Influence Of Healthy Diet on Different Age Groups

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Abstract. As the human life cycle progresses, the nutritional needs of different growth stages, from adolescence to old age, which is crucial for individual growth and development, health maintenance and disease prevention. In recent years, the field of nutrition science research has explored the unique nutritional needs of each age group and their impact on health, revealing the positive role of appropriate nutrient intake in promoting growth and development, maintaining physiological functions and delaying aging. However, despite certain progress, there is still a large research gap on how to accurately match personalized nutrition plans at different growth stages, especially nutritional intervention strategies for specific health problems. This article systematically analyzes the characteristics of human nutritional needs at different growth stages and proposes corresponding dietary recommendations based on current scientific evidence. This study provides an understanding of the nutritional needs of the human body throughout the life cycle, a reference for public health policy formulation, personalized nutritional intervention program design and health education practice. However, the individual differences in nutritional needs and the complexity of environmental factors are still directions that need to be explored in future research, especially in terms of gene-nutrient interactions and long-term effect evaluation of nutritional intervention. Future research should further refine nutritional strategies and combine scientific and technological progress to achieve precision nutrition, so as to comprehensively improve the health level of people of all ages.

Keywords: Different growth stages; scientific evidence; nutritional; life cycle.

1. Introduction

With the improvement of living standards and the enhancement of health awareness, people are paying more and more attention to how to maintain health through scientific diets. Due to changes in physiology, metabolism and activity level, the human body's demand for nutrients also shows significant differences at different growth stages. Therefore, understanding and meeting the nutritional needs of each stage is of great significance for promoting growth and development, strengthening physical fitness and preventing diseases. Macronutrient and micronutrient levels are important components of a healthy diet. The appropriate balance between protein, carbohydrates, fat, vitamins, and minerals ensures that all nutritional needs of the body are met [1].

In the current study, a detailed description of the three stages of human adolescence, adulthood and old age was given. The link between food and health is the focus of nutrition, and concepts connected to food and health can be considered to be part of nutrition knowledge [2]. Healthy diet is the basis for maintaining human health and preventing diseases. A reasonable diet structure can ensure that the body obtains sufficient nutrients, supports normal physiological functions, and improves the body's resistance. Therefore, it is crucial for people of all ages to cultivate healthy eating habits and achieve balanced nutritional intake. In recent years, with the deepening of nutrition and medical research, the impact of dietary patterns on human health has received increasing attention. A variety of dietary patterns have been proposed and studied, such as the Mediterranean diet (MD), DASH diet, vegetarianism, etc. These dietary patterns have their own characteristics in terms of nutrient ratios and food type selection, but the common point is that they all emphasize balanced diet, diversified intake and moderate control. In particular, research on dietary patterns for specific populations (such as the elderly, patients with chronic diseases, etc.) has made significant progress. According to the literature, Japanese urban residents aged 60-69 have the highest vegetable consumption [3]. For example, a study on the "Healthy Japanese Dietary Pattern" for the elderly

showed that the pattern is defined by a high consumption of fruits, vegetables, fish, and soy products which helps to delay the biological aging process. This discovery provides more scientific and reasonable dietary guidance for the elderly.

The purpose of this study is to comprehensively analyze the nutritional needs of human body at different growth and development stages, put forward healthy diet suggestions that meet the characteristics of each stage, explore the importance of healthy diet and the method of establishing a good dietary model, and provide scientific and practical health guidance for the public. This article will analyze the nutritional needs of the human body at various stages of growth and development, and put forward dietary suggestions for the following populations: in adolescence, the demand for protein, calcium, iron, vitamin D and other nutrients is significantly increased at the peak of growth and development; Adults must maintain a balanced nutritional intake to support the needs of daily work and life; Older people have a decreased ability to absorb and utilize nutrients and an increased demand for nutrients such as calcium, vitamin D and vitamin B12.

2. Adolescents

2.1. Metabolism of Adolescents

The daily basal metabolic rate (BMR) of Adolescents is roughly between 1000-2000 kcal, but this value is affected by many factors. Adolescents are in a critical period of growth and development, and their body metabolism is vigorous. Compared with adults, they have a higher BMR. And it will gradually change with age. Therefore, dietary intake is particularly important. Therefore, improper diet during adolescence, such as high-fat and high-salt diet, and high-sugar beverage intake... will affect the growth and development and physical health of Adolescents. However, these foods are high in calories and low in nutritional value. Long-term excessive intake can lead to excess energy and increase the risk of obesity, diabetes, cardiovascular disease, etc.

