



S*sugar... What a love/hate relationship we humans have with you! Our first food, breast milk, is sweet, and we're hard-wired to seek you out in other foods. You go by dozens of aliases and then hide in places that we never think to look. But we're on to you.*

There was a time when sugar came in just a few forms, was always obvious, and was enjoyed only occasionally. Today, sugar comes in many varieties, has dozens of names, and is found in a dizzying array of foods. As the amount of sugar that we consume has increased, so have the health problems that it feeds.

When we eat too much sugar over a long time, it can lead to what is broadly described as "metabolic syndrome." This is a group of symptoms that, when they appear together, increase the chances that a person will go on to develop a chronic disease, such as diabetes, heart disease, or liver disease. Too much sugar puts stress on organs, including the pancreas and liver. The pancreas is the organ that produces insulin, and insulin is what allows our cells to use sugar properly. If our body can't produce or use insulin correctly, we're likely to develop diabetes, which can then lead to kidney failure, amputations, blindness, increases in the risk of colon and pancreatic cancer, and is strongly linked to coronary artery disease.

Additionally, when the liver gets overwhelmed with too much sugar, it converts that sugar to fat and then stores the fat, which causes liver damage. One of the most common types of sugar, fructose, is toxic to the liver, just like alcohol. Excess fructose is also broken down into fat globules (triglycerides) that go into the bloodstream and are then

stored around the midsection and internal organs. These fat cells send out hormonal signals that disrupt our bodies' normal chemical balance. They are being investigated as contributing to a number of diseases, including heart disease, stroke, diabetes, cancer, and Alzheimer's.

How can we reduce the amount of sugar we consume?

1. Say good-bye to sugar-sweetened beverages. Liquid sugar (like what's in sodas, sports drinks, coffee and energy drinks) is the #1 source of added sugar in American's diets. Liquid sugar hits our bodies fast and hard, and it easily overloads our systems. Plus, we don't have the sensation of ingesting the sugar in the same way we do when we eat it, so it's easy to consume too much.
2. Read nutrition facts labels. They can help you figure out how much sugar is naturally occurring, how much is added, and the total amount. Check out the December 2019 Topic of the Month, ["Decoding Nutrition Labels."](#)
3. Learn the aliases that sugar hides behind. Watch out for ingredients that end in the letters -ose (such as sucrose, maltose...). Some additional sweet ingredients are:
 - HFCS (High-Fructose Corn Syrup)
 - Beet Sugar
 - Corn Sweetener
 - Evaporated Cane Juice
 - Barley Malt
 - And yes, even honey & agave!

There are 61 other names for sugar! To learn the rest of them, and how they all impact your health, visit www.sugarscience.ucsf.edu

What's the skinny on Sugar Substitutes?

Also known as nonnutritive sweeteners (NNSs) or artificial sweeteners, sugar substitutes seem like they would be the answer to all our sugar problems: the sweet taste we want with none of the calories. But... just like the rest of life, you don't get something for nothing.

The FDA has approved 8 nonnutritive sweeteners: aspartame, saccharin, sucralose, and stevia are the most common.

Acesulfame potassium, Luo Han Guo (monk) fruit extract, neotame, and advantame are also available.

- Aspartame (Equal®, NutraSweet®, etc.) is about 200 times sweeter than plain sugar. It's used in many types of foods and drinks, as well as a "table top" sweetener. It's often in a blue packet. People that have phenylketonuria (PKU) cannot metabolize it and must not consume it.
- Saccharine (Sweet 'N Low®, etc.) is anywhere from 200 - 700 times sweeter than table sugar and is often found in a pink packet.
- Sucralose (Splenda®, etc.) is approximately 600 times sweeter than sugar. It retains its sweetness after heating and so can be used in baking. It's found in many types of foods and is often packaged in yellow packets.
- Stevia (Truvia®, SweetLeaf®, etc.) comes from the leaves of the stevia plant. It's 200-300 times sweeter than sugar and is a table-top sweetener and in a wide variety of foods. It is often mixed with other artificial sweetener to reduce its bitterness. It's often found in a green packet.

There are both pros and cons of sugar substitutes. The pros include reducing the total calories in foods and a lower impact on blood sugar levels. They don't cause dental cavities, and many people enjoy their sweet taste.

However, not everything is sweet with sugar substitutes. It's not unusual for people to save calories by using nonnutritive sweeteners, only to replace those reduced calories by consuming more calories in other foods.

Because sugar substitutes are hundreds of times sweeter



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than sugar, we can get used to that level of intense sweetness and then lose our ability to enjoy normal levels. We may even come to find foods without any sweetness (such as vegetables) to be unpleasant.

Additionally, nonnutritive sweeteners can prevent us from associating sweet tastes with consuming calories. We then consume more sweets overall, even if they contain significant amounts of sugar.

Artificial sweeteners may be addictive as well. In a study where lab rats were exposed to cocaine and then given a choice of more cocaine or saccharine, most of them chose to drink the saccharine.

As to safety, the jury is still out. The studies that lead to FDA approval mostly ruled out cancer risk. Research into how these sweeteners impact the types of bacteria in our guts is in the early stages. There is not conclusive evidence about the effects of consuming large amounts of artificial sweeteners over many years, and daily consumption of diet sodas has been linked with a greater risk for metabolic syndrome, Type 2 diabetes, and stroke.

Is there a role for artificial sweeteners? Possibly, if they're used as a short-term replacement strategy on the way to a healthier diet. For instance, if someone wanted to give up sugar-sweetened soda, diet soda could help them do that. The end goal isn't to switch to diet sodas though. The end goal is to have our primary beverage become water.

Does this all mean that we go back to sugar? Sugar itself isn't necessarily the problem; it's the form and what food it's in. If it's the sugar that's naturally contained in fruits and vegetables, that means overall good nutrition. If it's sugar that's refined, concentrated and consumed in large quantities, then that sugar is going to cause problems.

To learn more about all 8 of the FDA approved artificial sweeteners and the ways that they can impact your health, visit: <https://www.health.harvard.edu/blog/artificial-sweeteners-sugar-free-but-at-what-cost-201207165030> and <https://my.clevelandclinic.org/health/articles/15166-sugar-substitutes--non-nutritive-sweeteners>

**TAKING CARE OF OURSELVES CAN TAKE A LOT OF SUPPORT. WE'RE HERE TO HELP!
ASK A NURSE OR PROVIDER IF YOU'D LIKE TO TALK.**