

## **The development of basic physical abilities of young athletes**

One of the problems of modern society is the lack of mobility of the population and the poor development of physical qualities, especially among the younger generation. The causes of such hypodynamia is quite a large number of factors, but their detection alone does not solve the problem fundamentally. There is a need for real involvement and familiarization of young people with physical culture and sports. Recently certain popular different types of martial arts, attracts its dynamism, practicality, uniqueness and, sometimes, even a mystery, such as Taekwondo, have their roots in antiquity, while retaining their identity and unique methods of training. To determine which of the proposed methods is most effective in terms of the development of the basic physical qualities of boys 10 – 12 years of age - the task is quite difficult.

### **Characteristics of the basic physical abilities of a person**

For the characteristics of the motor abilities of a person, the terms "physical ability" and "physical qualities". Physical abilities are relatively stable, innate and acquired functional capabilities of organs and structures of the organism, the interaction of which determines the effectiveness of motor actions. Innate capabilities are determined by the corresponding makings, acquired-social and ecological environment of human habitation. In this case, one physical ability may develop on the basis of different inclinations and, on the contrary, the same inclinations may have different abilities. In order to denote separate sides of the motor capabilities of a human the term "physical (motor) qualities" have come into use scientific terminology. Physical quality is the totality of biological and mental properties of the personality of the man expressing his physical readiness to perform active physical action. However, at present, the term "physical abilities" is increasingly used in everyday speech, scientific-methodical and educational literature. He finds very common use in the physical culture and sports.

The physical qualities of man, as some of the characteristics of his motor abilities should be considered with regard to the different forms of manifestation of physical abilities. Today it is accepted to distinguish five main physical abilities: muscular force (power abilities), speed (speed abilities), coordination (coordination abilities), endurance and flexibility. Each of them has various forms of manifestation in different types of motor activity. In the formation of abilities play a great role, both congenital and acquired factors.

Force abilities - the human ability to overcome external resistance or oppose it by muscular tension.

Distinguish between absolute and relative strength. The first is the total strength of all muscle groups involved in this movement; second, the power per 1 kg of body weight of the athlete. As a rule, people with a large body weight have a

lower relative strength. To lift very heavy bar it is easier for them, than to be tightened on a crossbeam, and anyway, in number of pull-UPS concede to “lungs”. This is due to the fact that the weight of the human body is proportional to its volume, the strength of the muscle is proportional to its cross section.

When performing strength exercises, the muscles can operate in three modes:

- by decreasing its length (overcoming, i.e. geometricheskii mode);  
the elongation (yield, i.e. plyometric mode);
- without changing the length (holding, i.e. isometric mode);
- when changing the length and tension of the muscles (mixed, ie. auxotonic mode).

The athlete exerts a force, interacting with the support, with the exercise equipment, opponent, or other external object. The amount of effort exerted largely determines the working effect and the result of the movement. The manifestation of the force is extremely diverse, so the literature has spread the term "power abilities", which contains all kinds of manifestations of power.

According to these modes of work and character of muscular activity power abilities of the person are subdivided into two types:

- 1) the actual power, which are manifested in the conditions of a static mode and slow motion;
- 2) speed-power, manifested in the performance of rapid movements of overcoming and inferior character or at a fast switching from yielding to overcoming work.

Speed abilities are a complex of functional properties of the person providing accomplishment of motive actions in the period of time minimum for these conditions. There are 2 groups of speed abilities: elementary and complex. Basic forms include 4 types of high-speed abilities:

- Ability to react quickly to a signal;
- The ability to perform a single local movements with a maximum speed of;
- The ability to quickly start driving;
- The ability to perform the movement at maximum speed.

Elementary forms of manifestation of speed in various combinations and in conjunction with other abilities and technical skills provide a comprehensive

manifestation of speed abilities in complex motor acts characteristic of a particular type of sports activity. Such complex forms of manifestation include:

- Ability to quickly gain the speed on start until maximally possible (starting high-speed ability to);
- Ability to achieve a high level of remote speed;
- Ability to quickly switch from one action to another (most typical for Taekwon-do).

Coordination ability-a set of human characteristics that are manifested in the process of solving motor tasks of different coordination complexity and determine the success of the management of motor actions and their regulation. According to Karelin A. A. (1998), coordination abilities should be understood as:

- Ability to expediently build motor acts;
- The ability to transform the developed forms of action or switch from one action to another, in accordance with the requirements of changing conditions.

