



Stevia is a sugar substitute that contains very few calories. There is growing interest in its use to help people with diabetes manage their blood sugar levels.

Stevia is a natural sweetener that comes from a shrub that is native to North and South America. It is an ingredient in many brands of sweetener, including SweetLeaf, Truvia, and Pure Via.

Stevia contains compounds called steviol glycosides that are about 150–300 times sweeter than sugar. However, stevia is so low in calories that it is technically a "zero-calorie" product. Although they are sweet, steviol glycosides can leave a bitter aftertaste, so most stevia products contain other ingredients to counteract this. As a sweetener, stevia has grown in popularity, especially among people with diabetes. In this article, we look at the benefits of stevia for people with diabetes and if there are any risks when consuming this sweetener.

### **Stevia and diabetes**

In a joint statement, the American Heart Association (AHA) and the American Diabetes Association (ADA) said that stevia and similar sweeteners can be beneficial for people with diabetes if they use them appropriately and do not compensate by eating extra calories at later meals. In a 2018 study, researchers tested the effects of a stevia-sweetened coconut jelly on participants 30–120 minutes after consumption at half-hour intervals. The research found that blood glucose levels started to reduce 60–120 minutes after eating the jelly, even before the secretion of insulin.

### Benefits

Scientific studies we highlight in this article suggest that stevia may offer the following benefits for people with diabetes:

- possible antioxidant properties to fight disease
- blood sugar control, both when fasting and after meals
- improved satiety and reduced hunger
- less desire to eat extra calories later in the day
- protection against liver and kidney damage
- reduced triglyceride and cholesterol levels

Another benefit of stevia is its versatility. It is suitable for hot and cold beverages, and people can sprinkle it over oatmeal or fruit. Stevia may also be suitable for baking, depending on the particular sweetener product and the recipe. However, it does not caramelize and is not a substitute for sugar in all types of cooking and baking. Stevia extracts are usually safe for most people in moderate amounts. In the United States, the Food and Drug Administration (FDA) categorize steviol glycosides as "generally recognized as safe," or GRAS. As a result, manufacturers may add high-purity steviol glycosides to foods and beverages. Steviol glycosides are often present in sugar-free drinks, jams, and dairy products.

### What the research says

Several studies have investigated the effects of stevia on blood sugar levels. A 2016 study reported that dried stevia leaf powder significantly lowered blood sugar levels in people with diabetes, both while fasting and after eating. The participants in the study also saw a reduction in their triglyceride and cholesterol levels. The researchers concluded that stevia is safe for people with diabetes to use as a substitute for sugar and other sweeteners. A 2013 study in rats reported that using whole stevia leaf powder as a dietary supplement led to lower blood sugar levels. The results also suggested that stevia could reduce liver and kidney damage in the animals. Other research from 2015 found that nonnutritive sweeteners such as stevia had antioxidant potential and significantly lowered blood sugar levels in mice. Stevia may also reduce hunger and improve satiety in people. In a small-scale study, researchers gave participants a snack to eat before their main meal, which is a dieting technique known as preloading.

The preload snack contained either stevia, aspartame, or sucrose, also known as table sugar. The sucrose preload had 493 calories, while both the stevia and aspartame preloads only

contained 290 calories. Despite this, all three groups of participants reported similar hunger and satiety levels. The people who ate the stevia preloads had significantly lower blood glucose levels after meals when the researchers compared them with the sucrose group. They also had lower insulin levels than those in both the aspartame and sucrose groups. However, a more recent review of 372 studies suggested that evidence for harmful or beneficial effects is inconclusive. It is also important to note that most of the research uses dried stevia leaf rather than stevia extracts. Stevia extracts typically contain other ingredients, some of which may affect blood sugar levels. However, stevia leaf does not have GRAS status with the FDA, who do not allow manufacturers to use it as a sweetener.

## Can stevia treat or cure diabetes?

Due to the focus on stevia for people with diabetes, many people wonder if it can treat or cure the condition. There is currently no cure for diabetes, but people can manage the condition with medications and lifestyle changes. Stevia can help to support these lifestyle adaptations. A 2018 study on rats, appearing in the *International Journal of Endocrinology*, suggests that stevia could stimulate insulin production when in large enough doses. The study authors put this down to the plant compounds in stevia.

Using stevia in place of sugar in sweetened foods and drinks may help people with diabetes stabilize their blood glucose levels. This replacement for sugar may also reduce the number of calories that a person consumes, which is likely to aid weight loss. Excess weight is a risk factor for type 2 diabetes and its complications, which include heart and kidney problems.

## Risks and side effects

Safety studies on stevia do not report any negative side effects, as long as people consume the sweetener in moderate quantities. The FDA recognize purified stevia products as being generally safe for most people.

Some stevia products contain additives that may cause side effects. For example, sugar alcohols may cause the following symptoms in some individuals:

- bloating
- nausea and vomiting
- stomach pain and cramping
- other digestive issues

However, sugar alcohols are otherwise safe for people with diabetes. According to the ADA, sugar alcohols contain fewer calories than sugar and do not affect blood glucose levels as much as other carbohydrates. People with diabetes should check that their chosen stevia product does not contain other sweeteners that might increase blood glucose levels.

### **Stevia alternatives for people with diabetes**

Other artificial sweeteners may help people with diabetes manage any cravings for sweet foods and beverages.

According to the ADA, the FDA have approved the following artificial sweeteners:

- acesulfame potassium (Sunnet, Sweet One)
- advantame
- aspartame (NutraSweet)
- neotame
- saccharin (Sweet'N Low, Sugar Twin)
- sucralose (Splenda)

Some of these sweeteners are available for purchase online, including Sweet'N Low and Splenda. The body does not break down these sweeteners with the exception of aspartame. Instead, they pass through the digestive system and leave the body in the urine and stool. As with stevia, these sweeteners do not provide extra calories. Sugar alcohols also increase sweetness without affecting blood sugar levels. The sugar alcohols that manufacturers commonly add to foods and beverages are:

- erythritol
- isomalt
- lactitol
- maltitol
- sorbitol
- xylitol

However, many foods with artificial sweeteners as an ingredient still contain calories and

carbohydrates. Sometimes, these foods can have almost as many carbohydrates as the sugar-rich versions. For this reason, people should check nutrition labels carefully before selecting products to eat or drink.

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