
Natural Sweeteners

When you are trying to improve your diet and limit how much sugar you eat, knowing the best options can be a challenge. The lists here describe various types of natural sweeteners and the pros and cons of each category. There are three categories of natural sweeteners: natural caloric sweeteners, non-caloric sugar alternatives, and sugar alcohols. While natural sweeteners have some advantages in comparison to refined sugars (such as corn syrup or table sugar), it is recommended to limit all sweeteners for optimal health.

DAILY SUGAR LIMITS

The American Heart Association advises limiting daily intake of “added” caloric sweeteners to:

- **6 teaspoons: women and kids**
- **9 teaspoons: men**

Natural Caloric Sweeteners

These sweeteners contain calories and sugar, so they raise your body’s blood sugar and can cause dental cavities. Most are included in the “added sugars” total on a food’s Nutrition Facts label. For more information about added sugars and label reading, see IFM’s [Overview of Sweeteners](#) document.

For optimal health, caloric sweeteners should be significantly limited. The following options are best due to their modest benefits:

- **Coconut sugar:** This type of sugar is made from the sap of coconut palm trees, and it tastes similar to brown sugar. Coconut sugar contains small amounts of minerals, antioxidants, and fiber.
- **Dates:** Dates are considered one of the world’s oldest fruits. They contain fiber, along with small amounts of vitamins, minerals, and antioxidants. While dates contain sugar, most varieties do not raise blood sugar as high as table sugar. Some research suggests dates may improve cholesterol because of their phytonutrient content. Because they are a whole fruit, dates are not included in the added sugars total of a food package’s label.
- **Honey (raw):** Honey contains small amounts of antioxidants. There is some research to suggest that honey may be helpful for controlling a temporary cough and improving allergic (hay fever) symptoms.
- **Maple syrup (100%):** Pure maple syrup contains small amounts of vitamins, minerals, and antioxidants. It also provides more flavor in comparison to table sugar. Read food labels carefully to make sure you get 100% pure maple syrup (with no corn syrup or maple flavoring).
- **Blackstrap molasses (100%):** Blackstrap molasses are darker and more bitter-tasting compared to regular molasses. It contains small amounts of vitamin B6 and minerals (including calcium, magnesium, and iron).

Natural Sugar Alternatives

These sweeteners do not contain sugar and are virtually calorie-free, so they are not included in the sugar total of a food package's Nutrition Facts label. To find out if a food contains these sweeteners, check the ingredients list of the package.

In general, these are good options for supporting healthy blood sugar balance and avoiding added sugars:

- **Stevia leaf:** Stevia comes from a plant grown in South America (*Stevia rebaudiana*), and it tastes much sweeter than table sugar. There is some evidence to suggest that pure stevia may be helpful for blood sugar management. There are commercial sweeteners that are partially made with stevia, but they also contain additives that may cause adverse reactions. Because of this, 100% pure stevia extract or stevia leaf is best.
- **Allulose:** Allulose is referred to as a "rare sugar" because it is naturally found in only a few fruits, and it does not raise blood sugar or provide calories. It tastes slightly less sweet than table sugar. There is some evidence to suggest that allulose may be a good sweetener for blood sugar and weight management, but it may cause digestive symptoms if eaten in large amounts. It is recommended to gradually increase your intake of this sweetener to prevent unwanted digestive symptoms.
- **Tagatose:** Tagatose is another "rare sugar" found naturally in only a few foods, and it has a chemical structure similar to fruit sugar (fructose). It tastes about as sweet as table sugar, but it does not raise blood sugar. Research has shown tagatose may be helpful for blood sugar management, oral health, and the gut microbiome. This sweetener may cause digestive symptoms when eaten in large amounts, so it is recommended to gradually increase your intake of this sweetener.
- **Monk fruit (luo han guo) extract:** Monk fruit (*Siraitia grosvenorii*) is a small round fruit that has been used in traditional Chinese medicine for hundreds of years. The extract of pure monk fruit juice tastes much sweeter than table sugar, though it does not raise blood sugar. This sweetener is new to the U.S. market and research around its potential benefits is still limited, but it may be a promising sugar alternative.

