

The Health Effects of High Sugar and High Fat on Chinese Adolescents

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Abstract. The impact of high sugar and high-fat diets on Chinese adolescents has become a social issue of concern for parents and schools. With the progress of social productivity and the overall improvement of family economic levels, high sugar and high-fat diets have become a part of Chinese adolescents. However, high sugar and high-fat diets have extremely negative effects on the physical and mental health of adolescents. This article mainly studies the health effects of high sugar and high-fat diets on adolescents. Due to the rapid development of the economy in recent years, the harm of high sugar and high-fat diets to adolescents has gradually increased, which can easily lead to various diseases. This article further analyzes and finds that schools and families play a key role in food education. Therefore, it is recommended to promote the construction of a healthy eating culture by improving the campus food environment, strengthening family health education, implementing sugar tax policies, and limiting trans fats. Relying solely on individual changes is difficult to effectively control the problem of high sugar and high-fat diet in adolescents. It is necessary to create a social environment conducive to the healthy growth of adolescents through coordinated intervention from families, schools, communities, and governments.

Keywords: High-sugar diet, high-fat diet, Chinese adolescents.

1. Introduction

The impact of socio-economic changes on the dietary structure of adolescents is that with the improvement of living standards, both low-income and high-income families inevitably encourage their children to consume high sugar and high-fat foods. The frequency of consuming fresh fruits and vegetables is relatively low, and excessive consumption of carbonated beverages, snacks, fast food, processed foods, takeout, etc. leads to a trend of high sugar and high-fat diets in adolescents' dietary structure, which has a significant impact on their health [1,2]. In addition, with the reduction of physical activity, the expansion of Western fast-food culture, and the lack of nutritional knowledge, the already unbalanced dietary structure has become even more extreme. The harm of high sugar and high fat diet to teenagers is gradually obvious. According to statistical data, the obesity rate of teenagers is increasing year by year, and obesity is closely related to chronic diseases such as diabetes, hypertension, hyperlipidemia, cardiovascular diseases (CVDs). At the same time, it will also have a negative impact on teenagers' mental health and learning ability. The current characteristics of a high sugar and high-fat diet are mainly manifested by excessive intake of refined sugars, saturated fats, and trans fats, commonly found in processed foods, fast food, sugary drinks, etc. This type of diet has high energy density, but lacks dietary fiber, vitamins, and minerals, which can easily lead to nutritional imbalance. The health impact is mainly reflected in the following aspects: metabolic disorder, excessive sugar and fat are easy to cause insulin resistance, and increase the risk of type 2 diabetes, obesity and non-alcoholic fatty liver. CVD, trans fat and saturated fat increase high- and low-density lipoprotein cholesterol, and promote atherosclerosis. Inflammation and oxidative stress, high sugar diet activates inflammatory pathways, accelerates cell damage, and may induce cancer and neurodegenerative diseases. The response measures include policy interventions such as sugar taxes and trans-fat bans (such as in some European and American countries), and preliminary data shows that such policies can reduce related food consumption. Public education, promotion of dietary guidelines, advocating for low sugar and low-fat diets, but the effectiveness is limited by individual compliance. Improvement of the food industry, enterprises have launched low sugar and low-fat

products, but some still rely on artificial additives, and the long-term health benefits are yet to be evaluated. The current measures are partially effective, but it is necessary to combine individual behavior changes with systematic policy regulation in order to significantly improve public health. This study aims to comprehensively and deeply explore the specific hazards of a high sugar and high-fat diet structure on adolescents, including but not limited to obesity, CVDs, and mental health. The purpose of this study is to provide scientific guidance and basis for prevention and intervention, improve public awareness of the harm of high sugar and high-fat diet structure, promote social attention to adolescent health issues, provide scientific basis for families and schools, and effectively promote the healthy growth of adolescents.

