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Taking Into Account Physical Fitness for Middle-Aged Men Aged 45-60 Develop a Health Exercise Collection

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Annotation. This article discusses the development of a set of health-improving exercises for middle-aged men aged 45-60, taking into account physical fitness. A healthy lifestyle should include the implementation of methods for restoring mental and physical performance. For people of the first period of mature age, the tasks of physical education are to further increase the level of physical culture, deepen knowledge about physical training, form a stable motivation for systematic physical exercises, both sports and recreational.

Key words: health, running, illness, physical condition, health exercises

The problems of maintaining and promoting health in modern society are quite acute. The constant increase in the incidence of children and adults leads to a deterioration in the health of the population, a decrease in the able-bodied population, an increase in the number of people with disabilities, which is inevitable affects the economic well-being of the country. One of the most common diseases among children and adults of the working population are diseases of the musculoskeletal system, cardiovascular diseases, diseases of the nervous system and gastrointestinal tract. This is due, to a large extent, to the irrational lifestyle and hypodynamia.

In this regard, the need has recently increased for qualified specialists who can provide significant assistance in improving the health of the population, in the fastest restoration of health and lost body functions after injuries and diseases by means of physical rehabilitation. It is most advisable to train such specialists on the basis of faculties and institutes of physical culture and sports, because one of the main means of physical rehabilitation of lost body functions are physical exercises.

To date, unfortunately, there is no single generally accepted classification of age periods of human development, although at different times numerous attempts have been made to create age periodization. As a result, many different classifications appeared, and a single classification was never created.

Numerous studies by specialists have shown that the processes of maturation and involution are characterized by unevenness and heterochrony. The unevenness of the processes and the heterochrony of the change in the states of the individual, as a reflection of the internal contradictions of development, contain various possibilities of life - from premature aging in some cases to longevity in others. In fact, you can be a thirty-year old man - both creatively and physically active, a "young" seventy-year-old and older.

At the same time, one can also note the presence of general trends in various age periods, as well as the proximity of some of them to each other.

There are many different classifications of ages developed by specialists from different areas of human knowledge (and, therefore, for different reasons). For example, according to the ancient Chinese classification, maturity is divided into 4 periods: from 20 to 30 years old - the age of marriage; from 30 to 40 - the age of performing public duties; from 40 to 50 - knowledge of one's own delusions; from 50 to 60 - the last period of creative life. Pythagoras compared age with the seasons and, accordingly, maturity covered the periods of summer (20-40) and autumn (40-60).

According to the age periodization adopted by the International Symposium in Moscow in 1965, the middle (mature) age is also divided into 2 periods. The first period is 22-35 for men, 21-35 for women and the second period is 36-60 for men, 36-55 for women. Which is characterized by changes in all functional systems, and even more so in the level of general physical fitness.

Thus maturity is seen as an age: 25 to 50 years (Birren, 1964); from 25 to 60 years (Erikson E., 1963); from 35 to 60 years (Feldshtein D.I., 1999); from 40 to 60 years (Craig G., 2000); from 40 to 65 years (Quinn V., 2000). In our work, we will adhere to the classification of D.I. Feldstein, who defines the age from 30 to 45 years as the period of the middle of life [2, p. 5].

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Under the leading activity in adulthood, apparently, one should understand the main goal of the life path, in relation to which other types of activities are saturated with meaning, the personality develops, and mental processes change. From the position of acmeology in adulthood, the leading activity can be considered the maximum realization of the essential forces of a person in the course of active inclusion in the productive life of society, entry into which is associated with the professional development of the individual. However, the realization of the essential powers of a person in the broadest sense should be understood as physical, social (moral), moral (spiritual), mental and many other achievements in the development of an adult.

By the age of 30, the growth of the organism has mostly stopped, in men the proportions of the body typical of an adult, the configuration of the chest are formed; completed sexual development, the process of ossification of the spine and limbs. By the age of 30, most functions reach full development, which is due to the completion of the morphological differentiation of the main visceral organs and the improvement of the mechanisms regulating their activity.

During the development of the organism from birth to adulthood, the capabilities of functional systems increase and reach peak values at 20–25 years of age. The period from 25 to 35 years is characterized by the most stable state of the possibilities of various body functions. But after 35 years there is a steady decrease in the body's capabilities and by the age of 60-65 such physiological qualities as working capacity, the maximum possibilities of blood circulation and respiration decrease to 70 and even to 50% of those values that the same person had at 25-35 years old, even if he remained healthy all the time.

During adulthood - up to 40 years, the functional development of the higher department of the nervous system is completed. The analyzer-synthetic activity of the cerebral cortex, its controlling role is being improved. The activity of the second signaling system already dramatically dominates the function of the first signaling system. The functions of the brain by this time are fully developed [3, p. 2].

The brain is highly plastic. In adulthood, his reserve capabilities are extremely large and must be used.

