

Q&A: Why we love sweets—understanding the science of sugary foods

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Sugar, a simple carbohydrate that provides a quick source of energy for the body, is in many foods and beverages we consume daily—from fruits, vegetables and dairy products, to candy, pastries and other

desserts.

Observances such as the recently recognized National Pie Day (Jan. 23) and National Chocolate Cake Day (Jan. 27) invite us to indulge our [sweet tooth](#)—but what causes us to crave sugary foods?

To better understand the physical and mental effects of sugar, The Daily spoke with Lindsay Malone, an instructor in the Department of Nutrition at Case Western Reserve University.

How do taste buds specifically respond to sugar in the body? What factors contribute to individuals experiencing cravings for sugary foods?

You have taste receptors in your mouth and gut that respond to sweets. These taste receptors transmit information via sensory afferent fibers (or nerve fibers) to specific areas in the brain that are involved in taste perception. There are four types of taste receptor cells to detect sweet, umami, bitter and sour tastes.

Foods that stimulate the reward system in your brain, like sugar and other foods that spike your blood sugar, can lead to cravings. Foods that are hyperpalatable (those that are sweet, salty, creamy and easy to eat) can also trigger hormones that contribute to cravings—such as insulin, dopamine, ghrelin and leptin.

What role does the brain play in the pleasure associated with consuming sweet foods, and how does this contribute to the desire for more sugary treats?

Your central nervous system is closely connected with your digestive

tract. Some taste receptor cells are also present in your gut, so when you eat sweet foods and have a rise in blood sugar your brain says, "this is good, I like this. Keep doing this."

We are hardwired to seek out quick energy in case there is a famine or we need extra energy to run from a burning building or a tiger. Our genes haven't evolved as fast as our environment.

We also form associations with foods that enhance cravings. Think about a donut with your morning coffee. If this is your regular habit, it's not surprising that you'd want a donut every time you have coffee. Your brain sees the coffee and starts wondering where the donut is.

What are some potential benefits and dangers of sugar consumption?

Sugar can be useful for sports, exercise, athletes etc. Prior to an event, hard workout or competition, easy-to-digest sources of sugar can come in handy. They will provide quick fuel for muscles without slowing down digestion. Honey, pure maple syrup, dried fruit, and low-fiber fruits (such as bananas and grapes) can help with this.

Problems associated with sugar intake are exacerbated by physical inactivity. Excess sugar, added sugars and other simple carbohydrates like white flour and 100% juice are associated with [dental caries](#), [metabolic syndrome](#), inflammation, hyperglycemia (or high blood sugar), diabetes, insulin resistance, overweight, obesity, heart disease, and even Alzheimer's disease. Sometimes, the relationship is causal; other times, it is one component in a group of factors that leads to disease.

How can we develop a healthier relationship with

sweet foods through mindful consumption?

Some tips include eating slowly, chewing well and savoring our food. It is also important to be involved with our food however possible—whether through gardening, meal planning, shopping or cooking and baking. Making our own food puts us in control of the sugar we consume.

In terms of moderation, what can we do to better control sugar cravings?

There are four strategies I recommend for reducing reliance on sugar:

- Eat whole, minimally processed foods. Volume, fiber and protein can help reduce insulin spikes and food cravings.
- Weed out added sources of sugar. Stop adding sugar, syrup, artificial sweeteners to foods. Read labels and choose products without added sugar. These commonly include beverages, coffee cream, spaghetti sauce and condiments.
- Drink mostly unsweetened beverages such as water, seltzer, [herbal tea](#) and coffee.
- Stay active and maintain good body composition, such as body fat and [muscle mass](#) in a healthy range. Muscle uses circulating blood sugar and helps combat insulin resistance. The end result is better [blood sugar](#) control with fewer spikes and dips.

Provided by Case Western Reserve University

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