2. Definition and Current Situation of High Sugar and High-fat Diet

2.1. Definition of High Sugar and High-fat Diet

A high sugar and high-fat diet, as the name suggests, refers to a dietary habit where the daily intake of sugar and fat is significantly higher than the recommended level. More specifically, a high sugar and high-fat diet should include the following points: intake standards for sugar and fat, types of high sugar and high-fat foods, and their sources. A high sugar and high-fat diet mainly comes from both added and natural sources. The added sugar and fat mainly come from the process of food processing, mainly to enhance the taste of the food. Common added sugars and fats include sucrose, fructose, various syrups, and various oils used in fried foods. These added sugars and fats are widely present in various processed foods such as carbonated drinks, chocolate, hamburgers, etc [3]. Natural sugars and fats are commonly found in fatty meats of various fruits and animals, but they are not like additives in food processing as they typically contain other minerals and dietary fiber. The key to high sugar and high fat is mainly intake, and usually, the recommended daily intake is limited. For example, the Chinese dietary guidelines recommend controlling the intake of added sugars, not exceeding 50g per day, and ideally below 25g. Control the average daily cooking oil to no more than 25-30g [4]. However, diets high in sugar and fat often exceed this recommended dosage [5]. A diet high in sugar and fat not only includes foods that appear sweet and greasy on the surface, such as candies and beverages [6]. Usually, it also contains processed foods that do not look sweet or greasy, such as donuts, energy bars, bread, and other ready to eat foods, which often contain a large amount of added sugar and fat. Long term high sugar and high-fat diet will cause various health problems, including but not limited to obesity, diabetes, CVDs and a series of chronic diseases and increased risk of some diseases [7]. Therefore, it is not only important to understand our daily dietary habits, but excessive intake of sugar and fat can also have adverse effects on health. So, understanding the sugar and fat content of food and controlling related intake are key to maintaining a healthy diet.

2.2. Current Situation of High Sugar and High-Fat Diet among Adolescents

At present, the dietary situation of teenagers is really worrying. Many teenagers lack awareness of the importance of healthy eating, and they tend to focus more on taste and satisfaction, neglecting the health risks brought by long-term consumption of high sugar and high fat. At present, the high sugar and high-fat diet of teenagers has reached an undeniable level, and it is necessary to raise their awareness of dietary health from multiple aspects. By improving the food environment in schools and families and regulating the promotional and marketing behavior of businesses, the health risks caused by high sugar and high-fat diet in teenagers can be effectively reduced. Global Status and Data Support: The WHO 2021 report shows that over 40% of adolescents aged 15-19 worldwide consume more than the recommended daily amount of added sugar (50g/day), with developed countries accounting for as much as 60%. The proportion of global adolescent fat supply exceeding 30% has increased from 28% in 1990 to 43% in 2017.

3. Specific Effects of High Sugar and High Fat on Adolescent Health

3.1. High s=Sugar and High Fat Lead to Adolescent Obesity

A high sugar and high-fat diet is one of the main causes of obesity in adolescents. Teenagers who consume too much sugar, if not digested by the body in a timely manner, will be converted into fat stored in the body, which will eventually lead to obesity through long-term accumulation. In recent years, with the improvement of living standards, the consumption of high sugar and high-fat foods has increased, and the obesity rate among teenagers has also significantly increased. Currently, about 19% of teenagers aged 6 to 17 and about 10.4% of children under six are overweight or obese [8]. Moreover, obesity not only affects the physical beauty of adolescents, but also causes chronic diseases such as CVDs, diabetes, and poses a serious threat to the healthy growth of adolescents. Long term high glucose and high-fat diet leads to insulin resistance, which makes pancreatic β cells over secrete insulin, and may eventually lead to type 2 diabetes [9].

