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Research on the Path of Promoting Health through Elderly Fitness Training under the Healthy China Strategy

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Abstract: China has the largest elderly population and the fastest aging population in the world, and promoting the health of the elderly is an important component of the Healthy China strategy. Physical fitness training can enhance the muscle strength of elderly people, improve health, delay aging, and enhance the self-confidence of the elderly. By method of literature review, interview, and on-site investigation, the needs of elderly fitness training have been analyzed, and a complete implementation plan for elderly fitness training has been systematically designed from six closely connected links: questionnaire survey, health check, exercise ability evaluation, formulation of fitness training plan, implementation of fitness training plan, and evaluation of training effectiveness.

1. Introduction

At present, China has the largest elderly population in the world and is also the country with the fastest pace of population aging development. The population of elderly people aged 60 and above in China has reached 264 million, and the number of elderly people suffering from chronic diseases has exceeded 190 million. Data shows that in 2019, chronic diseases caused 88.5% of deaths in China. Therefore, chronic diseases are the main cause of death in the elderly. At present, the disease burden caused by chronic diseases accounts for 70% of the total disease burden in China, posing great challenges to economic and social development and the implementation of the Healthy China strategy. Therefore, promoting the development of elderly human health and preventing chronic diseases through reasonable intervention measures has a huge promoting effect on the construction of a healthy China.

2. Concept Definition

Physical fitness refers to a person's physical health level, brain functional state, and basic human activity abilities. It is the basic motor ability of the human body manifested through qualities such as strength, speed, endurance, coordination, flexibility, and agility [1].

Physical fitness training refers to the process of purposeful transformation of body structure and function in order to improve physical exercise ability [2]. Physical training includes general physical training and specialized physical training. General fitness training can comprehensively develop the

body's physical qualities such as strength, endurance, speed, agility, coordination, and flexibility, improve the functions of various organ systems, achieve balanced development of the body, and improve health level. The purpose of specialized fitness training is to serve directly the improvement of athletic performance by athletes' acquired physical fitness [3]. The research on elderly fitness training in this article mainly focuses on general fitness training.

Unlike general physical exercise, fitness training is more systematic, comprehensive, and targeted. It is a comprehensive, balanced, and planned way to improve physical deficiencies and enhance physical health, rather than simply one or two sports activities. These sports activities were just based on the hobbies, such as walking, kicking shuttlecock, etc. Before physical training, it is necessary to assess health status and exercise ability. Then, the elders need the exercise prescriptions and the targeted training drawn up by the professional personnel. Their physical training shoud be under the supervision and guidance of professional personnel to achieve the goal of enhancing physical fitness and improving health. Fitness training can enhance the muscle strength and endurance of elderly people, improve flexibility and balance, effectively enhance body resistance, make the body stronger, improve health, and delay aging. The optimization of body shape also enhances the confidence of the elderly.

3. Research Status

The earliest research on "physical fitness training" found on Zhiwang was published by Zhang Jichi in 1987 in the sports science and technology journal "Physical Fitness and fitness training"[4]. The article explained the importance of fitness training and introduced three methods of fitness training. Since then, fitness training has gradually attracted people's attention. In 2007, the number of articles published increased sharply, reaching 305, making an indelible contribution to the number of gold medals in China's 2008 Beijing Olympics. The proposal of the "Healthy China 2030" Plan Outline in 2016 has made research on the theoretical content and practical methods of "physical fitness training" a hot topic, and the research direction has gradually expanded from competitive sports to fields such as national health, school sports, elderly rehabilitation, firefighting, police, military physical fitness, etc. As of January 2023, there are 15994 articles on "physical fitness training" on CNKI, but only 18 articles on "elderly fitness training". Some studies are on rehabilitation training, such as Feng Qingbao's "Research on the Effect of Body Function Training on Balance Ability in Adults with Level 3 Intellectual Disability" [5], etc.; some studies are on principles related to fitness training for the elderly, such as Zhao Jiawei's "Physical Fitness Training for Women and the Elderly" [6]. However, there is little research on the needs and implementation plans for elderly fitness training.

