Diet control and mineral intake help obese students lose weight and prevent some diseases

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Abstract: Without parental care, students with no self-control tend not to care about whether the food they eat is healthy but delicious. This leads to many health problems – diabetes, obesity, high blood pressure, and cardiovascular and cerebrovascular diseases, etc. Especially with the popularity of the "white, young and thin" aesthetic, people, especially females, always want to lose weight. Thus, many people will choose a selective diet to reduce the intake of certain nutrients, which aggravates people's health problems. However, each nutrient has its role. We should look at the role of different nutrients in a scientific way. Take each nutrient in a proper proportion is positive for health. To solve this problem, we should recognize the effects of every nutrient and take each one properly. A comprehensive intake of nutrients is beneficial to health. This review will talk about the function of diet control and mineral intake to help obese students lose weight and prevent some diseases.

1. Introduction

The prevalence of diabetes in China has increased more than tenfold in the past 40 years and is still rising. In addition, people with diabetes also showed a noticeable trend of younger age. This is because environmental factors have changed, but young people's ability and awareness of preventing disease have not improved. For example, young people like to drink sugared beverages, and when risk factors such as obesity build up to a certain level, diabetes is likely to develop. Some students who are fussy eaters tend to take more sugar or fat, which is bad for their health. Some students may realize that they should lose their weight, but the methods they use are often unhealthy, for example, some students refuse to take carbohydrate, some refutes to take fats, and some think that as long as they keep their daily calorie intake within a certain range, it doesn't matter what they eat.

With the development of science, we have made new progress in researching the function and mechanism of nutrients, and the cognition of health is increasing. Therefore, a healthy weight loss method should be introduced.

2. Introduction to nutrition

Nutrients refer to the organic and inorganic substances in food that are digested, absorbed, and used by people. Our bodies are made up of about 30 to 40 percent solid and 60 to 70 percent water. Half of the solid content is body fat, accounting for about 15-20% of a person's body weight. More than half of the energy needed by the human body is supplied by fat. It is the human body's automatic function to accumulate fat. Still, if the intake of food is not appropriate, fat will be in excess in the body and will be accumulated.

3. Dietary status of young people

3.1 An unbalanced diet

A study of teenagers' obesities shows that in the number of obese students, those who like meat and starch occupy 35%, while in the number of normal weight students, those who like meat and starch only occupy 26%, which is 9% less than obese students. Beyond that, fussy eaters have higher risk of

obesity. Most of them don’t like vegetables, and they only eat the food they like, and that food always has high calories. Those who were obese were 42 percent more likely to be picky eaters than those of normal weight. [1]

3.2 Lack of exercise

With the rising standard of living and the market for mechanized machines to take people's jobs, few manual household chores are left, and parents don't want their children to work. They want their children to get good grades and don't care about anything else. In addition, nowadays people usually exercise less and go out by car, when they stay at home, they may choose to sit on the couch and play computer games. This makes today's children have less chance to exercise so that the intake of excessive energy turns into fat. The normal metabolism of fat is damaged, fat is accumulated in the body.

4. The functions of nutrients

The trend of mass data in power system provides a basis for load characteristic analysis and prediction model establishment, but the classical load forecasting method can not afford such a huge time and computing resource consumption. The problem of over fitting in large sample set will affect the prediction accuracy. In this paper, a power load forecasting model is built by using the BP neural network model, making full use of the powerful data processing function of Clementine and preventing the over fitting function. The experimental results show that the BP neural network model has good predictability and robustness, and has a certain practical application value.

4.1 Carbohydrate

A carbohydrate is a biomolecule consisting of carbon, hydrogen, and oxygen atoms, usually with a hydrogen–oxygen atom ratio of 2:1. Carbohydrates are a type of macronutrient found in many foods and beverages. Most carbohydrates occur naturally in plant-based foods, such as grains. Food manufacturers also add carbohydrates to processed foods in the form of starch or added sugar. There are three main types of carbohydrates, sugar, starch, and fiber.

Carbohydrates can provide energy, protect against disease, and control weight. Carbohydrates are an essential part of a healthy diet and provide many important nutrients. To make healthy carbohydrates work in a balanced diet, we should emphasize fiber-rich fruits and vegetables, choose whole grains, stick to low-fat dairy products, eat more legumes, and limit added sugars. [2]

4.2 Fats

A small amount of fat is an essential part of a healthy, balanced diet. Fat is a source of essential fatty acids, which the body cannot make itself. Fat helps the body absorb vitamin A, vitamin D, and vitamin E. These vitamins are fat-soluble, which means they can only be fascinated with the help of fats. Saturated fats can increase our blood sugar and cause heart disease and brain disease. As part of a healthy diet, we should try to cut down on foods and drinks high in saturated fats and trans fats and replace some of them with unsaturated fats. [3-5]

4.3 Protein

Protein is an important component of every cell in the body. The basic unit of protein is the amino acid, which is condensed by dehydration to form a peptide chain. Protein is a biological macromolecule composed of one or more polypeptide chains. Each polypeptide chain has twenty to hundreds of amino acid residues. Various amino acid residues are arranged in a certain order. We also use protein to make enzymes, hormones, and other body chemicals. All the chemical reactions in the metabolism of an organism are catalyzed by enzymes. The hormone plays a vital role in the human body. It can regulate the body's metabolism, promote growth, regulate the body's endocrine, and is indispensable to the human body. Protein is an important building block of bones, muscles, cartilage, skin, and blood.

