

Explore the Effects of Whole Grain Foods on Human Health

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Abstract: As the pace of modern life continues to accelerate, people's eating habits gradually become more convenient and efficient, but often ignore the nutritional value of food. However, in recent years, whole grain food has gradually attracted people's general attention, and its rich nutrients and positive effects on human health have been confirmed by more and more studies. The so-called whole grain is not refined processing, or although it is milled, crushed, and pressed, it still maintains the endosperm, germ, bran and other natural nutrients of the complete grain. The purpose of this study is to deeply explore the effects of whole grain food on human health, hoping to provide more scientific dietary recommendations for the public to guide people to pay attention to and increase the intake of whole grain food, so as to promote the development of healthy lifestyle.

Keywords: Whole grain food; Human health; Impact analysis

1. Definition and basic composition of whole grain foods

Whole grain foods, as the name suggests, are processed with whole grains that retain all their natural ingredients. Specifically, whole grains are made up of rice, wheat, corn, barley and oats, which are processed without being refined to completely preserve the bran, germ and endosperm of the grain. In this way, whole grain foods are rich in dietary fiber, vitamins and minerals. Whole wheat bread, for example, is made from whole wheat flour, which retains all the components of the wheat intact, including the bran and germ, so its dietary fiber content far exceeds that of regular white bread. Brown rice is also a whole grain food and retains more nutrients than refined white rice. In addition, breakfast cereals such as oatmeal are whole grain foods because they have not been processed. This kind of whole grain food contains dietary fiber, B vitamins, minerals and antioxidants as the basic characteristics, in maintaining human health and disease prevention plays an important role. Therefore, increasing the intake of whole grains in the daily diet is very beneficial to improve the overall nutrition level and promote health.

2. Nutritional value of whole grain foods

2.1 Dietary Fiber

Dietary fiber, as an important nutrient component of whole grain foods, plays a significant role in human health. Dietary fiber is mainly extracted from plant cell walls and is a carbohydrate that cannot be digested and absorbed in the human small intestine. It includes both insoluble cellulose and hemicellulose, as well as soluble pectin and gum. These fibers have an important effect on the gut.

Dietary fiber can increase the amount of food in the intestinal content, stimulate intestinal peristalsis, and then effectively prevent constipation and help remove intestinal waste, toxins and so on. At the same time, soluble dietary fiber can also be combined with cholesterol, so that the serum cholesterol level is reduced, thereby reducing the incidence of cardiovascular disease. In addition, dietary fiber can delay the absorption of glucose from food, help stabilize blood sugar levels and play a positive role in the prevention and treatment of diabetes.

It is worth mentioning that dietary fiber intake is critical to human health. According to nutrition guidelines, the daily intake of dietary fiber for adults should be controlled between 25-30 grams, and whole grain foods are high-quality sources of dietary fiber. For example, whole wheat bread contains about 6 grams of dietary fiber per 100 grams, which is significantly more than white bread. Therefore, increasing the intake of whole grain foods can effectively increase the intake of dietary fiber to improve intestinal health and reduce the occurrence of chronic diseases.

2.2 Vitamins and minerals

Vitamins and minerals, as the indispensable nutritional components of whole grain foods, play a key role in human health. Whole grains

are rich in vitamins, especially vitamins B1, B2, B6 and niacin B vitamins are the most abundant. These vitamins play a vital role in body metabolism, such as vitamin B1 is related to carbohydrate metabolism, and vitamin B2 is closely related to energy production and cell growth. In addition, whole grains are also an important source of minerals, especially the trace elements magnesium, iron and zinc. Magnesium is important for maintaining the normal function of the heart and muscles, iron is involved in hemoglobin synthesis and plays a key role in preventing anemia, and zinc plays an irreplaceable role in the proper functioning of the immune system and cell growth and division.

Taking brown rice as the study object, every 100 grams of brown rice contains about 0.3 mg of vitamin B1 and about 1.2 mg of iron, and these nutrients are relatively low in white rice. Whole wheat bread is high in vitamins and minerals, for example, every 100 grams of whole wheat bread can provide about 0.4 mg of vitamin B1 and 20 mg of magnesium. Therefore, through the intake of whole grain foods, people can effectively supplement the daily essential vitamins, minerals, etc., in order to maintain the normal physiological function of the human body and improve health.

