Syrovatko Z.,
Abramov S.
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine

EXERCISE AS A MEANS OF NON-SPECIFIC PREVENTION OF FUNCTIONAL DISORDERS AND DISEASES. TYPES OF EXERCISE. PRINCIPLES OF MOTOR ACTIVITY. RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND PHYSICAL, MENTAL AND SOCIAL ASPECTS OF HEALTH. THE INFLUENCE OF VARIOUS FACTORS ON MOTOR ACTIVITY AND THE BODY'S NEED FOR IT

Specially organized motor activity improves not only the function of the muscular system itself, but also all vital organs. This effect is realized by switching reflexes from muscles to internal organs. It is an effective means of preventing osteoporosis - a systemic disease of the skeleton – through its effect on the formation of bone mass. Mechanical stimulation of bone tissue and physical activity on skeletal muscles is one of the main factors determining bone structure. Physical activity increases such stimulation and reduces the level of deformation potential of bones.

Since all human movements are carried out with the participation of the cerebral cortex, motor activity plays an important role in the normal functioning of the central nervous system. It requires the optimal influx of signals from both internal and external environment and increase the number of impulses coming from muscles, ligaments and joints to the brain, stimulates nervous activity, increasing the efficiency of brain cells. Motor actions are very diverse. Prominent psychophysiologist IM Sechenov believed that man through movement realizes his brain activity (emotions, motives, etc.).

The positive effect of specially organized motor activity on health is characterized by the fact that with the repetition of motor loads, the motor functional system becomes stronger and more reliable. Due to this, the muscular corset develops adequately, the correct posture is formed and maintained.

As discussed above, for a positive impact on health, health and recreational physical activity should be characterized by optimal loads. In other words, the benefits of physical activity for human health are due to its certain limits, which actually depend on correct dosage of physical activity. Numerous studies have shown that both insufficient and excessive motor activity can lead to pathological changes in the body.

The optimal mode of motor activity provides the optimal ratio of volume and intensity of exercise with the rational alternation of various means of physical education. This regime is one of the most important factors in the development of human motor function. The rational motor regime is based on the principle of optimality, which allows to attract a wide arsenal of means of physical culture, to ensure the basic interests and aspirations of man to preserve and strengthen his health, to comprehensively develop motor skills. Such an optimal motor regime requires a high methodological level of a complex of various forms of physical education, creating the necessary conditions for independent motor activity. In the most general level, the optimal dimensions of motor activity are those that fully meet the body's need for motor activity, meet the functional capabilities of the body, promote good health.

Physical exercises are the main means of physical education, motor activity, which is organized in accordance with the laws of the process of physical education.

To find out which exercises are best suited for specific tasks, you need to know their nature and content. The content of physical exercise is a set of movements that make up the exercise, as well as the processes occurring in the body under their influence. The processes that take place in the body under the influence of exercise cover psychological,

physiological, biochemical, biomechanical, spiritual and other areas of the human body.

In the psychological aspect, physical exercises are considered as arbitrary movements that are controlled by the mind and will, ie they are always preceded by conscious instruction.

to achieve a specific result, in contrast to reflex movements, which are carried out unconsciously, mechanically.

In the physiological aspect, exercise is characterized by the transition of the body to an increased level of functional activity. The range of functional activity depends on motivation, level of preparedness, etc.

In the pedagogical aspect, physical exercises are a way of realization of certain educational tasks. In addition to the biological impact that always occurs in the process of physical education, the impact of exercise is taken into account, which causes changes in behavior, consciousness, mental and spiritual spheres of man.

Its form depends on the peculiarities of the content of the exercise. The form of physical exercise is the internal and external structure of movements. Internal structure is the interaction of internal processes of the body (processes of neuromuscular coordination with autonomic functions, etc.). The external structure is their visible form, which is characterized by the ratio of spatial, temporal and dynamic parameters of movement. There is a relationship between the form and content of exercise. Any change in the form of the exercise leads to a change in its content and vice versa. For example, lifting a barbell in different ways changes the nature of the load, which affects the physiological processes occurring in the body.

Exercises are classified, organized according to certain common features.

The task of classifying physical exercises in the system of physical education is to group exercises according to such objective features that could predict the probable educational and training outcome of these exercises.

According to the priority development of physical qualities or abilities, physical exercises are distinguished: speed, strength, speed-strength, endurance, coordination, etc.

According to biomechanical characteristics, there are physical exercises: static, dynamic, cyclic, acyclic, combined, translational, rotational, etc.

