

Physical fitness training methods and reasonable nutrition for promoting health and sports performance

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Abstract: With the improvement of living standards and the advancement of social civilization, the requirements for physical fitness are also increasing. How to improve the physical condition of the people from the aspects of exercise and nutrition is a worthy issue of attention. Health refers to a good state of physical, psychological, and social well-being. It is determined by multiple factors and can be ensured through health management theoretically. In today's society, health management has received increasing attention. This study will start with the basic relationship between exercise, nutrition, and health, explore the public's current understanding of exercise and nutrition, investigate the limitations of exercise and nutrition management with them as the core, and propose practical management strategies for exercise and nutrition behaviors from their perspectives. This will provide a theoretical basis for health management work in our country.

1. Introduction

Health management is the comprehensive management of health risk factors for individuals or populations. Its purpose is to fully utilize the roles of individuals and communities, and maximize the health benefits of limited resources. From a general perspective, proactive management of exercise and nutrition is an important guarantee for maintaining good health. With the increasing proportion of sub-healthy population, it is also worth paying attention to improving the health level of residents through exercise and nutrition management. Therefore, studying the relationship between exercise, nutrition, and health, and exploring how to use exercise and nutrition to improve physical fitness is a meaningful task.

2. The basic relationship between exercise, nutrition, and health

Exercise and nutrition play a crucial role in maintaining physical health and enhancing physical performance. They not only promote bodily health but also facilitate nutrient absorption. Additionally, they serve as the material foundation for maintaining physical health and engaging in continuous physical activity. The human body consists of approximately 600 trillion cells, with about 1/100 being replaced each day, indicating that our bodies are constantly changing. In other words, the human body is composed of chemical substances, and many substances that promote

bodily functioning are the result of chemical compositions. Without a doubt, all of these substances are derived from food. Therefore, to ensure the full development of the body's structure and the optimal functioning of physiological processes, it is essential to provide sufficient and proportionately balanced nutrients through diet [1].

The relationship between exercise and health is one of means and ends. The famous motto "life is movement" was once stated by the French philosopher Voltaire, and since then, the benefits of exercise for life and health have become a hot topic. Hippocrates, the ancient Greek physician known as the "Father of Medicine," said that sunlight, air, water, and exercise are the sources of life. This highlights the importance of exercise for human physical health, just like air, sunlight, and water. Regular physical activity combined with appropriate nutrition is the primary guarantee of physical health. Approximately 10%-15% of a person's health depends on healthcare, 15%-20% on genetic factors, 20%-25% on environmental dependencies, and the remaining 50%-55% on lifestyle habits and the environment. Therefore, if we want to exercise, we should emphasize the importance of "scientific exercise for life." Engaging in exercise that is not scientifically sound can have adverse effects on the body.

2.1. Exercise and nutrition can improve the level of physical health

Exercise and nutrition management are fundamental to improving physical fitness. Exercise can increase metabolism, promote cell proliferation and differentiation, and accelerate blood circulation, thereby maintaining and improving physical health. However, the effects of nutrition management may vary among individuals. For example, athletes need to consume high-quality protein, while overweight individuals need to control their intake of carbohydrates, starch products, and fats. The goals of these two nutrition management approaches are different, but both can lead to muscle gain and fat loss, thereby ensuring overall body health [2].

2.2. The reciprocal relationship between health and exercise and nutrition

Exercise and nutrition management can both ensure good physical health, and a healthy body can, in turn, affect exercise and nutrition management. This is a dialectical relationship between the two. Modern medicine and traditional Chinese medicine both have the theory of "if deficient, cannot be supplemented," which emphasizes suboptimal health (referred to as "deficiency syndrome" in traditional Chinese medicine). This refers to the body's lower ability to absorb nutrients, decreased muscle strength, coordination, and cardiopulmonary function, which make it unable to withstand high-intensity or even moderate-intensity exercise. If a person's gastrointestinal function is poor or their overall health is compromised, it will be challenging for them to fully absorb the nutrients they consume. Similarly, individuals with poor cardiopulmonary function may experience fatigue and excessive sweating even with slightly intense physical activity. On the other hand, when a person is in good physical condition, they store high-density lipoprotein in their body, which allows for better absorption and utilization of energy. As a result, their exercise capacity also improves.

