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Natural Sweeteners: Erythritol
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As this sugar alcohol soars in popularity, here's what RDs need to know.

With more Americans than ever aiming to reduce their added sugar intake, consumers are looking toward lower- or no-calorie sweeteners, especially those made from “natural” ingredients. Recent Nielsen data revealed 33% of US consumers are aware of and seek out products with reduced or no added sugars, the fourth highest consumer concern out of 16 options.¹ While sweeteners such as stevia are better known in the natural, zero-calorie sugar alternative category, the sugar alcohol erythritol is gaining traction and being used in many popular and upcoming brands.

What Is Erythritol?

Erythritol is classified as a sugar alcohol, or polyol, that occurs naturally in small amounts in certain fruits and vegetables as well as fermented foods such as wine and soy sauce.^{2,3} It's produced by fermenting yeast with glucose from corn or wheat starch.^{4,5}

Compared with xylitol—another popular sugar alcohol—and cane sugar, erythritol contains significantly fewer calories—0.24 kcal/g vs 2.4 kcal/g for xylitol and 4 kcal/g for sugar. The well-known plant-derived stevia contains 0 kcal/g.⁶ Erythritol is 70% as sweet as sugar, xylitol is 95% as sweet, and stevia is 200 to 300 times sweeter. Whereas xylitol has a glycemic index of 7, erythritol and stevia have a glycemic index of 0; none of these sugar substitutes have been shown to have much or any impact on blood sugar.⁶⁻⁸

Erythritol's metabolism is different from most sugar alcohols, which pass through the digestive system unchanged and are fermented by bacteria in the colon. Roughly 90% of erythritol is absorbed in the small intestine and into the bloodstream before it reaches the colon and eventually is excreted through the urine, unchanged.^{3,5} In addition, erythritol is generally recognized as safe by the FDA.⁹

The Rise of Erythritol

According to SPINS, a wellness-focused data technology company, erythritol saw triple-digit growth over the past year in the shelf-stable, low- and no-calorie sweetener category. In comparison, stevia saw only 3.6% growth in the same category over the same timeframe. Popular especially among keto enthusiasts, erythritol grew exponentially in all store formats but increased most in the conventional multioutlet channel. Sales of all natural, organic, specialty, and wellness-positioned erythritol products sold at conventional grocery stores in the United States over the past year are estimated to have risen 326.8% to \$13.9 million.

Brands and Uses

The following are some of the newest and most prominent erythritol offerings on the market, as well as common nonfood uses.

Swerve Sweetener

Louisiana-based Swerve Sweetener primarily is made from erythritol but also includes prebiotic fibers from starchy root vegetables, increasing its sweetness to be as sweet as sugar and helping baked goods brown and caramelize. The prebiotic fibers also help reduce erythritol's “cooling” effect (similar to the mouth feel of consuming mint) and provide a longer shelf life compared with using pure erythritol.

The brand offers granular, confection, and brown sugar varieties in addition to box mixes for cakes, chocolate chip cookies, waffles, and pancakes. It also sells the sweetener in bulk for bakeries, restaurants, and foodservice operations, and it can be used as a 1:1 replacement for sugar.¹⁰

Zero Worries Foods

Zero Worries Foods in California, sells Zsweet, which is erythritol in the form of granulated and powdered sugar varieties. Like Swerve, the company adds other ingredients, including organic stevia leaf extract and natural botanical extracts, to make Zsweet sweeter and more comparable to sugar. Zero Worries then crystallizes Zsweet for the final product, which can be substituted equally for sugar in recipes.¹¹

So Nourished

So Nourished sells erythritol in powdered and granular varieties in addition to a monk fruit and erythritol blend in powdered and granular forms.¹² Based in New York, the brand was started by three low-carbohydrate diet enthusiasts and positions its products as a ketogenic, low-carbohydrate diet-friendly alternative to sugar.¹³ Its granular and powdered erythritol products can't be substituted cup for cup for sugar, but its blend of erythritol and monk fruit can.

