

A Study on Exercise Intensity Control of Elderly People in Urban Communities in China

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ABSTRACT. With the development of productive forces and the improvement of people's living standards, the pressure on the environment has increased, and the elderly's own health problems have increased. People's health consciousness is getting stronger and stronger, and their understanding is gradually deepening. Social aging has become a reality, and how to make the society properly face aging, let the elderly take an active part in physical exercise, and take an optimistic attitude. To maintain youthfulness and maintain vitality is what society must do now. Therefore, this article summarizes the cardiopulmonary function of elderly men from the age of 61 to 65 through literature and logical analysis. The standard for enhancement and maintenance is 30% to 60% (2.57 --- 4.19 METs 90 --- 118 times / min), improving the body's strength, softness, balance ability, neuromuscular coordination and cardiopulmonary Functional exercise intensity ranges from 46% to 60% (3.77--4.19 METs 105-118 beats / min), cardiopulmonary function ranges from 30% to 45% (2.57-3.85 METs 90-105 times / minute) This stage is the effective degree of fitness exercise for the elderly from the age of sixty-one to sixty-five. From physical function, vascular function, respiratory function, blood lipid and body composition The most appropriate cardiopulmonary function at the age of fifteen is 30 to 60 percent. So scientifically Instructing older people's exercise intensity Especially important.

KEYWORDS: Elderly; physical exercise; exercise intensity

1. Introduction

In the modern cultural process, people's lives and health levels have gradually improved, and an aging population has been increasing. The health problems of the elderly have received more extensive attention in the whole society [1]. In order to reduce the impact caused by the aging of the population, maintain good psychological and physiological functions, improve the quality of life, and exercise

intensity formulated for the health of the elderly, it will definitely promote the physical and mental health of the elderly, the sustainable development of society, and build a harmonious social belt. Come very important role.

At the same time, people's living standards continue to improve, while people have met the most basic living needs, they have turned their attention to the pursuit of quality of life, coupled with the improvement of people's ideological level and further openness, the elderly. There is also a deeper understanding and pursuit of physical exercise. Therefore, the physical exercise of the elderly has gradually entered the vision and choice of people participating in physical exercise, thereby enhancing physical fitness and promoting health.

2. Physical and mental characteristics of the elderly in urban communities in China

2.1 Definition of the elderly

China has always designated sixty years old as a mantle, and stipulates that sixty years old is the retirement age. It is precisely because China now belongs to the Asia-Pacific region that the age of 60 or older in this region is defined as the elderly. Therefore, at this stage in our country, the standard for the classification of the elderly over the age of 60 is established [2].

The new classification method for the elderly was proposed by the United Nations World Health Organization. It measures the new age classification stage by measuring the physical fitness of the human body and the average age. People are divided into five stages: longevity elderly, elderly, middle-aged and young. The age of young people is generally under 44 years of age, the age of middle-aged people is generally in the range of 45 to 59 years, the age of young elderly is generally in the range of 60 and 74 years, and the age of elderly people is generally 75. The range between 89 years old and the longevity elderly is 90 years or older [3]. According to the above division, the aging period of people has been extended for five years to five new stages, which has a positive effect on people's psychological and physical health and anti-aging inhibition.

2.2 Physical and mental characteristics of the elderly

The elderly population is growing rapidly with the rapid development of China's society and economy, and physical exercise for the elderly has become particularly important. Sports as a cost-effective means of fitness and disease prevention have been accepted by the broad masses. Especially for many problems such as the absolute number of the elderly population in China, the average age of the population, the short healthy life span, the long duration of illness, and the relative poverty of medical expenses in life, scientific and reasonable fitness is of particular significance to the elderly. The size of exercise intensity must be appropriate to produce fitness effects. Therefore, we began to study the problems existing in the elderly's physical exercise process and appropriate fitness exercise intensity, improve the quality of life of the elderly in China, and provide scientific

guidance for the elderly.