3.2. Increased Psychological Pressure and Low Learning Efficiency

A high sugar and high-fat diet has a significant impact on the mental health of adolescents. Long term high sugar and high-fat diets can exacerbate psychological stress in adolescents and make them more sensitive to stress. This can cause hormonal imbalances, exacerbate anxiety in adolescents, and even trigger depression. High sugar and high-fat foods excessively stimulate the brain's reward system, secrete excessive dopamine, leading to addictive behaviors that may reduce sensitivity to natural rewards such as academic achievement in the long run. Long term anxiety and depression can lead to low mood in adolescents, affecting learning efficiency and resulting in low learning efficiency [10]. Meanwhile, a high sugar and high-fat diet can interfere with the sleep quality of adolescents, and low-quality sleep can also lead to increased psychological stress, affecting learning efficiency and forming a nausea cycle [11].

4. Response Strategies and Suggestions

4.1. Improvement of School Diet and Education on Family Diet

Improvement of school diet and education on family diet are often indispensable in addressing the high sugar and high-fat diet problems of adolescents. Family is often the first classroom for children, and parents influence their children's eating habits in daily education. For example, parents can make nutritionally balanced foods by choosing healthy ingredients, and cultivate their children's eating habits by guiding and encouraging them to try various fruits and vegetables. They can also raise children's awareness of nutritional balance by reading books, attending nutrition classes, and watching related videos [12]. This can make children aware of the dangers of a high sugar and high-fat diet and the healthiness of a healthy diet. Of course, regular communication among family members and the preparation of healthy foods are also ways to understand each other's dietary structure and provide encouragement and support to ensure that their diet meets health standards [13].

Schools can offer courses related to healthy eating and provide students with professional nutrition knowledge, such as how to choose healthy foods and the hazards of high sugar and high-fat foods. And hold relevant promotional activities, post relevant posters and knowledge lectures, and create a good campus atmosphere for healthy eating. Campus dietary control: Currently, in 2019, China restricted the sale of high sugar and high-fat foods on campus in accordance with the "Regulations on School Food Safety and Nutritional Health Management", and some cities (such as Shenzhen) banned carbonated beverages from entering campuses. Mexico imposes a sugar tax on campus snacks and prohibits the sale of junk food; France prohibits school canteens from providing sugary drinks. Both schools and families play an important role in addressing the issue of high sugar and high-fat diets for young parents. Combining the two can more effectively guide the dietary habits of young

people, reduce the intake of high sugar and high-fat foods, and ensure the healthy growth of young people.

4.2. Promoting the Development of Healthy Eating Culture

Improving the social environment is particularly important for addressing the issue of high sugar and high-fat diets among adolescents, with promoting the development of a healthy eating culture being of paramount importance. The government strengthens the regulation of food to ensure its nutritional value, make various labels clear, and enable teenagers and their parents to choose corresponding foods more clearly. At the same time, the community provides residents with fresh fruits and vegetables, regularly holds knowledge education activities, disseminates the concept of healthy eating and the hazards of high sugar and high-fat diets, and raises public awareness of this dietary structure. Encourage teenagers to communicate and learn from each other, and deepen their understanding of the importance of healthy eating.

In summary, through government intervention and the influence of community environment, it is possible to provide a healthier eating environment for teenagers and guide them to develop healthy eating habits, effectively reducing the health risks caused by high sugar and high-fat diets.

5. Conclusion

The intake of high sugar and high-fat foods has been found to be the main culprit leading to adolescent obesity and various health problems. The dietary problems of teenagers are not only related to personal habits, but also to various factors such as society, family, and school. High sugar and high fat do great harm to adolescents, including but not limited to obesity, increased risk of CVDs, diabetes and other chronic diseases, and increased psychological pressure and emotional problems. This study emphasizes the important role of family education and school education in cultivating healthy eating habits among adolescents, while also pointing out the importance of improving the social environment and promoting the development of a healthy eating culture to address this series of issues. Through government policies, community and media promotion and education, the development of a healthy eating culture can be deepened, providing a healthier and more positive eating environment for young people. In summary, solving the high sugar and high-fat diet structure of teenagers requires joint efforts and communication from all parties. Only through the joint efforts of the whole society can we truly guide and improve the dietary habits and problems of young people, and ensure their healthy growth.

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