2.2. Unhealthy Diet among Adolescents

During adolescence, due to the high pressure of study and the high number of activities, as well as the convenience and diversity of snacks, many adolescents develop the habit of eating snacks as their main meal. Snacks high in sugar, salt, and fat are often the first choice, which not only leads to excess energy, but may also cause problems such as obesity. This is quite common in China where adolescents have greater body fat percentages, which puts them at risk for metabolic diseases. Adolescent dyslipidemia prevalence in China is similar to that in the US, but as BMI rises, so does the prevalence of high LDL-C in Chinese adolescents, with the latter group experiencing higher prevalence than the former (2.7% in the non-overweight group in China vs. 9.7% in the overweight group, $P < 0.05$; 3.5% in the non-overweight group in the US vs. 6.5% in the obese group, $P < 0.05$) [4]. At the same time, high-sugar drinks are loved by adolescents because of their tempting taste. However, this type of food is high in calories and low in nutritional value, and long-term intake will increase the risk of obesity, diabetes, cardiovascular disease, etc. Picky eating is a common dietary problem among adolescents. Some adolescents are not interested in foods rich in vitamins such as vegetables and fruits. As coenzymes or enzymes, vitamins are vital nutrients for human metabolism and are involved in several critical processes of proper human function [5], which poses a great obstacle to balanced nutrition.

2.3. Dietary Recommendations

A balanced diet and nutrition are essential for Adolescents' healthy growth [6]. A balanced diet is the basis for ensuring the healthy growth of adolescents. Protein is an important component of human tissue and is particularly important for the growth and development of adolescents. Reduced or halted development will result from a diet low in protein [7]. It is recommended that adolescents take protein from a variety of foods to help strengthen their physique and promote the development of muscles and bones. Vegetables and fruits are rich in vitamins, minerals, dietary fiber, etc. They play an

important role in maintaining the health of adolescents, enhancing immunity, and preventing constipation. It is recommended to consume enough vegetables and fruits every day to ensure rich nutrients and antioxidants. At the same time, the intake of high-sugar foods such as sugary drinks, candies, and cakes should be minimized. Adequate water intake should be ensured every day to maintain the body's normal metabolism and physiological functions. At the same time, adolescents should pay attention to breakfast. Adolescents who eat breakfast have significantly higher daily nutrient intake than those who skip breakfast [8]. Children who skip breakfast had lower daily intakes of some important nutrients than children who have breakfast frequently, including calcium, iron, iodine, etc. For instance, when it comes to iron intake, only 4.4% of kids who frequently eat breakfast fall short of the requirement set by the British government, compared to 31.5% of kids who rarely eat breakfast [9].

3. Adult

3.1. T2D and Adult Diet

T2D is a common chronic disease, with an incidence rate of about 17.96% in China. Studies have shown that diabetes is mainly T2D (accounting for more than 90% of the total number of people with diabetes) [10]. Its occurrence is closely related to eating habits. Adults like to consume high-sugar and high-fat foods, but they rarely participate in physical activities. At the same time, adults consume more alcohol, which interferes with the liver's metabolism of glucose and affects diabetes. Adults need to maintain a balanced nutritional intake to support their daily work and life needs. In addition to basic protein, carbohydrates and fats, they also need to pay attention to the supplementation of minerals and vitamins, such as calcium, vitamin D, magnesium, folic acid, etc., to maintain bone health and prevent chronic diseases. However, adults eat more than Adolescents, and it is difficult to maintain weight, so they should pay attention to energy intake.

3.2. How Can Adults Prevent Many Diseases While Meeting Nutritional Requirements

Low-carbohydrate diets (LCDs) have gradually been proposed for the treatment of T2D, with the 30% carbohydrate regimen being the most common [10]. Adults should eat a balanced diet. A healthy diet consists of consuming fewer foods and drinks rich in salt, saturated fat, trans fat, and added sugars, and increasing the consumption of fruits, vegetables, whole grains, fat-free or low-fat dairy products, lean proteins, and oils. Additionally, consuming fewer alcoholic beverages should be part of a balanced diet [11]. Adults should choose foods that are low in salt, fat, and sugar while ensuring adequate nutrition. Adults should also increase the proportion of whole grains, which are rich in dietary fiber and can serve as prebiotics or prevent many chronic diseases [12]. Adults should eat more vegetables and fruits and eat small and frequent meals to prevent and improve a variety of chronic diseases.

4. Elderly People

4.1. Metabolism and Physical Profile of The Elderly

The slowdown of metabolism in the elderly and the decline in function of various parts of the body are important characteristics of the natural aging process. As people age, especially after entering old age, their basal metabolic rate decreases significantly. The lipid metabolism capacity of the elderly decreases, which is mainly manifested in the decreased efficiency of fat digestion, absorption and utilization, and the increased tendency of fat accumulation in the body. As people age, their bones and joints gradually show signs of aging. The reduction in muscle mass and increase in fat content in the elderly can also cause a series of problems. At the same time, the immunity of the elderly decreases significantly. Aging is associated with the weakening of physiological functions. Therefore, to ensure the nutritional intake of the elderly, a rich and balanced diet management is needed [13].

