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Study Shows Link Between Malignancy and Artificial Sweeteners

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STORY AT-A-GLANCE

- A March 2022 study shows a link between artificial sweeteners and cancer, even after controlling for factors known to contribute to cancer, including age, weight gain, physical activity and family history of cancer
- Artificial sweeteners are commonly found in diet and low-calorie foods. However, they are also found in foods that you may have thought were either sweetened with sugar or not sweetened at all, such as bread, Pedialyte, Greek yogurt, granola cereal, non-diet ginger ale and microwave kettle popcorn
- Evidence suggests that artificial sweeteners also trigger beneficial bacteria to become pathogenic, lower the number of gut bacteria and raise the risk of obesity, Type 2 diabetes, cardiovascular disease and stroke
- Artificial sweeteners not only are linked to neurobehavioral changes, depression, headache, poor mood, but also could trigger seizures. Although manufacturers use the lure of low or no calories, the sweeteners may promote weight gain and can harm your health

A study[1] published March 24, 2022, supports past research that shows artificial sweeteners can increase your risk of cancer. Many people make the mistake of believing that since artificially sweetened products have fewer calories and no sugar, they therefore must be healthier. Yet, there is mounting evidence that the rising rates of

obesity and cardiovascular disease are linked to consuming food products with artificial sweetener.

Artificial sweeteners became more popular after thousands of studies over many decades showed that sugar damages your health. As the sugar industry has successfully manipulated the evidence and misdirected the public, they also created a demand for artificial sweeteners with zero calories.

Sugar-sweetened beverages are the leading source of added sugar in the U.S., estimated to account for 341.1 calories from drinks in an adult's diet and 312.6 calories in a child's diet every single day.[2] Despite this damaging evidence, sales have continued to rise, from $314.4 million in 2013 to $414.8 million in 2021.

This offers further evidence of both the addictive quality of sugar and artificially sweetened food and drink and the effectiveness of the sugar industry's ability to hide the evidence.

Even the Centers for Disease Control and Prevention[3] stops short of advising Americans to ditch sugar-sweetened beverages to avoid chronic disease. This isn't entirely surprising, considering former CDC director Dr. Brenda Fitzgerald received $1 million in funding from Coca-Cola[4] to purportedly combat childhood obesity during her six-year stint as commissioner of Georgia's public health department. She also has a history of promoting the soda industry's "alternative facts."

One of those alternative facts is that soda and junk food are not responsible for obesity.[5] According to statistics from 2016,[6] 39.6% of American adults were obese, not just overweight. By 2021,[7] that number had reached 42% of adults who were obese and 35% who were overweight.

The American Obesity Association[8] expects this trend to continue and predicts 50% of people will be obese by 2025 and 60% by 2030. Beverage makers advertise their artificially sweetened products as a healthier alternative to sugar, which makes it confusing, since when it comes to health, artificial sweeteners cause just as many health problems as sugar.

Even worse, most people don't seem to catch on that artificial sweeteners likely have the opposite effect of what they're trying to achieve with weight loss. In addition to promoting obesity, artificial sweeteners are not safe alternatives and are linked to multiple different health effects, including cancer.

Study Concludes Artificial Sweeteners Increase Cancer Risk

A team of scientists from the French National Institute for Health and Medical Research and Sorbonne Paris Nord University in France[9] sought to look at the safety of artificial sweeteners — a topic that has been the subject of debate since they were released, despite multiple studies demonstrating adverse health effects.

This team looked at data from 102,865 adults enrolled in the ongoing NutriNet-Santé study against risk of cancer. Enrollment was voluntary, during which participants self-reported their diet, lifestyle, health data, medical history and socio-demographic information.[10]

Past studies had resulted in conflicting findings. This team was interested in the carcinogenicity of specific artificial sweeteners, including sucralose, aspartame and acesulfame-K, also known as Ace-K and marketed as Sunnet and Sweet One.[11]

The researchers looked at overall cancer risk and cancer by original site of tumor growth.[12] The population-based cohort included information from 2009 to 2021 with a median follow-up time of 7.8 years. The researchers gathered data through a 24-hour dietary record and looked for associations between artificial sweeteners and cancer incidence.

