



## Food to lower blood sugar

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**Abstract.** The article considers the optimal level of sugar in human blood and its effect on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. Food products are indicated to reduce the level of sugar in the blood, the scientific basis of the nutrition of its lowering is considered.

**Keywords:** blood sugar, sugar reduction, healthy foods, recommendations

Properly formulated diet is an important condition for people with prediabetes, diabetes and other diseases that affect the concentration of glucose in the blood. To avoid worsening the condition, you need to choose foods high in fiber. Such food provides a feeling of satiety for a long time and protects against hyperglycemia.

## Why does blood sugar rise?

Body weight, stress, and genetics play an important role in the development of diabetes, but maintaining a healthy diet is still crucial. <sup>[1, 2]</sup> Glucose rises every time after a meal:

- any food containing carbohydrates is digested in the stomach and small intestine, where it is absorbed into the blood in the form of glucose;
- in response to an increase in glucose, the pancreas secretes insulin, a hormone that induces cells to use sugar for energy or storage;
- in a healthy person, 2 hours after eating, sugar decreases to those levels that were before eating.

Glucose levels will not drop if carbohydrates are digested incorrectly. The reason may be a small secretion of insulin or resistance to its action (insulin resistance). If after a few hours after eating the condition has not stabilized, this indicates a predisposition to diabetes. To avoid this and stay healthy, you need to give up food that causes a sharp increase in blood sugar. <sup>[3, 4]</sup>

## Glycemic index of foods and diet for diabetes

The following foods are most quickly converted into glucose:

- high in carbohydrates - rice, fruits, oat milk, starchy vegetables, any baked goods based on ordinary wheat flour and pasta, as well as products with added sugar (drinks, flavored yogurts, breakfast cereals, etc.);
- high in saturated fats, trans fats - cheese, red meat, fried foods, margarine, peanut butter, cream, frozen dinners;
- sweeteners - honey, agave nectar and maple syrup contain no less carbohydrates than white sugar;
- dried fruits - drying raisins, apricots, plums and other fruits leads to water loss and an increase in fructose concentration.

Glucose is an important fuel for cells when present in the body in normal amounts. Therefore, the rejection of carbohydrates makes the diet unbalanced and deprives the feeling of satisfaction after eating, which can lead to excessive consumption of protein and fatty foods. It is necessary not to refuse carbohydrate products, but to choose their correct form.

All carbohydrates are divided into two categories: simple cause a rapid increase in sugar, and complex - slow, moderate. Some foods have the same high concentration of carbohydrates, but belong to different groups. It's all about the amount of dietary fiber - they slow down the processes described above. For example, whole-grain rye bread is a complex carb, while a French baguette is a simple carb. <sup>[5]</sup>

The rate at which glucose enters the blood reflects the glycemic index (GI). For convenience, tables have been developed in which all foods are ranked on a scale from 0 to 100. The most useful foods have a low and medium GI.

## **Top 10 Foods to Lower Blood Sugar**

### **1. Broccoli**

When crushed or chewed, broccoli produces the substance sulforaphane. The compound has a powerful anti-diabetic effect and reduces markers of oxidative stress. The best way to increase the availability of sulforaphane is to consume lightly steamed broccoli or add mustard seed powder to cooked cabbage. <sup>[6, 7]</sup>

### **2. Sauerkraut**

Fermented vegetables contain probiotics, minerals and antioxidants. They increase insulin sensitivity and prevent the development of hyperglycemia. <sup>[eight]</sup>

### **3. Pumpkin and pumpkin seeds**

Rich in fiber and antioxidants, pumpkin is used as a traditional cure for diabetes in Mexico, Iran. The benefits are provided by the polysaccharides included in its composition. The seeds are full of healthy fats, proteins, and by eating 65 g of pumpkin seeds after a meal, you can reduce sugar levels by 35%. <sup>[9, 10, 11]</sup>

### **4. Seafood**

Fish (salmon, sardines) and seafood are a valuable source of proteins, omega-3s, vitamins, minerals, and antioxidants. Substances slow down digestion, increase the feeling of satiety, prevent hyperglycemia after eating and promote weight loss. <sup>[12, 13]</sup>

## 5. Nuts and nut butter

Eating peanuts and almonds on an empty stomach and after meals throughout the day as part of a low-carbohydrate diet reduces glycated hemoglobin A1c (HbA1c). To get the effect, it is enough to eat 56 g of nuts daily. <sup>[14, 15]</sup>

## 6. Oats and oat bran

Whole grains and bran are high in healthy soluble fiber. Over 15 studies have confirmed that oats significantly lower HbA1c when eaten before high GI foods. <sup>[16, 17]</sup>

## 7. Flax seeds

Fiber and healthy fats are of great benefit - to reduce HbA1c, it is enough to drink 200 g of 2.5% fat yogurt daily mixed with 30 g of flax seeds daily. The effect is confirmed by 25 controlled studies. <sup>[18, 19]</sup>

## 8. Beans and lentils

The magnesium and protein found in legumes lower blood sugar after meals. And soluble fiber and resistant starch slow down digestion and heal the intestines. <sup>[twenty]</sup>

## 9. Avocado

The avocado is rich in healthy fats, fiber, vitamins and minerals. It protects against the development of metabolic syndrome - disorders of carbohydrate and fat metabolism, which pose a serious risk to health. <sup>[21]</sup>

## 10. Calais

Curly cabbage is called a superfood for a reason - the flavonoids it contains, including quercetin and kaempferol, can protect against hyperglycemia and improve insulin sensitivity. To get the effect, it is enough to eat 7-14 grams of feces with a high-carbohydrate meal. <sup>[22]</sup>

## Additional Ways to Lower Blood Glucose

A few simple lifestyle changes improve the condition of people with type 2 diabetes, and sometimes eliminate the need to take medication.

### 5 Natural Ways to Lower Your Blood Sugar:

1. a low-carb breakfast no later than 1.5 hours after waking up - skipping breakfast suppresses the pancreatic beta cells that produce insulin;
2. staying hydrated – water thins the blood and helps the kidneys flush out excess glucose;
3. increased physical activity - daily walking and moderate exercise 2-3 times a week reduce the risk of stroke and heart disease, improve insulin sensitivity and promote the conversion of glucose into energy;
4. stress control - cortisol reduces sensitivity to your own insulin and to injections, so it is important to learn how to relieve stress in natural ways (walking, breathing practices, meditation);
5. Get at least 7-9 hours of sleep a night – Lack of sleep increases stress, releases cortisol, and raises hunger hormones, making it difficult to follow a healthy diet.

Low blood glucose can be life-threatening, while high blood glucose can be insidious and easier to ignore. It may take years before a person becomes aware of the disease. By then, latent diabetics have damaged the small blood vessels in the eyes, kidneys, heart, and nerves, contributing to complications such as vision problems, frequent urination, and nerve pain.

According to statistics, about 70% of people with prediabetes develop type 2 diabetes, so the disease has reached epidemic proportions among adults and children around the world. <sup>[23]</sup> Fortunately, this transition is not inevitable—you can control your diet and lead an active lifestyle. It is easier to prevent this condition than to treat serious complications.

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