A popular low calorie sweetener may raise the risk of blood clotting

Scientists have linked erythritol to an increased risk of blood clotting. Marisa9/Getty Images

- **Sugar substitutes have been around since 1879.**
- **One of the latest types of sugar substitutes are sugar alcohols, such as erythritol.**
- **Previous research has linked erythritol to cardiovascular issues such as heart attack and stroke.**
- **Researchers have now found that using erythritol may increase a person's risk of blood clots.**

Since the invention of the very first sugar substitute saccharin in 1879, scientists have been continuing to look for ways to create the sweet taste of sugar without the calories it has.

Recently, sugar alcohols have become a common sugar replacement. Sugar alcohols tend to be slightly less sweet or equally as sweet as natural sugar, allowing them to seamlessly replace sugar in some foods.

One commonly used sugar alcohol is erythritol — a sugar alcohol naturally found in certain fruits and vegetables and is commercially made through the fermentation of a simple sugar called dextrose found in corn.

Previous research has linked erythritol to an increased risk for cardiovascular issues, such as a study published in March 2023 that found an association between erythritol use and an increased risk for major cardiovascular eventsTrusted Source including heart attack and stroke.

“Our earlier studies with erythritol showed in large-scale clinical observation studies that elevated blood erythritol levels were associated with incident risk of myocardial infarction, stroke, and death,” Stanley L. Hazen, MD, PhD, chair of Cardiovascular and Metabolic Sciences of the Lerner Research Institute and co-section head of Preventive Cardiology Cleveland Clinic, who was one of the authors of the March 2023 study, told *Medical News Today* in an email.

He said both animal and blood-based studies indicated that a prothrombotic effectTrusted Source with erythritol could explain the underlying mechanism.

Now, Hazen and his colleagues have continued their erythritol research with a new study recently published in the journal *Arteriosclerosis, Thrombosis and Vascular Biology*Trusted Source, reporting that erythritol use may also increase a person’s risk of blood clots, which when formed inside a blood vessel can restrict the movement of blood and oxygen around the body.

Erythritol consumption raises blood levels by more than 1,000 times

For this study, Hazen and his team recruited 20 healthy volunteers — non-smokers without cardiovascular disease and no medical history of bleeding disorders.

Ten of the volunteers received water mixed with 30 grams of glucoseTrusted Source, while the other ten were given water mixed with 30 grams of erythritol.

“The amount of erythritol used is precisely what often is included and consumed in processed foods and artificially sweetened beverages,” Hazen, who is the senior and corresponding author of this study, told *Medical News Today*. “(We) directly tested in humans the effect of erythritol ingestion, comparing before vs after ingestion in each subject. (We) also directly tested the effect of a head-to-head comparison with a sugar-sweetened drink to see if glucose caused the same effects.”

Upon analysis, researchers found participants who received erythritol experienced an increase in their blood erythritol levels by more than 1,000 times.

Erythritol linked to 'significant increase' in blood clot risk

The researchers also discovered that study participants showed a significant increase in their blood platelet activity after ingesting erythritol, raising their risk of blood clot formation. However, no change was found in the participants who consumed glucose.

"In this small group of healthy volunteers, we show ingesting erythritol made platelets more hyper-responsive — that is they show a more robust degree of activation to a submaximal stimulus, which can raise the risk of blood clots," Hazen explained. "Every subject, for every measurement made, at every dose/level, showed an increase in clotting potential after drinking erythritol. In stark contrast, no change was observed in participants after consuming a comparable amount of glucose."

"What is the significance of this? — it is a public health concern," he continued. "The very subjects most likely to ingest the sugar substitute are also often the ones most at risk for experiencing a heart attack or stroke. So rather than reaching for what one hopes to be a healthy alternative, paradoxically, ingesting an erythritol-sweetened food or beverage may be increasing a person's risk."

Hazen said these findings underscore the importance of further long-term clinical studies to reassess the safety of erythritol and other sugar substitutes.

He underscored that people who have an increased risk of thrombosis, such as those with conditions like heart disease, diabetes, or metabolic syndrome, may want to limit the frequency and amount of sugar-sweetened treats they consume, and choose them over drinks and foods sweetened with these sugar alcohols

"We plan to explore how broadly the pro-thrombotic effect is in alternative sugar substitutes including both alternative sugar alcohols and common artificial sweeteners," he added.

A concerning relationship between erythritol and blood clots

After reviewing this study, Yu-Ming Ni, MD, a board certified cardiologist and lipidologist at MemorialCare Heart and Vascular Institute at Orange Coast Medical Center in Fountain Valley, CA, told *MNT* while this is a small study, it definitely suggests some basis for a relationship between erythritol and blood clots, which makes him concerned.

"I think it goes back to all the other sugar substitutes that have been invented over the years that have had their own issues, concerns with cancerTrusted Source, concerns with worsening blood sugar controlTrusted Source because of the extreme sweetness of these [artificial] sweeteners," Ni continued. "So you do ask yourself whether just actually using sugar is better — just limiting the amount."

“I know that for our family, a little bit of sugar is actually understandable in certain circumstances,” he added. “I would much rather do that or honey or maple syrup rather than use [an artificial] sweetener. And I know for myself, I’m definitely looking for erythritol in my pantry and getting rid of it.”