2.2.1 Physiological functions

The gradual decline of functions is mainly physiological functions. The physiological functions of the elderly also follow the decline. The development of natural functions and physiological phenomena of the human body is that functions gradually decline. The main manifestations are as follows: ① brain atrophy caused by brain cell reduction, leading to aging of brain function. The excitability shown in the nerve center is reduced and enhanced, the recovery process of nerve cells is gradually improved, and the control of the entire brain is reduced. ② The ability to feel is gradually decreasing, and the expression of content is blurred in the eyes. When reading textbooks and newspapers and periodicals, you need to bring elderly eyes. The listening ability is reduced, especially the interference ability is reduced. You need to speak aloud to hear, and the speaking speed is slow. It also affects the ability to smell and is easily fatigued. Appetite is reduced and anorexia is often reduced. Tactile sensation is decreased, slow response to temperature, slow movement, and decreased balance ability. The operating ability will also decrease, and the hands and feet will tremble. ③ Attention decreases, manifested by inattention, poor memory and easy to forget. ④ The decline of thinking ability is not as good as before in terms of the intensity, speed and flexibility of thinking. Especially in thinking and the ability to resist external noise is significantly reduced, the thinking is not clear and the reaction is not agile. ⑤ The decrease of operation ability is mainly due to the cooperation of hands and feet, especially the insensitivity of hands and feet, and sometimes even trembling. But those who are good at using their brains will not only gradually decline their intelligence, but will also have an increase compared to young people. According to the research records of relevant personnel, before 1979, someone had won the Nobel Prize for Literature, a total of 83 people were counted, but 53 people were over 60 years old, accounting for 64% of the winners, 70 to 80 There are 25-year-olds, accounting for 31% of the winners; the remaining 5 talents are those under 60 years old, accounting for 5% of the winners. From this we can get the intelligence of the elderly. Advantage. The mental decline of the elderly is much later than the physical decline.

As the elderly get older, the functions of various parts of the body decrease more quickly. As the function declines, bone moisture and minerals in the body become less and less, so calcium carbonate in the bones gradually decreases. Low bone density can easily lead to fractures.

The muscles of the elderly also gradually become lax, and the synthesis capacity of body components is gradually decreasing. For example, the synthesis of protein is relatively low, the muscle fibers in the body are significantly thinner, the water in the muscle cells is also less, and the surface Muscles are inelastic. Nerve cells are reduced, brain weight is reduced, and the epidermal area of the brain is reduced compared to adulthood [4]. The function of the brain's nervous system declines, and its ability to understand knowledge gradually declines. It is manifested in the lack of clear memory and lack of cerebral blood supply, so try to avoid intense exercise. Cardiovascular function also has problems, such as the dark brown color of

the outside of the heart, the increase in fat outside the heart, the increase of the myocardial membrane, and the decrease of heart cells. In this way, the heart's pumping capacity will be affected, the maximum oxygen uptake will gradually decrease, and the stroke output will decrease by two. Aortic and coronary arteriosclerosis increases systolic blood pressure, diastolic blood pressure decreases, capillary fragility increases, and capillary ruptures easily occur.

2.2.2 Psychological function

Psychological functions are gradually aging and mutating; after retirement, the elderly become less and less associated with people, and the scope of life is gradually lacking. The sense of loneliness and loneliness gradually increases depending on people's feelings. The ability to self-maintenance has declined, which has caused some aging in the heart [5]. Cognitive maturity and decline change. It can be seen that the elderly care about psychological characteristics. The problem is that the aging of the body and the function of the brain are constantly reduced, resulting in a decline in cognition. The cognitive memory in the face of fresh people and things is reduced, so it affects Further development. In the mentality, it appears as the unity of opposition and positivity. The mentality of the elderly has always occupied the most important position. As the age increases, the function of each part of the body declines and is plagued by the disease. As a result, the elderly want to participate without experiencing excessive force.

3. Senior Citizens in Chinese Urban Communities Exercise intensity control during physical exercise

3.1 Effects of moderate and low intensity moderate exercise on the metabolism of the elderly

3.1.1 Effects of moderate and low intensity exercise on free radical scavenging and arteriosclerosis in the elderly

Many people think that it is the consistent cause of arteriosclerosis, which is caused by free participation in tumors, inflammation, and cardiovascular diseases. Exercise training, especially long-term exercise, can reduce collective free radical levels and reduce the lipid oxidation process in the body. Increase the phase change caused by the activity of superoxide gasification enzyme (SOD) and other antioxidant enzymes in the blood and tissues in the body, enhance the capacity of the antioxidant system, thereby reducing the damage of free radicals to tissue cells, and prevent It plays a role in treating arteriosclerosis.