3. Current societal perceptions of the relationship between exercise and nutrition and health

3.1. Basic cognitive dynamics

Translation: The current society's awareness of the relationship between exercise, nutrition, and health is constantly improving and evolving. People are gradually realizing the importance of exercise and proper nutrition for maintaining physical health and improving the quality of life. Exercise is seen as an effective way of managing health, as it can increase metabolism, improve

cardiovascular function, enhance muscle strength and flexibility, reduce the risk of chronic diseases, and promote mental well-being. Furthermore, people are also paying increasing attention to the impact of nutrition on health. They recognize that proper nutrient intake can provide the body with the energy and nutrients it needs to maintain normal bodily functions and prevent the occurrence of chronic diseases. People are starting to focus on balanced diets, increasing the intake of healthy foods such as vegetables, fruits, whole grains, while reducing the consumption of high-sugar, high-fat, and processed foods. Additionally, certain groups of people are also paying attention to special dietary requirements, such as vegetarianism, gluten-free, or low-salt diets. The improvement of health awareness is accompanied by a positive trend in society. People are more inclined to actively participate in physical activities, join fitness classes, sports clubs, or engage in outdoor activities. Furthermore, the popularity of social media has made the dissemination of health information more convenient, allowing people to easily access knowledge and advice related to exercise, nutrition, and health. Overall, the current society's awareness of the relationship between exercise, nutrition, and health is gradually increasing. People are becoming more aware of the importance of actively participating in exercise and maintaining a proper nutritional intake to promote health and improve the quality of life [3].

3.2. Practice

According to information published on the China Science Popularization website, while many people are aware of the positive effects of exercise and nutrition management on the body, their adherence to these practices is not very good. Only 10% to 15% of people are able to consistently engage in exercise, with a majority of this group being young and elderly individuals. The exercise habits of minors and middle-aged adults are not ideal. In terms of nutrition management, only 8% to 15% of people are able to properly implement it. Restricting the consumption of high-calorie foods and carbonated drinks is limited or not allowed. The majority of this group are elderly individuals who are often plagued by the risk of chronic diseases. Therefore, they are more proactive in managing their nutrition. However, other age groups do not prioritize this issue and are unable to implement proper nutrition management. Information published by the Psychological Popularization Committee of the Chinese Psychological Association shows that when considering mental health factors, the proportion of people who are able to self-regulate and alleviate negative emotions through methods such as exercise and nutrition management reaches 15%. The analysis suggests that this is due to the readily available methods for mental health regulation, and exercise and nutrition regulation are methods that are easy to grasp, making them widely applicable.

4. Limitations of exercise and nutrition management based on health goals

4.1. Poor exercise and nutrition related habits

Currently, the exercise and nutrition habits of our country's residents are unsatisfactory, primarily manifesting in two different lifestyles: mismatched exercise and nutrition habits, and a relative lack of both. The former is more common, as individuals often only prioritize either exercise or nutrition management, making it difficult to maintain both healthy habits simultaneously. A typical example is consuming excessive high-calorie foods after exercise, or overeating without enough physical activity [4]. Many urban residents enjoy exercising in parks, sports facilities, and other venues during their leisure time or holidays. However, due to a lack of strict dietary management, the effectiveness of exercise is greatly reduced, and it may even cause harm to the body. The phenomenon of a relative lack of both habits is also widespread, where individuals lack the ability to effectively manage exercise or have the willingness to control their diet and nutrient

intake. This issue is particularly common among adolescents and young adults who face high levels of work or study pressure, have limited time for exercise, and a lower motivation for physical activity. Without good nutrition management habits, they are more susceptible to suboptimal health conditions.

4.2. Lack of scientific exercise plans

Unreasonable design of exercise programs directly limits their positive effects, which has adverse effects on individuals' physical and mental health. Physiologically speaking, different levels and types of training have different fitness effects. For example, endurance training is mainly aimed at improving cardiovascular function and promoting metabolism. A recommended training plan would involve 3-5 sets of exercises (each set to exhaustion). However, if the goal is weight loss and improving muscle quality, it is advised to perform at least 15 repetitions or more. Currently, many individuals have the intention to exercise regularly, but their exercise plans are not scientifically designed and cannot effectively serve their health management needs. Some young adults tend to have low exercise intensity, focusing mainly on walking or strolling. While this can produce some effects, it is limited. On the other hand, some individuals may engage in excessive exercise, leading to rhabdomyolysis. None of these situations effectively utilize exercise management to maintain and improve physical health.

4.3. Partial understanding of nutrition

From a health perspective, nutrition management differs significantly from exercise management. Many people believe that through nutrition management, they can prevent potential risks of chronic diseases and organ disorders. However, due to a lack of corresponding theoretical knowledge, they are unable to develop scientifically and reasonable nutrition and dietary supplementation plans according to their own health goals. As a result, the positive impact on the body is also limited. For example, some people believe that simply reducing nutrient intake and overall food intake can control fat accumulation [5]. However, this approach leads to insufficient protein intake, which fails to meet the body's nutritional needs. On the contrary, it can cause gastrointestinal diseases and other health problems. Additionally, it can also reduce the body's ability to regulate blood sugar, thereby increasing the risk of developing type 2 diabetes. There are also individuals who, in order to reduce the incidence of cardiovascular diseases, only consume vegetables and fruits while avoiding staple foods and meat. However, this can result in a nutrient imbalance and accelerate the depletion of high-density lipoprotein in the body, posing a hidden risk to health and increasing the risk of chronic conditions such as hyperlipidemia [6].

