualities.For this purpose, strength exercises are widely used. For example: use of belts and vests of different weights, use of heavy shoes in running or jumping exercises, use of lead cuffs in hand movement games, use of weighted gloves in boxing fights, use of heavier slingshots in athletics. There are three ways to develop a method of muscle relaxation:

1. Maximum reduction of tension due to non-participation of muscles in movements.
2. Antagonists - When a muscle loses tension, its amplitude decreases and the external forces increase due to the excitation that opposes the main movement.
3. To study the phenomenon of movement that allows the muscles to move from tension to relaxation in a purposeful rhythm.

Seasonal sprinter movements are distinguished by several stages:

1. The beginning of the movement and the start speed.
2. Save speed.

3. Slow down.

Each stage is a one-time view of the sprinter's speed abilities: the first is the quality of the start speed, the second is the quality of the distance speed, and the third is the endurance of the sprinter.

1. Approximate improvement of individual components that determine the manifestation of speed quality.

2. Integral improvement, which involves the integration of specific skills that are characteristic of a particular sport into a single movement. The development of speed quality uses high-speed exercises as a means of manifesting a complex form. You need to focus all your attention on getting the "leader" of the movement done faster. Since all action is entirely tied to moving acts, the rest of one of them is accelerated by the help of others. It is therefore necessary to find an action that depends on the coordination of the whole exercise.

Definition of the concepts of "coordination of actions", "coordination", "coordination abilities". In the theory and method of physical education, the term "agility" has long been used to describe the coordinating capacity of man in the performance of any movement activity. Nowadays, the term "coordination abilities" is often used to describe them. Although these concepts are close in meaning, they are not the same in content. The main difficulties in controlling the musculoskeletal system are:

1. Equal distribution of attention to the movements of many joints and parts of the human body is their mutual coordination.

2. Overcoming the many degrees of freedom inherent in the human body.

3. Flexibility of muscles.

More recently, the complexity of creating a whole set of action actions has been linked to changes in action programs. Action programs are formed under the influence of accumulated experiences. A program of action is one that "unites" the past, present, and future, coordinating the action with its meaning. The simultaneous and sequential effects of motion programs are associated with transition processes. There are transitions between them, in which there are not one, but two or more programs in the central structures of motion control. Transition mechanisms are the main mechanism in the formation of the biomechanical structure of movements.Nerve compatibility is the coordination of neural processes that control movements through muscle contraction. It is the harmony of neural processes that leads to the solution of the task of movement under certain conditions. Muscle compatibility is the coordination of muscle contraction that delivers commands to parts of the body from both the nervous system and other factors. Motion compatibility is the coordinated coordination of the movements of body parts in space and time, simultaneously and sequentially, in accordance with the task of movement, the environment and the human

condition. It is not the same as it is with muscle compatibility, although it is defined.

Agility is a complex and complex psychophysical quality of a person. Its level of development is determined by the level of development of psychomotor capabilities involved in solving complex coordination problems. One must be both physically and mentally prepared to deal with such issues. A well-developed agility quality is one of the highest forms of action management.

The concept of endurance. Fatigue and endurance. Types of endurance. Endurance is the ability of a person to perform any movement activity for a long time without compromising its effectiveness. Due to the fact that the duration of work is ultimately limited by fatigue, endurance can also be expressed as the body's ability to withstand fatigue. Fatigue is a condition characterized by a decrease in the body's ability to work as a result of prolonged strenuous activity. It appears some time after the work has begun and is manifested in the inability to perform the activity with the previous effect. The development of fatigue takes place in 3 stages:

1. The compensated fatigue phase is the time to maintain the previous pace, despite the increasing difficulties, primarily due to partial changes in the biomechanical structure of human volitional efforts and movement actions.

2. The stage of decompensated fatigue is the inability of a person to maintain the effectiveness of the activity in spite of all attempts, if in this case the work continues, then after a while it is time to refuse to perform it.

3. Complete fatigue phase. Changes in speed, step length, and frequency during periodic movement operations in the fatigue state are reported.