According to power, physiological and biochemical characteristics, there are physical exercises: maximum, submaximal, high, moderate, low intensity, aerobic, anaerobic, mixed, etc.

According to anatomical features - exercises for arms, legs, abdominal press, etc., which are used to develop certain parts of the body.

Classification of physical exercises on various grounds helps to systematize physical exercises and select them in accordance with the goals and objectives of training.

The implementation of organized health and training motor activity has a positive effect on health and gives the optimal effect subject to the following principles: 1) individualization; 2) regularity; 3) gradualness; 4) accessibility; 5) regularity; 6) focus on appropriate norms.

The principle of individualization involves the selection of means and technologies of health and training motor activity in accordance with the functional and physical capabilities of each organism. Accordingly, different levels of individual loads are determined. Below the minimum level, the health effect is almost absent. The greatest health-improving effect is reached at application of rational loadings. The use of maximum allowable loads causes pathological changes in the body; for healthy people, they are characterized mainly by an increase in heart rate to 200-220 beats / min.

To implement the principle of individualization it is necessary to take into account health status, functional status (especially heart rate and blood pressure), morphological

features (presence or absence of excess body weight, localization of fat, etc.), level of physical performance (compared to normal), features adaptation to physical activity (satisfactory or unsatisfactory), the level of physical fitness comparison with the norm), various factors that may affect the physical condition of the organism.

The principle of systematicity implies the existence of a certain set of tools and the sequence of their application.

To implement the principle of regularity, different variants of training systems are used. In the most generalized form, preference is given to exercises characterized by cyclicity (running, walking, swimming, cycling, skiing, etc.), are carried out by continuous methods for 20-30 minutes. and more with an intensity of 50-70% of maximum oxygen consumption. The use of this option is most conducive to the formation of endurance of the cardiovascular system. Another option involves the predominant use of speed and strength exercises. The intensity of the load and the pace of exercise can reach 80-85% of the maximum. Intervals of physical work alternate with breaks for rest; the number of exercises is usually 5-10, dosage - 3-5 repetitions. Depending on a mode of work and rest various systems are conditionally designated so: "3 × 3" (from min. Of work + 3 min. Of rest). The next option involves the use of an integrated approach, which combines different types of exercises (walking, swimming, gymnastics, moving games, athletic exercises, etc.). The intensity of loads during cyclic exercises, depending on their duration, varies between 45-75% of maximum oxygen consumption, in fast moving games and high-speed strength exercises - up to 85%. The optimal health-training effect is achieved under the condition of rationally balanced orientation, intensity of loads, periodicity of classes taking into account physical condition.

The principle of gradualness implies an increase in the intensity and volume of loads only in strict accordance with the growth of functional and physical capabilities of man. If you do not follow this principle, after a certain period of time the same loads no longer cause reactions in the body that would provide a further increase in functional opportunities and health promotion. With increasing intensity and volume of loads, the focus is primarily on the state of the cardiovascular system, as the heart itself is the most vulnerable during exercise.

To implement the principle of gradualness, regular assessments of physical condition are used, which are conducted monthly or once every 2-3 months. The level of physical condition as a result of the classes is increasing, and accordingly, on the basis of regular assessments, the volume of loads is gradually increasing. Therefore, the application of the principle of gradualness allows, among other things, to constantly ensure compliance of loads with growing functionality.

The principle of accessibility involves the selection of means and technologies of health and training motor activity, taking into account as much as possible all possible physical, functional, cultural, psychological, material capabilities of the individual. The availability of physical exercises during the implementation of health and recreational motor activity depends on the objective capabilities of the person and the difficulties in performing the exercises. The optimal degree of accessibility is determined by the full compliance of the difficulties that arise with the objective possibilities. Thus, accessibility does not in itself mean the absence of difficulties, it only indicates the extent to which they can be actually overcome. The availability of physical activity can be properly assessed only taking into account their health or recovery effect. With the gradual increase of levels of physical and functional condition, with the strengthening of human health, the limits of what is available expand, changing the optimal degree of accessibility. Accordingly, the requirements for the selection of means and technologies of health and training motor activity are changing.

To implement the principle of accessibility, special programs are used that take into account all individual data and the nature of the requirements imposed on the body by numerous methods and means of physical education; these data and the nature of the requirements are correlated, which helps to determine the optimal degree of availability. The choice of rational methods is important physical education, general training. Many countries are developing special health mini-programs that are designed to attract as many people as possible ("3 × 3", "7 × 7" - 3 or 7 classes per week with intensive exercise for 7 minutes, etc.).

Health is a state of complete physical, spiritual and social well-being.