Hyperlipidemia and lipoprotein metabolism have an inseparable role in cardiovascular development. Triglyceride (FCH) total cholesterol (TCH) and low-density lipoprotein gradually increase with age. Most scholars believe that perseverance in long-distance running and tai chi, as well as swimming fitness exercises, have a positive effect on preventing blood lipid and lipoprotein metabolism and antioxidant enzymes in the elderly. The effect of fitness

long-distance running on the elderly's red blood cells and serum lipid peroxides. It has been observed that long-term fitness exercises can control the increase of free radicals in the body, increase the activity of red blood cells, and reduce the damage of free radicals to tissue cells. Older people who exercise regularly can prolong the aging symptoms of the elderly and improve their free radical capacity. Appropriate exercise at medium and low intensity can improve the psychological function of the elderly, regulate lipid metabolism and maintain the body's dynamic balance, and improve the body's metabolism and antioxidant capacity. Therefore, long-term moderate exercise has the most delaying effect on the aging of the elderly.

3.1.2 Effects of high-intensity exercise on the immune system function of the elderly

The energy consumed by exercise in a unit of time is called intensity. The percentage of maximum oxygen intake and heart rate energy per minute are commonly used by everyone. When the level of mild exercise reaches a certain level, the body's maximum oxygen intake is 100%, the heart rate reaches 150 times per minute, and the maximum oxygen intake in the body is 70 to 100% 80%, 130 to 150 times is the heart rate that can be reached per minute; the maximum amount of oxygen intake in the body during moderate exercise is 50% to 60%, 110 Up to 130 times is the heart rate that can be reached per minute. The body's maximum oxygen intake is less than 40 percent when the amount of exercise is low, and the heart rate is 80 to 100 times per minute. The greater the intensity of the exercise, the more it is consumed in the body unit. Exercise intensity and exercise duration are the fundamental factors that affect exercise results. Total energy expenditure is determined by exercise intensity and exercise duration. Many researchers believe that low-intensity training or high-intensity training sessions have similar goals for increasing cardiovascular endurance, and the possibility of bone and joint injury gradually increases when the intensity of exercise is greater. . Now the most important thing is that the condition of the elderly is particularly obvious. The older the body, the faster the aging of the body's functions and physical conditions. Therefore, most research areas recommend medium to low intensity and long-term exercise programs. First of all, in determining the intensity of exercise, the most important thing is to consider the individual's physical fitness level, whether or not to use medicines that affect training before exercise training, bone and joint injuries and cardiovascular injuries. There are individual interests and hobbies that affect the function of the immune system, as well as objective goals and high-intensity exercise training. These conditions are likely to cause a series of diseases, and therefore have adverse consequences on the human body. The fitness level of the elderly should be selected according to the exercise load. Because exercise intensity plays a major role in the effect of fitness. The exercise of the elderly mainly improves the physical function and the immune system. Generally, the person who maintains the current status of the body should choose a low intensity. If you want to improve the function of each part of the body, you can choose a little more intensity. To effect. Fitness exercises are mainly for health, to improve physical fitness, to enhance immunity, and to promote cyclic conversion between the body's skeletal

muscles and various functional systems. There are not enough scientific and reasonable fitness methods. Not only is not good for health, but it will also damage the functions of various parts of the body, but the opposite is true. Therefore, under the scientific and reasonable circumstances, sports are most suitable for the elderly.

Suitable exercise methods for the elderly are activities with large muscle groups, regular exercise, and long-term aerobic exercise, such as walking, jogging, tai chi, square dance, qigong, yoga, golf, swimming, etc. This series of exercises are mainly from low to intensity. During exercise, the elderly should appropriately choose many factors that are consistent with the individual's physical fitness level, and their favorite hobbies and objective goals of exercise. In particular, it is necessary to pay attention to preventing the occurrence of insufficient diseases and alleviating the patients Your health is the most fundamental prerequisite for fitness. The breathing cycle of athletes is mainly based on good health, thereby improving breathing cycle function. Aerobic exercise is a shortcut to improve cardiopulmonary function, which is formed by prolonged exercise of large muscle groups.

