



HEALTH-IMPROVING PHYSICAL EDUCATION IN THE SECOND PERIOD OF MATURITY AND AMONG ELDERLY PEOPLE

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Annotation

This article deals with on the basics of frequencies on heart rate in the selection of the second period of maturity and the norm for engaging in healthy physical activity in the elderly. To do this, subtract the age of the practitioner over the years from the maximum number of heartbeats. It is argued that the norm of physical activity, which is performed at the level of 65% to 85% of the result.

Keywords: Maturity, old age, individual, energy, chronic, stress, aerobic, endurance, flexibility, hyperkinesias, hypodynamics, enzyme, hormone, biosynthesis.

Periods of maturity and old age are legitimate periods which occur in the individual development of a person. The processes of maturation and aging are uninterrupted and do not happen smoothly and simultaneously. The second stage of maturity was accepted in women 36–55 years and in men 36–60 years; the old age is 56-74 years for women and 61-74 years for men.

There are a number of theories which explain the processes of aging of the body. Let's look through some of them. Many scientists believe that aging at the cellular and molecular level is slower than the aging of an entire organism. One of the theories explaining aging is the theory of decay, according to which in the second half of human life, just like the details of a machine, the body's cells, tissues, systems decay and management processes become loose. The unreliability of this theory is that during the course of life the human body not only decomposes, but regenerates and regulates itself. The other theory is the depletion of vital energy resources. The energy reserves of the human body are determined by heredity which are spent throughout life. According to this theory, the slower the motor activity and the lower the energy expenditure, the slower the aging and the longer the life expectancy.

In the late 19th and early 20th centuries, The theory of self-poisoning was found by the Russian scientist I.I. Mechnikov. In addition, the factors which affect life expectancy (smoking, alcohol consumption, adverse environmental factors, etc.),



the scientist believes that the toxic substances formed under the influence of microbes in the gut lead to premature aging by poisoning the body. In order to prevent this process, I.I. Mechnikov recommended to reduce the amount of protein in the diet, increase the amount of fruits, vegetables and yogurt, kefir, as well as to clean the body in a timely manner.

Naturally, the rate of aging is determined by socio-economic and medical factors, as well as the longevity of people. The average life expectancy of people is not the same in different countries. Its duration depends on a number of factors, of which exercise is the most important one.

Research in recent years has shown that as the body ages, the body's adaptation to the normal factors of the external environment changes, resulting in the development of chronic stress in older people. V.M Dilman (1986) developed the theory of elevation of aging (lat. Elevation - "rise", "move up"), based on the fact that the changes that occur in the body during aging are almost identical to the changes that occur during the stress. This theory is related to the activity of the hypothalamic part of the brain, which maintains the stability of the internal environment of the organism and its activity increases with age instead of decreasing. This leads to an increase in the homeostatic braking step, impaired metabolism, and the development of chronic stress. Based on this theory, practical measures (active rest, work with optimal physical activity, biologically active substances) aimed at improving the adaptive capacity of older people are proposed. Functional changes and emotional reactions which occur as a result of exercise have a positive effect on organisms in adulthood and old age. These effects only have a positive effect when they are appropriate to the nature, size, rhythm, intensity, fitness and personal characteristics of the exercise.

Age-related changes which occur in the organs and systems of the body are clearly visible when exposed to physical loads. Changes in physical qualities can be found in people who show high functional capacity along with people who are physically debilitated at the age of self-dependence maturity and old age. For example, in some people, muscle strength begins to decline after the age of 20-25 and in others it decreases after the age of 40-45. From physical qualities, agility, flexibility and agility deteriorate more rapidly with age, while endurance and strength qualities decline relatively slowly. The main factor that slows down the decline of physical qualities is exercise.

All parameters of speed quality deteriorate with age. For example, the speed of movement decreases between the ages of 50 and 60 and stabilizes somewhat



between the ages of 60 and 70. The rate of movement decreases the most in the age group of 30-60 years, and almost does not change in the age group of 60-70 years. From the results obtained, it is clear that a new level of life activity emerges between the ages of 60-70. In people who regularly engage in physical activity, all indicators of speed quality decline more slowly. The maximum value of strength in different muscle groups is 18-20 years old which is maintained at this level until the age of 40-45, by the age of 60 the muscle strength is reduced by about 25 percent. Decreased strength is seen in people between the ages of 40 and 50 who do not exercise and between the ages of 50 and 60 in those who engage in regular exercise.

