



Evidence based

D-Tagatose Sweetener: Calories, Benefits, and Side Effects



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on June 4th, 2020

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D-tagatose is a simple carbohydrate that's chemically related to fructose but boasts some fantastic advantages over glucose, sucrose, fructose, and other traditional sweeteners.

Keep reading to learn the latest info about D-tagatose, possible health benefits, and the real deal about sugar substitutes on the ketogenic diet.

What is D-Tagatose?

D-tagatose is a sweetener that's approximately 90% as sweet as table sugar[*].

But along with containing lower amounts of calories and net carbs than sugar, D-tagatose is also a low glycemic index food.

And unlike most sweeteners, D-tagatose does not promote cavities[*]. As a result, the US Food and Drug Administration has approved D-tagatose as a tooth-friendly ingredient[*].

As far as its chemical structure, D-tagatose is an isomer of fructose. Isomers have the same molecular formula, but different arrangements of atoms.

D-tagatose occurs naturally at low levels (no more than 3.5 grams per kilogram) in apples, pineapples, oranges, raisins, dates, pasteurized cow's milk, and various other whole foods[*].

But for industrial production, most D-tagatose manufacturing uses enzymatic conversion of lactose from milk to obtain D-tagatose[*].

Overall, the nutritional properties and other benefits of D-tagatose make it an attractive sugar substitute[*].

But what about baking? A seemingly minor change in a recipe can have disastrous consequences for baked goods.

As a matter of fact, researchers in the field of food science have shown that most people like baked goods with D-tagatose about as well as those made with sugar[*].

Basically, the properties of D-tagatose make it similar to baking with sugar. It seems to brown a little faster than sugar, then offers similar, rich caramel and malt flavors[*].

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D-Tagatose Nutrition Facts

D-tagatose offers many similar culinary properties to table sugar, including taste, texture, and sweetness.

But when it comes to nutrition facts, D-tagatose is a totally different story from sucrose.

As a low-calorie sweetener, it contains 1.5 calories per gram (per US labeling guidelines) or 2.4 calories per gram (based on EU labeling guidelines).

Either way, D-tagatose has about 40-60% less digestible calories than sugar and other simple carbs.

And as you'll learn in the next section, the functional properties of D-tagatose are entirely different from those of sugar, too.

4 Possible Health Benefits of D-Tagatose

#1: Low Glycemic Index and Low Net Carbs

D-tagatose has a low glycemic index, and it's also extremely low in net carbs. For healthier sugar substitutes, these are two essential traits.

The glycemic index (GI) of a food is a measure of how rapidly it raises your blood glucose.

Whereas glucose has a GI of 100, D-tagatose has a glycemic index of 3, meaning it raises your blood sugar extremely slowly[*].

Research shows that substituting lower GI foods in place of higher GI foods may reverse insulin resistance, reduce inflammation in your body, and more[*].

As a result, lots of people focus on eating low GI foods for easier fat loss, lowering their blood sugar, and enhancing their overall health.

And since D-tagatose doesn't appear to raise blood glucose levels, it's also effectively got zero net carbs[*].

Net carbs are a measure of how many carbs your body uses, not the amount you consume. As you may be aware, [counting net carbs](#) is essential for the keto diet (the fewer the better).

#2: Prebiotic Properties

According to research published in the *World Review of Nutrition and Dietetics*, D-tagatose has prebiotic properties[*].

Probiotic foods like yogurt, kefir, and kombucha *supply* your gut with more beneficial bacteria, but probiotic foods *feed* the healthy bacteria that help your gut, brain, and immune system function correctly.

Studies suggest that combining prebiotic foods with probiotic foods or supplements may also enhance the benefits of taking probiotics for maintaining a healthy microbiome[*].

And one study found that D-tagatose has the ability to encourage growth of lactobacilli in particular, microscopic organisms that might reduce allergies, decrease cancer risk, control cholesterol levels, and lower inflammation[*][*].

#3: Short Chain Fatty Acid Production

Along with supporting probiotic bacteria that help you stay healthy, the prebiotic properties of D-tagatose have another upside.

In a 2004 study, scientists found that a daily dose of tagatose in healthy men and women boosted production of butyrate and other short-chain fatty acids[*].

Short chain fatty acids (SCFAs) like [butyrate](#) are special fats your gut bacteria produce when you eat fiber. (Another healthy source of SCFAs is [grass-fed butter](#), which is high in butyrate.)

These fats are anti-inflammatory and may help prevent colon cancer, promote brain health, and regulate your immune function[*][*].

And some research suggests that many of the health benefits of dietary fiber occur because it enables your gut microbiome to produce more SCFAs[*].

Therefore, according to that line of thinking, D-tagatose may have overlapping health benefits with fiber since it can also increase SCFA production.

#4: Blood Sugar Lowering Effects

D-tagatose can lower blood sugar and insulin levels in people with type 2 diabetes as well as people without diabetes[*].

Keeping blood glucose in check is vital for regaining [insulin sensitivity](#), which is a treatment goal for diabetic patients[*].

However, preventing [insulin resistance](#) is also key for avoiding type 2 diabetes and other serious health conditions.

Researchers think D-tagatose lowers blood glucose by interfering with the absorption of carbs or by preventing your liver from using stored glycogen[*].

And perhaps most impressively, a six-month trial found that low doses (5-7.5 grams, three times daily) of D-tagatose improved HbA1c scores, a measure of insulin sensitivity, in diabetic patients[*].

Safety and Side Effects of D-Tagatose

Overall, D-tagatose appears to be safe.

Although there's no recommended daily intake level, the US Food and Drug Administration categorized D-tagatose as GRAS in 2002[*].

A GRAS ruling stands for "Generally Recognized as Safe" and comes from the FDA's analysis of scientific literature, as well as any known adverse incidents with commercial products.

Basically, the FDA deems D-tagatose safe for its intended use as a food additive.

Some human trials of D-tagatose have found that doses of 30 grams or more cause gastrointestinal side effects like flatulence, diarrhea, nausea, and vomiting[*].

However, only a minority of people appear to be affected, and mostly only with light to moderate symptom severity[*].

The GI side effects of D-tagatose seem to be unpleasant but harmless. They're may be due to osmotic (water-retaining) effects of high D-tagatose doses moving through your intestines.

D-tagatose may interact with some prescription drugs, especially blood sugar lowering drugs, and could cause hypoglycemia (dangerously low blood sugar levels).

And in people with diabetes or a history of kidney stones, temporary rises in uric acid blood levels caused by high dose D-tagatose may be an issue[*].

If you're diabetic, have had kidney stones, take prescription drugs, or want to try D-tagatose specifically to lower your blood sugar, speak to your physician first.

Is D-Tagatose the Latest, Greatest Keto-Friendly Sweetener?

D-tagatose is a very promising keto sweetener, but only time will tell if it catches on. So far it's not a mainstream ingredient, but recent studies on its health benefits may change that.

In the meantime, it's far from your only option for satisfying your sweet tooth on keto. Check out [Your Guide to the Top 4 Keto Sweeteners](#) for the best widely available keto-friendly sweeteners.

On the other hand, if you're new to keto, it's *not* always a good idea to indulge urges for your favorite foods. Rather than keeping up old eating patterns, you could learn [how to stop sugar cravings](#) instead (we believe in you!).