4.4. Lack of implementation ability in exercise and nutrition knowledge

The positive effects of exercise and nutrition management on health have been widely recognized by the public. However, when it comes to practical implementation, many people fail to adhere to their understanding and often give up halfway. There are two main reasons for this issue: lack of urgency in health management needs and less-than-ideal environments. Regarding the problem of the lack of exercise ability among young and middle-aged individuals mentioned above, most of them are in good physical condition without chronic or other diseases caused by suboptimal health. Therefore, their need for health management is relatively low. When facing high work, study, and life pressures, they naturally relax their requirements for exercise and nutrition management. On the other hand, due to the high level of urbanization and limited urban land availability, a significant portion of urban land is primarily used for commercial purposes, leaving limited space

for "movable" purposes. As of the end of 2022, the average per capita sports field area in China is 2.6 square meters, with an average of 0.9 per person, significantly lagging behind developed countries. This indicates that the sports environment in China has not provided sufficient support for the implementation of nationwide fitness, and it has also hindered the achievement of national fitness plans and goals [7].

5. Recommendations for exercise and nutrition management based on health goals

5.1. Pay attention to rational nutrition and balanced diet in daily life

5.1.1. Comprehensively develop nutrition-related knowledge

In order to ensure the effectiveness of health management, citizens should also improve their nutrition awareness. This can be achieved through communication and consultation with sectors such as education, civil affairs, and sports to develop nutrition dietary guidelines and supplementation plans that meet the local residents' health management needs. Citizens should be guided to use these guidelines and plans according to their own circumstances, ultimately forming a nutrition management concept that is oriented towards health management goals. In practical implementation, specific programs can be set up on television, community channels, and other platforms to convey and explain nutrition knowledge clearly. Firstly, a general solution can be proposed to meet the needs of all employees. For example, providing basic knowledge on the appropriate combinations of vegetables, fruits, and meats, as well as cooking methods to ensure minimal loss of nutrients, thereby establishing a fundamental understanding of nutrition management among the public. More detailed information can then be incorporated into promotional activities, such as scientific intake of nutritional supplements for physical fitness, nutritional requirements for teenagers, and dietary plans for the elderly, providing specialized knowledge for specific groups [8]. Finally, for disease prevention and management of chronic conditions, in-depth nutritional planning can be developed, including nutrition management for diabetes patients, hypertension management, and more, providing nutritional guidance for various population groups and promoting the improvement of the overall health level of the population.

5.1.2. Balanced nutrition requires a balanced diet

Food is an essential material basis for human survival. Food contains a variety of nutrients, different foods contain different types and amounts of nutrients, different groups of people (age, gender, labor intensity, physiology, pathology) on the nutritional needs are not the same, so the composition of the diet to meet the needs of different groups of people, the food should be as much as possible, and to a certain amount, to achieve "reasonable dietary structure, nutritionally balanced". The diet should be composed of as many foods as possible and in a certain amount to achieve "reasonable dietary structure and balanced nutrition".

5.1.3. Nutritional specialties should be paid attention to at certain special stages

During certain stages, it is important to pay attention to the specificity of nutrition. Adjusting the dietary structure to achieve balanced nutrition for the entire population, the Shanghai Nutrition Association proposed the "16-character guideline" in 1995 based on preliminary research and data analysis. This guideline emphasizes "stable staple food, ensuring vegetables, increasing dairy products, and adjusting meat consumption." It is also important to supplement nutrients appropriately and reasonably address deficiencies. In practice, achieving a balanced diet with balanced nutrition can be difficult, whether due to the source of food or cooking and processing

conditions. Therefore, to ensure balanced nutrition or in some special circumstances, dietary supplements such as calcium supplements and vitamins can be used. However, when using these supplements, it is important to be selective, supplement according to individual needs, or follow medical advice, instead of being misled by advertisements [9].