The quality of endurance is maintained longer than other physical qualities. Many believe that the decline in endurance begins at the age of 55, while the quality of endurance remains high at the age of 70-75 when performing moderate-intensity work (aerobic energy supply). The fact that people of this age participate in long-distance running, swimming, and hiking confirms the above idea. The development of endurance depends primarily on the level of development of the circulatory, respiratory and circulatory system of organs. The degree of endurance of the body is determined by the level of oxygen supply to the muscles involved in the exercise.

Flexibility is the ability of a person who performs movements of maximum amplitude. This ability begins to decline at the age of 15-20 years without special training, resulting in impaired coordination and mobility in performing complex movements. In the elderly, flexibility (of the spine) is significantly reduced, while exercise ensures that the quality of flexibility is maintained for a long time.

The quality of agility ensures the accuracy of motion in space. This quality also slows down from the age of 18-20. Exercising special exercises slows down the agility and ensures that it will be high for many years.

Physical exercise is one of the main means of ensuring the well-being of the functional state of the body in mature and elderly people. The functional state of the human body is a set of qualities which provide physical activity and sports activities. The main functional states associated with motor activity include fatigue, chronic fatigue, extreme fatigue, mental and emotional stress, monotony, hyperkinesias and hypodynamics. All functional states are divided into 3 types: normal (fatigue), borderline (chronic fatigue) and pathological (extreme fatigue). It is known that older people get tired very quickly and they quickly become very tired. Older people are more prone to mental emotional experiences, their lives



are monotonous or almost the same and for this reason, hypodynamics and hyperkinesias are more common.

In the elderly, under the influence of hypodynamics and hyperkinesias, the functions of organs, systems and energy expenditure decreases. Such physiological changes lead to a decrease in oxygen consumption in the body and its absorption coefficient, a decrease in gas and energy exchange in tissues, resulting in a significant decrease in a person's physical labor capacity (especially in men). Regular exercise prevents the above deficiencies or slows their development. From a physiological point of view, changing in functional states and decreasing ability to work in the elderly depend on many factors. First of all, the rate of blood flow slow down among them, decrease the capacity of the circulating blood and its oxygenation, develop hypoxia in tissues and organs. Lack of glycogen stores in the muscles and liver leads to a decrease in blood glucose levels, oxidative processes and a decrease in energy metabolism. As a result, the indicators of cocktail ability decrease, the physiological value of the work performed increases.

Nowdays, there are ways to assess a person's health, physical fitness and endurance. For example, a health test adopted by the UNESCO Medical-Biological Program takes into account a person's age, body weight, smoking, alcohol consumption, resistance to static loads, the number of heartbeats at rest and recovery after dynamic loading. Each indicator is given a score and added to it, on the basis of which recommendations are made on the characteristics of nutrition, physical activity and special physical fitness.

The authors of all the means and studies aimed at preventing active longevity and aging prioritize physical exercise. For example, the use of optimal physical activity is preferred among a number of factors studied by the American physiologist A. Tanny,. From a physiological, pedagogical point of view, the amount of physical load of the smallest capacity used to achieve the best result which is the optimal load. The number of heartbeats is used to find the most convenient and reliable optimal healing load.

It is recommended that the average heart rate should not exceed 140 beats per minute at the age of 20, 130 at the age of 130, 125 at the age of 40, 120 at the age of 50, 120 at the age of 50, and 100 to 110 at the age of 60 and older.

Thus, a person engaged in health-improving physical exercise chooses a load based on the heart rate index when choosing the optimal physical load for themselves. To do this, the age of the practitioner is subtracted from the



maximum number of heartbeats in years. A physical load that is performed at a rate of 65% to 85% of the output number is the optimal load. Therefore, the optimal physical load for a 60-year-old person is performed in the range of 104 - 136 beats / minute (maximum heart rate $220 - 60 = 160$ beats / min).

The importance and role of physical education in maintaining good health, preventing premature aging and active longevity is determined by a number of physiological changes in people who exercise regularly. They improve the oxygenation of blood, organs and tissues and prevent regional hypoxia, increasing the rate of metabolism and excretion of end products of metabolism from the body. The maintenance of high levels of biosynthesis of proteins, enzymes and hormones in these people significantly slows down the aging process. The mechanisms of control and adaptation and the activity of the immune system is maintained and improved resulting in increased exposure to factors that adversely affect the body, the incidence of a number of diseases is reduced, mental and physical work ability is kept.

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