The data were adjusted for multiple factors known to affect cancer diagnosis, including age, weight gain, physical exercise and family history of cancer. The results showed that individuals who consumed the highest level of artificial sweeteners had a higher overall risk of cancer, with the highest risks observed for breast cancer and obesity-related cancers. The researchers found associations between aspartame and Ace-K, writing:[13]

"Our findings do not support the use of artificial sweeteners as safe alternatives for sugar in foods or beverages and provide important and novel information to address the controversies about their potential adverse health effects.

While these results need to be replicated in other large-scale cohorts and underlying mechanisms clarified by experimental studies, they provide important and novel insights for the ongoing re-evaluation of food additive sweeteners by the EFSA [European Food Safety Authority] and other health agencies globally."

Artificial Sweeteners Found in Many Processed Foods

Artificial sweeteners are found in many of the processed foods sold in the grocery store. As the sugar industry pivots to create foodstuffs for people eating low-carb meals without sacrificing taste, they add artificial sweeteners. Business Insider[14] looked at 24 processed foods you commonly find in the store that have artificial sweeteners.

Many of these you likely would have guessed had either added sugar, high fructose corn syrup (HFCS) or artificial sweeteners, for example, Diet Snapple, Nestle mini marshmallows and Breyers Carb Smart Ice Cream. After all, if sugar is a carbohydrate, how else can you make low-carb ice cream taste good without sugar?

But other staples you may have thought were sweetened with sugar, also have artificial sweeteners, such as ketchup and Thomas' Whole Grain English Muffins. Nearly every food product labeled "light," "lite" or "low-calorie" also comes with a side order of artificial sweetener. But did you know that Pedialyte — a commonly used rehydration fluid in children with vomiting and diarrhea — also contains sucralose and Ace-K?

Greek yogurt, bottled salad dressing, and granola cereals may have natural sugars, but near the bottom of the ingredient list you'll also likely find artificial sweeteners.[15] If you're steering away from "diet" foods, you'll also find sugar substitutes in microwave kettle popcorn, non-diet ginger ale, chewing gum and toasted coconut almonds.[16] In

fact, unless you're carefully reading the labels on any processed food you purchase, including bread, you're likely getting artificial sweetener.

Increased Risk of Gut Bacterial Biofilms

Let's start in the first place where artificial sweeteners can impact your health — in your gut. Much of the past research demonstrating a change in gut bacteria had used sucralose. One study[17] found that sucralose lowered gut bacteria in an animal model by at least 47.4% and increased the pH of the intestines. Another study[18] showed sucralose had a metabolic effect on bacteria and could inhibit the growth of certain species.

Researchers from Angelia Ruskin University tested the most popular sweeteners used in foods and hot beverages, including sucralose (Splenda), aspartame (NutraSweet, Equal and Sugar Twin) and saccharin (Sweet and Low, Necta Sweet and Sweet Twin).[19] The data revealed that the products have a pathogenic effect on two types of gut bacteria.

Using lab data, the researchers showed that sugar substitutes triggered beneficial bacteria to become pathogenic. This could potentially increase your risk of serious health conditions and was the first study to demonstrate how two types of beneficial bacteria could become diseased and invade the gut wall.[20]

In this case, researchers studied Escherichia coli (E. coli) and Enterococcus faecalis (E. faecalis) and found they killed Caco-2 cells that line the wall of the intestines. The concentration of artificial sweeteners commonly found in two cans of diet soft drinks increase the ability of the bacteria to adhere to the Caco-2 cells and increased the development of bacterial biofilms.

Biofilms promote the invasion of intestinal cell walls and make the bacteria less sensitive to treatment and more likely to express variance that causes disease. Havovi Chichger, Ph.D., lead author, spoke about the results of the study in a press release:[21]

> *"Our study is the first to show that some of the sweeteners most commonly found in food and drink — saccharin, sucralose and aspartame — can make normal and 'healthy' gut bacteria become pathogenic. These pathogenic*

changes include greater formation of biofilms and increased adhesion and invasion of bacteria into human gut cells.