Tip: To quickly find sugar alcohols in an ingredients list, look for ingredient names ending in "-ol" as in xylitol.

Sugar Alcohols

Sugar alcohols (such as xylitol, sorbitol, mannitol, and erythritol) are derived from some fruits and vegetables, but they can also be manufactured. They are often added to chewing gum, mouthwash, toothpaste, and processed foods. These sweeteners have fewer calories than caloric sweeteners, and they taste slightly less sweet than table sugar.

Sugar alcohols have two advantages: they do not cause dental cavities, and they do not raise blood sugar as much as the caloric sweeteners. Most sugar alcohols should be avoided if you have digestive conditions (such as bacterial overgrowth, yeast overgrowth, or irritable bowel syndrome), as they can

cause diarrhea, gas, and bloating. One possible exception is erythritol, as it is considered the best-tolerated sugar alcohol.

You may see sugar alcohols listed in the carbohydrates section of a food package's Nutrition Facts label; however, food manufacturers are not always required to list them there. It is best to check the ingredients list of a food to determine if sugar alcohols are included.

REFERENCES

1. Johnson RK, Appel LJ, Brands M, et al. Dietary sugars intake and cardiovascular health: a scientific statement from the American Heart Association. *Circulation*. 2009;120(11):1011-1020. doi:10.1161/CIRCULATIONAHA.109.192627.
2. U.S. Department of Agriculture, Agricultural Research Service. FoodData Central, 2019. fdc.nal.usda.gov.
3. Asghar MT, Yusof YA, Mokhtar MN, et al. Coconut (*Cocos nucifera* L.) sap as a potential source of sugar: antioxidant and nutritional properties. *Food Sci Nutr*. 2019;8(4):1777-1787. Published 2019 Sep 30. doi:10.1002/fsn3.1191.
4. Assaad Khalil S, Gaber Amin N, Mohamed Ibrahim A, Zakaria Zaky D, Mounir Bishay M. Glycemic indices of dates "Ramadan Symbolic Food" in patients with type 2 diabetes using continuous glucose monitoring system. *Diabetes Res Clin Pract*. 2021;172:108563. doi:10.1016/j.diabres.2020.108563.
5. Mirghani HO. Dates fruits effects on blood glucose among patients with diabetes mellitus: a review and meta-analysis. *Pak J Med Sci*. 2021;37(4):1230-1236. doi:10.12669/pjms.37.4.4112.
6. Alalwan TA, Perna S, Mandeel QA, et al. Effects of daily low-dose date consumption on glycemic control, lipid profile, and quality of life in adults with pre- and type 2 diabetes: a randomized controlled trial. *Nutrients*. 2020;12(1):217. Published 2020 Jan 15. doi:10.3390/nu12010217.
7. Hajizadeh Maleki B, Tartibian B, Mooren FC, Krüger K, FitzGerald LZ, Chehrizi M. A randomized controlled trial examining the effects of 16 weeks of moderate-to-intensive cycling and honey supplementation on lymphocyte oxidative DNA damage and cytokine changes in male road cyclists. *Cytokine*. 2016;88:222-231. doi:10.1016/j.cyto.2016.09.016.
8. Ahmad NS, Abdul Aziz A, Kong KW, Hamid MSA, et al. Dose-response effect of Tualang honey on postprandial antioxidant activity and oxidative stress in female athletes: a pilot study. *J Altern Complement Med*. 2017;23(12):989-995. doi:10.1089/acm.2017.0129.
9. Ayazi P, Mahyar A, Yousef-Zanjani M, Allami A, Esmailzadehha N, Beyhaghi T. Comparison of the effect of two kinds of Iranian honey and diphenhydramine on nocturnal cough and the sleep quality in coughing children and their parents. *PLoS One*. 2017;12(1):e0170277. Published 2017 Jan 19. doi:10.1371/journal.pone.0170277.
10. Cohen HA, Rozen J, Kristal H, et al. Effect of honey on nocturnal cough and sleep quality: a double-blind, randomized, placebo-controlled study. *Pediatrics*. 2012;130(3):465-471. doi:10.1542/peds.2011-3075.