2.3 Antioxidant components

Antioxidant components as the highlight of whole grain foods, they have the function of resisting oxidative stress and protecting cells from free radical damage. Whole grains are rich in antioxidants, such as polyphenol compounds and vitamin E, which are highly effective antioxidants. Polyphenols neutralize free radicals and reduce oxidative damage, thereby reducing the risk of chronic disease. However, vitamin E, as a fat-soluble antioxidant, protects cell membranes from oxidation and maintains their integrity and function. As far as oats are concerned, they are rich in antioxidant components such as polyphenols and vitamin E, so that oats show good antioxidant properties. Long-term consumption of whole grains rich in antioxidants helps the body to resist various health problems caused by oxidative stress and maintain body health.

3. Specific health effects of whole grain foods

3.1 Reduce the risk of chronic diseases

Whole grain foods have been shown to reduce the risk of chronic diseases. Many studies have shown that long-term consumption of whole grains significantly reduces the risk of cardiovascular disease, type 2 diabetes, colon cancer and other chronic diseases. More specifically, a moderate daily intake of whole grains, such as 48 to 80 grams, was associated with a 21% lower relative risk of cardiovascular disease, a 26% lower risk of type 2 diabetes, and a 21% lower relative risk of colorectal cancer. Of particular note is that when the intake of whole grains reaches 90 grams per day, the incidence of cardiovascular disease is likely to drop further to 22%. In addition, whole grains can also help control weight and reduce the health problems associated with obesity. These benefits are due in large part to the combined effects of whole grains' dietary fiber, vitamins and minerals, and antioxidants on the body to help prevent and improve chronic diseases. Adding whole grains to your diet is one of the most important steps you can take to reduce your risk of chronic disease and stay healthy.

3.2 Help with weight control

Whole grain foods have a significant effect on helping to control weight. The main reason is that whole grains are rich in dietary fiber, which can increase the size of food, lengthen the sense of fullness, and slow the speed of stomach emptying, thus reducing the amount of food. More specifically, dietary fiber has the property of absorbing water and expanding, which allows food to have more room in the digestive system. This filling action on the substance can activate satiety receptors in the gastrointestinal tract, sending a message to the brain that "you are full" and thus helping to reduce appetite. In addition, dietary fiber can be combined with some fatty acids to reduce the amount of fat absorbed in the gut, and can also help control body weight.

Whole grain foods in addition to the function of dietary fiber, its own calories are relatively small, and rich in nutrients, both to meet the body's energy needs, but also to avoid excessive energy intake. For example, replacing the general white bread with whole wheat bread as the staple food can provide more nutrients and avoid excessive intake of high-calorie foods resulting in weight gain.

Studies have shown that those who eat whole grains on a regular basis have an easier time managing their weight and have a relatively lower body mass index (BMI) than those who do not or eat less whole grains. In practice, in order to gradually increase the intake of whole grains, people can consider brown rice instead of white rice or whole wheat bread instead of white bread, which can effectively control weight. Such dietary adjustments are not only beneficial for weight management, but can also bring other health benefits, such as reducing the risk of chronic diseases.

3.3 Promote intestinal health

Whole grains are rich in dietary fiber, as the intestinal "guardian", can increase the volume of food in the intestine, stimulate intestinal peristalsis, and then effectively prevent constipation and ensure intestinal smooth. Dietary fiber can also act as beneficial bacteria "food" in the gut, promote the growth and reproduction of probiotics, help regulate the balance of intestinal flora and maintain the stability of intestinal

microecology. In addition, the dietary fiber in whole grains has the ability to absorb and remove harmful substances in the gut, such as cholesterol and heavy metal ions, which helps to further maintain the health of the gut. It is important to emphasize that daily intake of suitable whole grains such as oats, brown rice, whole wheat bread can effectively enhance the health of the gut. The incidence of intestinal problems in people who adhere to eating whole grain foods for a long time is significantly lower than that in other groups. Therefore, including whole grains in your daily diet can both meet your nutritional needs and be an important part of maintaining a healthy gut.

4. Conclusion

Whole grains have a significant positive effect on human health, with studies showing that eating whole grains can reduce the risk of heart disease, type 2 diabetes, obesity and some cancers. In addition, whole grain foods are also rich in dietary fiber, vitamins and minerals, which are helpful for maintaining digestive health, strengthening immunity and providing lasting energy. Therefore, increasing the intake of whole grain foods in daily diets is conducive to the maintenance of healthy weight, the prevention and treatment of chronic diseases and the overall improvement of quality of life.

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