Pyure

While Pyure is better known for its stevia products, the company sells products made of a mixture of erythritol and stevia, including a sugar-free maple-flavored syrup. It also sells organic erythritol with nothing added.¹⁴

Wholesome

Wholesome features a vast portfolio of organic sweeteners, including traditional sugars, icings, and syrups. Among its offerings is ZeroSugar organic erythritol. Since it's pure erythritol, ZeroSugar can't be substituted in a 1:1 ratio for sugar.¹⁵

Other Uses

Erythritol is used in several applications beyond food. Due to its cooling properties and purported oral health benefits, erythritol often is used to sweeten chewing gum.¹⁶ For the same reason, it's often used in oral care products such as toothpaste and by the pharmaceutical industry in products such as sugar-free throat lozenges, powders, and syrups. Erythritol can improve the mouthfeel of medicines and mask unwanted aftertastes and effects such as astringency, making it an ideal sweetener for pharmaceutical applications.² When combined with maltodextrin, erythritol can be used in the production of chewable, effervescent, or swallowing tablets.

Research on Benefits

Erythritol has been purported to have not only oral health benefits but also antioxidant properties. Potential areas of and evidence for such benefits include the following:

- **Digestion:** Sugar alcohols most notably have a bad reputation for their propensity to produce upset stomach. Because most erythritol consumed never reaches the colon, the likelihood of gastrointestinal upset and gas is low when it's eaten in reasonable amounts.⁵
- **Flavor:** Erythritol has no aftertaste, another commonly associated downfall of sugar substitutes. Because it lacks an aftertaste, erythritol can be combined with other sweeteners to create sweetness more comparable to sugar.² When erythritol is combined with other sugar substitutes, it helps dilute the aftertaste of the other sweetener while still contributing to the sweetness of the product.
- **Oral health:** Both human and in vitro studies have shown that erythritol may be beneficial to dental health by reducing dental plaques and the adherence of certain bacteria to the surface of teeth while stopping the growth of bacteria associated with dental caries, or cavities. In some cases, erythritol

reduced the incidence of dental caries up to three years after the study. In human studies that compared the dental benefits of erythritol with those of xylitol and sorbitol, erythritol was shown to be more effective at reducing development and incidence of dental caries.¹⁷

- **Antioxidant properties:** Animal and human studies suggest erythritol may have antioxidant properties, though more research is needed.⁵ One human study supplemented the diets of 24 participants with type 2 diabetes with 36 g of erythritol per day to observe short- and long-term effects. Researchers observed that erythritol consumption acutely benefited small vessel endothelial function, and chronic consumption reduced central aortic stiffness, which researchers attributed to reduced oxidative stress.¹⁷

Considerations

While erythritol has many upsides, there are a few not-so-sweet factors. Most notably, erythritol usually is more expensive than other sugar alternatives. The time-consuming fermentation process and the difficulties of making the sweetener in such large batches drives up its price. Although there's research underway on methods to improve production, costs aren't decreasing yet.¹⁸

Moreover, since erythritol is only 70% as sweet as sugar, it can't be substituted for sugar in a recipe in a 1:1 ratio unless it's combined with other sweeteners. One-quarter to one-half cup of pure erythritol can be used to replace one cup of sugar. However, the crystallization that changes its texture and the cooling effect of erythritol can impact the flavor and shelf life, making baked goods last for only one day.^{19,20}

Key Takeaways

Erythritol may be a good option for clients and patients looking to reduce sugar intake. Although it's technically a sugar alcohol, the sweetener has quite a few differentiators that many would consider favorable, such as the lack of stomach upset and aftertaste. Even though pure erythritol can't be substituted cup for cup for sugar, popular brands feature innovations that allow it to function like sugar without significantly noticeable differences. And while a higher price point is one of its downfalls, it hasn't stopped erythritol from seeing exponential growth over the last year.

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