During this period, there are further changes and improvements in organs and systems, including respiratory and cardiovascular [6, p. 3].

By the age of 30, the heart reaches full morphological and functional perfection. The heart rate in a man, counted at rest, decreases to an average of 65-70 [7]. In men who systematically go in for sports, blood pressure is characterized by the highest limit of the indicated figures, and heart rate - by the lower limit. According to A.G.Khripkova in mature athletes (30-38 years old) after dosed physical activity (20 squats in 30 seconds or 60 jumps), heart rate (HR) increases by 60-70%, maximum blood pressure (BP) increases by 25-30% , and the minimum is reduced by 20-25%, the pulse returns to its original frequency after 1.0 - 1.5 minutes. Such a reaction is regarded as favorable [8].

Untrained men respond to a similar load with an increase in heart rate by 100%, maximum blood pressure by 30-40%, and a decrease in the minimum by 10-15%; the pulse returns to the values before the load in 2-3 minutes after its completion. For such men, it is necessary to gradually increase training loads, offer to increase rest, introduce diversity in sports [10].

In adulthood, the tone of the center of the vagus nerve increases most sharply. According to R.E.Motylyanskaya, at the age of 30, one can often observe respiratory arrhythmia of the heart (especially pronounced in men who systematically go in for sports). The body's reserve capacity is increasing more and more. Economical work of the heart at rest allows for a three-minute run to increase it more than in previous age periods. This also increases blood pressure more significantly. Better blood supply to the muscles is provided by increasing the ejection of blood with each stroke [9].

In men, the size of the organs is larger compared to the female internal organs. They have more developed skeletal and muscular systems. The male heart is larger in volume and size of its chambers, that is, the ventricles and atria. The amount of blood it throws out with each contraction is greater, and the heartbeat is slower than in women. The vital capacity of the lungs in men is much greater. For example, in a minute in the lungs of a man 5-7 liters of air are ventilated and up to 2 liters of oxygen are absorbed, while women's lungs ventilate only 3-5 liters of air and absorb only 1.5-1.8 liters of oxygen. The weight of muscle tissue in relation to body weight in men averages 40%, and adipose tissue - 18%. In women, these figures are 32% and 28%, respectively. If we consider the physique of a man, it turns out that his shoulders are wider, his arms are longer and his bones are larger than those of a woman. This means that the male skeleton

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has more room for muscles and longer levers (the longer the lever, the less effort is expended to lift any object, even body weight). About 40% of the mass of the male body is muscle, while in women this figure is 30%. All this is explained by a higher percentage of testosterone in the body - the male sex hormone. Since it affects the growth zones located at the ends of long bones, in men, the growth process continues until almost 20 years old, while women usually stop growing at 14-15 years old. Testosterone also stimulates processes such as the formation of secondary sexual characteristics, the growth of muscle tissue. Therefore, naturally, men have more muscle tissue, and women have more subcutaneous adipose tissue, because. its formation is influenced by female sex hormones.

Every man's body produces some amount of estrogen, the female sex hormone, just like every woman's body has testosterone. Its amount is genetically determined, therefore, in some men, the muscular system in its structure may be close to the female one.

Men, by tradition and also because of the different content of hormones in the body, have more developed muscles of the shoulder girdle, abdominals, thighs, legs and other parts of the muscular system.

For mature age, men are characterized by noticeable shifts in muscle strength. A man, under normal conditions of life, no longer has the disproportion of individual parts of the body, there is no clumsiness and disproportion of movements characteristic of young men. His muscles grow and, with sufficient exercise, allow him to successfully perform complex physical exercises.

The growth of the working capacity of the body allows you to expand the range of physical exercises, more sports. However, in non-athletic men, at this age there is a sharp increase in body weight, which can lead to hypertension, shortness of breath, etc. In middle-aged men, a hypertensive reaction is diagnosed not only to the load. High blood pressure (up to 150-175 mm) can be established even at rest. On the contrary, with a rational choice of a sport and a good organization of training work, high blood pressure and heart rate at rest decrease, and the reaction to the load becomes more favorable [5].

Age-related changes are reflected both in the activity of the heart and in the state of peripheral vessels. With age, the ability of the heart to maximum stress decreases significantly, which manifests itself in an age-related decrease in the maximum heart rate (although resting heart rate changes slightly). With age, the functionality of the heart decreases even in the absence of clinical signs of coronary artery disease.

