

More Reasons Why Splenda Isn't so Splendid

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Splenda (sucralose) may dampen your immune system at high doses, according to a research team from the Francis Crick Institute in London
- › Sucralose consumption lowered the activation of T cells, which play an important role in immune function, in response to either a bacterial infection or cancer in mice
- › When the mice no longer consumed sucralose, their T cells began to work normally again
- › The study also casts more doubt on claims that sucralose is inert, with researchers concluding, “our study adds to the evidence that sucralose is not an inert molecule and may affect human health”
- › Past research has found sucralose disrupts your gut microbiome, harms heart health and contributes to metabolic dysfunction

Consuming artificial sweeteners may seem like the perfect way to have your cake and eat it too – a sweet taste to satisfy your cravings without the health risks of sugar. But artificial sweeteners like sucralose, marketed as Splenda, aren't a safe sugar alternative.

There have been many red flag safety signals in the past – from increased heart risks¹ to interfering with your liver's detoxification process.² Now a research team from the Francis Crick Institute in London revealed another reason to stay away from Splenda – it may dampen your immune system at high doses.

Sucralose Suppresses Immune Response

In a study on mice, published in the journal *Nature*,³ the team found sucralose consumption had immunomodulatory effects.⁴ Mice with either a bacterial infection or a tumor were fed sucralose at “levels equivalent to the acceptable daily intake (ADI) recommended by the European and American food safety authorities.”⁵

This lowered the activation of T cells, which play an important role in immune function, in response to either the bacterial infection or cancer.⁶ The dampened T-cell function was related to the way sucralose affected the release of intracellular calcium.

Previous studies also suggested the artificial sweetener may influence cell membrane fluidity, possibly interfering with T-cell communication.⁷ When the mice no longer consumed sucralose, their T cells began to work normally again.⁸ According to the study:⁹

“[T]he intake of high doses of sucralose in mice results in immunomodulatory effects by limiting T cell proliferation and T cell differentiation. Mechanistically, sucralose affects the membrane order of T cells, accompanied by a reduced efficiency of T cell receptor signaling and intracellular calcium mobilization.”

While stating that humans would be unlikely to consume the levels of sucralose used in this study with “normal” or “moderately elevated” intake, the researchers attempted to spin the immune system suppression as a good thing.

They largely brushed off the concerning finding that mice eating sucralose were less able to fight off infection and cancer and noted, instead, that the artificial sweetener could perhaps be developed into a drug for autoimmune disease.

“If found to have similar effects in humans, one day it could be used therapeutically to help dampen T-cell responses. For example, in patients with autoimmune diseases who suffer from uncontrolled T cell activation,” the team wrote in a news release.¹⁰

Sucralose Is Not Inert; It Bioaccumulates in the Body

One of sucralose's key marketing claims has long been that it neither metabolizes nor bioaccumulates in the human body, thus making it a basically inert substance. Yet, in 2018, an animal study published in the Journal of Toxicology and Environmental Health¹¹ found that sucralose is, in fact, metabolized.

The finding prompted consumer group U.S. Right to Know (USRTK) to ask the Federal Trade Commission (FTC) to investigate whether some of sucralose's marketing claims are deceptive. In a letter to the FTC, USRTK wrote, "[S]ucralose is being advertised and marketed as not metabolized or bioaccumulated by humans. The claim may well be deceptive ... given research suggesting that sucralose metabolizes and bioaccumulates in rats, and perhaps it does so in humans as well."¹²

The featured Nature study again casts doubt on claims that sucralose is inert. In fact, the study noted, "In conclusion, our study adds to the evidence that sucralose is not an inert molecule and may affect human health."¹³ Speaking with Nature, Susie Swithers, a behavioral neuroscientist at Purdue University in West Lafayette, Indiana, who was not involved with the study, added:¹⁴

"There has been this world view that these sweeteners would just wash through our bodies – our tongues would taste them and nothing else would happen. This study is yet another piece of evidence that that's profoundly untrue."

Not only is sucralose biologically active, but it appears it also accumulates in the human body. The Journal of Toxicology and Environmental Health study¹⁵ found that even though sucralose had disappeared from urine and feces two weeks after the administration stopped, it was still detected in fat tissue.

"Thus, depuration of sucralose which accumulated in fatty tissue requires an extended period of time after discontinuation of chemical ingestion," the researchers explained, adding:¹⁶

"These new findings of metabolism of sucralose in the gastrointestinal tract (GIT) and its accumulation in adipose tissue were not part of the original regulatory decision process for this agent and indicate that it now may be time

to revisit the safety and regulatory status of this organochlorine artificial sweetener.”

Sucralose Alters Your Gut Microbiome

Even though sucralose has zero calories, your body isn't fooled. It knows you've consumed a chemical toxin and biochemical distortions result, including to your gut microbiome.

In 2022, a study published in *Microorganisms* revealed that consuming sucralose – in “amounts, far lower than the suggested ADI”¹⁷ – for just 10 weeks was enough to induce gut dysbiosis and altered glucose and insulin levels in healthy, young adults.¹⁸

The bacteria most affected by sucralose appeared to belong primarily to the phyla Firmicutes, which are centrally involved in glucose and insulin metabolism. However, it doesn't end there. Animal studies suggest the sucralose-altered gut microbiome could be involved in inflammation of the gut and liver, as well as cancer. According to the *Microorganisms* study researchers:¹⁹

“A study in mice showed that sucralose ingestion for six weeks increases the relative abundance of bacteria belonging to the phylum Firmicutes, such as Clostridium symbiosum and Peptostreptococcus anaerobius.