4. Elderly fitness training Needs

4.1 Physiological and Psychological Needs

In terms of physiology, the human body undergoes a series of degenerative changes with age, such as decreased cardiovascular function, weakened digestive system function, decreased muscle elasticity and contraction force, increased bone fragility, susceptibility to fractures, delayed movement, decreased reaction flexibility, decreased focus, and memory decline. The most obvious is the decline in balance and muscle strength of the elderly, which hinders their normal life and even endangers their own safety [7]. So, physical training is needed to delay aging.

In terms of psychology, elderly people do not want to become a burden on their families due to their aging and declining ability to live, let alone lose their dignity as a result. Moreover, the old are most afraid of loneliness and need companionship. They need to find something they can do, share it

with others, and provide spiritual support.

Therefore, their needs for fitness training also vary. Based on the assessment of health status and athletic ability, a training plan is determined, with stricter and more targeted requirements for intensity. The training plan is more precise, specific, and detailed to ensure its safety and effectiveness. Generally, low-intensity projects are chosen, and the selection of intensity and exercise volume is determined based on the consumption level of each system and the required recovery time. Fitness training programs should include training that enhances cardiovascular function, muscle strength, flexibility, and focus. Elderly people have a long leisure time and are most suitable for long-term low-intensity sports, while also taking into account small muscle groups and flexibility training. At the same time, having sufficient leisure time also provides them with the possibility of training together. Therefore, some projects that can be trained simultaneously can be arranged to meet their psychological needs for mutual communication and companionship.

4.2 Requirements for Venue Equipment

In terms of venue and equipment selection, considering factors such as the physiological characteristics of the elderly, decreased learning ability, and prioritizing safety, priority should be given to projects no equipment, small equipment, and easily operated equipment. We should pay attention to the suitability of venue equipment, choose a quiet, level, and safe venue, and try to stay away from venues with high sports intensity, noise, and high personnel flow.

4.3 The Needs of Coaches and Guardians

Due to the decline in physical fitness, decline in the nervous system, slow response, difficulty concentrating, and high risk of individual fitness training in the elderly, professional guidance and supervision are required during training. Especially for rehabilitation physical training, it requires not only physical guidance but also medical supervision.

5. Implementation Plan for Elderly fitness training

The process of fitness training includes six closely linked links: questionnaire survey, health status test, exercise ability evaluation, formulation of fitness training plan, implementation of fitness training plan, and evaluation of training effect.

5.1 Questionnaire Survey

The content of the questionnaire survey includes family medical history, health status, living environment, willingness, hobbies, exercise history, etc. A questionnaire survey is the basis for formulating a fitness-training plan. By understanding family medical history and health status, targeted training content can be designed and safety hazards can be effectively avoided; According to living environment, willingness, hobbies, and sports history, the best training program can be selected and appropriate training intensity can be arranged.

5.2 Health Check

A health check can timely understand the physical and mental health development status of the elderly, such as heart and lung function, blood lipids, blood sugar, blood pressure, etc. It can confirm if extreme diseases that cannot participate in exercise exist, in order to evaluate objectively hidden diseases, avoid the occurrence of sudden diseases during exercise, and determine the fitness training

items, exercise volume, and exercise time of the elderly in a targeted manner.

5.3 Evaluation of Sports Ability

Sports ability can be evaluated through functional action screening. Functional motor screening is a simple and quantitative method for assessing basic motor ability. It tests the stability of the subjects' movements, joint flexibility, relative symmetry of the left and right sides, pain or dysfunction, and functional compensation during seven movements. They are deep squat test, hurdle stand, front and back split squat, shoulder joint flexibility, straight leg lift, trunk stable push-ups, and rotational stability, in order to estimate the risk of sports injury for the subjects. At the same time, directional guidance or physical exercise function training of the subjects is provided for the rehabilitation treatment [8].

5.4 Development of fitness training Plan

The physical training plan plays a crucial role in the entire physical training process. It is formulated strictly according to the basic principles of sports medicine, clinical medicine, rehabilitation medicine, sports training, and other disciplines, based on the age, gender, health status, and athletic ability of participants. It specifies the training items and methods that need to be avoided, which is not only scientific and efficient, but also highly targeted and safe [9]. The training plan follows the principles of gradual progress, ease to difficulty, and principles of training and recovery, ensuring safe and effective training. Professionals, including setting stage and long-term goals, selecting appropriate sports, exercise intensity, exercise frequency, duration, clear precautions, and minor adjustments, must formulate the training plan. Based on the characteristics of elderly people's susceptibility to diseases and epidemics, targeted training is conducted to improve participants' resistance to diseases and prevent their occurrence.