Teenage boys and active men can get all the protein they need from three daily servings for a total of seven ounces.

For children age 2 to 6, most women, and some older people, the government recommends two daily servings for a total of five ounces.

For older children, teen girls, active women, and most men, the guidelines give the nod to two daily servings for a total of six ounces.

4.4 Fibers

Dietary fiber, also known as roughage or bulk, includes the parts of plant foods your body can't digest or absorb. Unlike other food components, such as fats, proteins, or carbohydrates — which your body breaks down and absorbs — the body doesn't digest fiber. Instead, it passes relatively intact through the stomach, small intestine, and colon and out of the body. Fiber helps maintain bowel health and normalize bowel movements. It can also lower cholesterol levels and help control blood sugar levels. [6, 7]

4.5 Vitamin A

Vitamin A is composed of retinyl esters and beta-carotene. When they enter the body, they can convert to other forms of vitamin A. Vitamin A can help the body reproduce and grow. It is good for the woman who gets pregnant. Vitamin A is an important nutrient for a child to grow. It also helps bone remodeling, because it can help break down the bones. Vitamin A can also keep cells healthy, especially the cells that form the mucus, which can help the cells keep moisture and allow things to enter and leave.

Vitamin A plays a role in eye health. If we have a deficiency of Vitamin A, our cornea will dry up, and when we look at something and light is trying to enter our eyes, the cornea would harden up, the light would not be able to enter, so we can’t see at all. And if our intestine has all of the dry, hardened cells, the nutrients will not be absorbed properly. Deficiency of Vitamin A can also cause keratinization, which is a very extreme version of dry, rough skin. In addition, it can make people more vulnerable to infectious diseases. [8]

4.6 Vitamin B

B vitamins are especially important for women who are pregnant and breastfeeding. These vitamins aid in fetal brain development as well as reduce the risk of congenital disabilities. B vitamins are thought to increase testosterone levels in men, which naturally decrease with age. They may also help men build muscle and increase strength.

When you don’t get enough of the vitamin B complex in your diet, deficiencies can appear in several ways. The most common is anemia, when you are low in B12 and/or B6, and your blood can’t carry enough oxygen through your body. This may concern those following a vegan diet since animal products are common sources of these B vitamins. Other common symptoms of vitamin B deficiencies show up in the skin, nails, and hair – like rashes or cracks in the skin. [9]

4.7 Vitamin C

Vitamin C, also known as L-ascorbic acid, is a water-soluble vitamin naturally present in some foods. Humans, unlike most animals, are unable to synthesize vitamin C endogenously, so it is an essential dietary component.

Vitamin C is one of the safest and most effective nutrients. It may not be the cure for the common cold. Still, the benefits of vitamin C may include protection against immune system deficiencies, cardiovascular disease, prenatal health problems, eye disease, and even skin wrinkling.

The deficiency of vitamin C may cause scurvy, a life-threatening disease in which patients may have spontaneous bleeding from gums or poor wound healing, perifollicular ecchymoses, hemarthroses, and joint pain. [10]

4.8 Vitamin D

Vitamin D can promote calcium absorption in the gut and prevent hypocalcemic tetany. It can also prevent rickets in children and osteomalacia in adults. Together with calcium, vitamin D also helps protect older adults from osteoporosis.

5. Healthy eating habits

5.1 What kind of food should we avoid or eat less?

We should eat less red meat, fried food, sugary dessert or cereal. Red meat contains too much saturated fat, which can increase blood sugar. Fried food contains high calories and too much oil. Sugary cereal or desserts contain too many refined carbs and added sugar, leading to diabetes and heart diseases.

5.2 Food that should take more

We should take more beans, dark green leafy vegetables, fish, mushrooms, milk, yogurt, hard water rather than soft water. Beans are rich in calcium and protein. ½ cup provides as much protein as an ounce of meat without the saturated fat. **Dark green leafy vegetables** contain low really calories. **Fish** contains important omega-3 fatty acids. A certain amount of healthful fats can keep the body functioning and promote heart and brain health. **Mushrooms** can synthesize vitamin D when exposed to UV light. **Milk** is high in zinc and calcium, which is important to our bones and teeth, and it's also rich in protein. **Yogurt** is rich in calcium. Some research suggested that eating yogurt could decrease cholesterol levels in people with type 2 diabetes. **Hard water is better than soft water** because hard water gives us calcium and magnesium that we tend to lack, but soft water contains more sodium, increasing blood pressure.

6. Conclusions

Each nutrient is very important to our health. Carbohydrate can provide energy, protect against disease, and control weight. Fat helps the body absorb vitamin A, vitamin D and vitamin E. Protein helps make enzymes, hormones, and other body chemicals. Fibers can lower cholesterol levels and help control blood sugar levels. Vitamin A can help the body do reproduction and growth. Vitamin B aid in fetal brain development, reduces the risk of congenital disabilities, protects against immune system deficiencies, and promotes calcium absorption. The deficiency or excess of each nutrient can cause health problems.

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