The natural basis of coordination abilities are makings, which are understood as innate and hereditary anatomical and physiological characteristics of the body. These include the properties of the nervous system (strength, mobility, balance of nervous processes), individual variants of the structure of the cerebral cortex, the degree of maturity of its individual areas and other departments of the Central nervous system, the level of development of individual analyzers (sensory systems), especially the structure and functioning of the neuromuscular apparatus, the properties of the productivity of mental processes (sensation, perception, memory), temperament.

Agility-the most complex multi-valued quality. Manifests itself as an ability to master complex coordination of movements; accuracy of spatial, temporal, power, the rhythmic characteristics of a given movement; the ability to modify physical activities according to changing environment (is well seen in sports games). The means and methods of development of dexterity are reduced to the systematic learning of new movements and the use of exercises that force you to instantly rebuild the motor activity.

Dexterity and coordination of movements are closely intertwined among themselves, form the difficult combined formation providing high, efficiency of motive activity of the athlete.

Endurance-the ability of the human body to overcome the onset of fatigue. It is characterized by the time of the execution of a certain intensity. On character fatigue distinguish between emotional, mental, physical. Physical fatigue manifests itself in different work and, accordingly, distinguish endurance: strength, speed,

and overall (global) at which you work 2/3 of all the muscles and local (local). Endurance is determined by the properties of the Central nervous system and the processes taking place in it with muscle activity, especially energy metabolism. Forms of endurance, which are grouped according to certain signs:

- To work of cyclic, acyclic or mixed character;
- To work in a specific power zone;
- Presence or absence of joint work (static or dynamic);
- The number of muscle groups involved (local, regional or global);
- On the basis of the preferential mechanism of power supply (aerobic or anaerobic);
- The predominant manifestation of other physical abilities (speed, power, coordination);
- The predominant manifestation of the specificity of the work (General or special).

Flexibility - a person's ability to perform movement with large amplitude. Manifestation of flexibility depends on elasticity of muscles, ligaments, articular bags, warm-up, external temperature, age (by 15-16 years the maximum flexibility is reached). Flexibility can not be developed continuously.

The term flexibility is usually used for the integral evaluation of the mobility of parts of the body. If, however, the estimated amplitude of motions in separate joints, it is customary to talk about mobility in them. Joint mobility - the ability to perform movements with large amplitude.

In motor activity distinguish active and passive flexibility. Active flexibility (dynamic) - is the ability of a person to reach large amplitudes of motion due to muscle groups passing through a joint. Passive flexibility (static) is determined by the maximum amplitude of movements that can be achieved by applying to the moving part of the body external forces of any burden or effort of the partner. Active flexibility occurs when the movement is performed due to the strength of the muscles - antagonists of movement, passive movements are carried out as a result of the action of extraneous forces.

There is a General and special flexibility.

Overall flexibility - mobility in all joints, allowing you to perform a variety of movements with great amplitude.

Special flexibility-significant or even extreme mobility in individual joints, in relation to the requirements of the chosen sport.

## **Anatomical and physiological features of young athletes**

In young athletes, the body has its anatomical, physiological and psychological characteristics. This should be taken into account when organizing and conducting classes.

10 – 12 years, the most favorable age for the development of basic physical qualities necessary in combat sports, such as speed, agility and flexibility. It is these qualities that in the future become the basis for improving sports skills and the normal functioning of the body. It should be noted that at this age athletes are more imitative. This also has a positive impact on training. Along with favorable factors, there are those that make the pedagogical process difficult. The fact that the child's body is in a formative stage, the faster fatigue occurs, less stable attention, inadequate strength of the muscles (if the newborn child within the muscle fibers, the number of protofibrils is only 50÷120 units, then to 15 years, the number increased to 1700 units). They are stronger and more react to stimuli. Athletes at this age there is an intensive body growth in length (up to 10 cm per year). Ossification of the spine, chest, pelvis and limbs does not end there. Therefore, you should be very careful to apply exercises to develop strength and flexibility, so as not to hinder bone growth. At the same time, greater elasticity of the ligamentous apparatus is conducive to the development of children's flexibility and mobility in the joints.

The functionality of the muscular system in children is lower than in adults. Therefore, apply exercises to develop strength and endurance you need in sequence, gradually increasing the load. During training with athletes, it is also necessary to take into account the peculiarities of their cardiovascular system. In particular, at this age there is a relatively slow increase in the lumen of the arteries, the activity of the heart and vessels is insufficiently regulated by the brain. There may also be an increase in blood pressure. When excessive load occurs the student may appear cardiac arrhythmia and dizziness.