5.4.1 Establishment Stage and Long-term Goals

The fundamental purpose of fitness training for the elderly is to provide a certain amount of load stimulation to the human body through scientific and orderly physical activities, resulting in adaptive changes in the body, enhancing physical fitness, improving body adaptability, delaying aging, and preventing and treating diseases. The determination of the goals for each stage should be based on the participants' health status and athletic ability. For example, if muscle strength is poor or unbalanced, the stage goals is to increase muscle strength and adjust balance; If the cardiopulmonary function is poor, the stage goal is to increase cardiopulmonary function, and so on. The goals of each stage are not independent but interrelated, complementary, and mutually reinforcing. When setting goals, age stratification, health level stratification, exercise ability stratification, exercise level stratification, and interest and hobby stratification should be considered.

5.4.2 Selection of Training Programs

The content suitable for elderly fitness training includes limb strength, core strength, cardiopulmonary function, sensitivity, flexibility, and recovery of fitness training.

Trainers can choose training programs based on their personal training goals, interests, and hobbies. The project should be simple, practical, and safe. Based on the participants' fitness training goals, interests, health status, athletic ability, level of exercise, as well as the conditions of the venue and equipment, whether professional guidance or even companionship is needed to choose. Combination of the multiple types of training can ensure a comprehensive and balanced development of muscle strength. During exercise, intensity training can also be appropriately increased to enhance

cardiovascular function, which not only increases physical fitness but also avoids monotony and fatigue during training. Here we recommend barehanded exercises, which are both safe and effective, and are very suitable for physical training for the elderly.

5.4.3 Control Exercise Intensity, Frequency, and Duration

The intensity of exercise is usually controlled by the heart rate during exercise. For the elderly, the appropriate aerobic exercise heart rate is approximately 170 minus age. During implementation, it should be flexibly applied according to the specific conditions of participants' health status, environment, season, mood, etc. to ensure safety and training effectiveness. During cardiopulmonary function training, as the intensity reaches the bull's-eye rate, the exercise should last for at least 15 minutes. Due to the low training intensity of the elderly, it is recommended that the training time for each exercise should be between 30 and 90 minutes. The selection of exercise duration needs to be combined with exercise intensity. When the exercise intensity is low, the exercise time should be correspondingly increased to achieve the expected training effect. Train no less than 3 times a week. If the training time is short, stick to a certain amount of training every day for the best results.

During muscle strength training for the elderly, the maximum intensity should not exceed 85% of 1RM. Research has found that 65% -75% of 1RM can also achieve good training results. Therefore, when elderly people start strength training, they can start with a 1RM of 60% -65%. If you are very weak, you can start with a 1RM of 15-25%. The duration of each training session should be controlled between 20-40 minutes, which means that each training session should not be shorter than 20 minutes but not exceed 40 minutes, with an average of 30 minutes per session. It is generally recommended to practice between 2-4 times, with each large muscle group practicing at least 2 times a week and no more than 4 times at most. Strength training can be combined with aerobic training to enhance training effectiveness.

5.4.4 Clear Precautions

Precautions are an essential part of a physical fitness-training plan. The physiological function of the elderly is weakened, and many elderly people suffer from chronic diseases. Therefore, it is necessary to clearly indicate contraindicated sports in the training plan,propose indicators for self-observation during exercise and indications for stopping exercise. For example, if heart disease patients experience dizziness, shortness of breath, chest tightness, etc. during rehabilitation exercise, they should immediately stop exercising. Preparation and relaxation activities must be required. The coordination between exercise therapy and other clinical treatments must be clarified [10]. When the elderly suffer from multiple chronic diseases or conditions and may be taking medication with potential adverse effects, it is important to first understand whether strength training will have negative effects.

5.5 Implementation of fitness training Plan

The implementation process of the fitness-training plan includes the preparation part (warm-up and stretching), formal training, and organizing and relaxing. The preparation part must be fully done, and formal training should be strictly carried out according to the planned training items, intensity, and duration to ensure the training effect. By organizing parts, the body can recover safely and gradually from a state of exercise to a state of daily life. Recovery measures after physical training: stretching exercise, passive rest, exercise nutrition, massage and relaxation, etc.