Notably, sucralose-induced intestinal dysbiosis also appeared to aggravate azoxymethane (AOM)/dextran sulfate sodium (DSS)-induced colitis and colitis-associated colorectal cancer in these animals.

Likewise, sucralose ingestion resulted in gut dysbiosis and pronounced proteomic changes in the liver of mice, where most of the overexpressed proteins related to enhanced hepatic inflammation.”

Artificial Sweeteners Put Your Heart Health at Risk

A nine-year study involving 103,388 people linked the artificial sweeteners aspartame (Equal), acesulfame potassium and sucralose to cardiovascular disease and stroke.²⁰ Total artificial sweetener intake was associated with increased risk of overall cardiovascular disease (CVD) and cerebrovascular disease, the study found.

Among the specific artificial sweeteners, aspartame was associated with an increased risk of stroke (defined in the study as cerebrovascular events), while acesulfame potassium and sucralose were associated with increased coronary heart disease risk.²¹

“Our results suggest no benefit from substituting artificial sweeteners for added sugar on CVD outcomes,” the study found.²² “The findings from this large scale prospective cohort study suggest a potential direct association between higher artificial sweetener consumption (especially aspartame, acesulfame potassium, and sucralose) and increased cardiovascular disease risk.”²³

Expect Metabolic Dysfunction if You Consume Sucralose

Metabolic dysfunction appears to be a hallmark of artificial sweetener consumption, which is particularly disturbing since they’re often marketed to people already at risk, such as those with Type 2 diabetes and obesity. In 2014, researchers found artificial sweeteners altered microbial metabolic pathways in ways that increased susceptibility to metabolic disease.²⁴

Nearly a decade later, they’re still being widely consumed and are found in more than 23,000 products worldwide.²⁵ In a 2013 paper, Swithers also explained that people who consume artificial sweeteners frequently may have an increased risk of weight gain, metabolic syndrome, Type 2 diabetes and heart disease. She suggests:²⁶

“[C]onsuming sweet-tasting but noncaloric or reduced-calorie food and beverages interferes with learned responses that normally contribute to glucose and energy homeostasis. Because of this interference, frequent consumption of high-intensity sweeteners may have the counterintuitive effect of inducing metabolic derangements.”

Concerns for Pregnant and Breastfeeding Women

Consuming sucralose while pregnant or breastfeeding may cause unknown risks to infants. What is known is that this chemical can be found in breast milk two hours after consumption.²⁷ According to USRTK:²⁸

“Since the study assessed breast milk after just a single diet soda ingestion, researchers note that concentrations reported ‘may underestimate true infant exposure via the breast milk.’

Future research should determine concentration after repeated exposures, and whether chronic ingestion of artificial sweeteners via breast milk has clinically relevant health consequences including ‘alteration of taste preferences, gut microbiota, metabolism and weight trajectory’ of infants.”

An animal study revealed in 2020, however, that consuming sucralose during pregnancy inhibits intestinal development and induces gut dysbiosis in offspring, while exacerbating fatty liver disease in adulthood.²⁹ The research team concluded:³⁰

“These data strongly support ... that MS [maternal sucralose] intake may be a potential threat for NAFLD [nonalcoholic fatty liver disease] in adulthood. As sucralose is widely used around the world, our findings may remind the pregnant women that more caution should be given to excessive sucralose consumption.”

Heating foods that contain sucralose at high temperatures may be particularly problematic, not only for pregnant women but for anyone. When foods containing sucralose are cooked or baked, toxic chlorinated compounds, such as chloropropanols and dioxins, may be created,³¹ raising concerns about carcinogenicity.

“Consumption of these hazardous substances and toxins could lead to diseases such as cancer, the skin disorder chloracne, as well as liver and kidney damage,” USRTK explained.³² In 2019, the German Federal Institute for Risk Assessment (BfR) warned:³³

“Until a conclusive risk assessment is available, the BfR recommends not to heat foods containing Sucralose to temperatures that occur during baking, deep-frying and roasting, or to add Sucralose only after heating. This applies to consumers as well as to commercial food manufacturers.”

How to Give Up Artificial Sweeteners

I've been warning about the dangers of artificial sweeteners like sucralose since 2006, when my book, "[Sweet Deception](#)," was released. While artificial sweeteners are found in many products, including beverages, dairy products, ketchup, salad dressing, baked goods and medications, the good news is that you can largely avoid them by focusing on a whole food diet and reading labels.

If you're intentionally consuming artificial sweeteners to satisfy sweet cravings, I highly recommend using a psychological acupuncture technique called the Emotional Freedom Technique (EFT) to control your cravings, as demonstrated in the video above.

For a healthier sugar substitute while you work on your cravings, stevia and lo han kuo (also spelled luo han guo) and pure glucose, also known as dextrose, are safer options to consider.

Sources and References

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