These changes could lead to our own gut bacteria invading and causing damage to our intestine, which can be linked to infection, sepsis and multiple-organ failure."

Sweeteners Linked to Obesity and Type 2 Diabetes

Changes to the gut microbiome are some of the underlying factors that lead to other health conditions associated with sugar substitutes. Past studies have demonstrated that artificial sweeteners raise your risk of obesity and Type 2 diabetes, perhaps to an even greater degree than sugar. In 2018,[22,23] animal research presented at the annual Experimental Biology conference in San Diego confirmed this.

The study explored how different sweeteners affect the ways food is used and stored in the body and how they affect vascular functioning. The researchers found that sugar and artificial sweeteners lead to impairment in both criteria, albeit through different pathways. Animals were fed diets high in artificial sweeteners or sugars (white or high fructose corn syrup) for three weeks and all demonstrated increased blood lipids.

However, artificial sweeteners accumulated in the blood, harming the vessel lining to a greater degree. Of the two artificial sweeteners tested, aspartame or Ace K, Ace K appeared to be worse. Lead author Brian Hoffmann, Ph.D., said,[24] "In moderation, your body has the machinery to handle sugar; it is when the system is overloaded over a long period of time that this machinery breaks down."

Artificial sweeteners, on the other hand, wear the machinery down. "Sweeteners kind of trick the body. And then when your body's not getting the energy it needs — because it does need some sugar to function properly — it potentially finds that source elsewhere," he says.[25]

Artificial sweeteners can worsen your insulin sensitivity and promote weight gain. Excessive consumption has been associated with cardiovascular disease and stroke.[26]

One popular artificial sweetener, aspartame, continues to be used despite increasing evidence it has negative health effects.

In one study,[27] healthy adults were asked to consume a high aspartame diet for eight days followed by a low aspartame diet for eight days, with a two-week washout between. During the high aspartame period, individuals suffered depression, poor mood and headaches. They performed worse on spatial orientation tests, which indicates aspartame has a significant effect on neural behavioral health.[28]

The high aspartame diet was well below the maximum acceptable daily intake, causing the researchers to warn, "careful consideration is warranted when consuming food products that may affect neurobehavioral health."[29] Researchers have suggested aspartame may trigger insomnia, headache and seizures related to changes in concentrations of catecholamine in the brain.[30]

One study[31] evaluated whether people with mood disorders are more vulnerable to the effects of aspartame. The study was halted by the Institutional Review Board after 13 had completed the study, but experienced severe reactions.

Zero Calorie Doesn't Mean Zero Impact on Your Health

Manufacturers bait consumers with the lure that artificial sweeteners have reduced calories and may help with weight loss efforts. Yet, years of exposure have demonstrated that it has not made a positive impact on the obesity epidemic. In fact, since the 1980s, the prevalence of obesity has continued to rise in adults.[32]

In an effort to lower the number of both sugar- and artificially-sweetened beverages sold in Philadelphia, the city levied a beverage excise tax.[33] One study[34] compared the change in prices and sales after the tax was levied in Baltimore, which served as a control city without tax. They found the tax was associated with a substantial decline in the number of beverages sold.

However, the volume was partially offset by rising sales in neighboring areas. Another study looked at the impact employers could have by banning sales of sugar-sweetened

beverages in the workplace. They found a reduction in waist circumference without a change in body mass or insulin sensitivity.

It's important to note the ban existed only during work hours and employees were free to drink as they wished outside of work. In other words, the researchers found a reduction in waist circumference in employees when their sugar-sweetened beverages were limited only during work hours.

One of the most straightforward steps you can take to improve your health is to give up all forms of soda, both those sweetened with sugar and those with artificial sweeteners, but the American Beverage Association and the sugar industry are not interested in your health. Instead, they are interested in protecting profits.

Consider drinking clean, pure water instead of sugar-sweetened beverages and choosing organically grown produce and regeneratively raised, pastured meats to protect your health and your future.

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