5.2. Choose appropriate forms of exercise and stick to them

5.2.1. Cultivating positive exercise and nutrition habits

Based on health goals, the management of exercise and nutrition should first focus on developing healthy habits. In principle, it is recommended to take two measures: first, emphasize the combination of exercise and nutrition habits, and second, increase publicity efforts to create a good habit atmosphere and raise public awareness. The combination of exercise and nutrition varies due to individual differences, while the common focus is on appropriate exercise and balanced nutrient intake. At the same time, it should be refined according to individual differences and the objectives of health management. For example, for the elderly, it is not advisable to engage in excessive exercise. After meals, they can do 30-45 minutes of walking. In terms of nutrient intake, it's important to pay attention to light and high-quality foods. Consuming more high-quality animal proteins such as vegetables, coarse grains, beef, and seafood rich in dietary fiber is recommended. Strengthening publicity should focus on comprehensiveness, with the fundamental goal of providing equal assistance to everyone. In terms of content, the focus should mainly be on the principles, specific methods, and precautions of exercise and nutrition management. Various channels can be used to enhance the coverage of promotional management, including traditional print media, television media, as well as various self-media, streaming media, and online media. Different media can have similar approaches and content in their promotion methods, but adjustments should be made according to different target audiences. For example, self-media primarily targets young people and should focus on content with strong appeal, while television and newspapers target the elderly and should focus on concise content. Based on this foundation, through the interaction of various media, a social atmosphere of exercise and nutrition management oriented towards health goals can be constructed, providing guidance and services for residents' health management [10].

5.2.2. Develop a scientific exercise program

Scientific exercise can have positive effects, allowing people to maintain health and improve their fitness level. In the future, it is important to consider both the differences among population groups and individual differences, choose suitable exercise activities, and develop a scientific exercise plan to promote health. Taking daily exercise activities as an example, residents can be divided into four categories: infancy, adolescence, adulthood, and old age. For infants, there is no need to restrict their activities, and they should engage in appropriate activities every day. Nationwide, activities can be carried out in schools under the guidance of the "Guide to the Growth of Chinese Children and Adolescents". The exercise plan for adults needs to be further refined to promote metabolism, maintain body coordination, and enhance muscle strength. Additionally, adults can engage in aerobic exercises for at least 30 minutes every day, such as brisk walking, jogging, or participate in activities like badminton, shuttlecock, basketball for 45 to 60 minutes. When feeling tired, it is advisable to take appropriate rest and resume exercise after recovery. It is best for older adults to avoid intense aerobic exercises and instead opt for activities like walking, brisk walking, and tai chi. It is sufficient to engage in 30 to 45 minutes of exercise every day.

5.2.3. Choosing the right sport

In ancient times, people believed in "following the natural rhythms" in their activities, and the same goes for exercise. Different seasons, weather conditions, and even different times of the day require choosing appropriate forms of exercise. Spring and autumn are the preferable seasons for exercise, where one can choose different activities based on personal preferences. However, spring is the season of blooming flowers, which means there is a high pollen count in the air. Individuals with allergies or illnesses should make preparations to combat allergies or avoid participating in outdoor activities as much as possible. In summer, due to the hot weather, it is best to avoid intense activities like running or jumping to prevent heatstroke or dehydration. In winter, there is a significant temperature difference between indoor and outdoor environments, so prolonged outdoor activities should be avoided. Indoor activities like running on a treadmill or cycling are safer options that won't compromise the effectiveness of the exercise. During winter, it is advisable not to engage in outdoor activities too early in the morning when temperatures are low, and proper warm clothing should be worn. People who enjoy morning exercises don't necessarily have to "rise with the rooster" but can follow the saying, "Start at sunrise and stop at eight in the morning."

5.2.4. Choosing exercise methods that suit personal characteristics

Nowadays, many people have become aware of the importance of exercise and have started actively participating in it. However, exercise should be tailored to individuals, just like how doctors prescribe different medications for different patients. Additionally, the choice of exercise programs for middle-aged and elderly individuals may vary because each person has different preferences and characteristics when it comes to exercise. People over the age of 60 are considered elderly, and using the same exercise program with the same intensity for both middle-aged and 60-90-year-olds would clearly not be suitable. Furthermore, there are differences between men and women. Generally, men tend to have better physical fitness than women, so their exercise intensity can be relatively higher. Additionally, individuals have different health conditions. The physical conditions of elderly individuals can vary greatly, and even people of the same age can have different physical conditions. Therefore, when it comes to exercise programs, training methods, and exercise intensity, it should not be a one-size-fits-all approach. Another factor to consider is the nature of one's occupation. Individuals engaged in mental work should participate in more exercise compared to those engaged in physical labor. Physical laborers, due to the nature of their work, may have an uneven development in different parts of their body and should engage in targeted exercises. In summary, there are various exercise methods, and people have different tolerance levels. Exercise should be tailored to individual characteristics [11].

6. Conclusion

In conclusion, there is a dialectical relationship between exercise, nutrition, and health. Proper exercise and management are the guarantee of physical health, while good physical fitness promotes improved exercise capacity and the absorption and utilization of nutrients. Currently, our understanding of these aspects is not comprehensive enough, and there are shortcomings in practice, such as poor exercise and nutritional habits, lack of scientific exercise plans, one-sided understanding of nutrition, and insufficient implementation ability. Therefore, this study advocates cultivating positive habits of exercise and nutrition, developing scientific exercise plans, comprehensively acquiring nutrition-related knowledge, and strengthening practice based on correct cognition. This is to ensure individual health and achieve reasonable management of exercise and nutrition.

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