3.1.3 Effects of different intensity on cardiac function in the elderly

The effects of different intensities on the elderly are also different. Cardiovascular function of the elderly will also be produced to varying degrees after different intensity exercises, thus improving and increasing. In particular, aerobic exercise during jogging can relatively improve the cardiovascular function of the elderly, gradually increase the amount of myocardium, and improve the internal function and blood circulation of the human body. Compared with jogging, the effect of jogging on the function and blood circulation of the elderly is greater. The relative expectation is relatively high, and it is more inclined to jogging. Such adaptive changes are more obvious. Jogging and jogging represent different strengths and also produce different fitness effects. Jogging and jogging can play an effective role. Diastolic blood pressure, which plays a positive role in preventing and preventing heart function and cardiovascular disease. Only the systolic blood pressure decreases during jogging. Jogging mainly reduces the resistance outside the blood vessels around the elderly, improves the elasticity of the blood vessels, and reduces the burden on the heart. The heart can alleviate the phenomenon.

The decline in physical function of the elderly also leads to a decline in exercise volume, which decreases the further decline in function. As the age increases, the cardiopulmonary function of the elderly gradually shows a decreasing trend, showing that the elderly should increase aerobic exercise and exercise should be carried out appropriately to avoid accidents. Elderly people should increase their muscle strength after 70 years of age to avoid rapid decline in muscle strength in the future. Regular physical exercise for the elderly can improve the quality of life, improve the function of various parts of the body, and prevent the body from aging.

3.2 Formulation of exercise intensity for the elderly

The fitness of the elderly is to improve the function of each part of the body, delay the aging of the cardiopulmonary function and the decline of the body. During

the exercise, the intensity ranges from small to large, and gradually increases the load and exercise time appropriately. The movements of the exercise range from simple to complex and gradually increase to difficulty. Therefore, we must develop scientific and reasonable fitness habits, promote the strengthening of the elderly's system, and achieve reasonable fitness. The following is the formulation of the elderly.

(1) To maintain and enhance cardiopulmonary function is the purpose of fitness. Sixty-one to sixty-five-year-old males have standardized exercise intensity between 30% and 60%. FC (2.57 --- 4.19METs 90-- -118 times / minute).

(2) In order to improve the body's strength, softness, balance ability, neuromuscular coordination, and nervous system function, and physical function and exercise ability are the main goals of fitness for the elderly men aged 61 to 65. The intensity ranges from 46% to 60% FC (3.77 --- 4.19METs 105-118 times / minute).

(3) Thirty to forty-five percent FC (2.57-3.85 METs 90-105 times / minute) at this stage can be the effective level of fitness exercise for the elderly of sixty-one to sixty-five.

(4) Various evaluations in this series, from physical function, vascular function, respiratory function, blood lipid and body composition, consider that the most appropriate exercise load for elderly men from 61 to 65 is 30%. To sixty percent FC.

references

- [1] Wang Fubaihui, Tan Yanxiao. Research on the Cohort Differentiation Mechanism of Physical Exercise for the Elderly in China—Based on the Perspective of Individual, Family and Social Network Support [J]. China Sport Science and Technology, 2019.10 (55): 22-31.
- [2] Jiang Yanting. Effects of physical exercise on autonomic nervous regulation and cardiopulmonary function in middle-aged and elderly people[D]. Shanghai Institute of Physical Education, 2019.
- [3] Yang Fan, Pan Yue, Zou Zeyu. Study on physical exercise status and influencing factors of the elderly in China [J]. China Sport Science and Technology, 2019.10 (55): 10-40.
- [4] Dai Jun. Characteristics of physical exercise behaviors of the elderly in China [J]. Chinese Journal of Gerontology, 2017.37 (1): 238-241.
- [5] Ruan Yijie, Li Xiaozhi, Gao Liang. The impact of commonly used indicators of mental health on the subjective evaluation of the health of the elderly [J]. Journal of Xi'an Institute of Physical Education, 2018.6 (35): 742-746.