Thus, the stroke volume of the heart at rest at the age of 25 by the age of 85 decreases by 30%, myocardial hypertrophy develops. The minute volume of blood at rest for the specified period decreases by an average of 55-60%. The age-related limitation of the body's ability to increase stroke volume and heart rate at maximum effort leads to the fact that the minute volume of blood at the maximum load at the age of 65 is 25-30% less than at the age of 25 years (Pauer, 1986, etc.). With age, changes also occur in the vascular system: the elasticity of large arteries decreases, the total peripheral vascular resistance increases, as a result, by the age of 60-70, systolic pressure increases by 10-40 mm Hg. Art. All these changes in the circulatory system, a decrease in the performance of the heart entail a pronounced decrease in the maximum aerobic capacity of the body, a decrease in the level of physical performance and endurance. The rate of age-related decrease in BMD in the period from 20 to 65 years in untrained men is on average 0.5 ml / min / kg, in women - 0.3 ml / min / kg per year. From Table. In the period from 20 to 70 years, the maximum aerobic productivity decreases by almost 2 times - from 45 to 25 ml / kg (or by 10% per decade). With age, the functionality of the respiratory system also deteriorates. The vital capacity of the lungs (VC), starting from the age of 35, decreases by an average of 7.5 ml per 1 m2 of body surface per year. There was also a decrease in the ventilation function of the lungs - a decrease in the maximum ventilation of the lungs (MEL). Although these changes do not limit the aerobic capacity of the body, they lead to a decrease in the vital index (the ratio of VC to body weight, expressed in ml / kg), which can predict life expectancy. Metabolic processes also change significantly: glucose tolerance decreases, the content of total cholesterol, LIP and triglycerides in the blood increases, which is typical for the development of atherosclerosis. The state of the musculoskeletal system worsens: rarefaction of bone tissue (osteoporosis) occurs due to the loss of calcium salts. Insufficient physical activity and lack of calcium in the diet exacerbate these changes. Adequate physical training, health-improving physical culture can largely stop age-related changes in various functions. At any age, with the help of training, you can increase aerobic capacity and endurance levels - indicators of the biological age of the body and its viability.

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As a result of the reliability of the functioning of all body systems, efficiency increases significantly. The amount of work that men can do, with a comparable intensity, is about 20-30 times more than that of adolescents. Such a colossal increase in working capacity is the result of not only an increase in body size and structural changes, but also an optimization of regulatory processes: both hormonal and nervous regulation are improved [2].

Thus, the anatomical and physiological features of men of mature age were identified. The undoubted fact is that physical exercises, including in the course of bodybuilding, will contribute to the development of general physical fitness in men aged 45-60. Let's consider this issue in more detail.

General physical training (GPP) is a system of physical exercises that is aimed at developing all physical qualities (strength, endurance, speed, agility, flexibility) in their harmonious combination. The basis of general physical training can be any sport or a separate set of exercises, such as gymnastics, running, bodybuilding, aerobics, martial arts, swimming, any outdoor games. The main thing is to avoid narrow specialization and hypertrophied development of only one physical quality at the expense and to the detriment of the others.

Each sport can cause the predominant development of certain qualities (strength, endurance, speed, and others) and determine some features of the physique. Rational bodybuilding training leads to the harmonious development of the body. The principle of comprehensive development is especially necessary to observe when working with middle-aged men. To do this, it is necessary to dwell in more detail on the features of the general physical training of men in this category.

Goals and objectives of general physical training:

Health. General physical training is needed primarily to improve health. Changes in the development of physical qualities occur at the molecular level, changing the physiological and biochemical processes. The body's resistance to adverse factors increases, immunity increases. OFP inhibits the aging process.

General physical development. GPP is not a sport, but no sport can do without it. General physical training provides a comprehensive and harmonious physical development of a person. Prepares the basis for special physical training in a particular sport, military or labor activity.

The level of general physical fitness is assessed according to the following indicators or tests:

- speed - 100 m run;
- endurance - running for 2 - 3 km;
- strength training - pull-ups, press.

Special training. Even a high level of general fitness may not always be sufficient. In some cases (certain sport, personal needs, professional work) an increased level of special physical training is required. Some require increased development of strength, others endurance, and others flexibility. Therefore, the goal of general physical training is also:

- development of comprehensive and special physical qualities;
- a general increase in the level of physical capabilities of the body;
- education of the necessary motor skills and abilities [4].

The following tasks can be set before the general physical training of men of mature age:

- to achieve a harmonious development of the muscles of the body and the corresponding strength of the muscles;
- gain general stamina;
- increase the speed of performing various movements, general speed abilities;
- increase the mobility of the main joints, muscle elasticity;
- improve dexterity in a wide variety of (domestic, labor, sports) activities, the ability to coordinate simple and complex movements;
- learn to perform movements without undue stress, master the ability to relax;
- reduce the negative effects of ongoing age-related changes;
- improve health [11].

The achievement of physical perfection is associated with general physical training - the level of health and the comprehensive development of physical abilities that meet the requirements of human activity in certain historically established conditions of production, military affairs and other areas of public life.

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Specific principles and indicators of physical perfection are always determined by the real needs and conditions of society at each historical stage. But they also always have a requirement for a high level of health and overall performance of men, especially in adulthood.

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