Respiratory organs in boys 10-12 years, also have their own characteristics. Thus, the increase in the thoracic perimeter is slower than the growth of the body in length. This fact limits the development of the respiratory system, although pulmonary ventilation reaches 3400 cm<sup>3</sup>. The imperfection of the control of breathing in physical exercises with large loads can lead to disruption of respiratory rhythm.

Students are often inclined to overestimate their strength, to take up exercises that do not correspond to their physical development. Therefore, all their activities must be tightly controlled.

Training should be conducted systematically and consistently. Regular attendance of classes creates prerequisites for mastering the technique of martial

arts without compromising the health of the students. At the same time, it should be noted that young athletes should repeat the material more often than adults. In the process of learning individual knowledge, ideas, concepts must be linked to a specific system.

At this age, comprehensive physical training is of paramount importance. Its purpose-formation of the correct posture, all-round physical development, development of special qualities, for mastering technical actions. Attention should be paid to agility, speed and power qualities, flexibility, forms of special endurance.

Along with the physical qualities, the teacher should systematically educate engaged in volitional qualities: courage, patience, confidence, initiative, perseverance, etc. Volitional qualities are the process of overcoming certain difficulties. Such difficulties can be attributed to the greater weight of the projectile, a strong opponent, perform complex reception unforeseen circumstances as the competitions and much more.

### **Features of the training process in the training of young athletes**

Training of young men, unlike training of adults, has a number of methodical and organizational features.

- Training sessions with young men should not be focused on achieving high sports results in the first years of training.

- Training and competitive loads should correspond to the functional capabilities of the growing organism.

- In the course of all years of training, it is necessary to observe a rational regime, ensure hygiene, good organization of medical and pedagogical control over the state of health, preparedness and their physical development.

- Reliable basis of success of athletes in further life is the acquired Fund of abilities and skills, all-round development of physical and morally-strong-willed qualities.

With age and degree of fitness gradually decreases the proportion of all physical training and increasing the weight training.

The effect of Taekwondo training on the athlete's body

The study of Taekwon-do gives students several unique advantages in physical training.

In order to "focus" all the forces of the body in one point of space is required to possess muscular strength, coordination skills and the ability to move. The main

ligaments in the movement, and tile (formal exercises) contribute to the development of agility, the ability to quickly change direction and start a new movement. Sparring develops peripheral vision and concentration.

Regular exercise is associated with systematic warming of the muscles and ligaments that increase the local blood supply. Performed exercises develop joint mobility, elasticity of tendons and ligaments, which also helps to avoid injuries in training.

At the end of training be sure to perform the exercises normalize the blood volume in the muscles after hard work. If this is not done, there is a feeling of discomfort and terephtalate.

The technique of warm - up, breathing and finishing exercises is another group of examples of effective inclusion of biomechanics and physiology in the training system in Taekwon – do.

Taking into account the obvious advantages of this type of struggle (mastering the techniques of self-defense engaged, getting satisfaction from doing ancient art), it seems quite natural that over time Taekwon-do becomes an integral part of life engaged.

### **Taekwondo and mental development**

Taekwon-do is an art that includes a style of thinking and way of life. Taekwon-do, in particular, instills spiritual culture, gives strength for the struggle for justice. Taekwon-do is known as one of the best means of developing and strengthening the emotional, perceptual and physiological properties that enable the younger generation, regardless of age, social status and gender, to successfully study, participate in public life, to justify the hopes placed by the older generation.

Each movement in Taekwon-do is based on a scientific basis and is designed to achieve strictly defined goals. An experienced instructor can develop a student's belief that success in Taekwon-do is available to all. Constant repetition teaches patience, develops determination to overcome any difficulties. The extraordinary power acquired by the body as a result of Taekwon-do training forms self-confidence, readiness to meet any enemy anywhere, in any situation.

Sparring develops speed, courage, vigilance, relevance, ability to adapt and self-control.

Tile develop flexibility, grace, balance, coordination, and basic exercises is the precision and imagination, reveal the working methods, the principles and objectives of Taekwondo. Certainly, such nurture pervades in all conscious and unconscious actions pupils.

The seriousness of the combat art of Taekwon-do, its potential, mastery of which occurs during training, develop receptivity and intelligence.

The most important task facing the instructor is to teach the students to use their body, not to abuse the acquired knowledge and skills. Despite the fact that the process of solving this task can be extremely complex, responsible managers and trainers engaged in the dissemination and popularization of Taekwon-do, needs to do everything to the devotees of the Taekwon-do student will be considered this skill as a prerequisite of achievement of tops of skill.

We must firmly remember that spiritual development, which allows the younger generation to develop their own philosophy and views on life, excluding regressive trends, is the main factor.