4.2. MD Changes Cognitive Ability of the Elderly

Research in the journal Molecular Nutrition and Food Research found that older persons who eat an MD are more likely to not have cognitive deterioration [14]. The MD is rich in antioxidants, healthy fats (such as monounsaturated fatty acids in olive oil), and a variety of vitamins and minerals. These ingredients work together to help protect brain cells from free radical damage, thereby slowing the process of cognitive decline. Memory is an important part of cognitive ability. Whole grains, nuts, fish and other foods in the MD are rich in omega-3 fatty acids and B vitamins, which are essential for brain function and can strengthen the connection between nerve cells, promote information transmission, and thus improve memory. In addition, the rich antioxidants in the diet also help reduce oxidative stress in the brain and protect memory function from damage.

4.3. Suggestions on Eating Scientifically

Balanced nutrition is the primary principle of diet for the elderly. Coarse grains (such as brown rice, oats, corn, etc.) are rich in dietary fiber, vitamins and minerals. When eating coarse grains, the elderly should appropriately match them with fine grains (such as rice, white flour, etc.) to reduce the burden on the gastrointestinal tract and ensure the full absorption of nutrients. At the same time, they should appropriately supplement protein intake, increase the intake of vegetables, fruits, and eat more meals and less food. Vegetables and fruits are rich in nutrients such as vitamins, minerals and dietary fiber, which are essential for the health of the elderly. Vitamins play a regulatory role in the body, protecting tissues and organs by boosting nutrient absorption and anti-oxidation. Minerals can preserve electrolyte balance and build teeth and bones. The elderly should strictly control the intake of salt and fat in their diet. It is recommended to use more healthy cooking methods such as steaming, boiling and stewing, and reduce the intake of fried, pickled and other foods.

5. Research Progress on Dietary Patterns

Keeping a healthy diet is the cornerstone of keeping people healthy and preventing illness. A sensible diet plan may guarantee that the body gets enough nutrients, regular physiological processes, and the body's resilience. Throughout life, eating a nutritious diet can help ward against a variety of non-communicable illnesses and other types of malnutrition [15]. Unhealthy eating patterns over time raise the risk of illness by causing nutritional excess or deficiency. As a result, it is critical that individuals of all ages develop a healthy diet and consume a balanced diet.

In recent years, with the deepening of nutrition and medical research, the impact of dietary patterns on human health has received increasing attention. A variety of dietary patterns have been proposed and studied, such as the MD, DASH diet, vegetarianism, etc. These dietary patterns have their own characteristics in terms of nutrient ratios and food type selection, but the common point is that they all emphasize balanced diets, diversified intake and moderate control. As a result, integrating various nutrients and foods into a dietary pattern can include the possible interactions and cumulative effects between various nutritional components and represent the dietary patterns that are commonly practiced in the actual world [16]. In particular, research on dietary patterns for specific populations (such as the elderly, patients with chronic diseases, etc.) has made significant progress. Recently, a study on the Healthy Japanese Dietary Pattern for the elderly showed that this pattern is characterized by a large intake of vegetables, fruits, soy products and seafood, which helps to delay the biological aging process. This discovery provides more scientific and reasonable dietary guidance for the elderly.

6. Conclusion

This article analyzes the nutritional needs of the human body at different growth stages, puts forward corresponding healthy diet suggestions, and emphasizes the importance of healthy diet and methods to establish a good diet pattern. It is important for people of all ages to develop healthy eating habits and achieve balanced nutritional intake. Studies have shown that scientific and reasonable diet

arrangements play an irreplaceable role in promoting human health. The nutritional needs of the human body at different growth stages are different, and a scientific and reasonable diet plays an important role in promoting healthy growth and preventing diseases. However, everyone's physique and living habits are different, and specific diet arrangements need to be adjusted according to the actual situation of the individual. At the same time, this article, provides scientific and practical health guidance for the public, and future research on the dietary patterns of people of different ages and how to eat correctly. The MD mentioned in this article is not only suitable for the elderly, because it is rich in healthy fats and antioxidants, which are conducive to cardiovascular health. However, the research on how to prevent and treat T2D in adults mentioned in this article has not yet been found. Although reducing carbohydrate intake to reduce the harm caused can be alleviated, it cannot be completely cured. At the same time, this article analyzes people of different age groups but ignores the impact of this factor on people in different regions. Especially in the areas of gene-nutrient interactions and long-term effect evaluation of nutritional interventions. Future studies can explore the impact of different regions and different work and rest times on people's dietary structure, as well as whether there are differences in nutritional intake.

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