Although the length of the steps is reduced during the compensated fatigue phase, the speed is maintained due to the increase in the frequency of the steps. Fatigue is manifested by a decrease in the contractile force of the primary muscles. The result is a decrease in the force and speed of pushing off the ice, a reduction in the length of the steps. The frequency of the steps here plays the role of a compensating mechanism and ensures that the speed does not change until a certain time. Endurance is necessary in all types of physical activity.In one type of exercise it confirms the result of the sport, walking, running medium and long distances, skiing, in others - allows you to perform certain tactical actions, boxing, wrestling, sports games, in the third - to withstand many large loads in the short term and soon regain strength provides recovery, sprinter running, jumping, weightlifting. The level of development of endurance can be assessed on the basis of two groups of indicators:

1. External indicators represent the effectiveness of human motor activity during fatigue.

2. Internal indicators reflect certain changes in the functioning of parts and systems of the body that ensure the performance of certain activities.

Endurance development methodology. Develop speed endurance. Exercises with a periodic description of speed endurance, running, walking, swimming, rowing are accepted. Each of them can be done at different speeds. An athlete who is able to keep moving at a set speed longer than others is considered resilient. Naturally, the type and duration of the exercise depends on the speed: the higher it is, the shorter the duration of the movement, and vice versa.For example, running at maximum speed will not be continuous. It can last several tens of seconds, during which time it will cover distances not exceeding 100-200 m. If a person runs long distances, he slows down. Endurance is manifested only in the presence of signs of fatigue. The better the speed endurance is developed, the later the fatigue symptoms appear when moving over different distances, and the speed is maintained accordingly.The key to improving speed endurance on each power track is to do a little more work on the tracks than is typical for different age groups, i.e. to move at higher speeds than in competitions on certain tracks. Based on the energy supply description of muscle activity, movement speeds are divided into three groups, which are important in measuring endurance development in each segment.

The concept of flexibility. Types of elasticity and measurement criteria. Factors determining the level of development of flexibility. Flexibility is a complex morphological feature of the locomotor system, which is the movement of individual joints of the human body relative to each other. It is appropriate to describe the term “flexibility” as a link between a body or a common chain of motion. For example, the movement of the spine is sometimes called flexion. When it comes to individual joints, it is necessary to talk about their mobility. According to the indicators of the level of development, the amplitude of movement is very wide.It is measured by means of an angle level goniometer or a centimeter ruler. Various optical methods are used to accurately obtain amplitude data at different movements: filming, video recording, stereocyclography, X-ray television, or ultrasonic locations. Various tests are used to check the development of flexibility in physical education and sports practice. Flexibility is active and sluggish. Active flexibility is the ability of a person to reach the floor amplitude of movement, which is caused by the contraction of muscle groups passing through the joints. For example, the amplitude of the leg lift in the “swallow” coordination.Slow flexion is the greatest amplitude of motion, i.e., the effect of an additional external force acting on the body. For example, a load, a shell, the help of a partner. Indicators of poor flexibility depend primarily on the perception of pain in some individuals as a result of the magnitude of the force exerted, and their endurance of this unpleasant condition. The volume of weak elasticity is greater than that of active elasticity. The higher the differences, the higher the elongation reserves and the greater the amplitudes of motion. Increasing the slow amplitude of motion is used only when flexibility needs to be improved.Active flexibility is

used in a variety of exercises, so it ranks higher in practice than weak flexibility. The connection between active flexibility and passive flexibility is very weak. It is very common in people with high levels of flexibility activity, but they may not have enough flexibility or vice versa. The development of active flexibility is 1.5-2 times slower than weak flexibility. Flexibility can be general or specific.

General flexibility is the mobility in all joints of the human body, performing various movements at high amplitudes.

Special flexibility is a very large movement in individual joints that meets the requirements of a particular type of activity. The degree of flexibility development depends on the shape of the joints, the thickness of the joint joints, the flexibility of the muscles, the ligaments, the joints, the head of the joint. The activity of the joints affects the contraction of human muscles and the relaxation of muscles that are stretched under the influence of movement. In the development of flexibility, the teacher must solve the following tasks:

1. Perform various movements in all directions with the required amplitude, with the permission of the base movement apparatus, to ensure the all-round development of flexibility.

2. Compliance with the requirements of specific activities in increasing the level of development of flexibility.

3. The degree of retention of flexibility at different stages of human age.

4. Restoration of flexibility lost due to illness, bruising and other causes.

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