In order to ensure the safety and effectiveness of physical training, attention should be paid to medical supervision and physical testing of the elderly participating in the training at different stages during the implementation process.

Medical supervision requires close cooperation between clinical doctors and sports guidance professionals, monitoring load and intensity, keeping training records, objectively evaluating physical fitness in a timely manner, monitoring the recovery of fatigue after exercise, adjusting training plans in a timely manner to avoid excessive fatigue and potential diseases, and conducting regular physical health tests.

Training logs are a positive and effective way for the elderly to self-monitor. The trainer may learn to observe and record heart rate (including morning pulse, immediate heart rate changes during exercise, and recovery). It is necessary to enhance awareness and awareness of correct physical training. Self-monitoring of one's own fitness status can also prevent the physical training problem of excessive fatigue in the elderly [11].

5.6 Evaluation of Training Effectiveness

The evaluation of phased physical training effectiveness is the key to ensuring the scientific implementation of physical training. It helps to provide timely feedback, correct errors, and adjust training plans or focus in a timely manner. For example, if muscle strength increase to the expected value, flexibility or training for cardiopulmonary function can expand on the premise of maintaining muscle strength. Training effectiveness evaluation can also enable participants to see their progress in a timely manner and further stimulate their enthusiasm for training. The evaluation method includes writing a training diary, quantifying training results, comparing before and after training, and clarifying the degree of goal achievement.

6. Suggestions

(1) Knowledge related to fitness training for the elderly should be popularized. We should raise awareness among the elderly, their families, and society about fitness training for the elderly, and cultivate their awareness of active fitness training.

(2) It should be advocated for caring for the elderly fitness training at the family and social levels. We should provide better conditions, encourage, support, and accompany them as much as possible.

(3) Government departments should hire sports instructors and management personnel for elderly fitness training, recruit, organize, and allocate volunteers with professional skills, establish an online platform, provide convenience for online dating coaches, and improve the supervision, management, and evaluation system. Human support should be provided for scientific and effective physical training for the elderly.

(4) The requirements of the "Several Opinions on Accelerating the Development of the Sports Industry to Promote Sports Consumption" 15-minute fitness circle should be implemented. We can build convenient small and medium-sized sports venues, public fitness activity centers, outdoor multi-functional courts, fitness trails and other facilities. Communities can revitalize existing resources and renovate old factories, warehouses, and commercial facilities for sports and fitness purposes. [12].The sufficient venue and equipment resources can be provided for elderly fitness training.

(5) The government absorbs social forces and resources, encourages physical training institutions to open up to the elderly, and implements preferential policies for the elderly. We must standardize operational management to ensure the health and safety of the elderly.

References

[1] Li Honggui. (2022)Research Hotspots and Content Analysis of Fitness Training in China. Athletics, 11, 33-35.
[2] Zhou Aiguo, (2016) Theory and Methodsof Fitness Training. Beijing: Beijing Sport University Press, 4.
[3] Tian Maijiu, Liu Daqing. (2012) Sports Trainin. Beijing: People's Sports Publishing House, 78.
[4] Zhang Jichi. (1987) Physical Fitness and Physical Training. Sports Science and Technology, 01, 22-25.

[5] Feng Qingbao. (2020) A Study on the Effect of Physical Function Training on the Balance Ability of Adults with Level 3 Intellectual Disabilities . Beijing Sport University.
[6] Zhao Jiawei. (2021) Fitness Training for Women and the Elderly. Science and Technology Information, 5, 230-232.
[7] Li Shifen. (2012) Research on the Implementation and Impact of Exercise Function Training Methods for the Elderly. Beijing Sport University.
[8] Huang Shaoxing. (2022) Functional Action Screening (FMS) [EB/OL]. Zhihu, May 17.
[9] Deng Shuxun, Wang Jian, Qiao Decai, et al. (2014) Exercise Physiology . Beijing: Higher Education Press, 301-302.
[10] Deng Shuxun, Wang Jian, Qiao Decai, et al. (2014) Exercise Physiology. Beijing: Higher Education Press., 252
[11] Zhao Jiawei. (2021) Fitness Training for Women and the Elderly. Science and Technology Information, 5, 230-232.
[12] State Council. (2014) Several Opinions of the State Council on Accelerating the Development of the Sports Industry and Promoting Sports Consumption. People's Government of the People's Republic of China, 2014-1-20.