11. Abou-Zaid, M.M, et al. High-performance liquid chromatography characterization and identification of antioxidant polyphenols in maple syrup. *Pharmaceutical Biology*, v. 46, 1-2 pp. 117-125. doi: 10.1080/13880200701735031.
12. Soejima A, Tanabe AS, Takayama I, et al. Phylogeny and biogeography of the genus *Stevia* (Asteraceae: Eupatorieae): an example of diversification in the Asteraceae in the new world. *J Plant Res*. 2017;130(6):953-972. doi:10.1007/s10265-017-0955-z.
13. Han Y, Kwon EY, Yu MK, et al. A preliminary study for evaluating the dose-dependent effect of d-allulose for fat mass reduction in adult humans: a randomized, double-blind, placebo-controlled trial. *Nutrients*. 2018;10(2):160. doi:10.3390/nu10020160.
14. Noronha JC, Braunstein CR, Glenn AJ, et al. The effect of small doses of fructose and allulose on postprandial glucose metabolism in type 2 diabetes: a double-blind, randomized, controlled, acute feeding, equivalence trial. *Diabetes Obes Metab*. 2018;20(10):2361-2370. doi:10.1111/dom.13374.
15. Kimura T, Kanasaki A, Hayashi N, et al. d-Allulose enhances postprandial fat oxidation in healthy humans. *Nutrition*. 2017;43-44:16-20. doi:10.1016/j.nut.2017.06.007.
16. Han Y, Choi BR, Kim SY, et al. Gastrointestinal tolerance of d-allulose in healthy and young adults. A non-randomized controlled trial. *Nutrients*. 2018;10(12):2010. Published 2018 Dec 19. doi:10.3390/nu10122010.
17. Guerrero-Wyss M, Durán Agüero S, Angarita Dávila L. D-tagatose is a promising sweetener to control glycaemia: a new functional food. *Biomed Res Int*. 2018;2018:8718053. Published 2018 Jan 9. doi:10.1155/2018/8718053.
18. Ensor M, Williams J, Smith R, Banfield A, Lodder RA. Effects of three low-doses of d-tagatose on glycemic control over six months in subjects with mild type 2 diabetes mellitus under control with diet and exercise. *J Endocrinol Diabetes Obes*. 2014;2(4):1057.
19. Ensor M, Banfield AB, Smith RR, Williams J, Lodder RA. Safety and efficacy of d-tagatose in glycemic control in subjects with type 2 diabetes. *J Endocrinol Diabetes Obes*. 2015;3(1):1065.
20. Jayamuthunagai J, Gautam P, Srisowmya G, Chakravarthy M. Biocatalytic production of D-tagatose: a potential rare sugar with versatile applications. *Crit Rev Food Sci Nutr*. 2017;57(16):3430-3437. doi:10.1080/10408398.2015.1126550.
21. Nagamine Y, Hasibul K, Ogawa T, et al. D-tagatose effectively reduces the number of streptococcus mutans and oral bacteria in healthy adult subjects: a chewing gum pilot study and randomized clinical trial. *Acta Med Okayama*. 2020;74(4):307-317. doi:10.18926/AMO/60369.
22. Shivani, Thakur BK, Mallikarjun CP, et al. Introduction, adaptation and characterization of monk fruit (*Siraitia grosvenorii*): a non-caloric new natural sweetener. *Sci Rep*. 2021;11(1):6205. Published 2021 Mar 18. doi:10.1038/s41598-021-85689-2.
23. Wölnerhanssen BK, Cajacob L, Keller N, et al. Gut hormone secretion, gastric emptying, and glycemic responses to erythritol and xylitol in lean and obese subjects. *Am J Physiol Endocrinol Metab*. 2016;310(11):E1053-E1061. doi:10.1152/ajpendo.00037.2016.
24. Storey D, Lee A, Bornet F, Brouns F. Gastrointestinal tolerance of erythritol and xylitol ingested in a liquid. *Eur J Clin Nutr*. 2007;61(3):349-354. doi:10.1038/sj.ejcn.1602532.
25. Lenhart A, Chey WD. A systematic review of the effects of polyols on gastrointestinal health and irritable bowel syndrome. *Adv Nutr*. 2017;8(4):587-596. Published 2017 Jul 14. doi:10.3945/an.117.015560.

