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Non-Sugar Sweeteners and Obesity: How to Advise Your Patients

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Health concerns have swirled around low- and no-calorie sweeteners (LNCSs) for more than a century. Even now, research findings regularly contradict each other.

Despite low certainty overall, in 2023, the World Health Organization [suggested they not be used](#) “as a means of achieving weight control or reducing the risk of noncommunicable diseases.”

There wasn't enough proof of long-term benefits to justify the risk. And last year, an umbrella review of six [meta-analyses](#) in *Nutrition Reviews* linked artificially sweetened beverages to an increased risk for all-cause mortality, stroke, coronary heart disease, hypertension, type 2 diabetes, metabolic syndrome, and leukemia — but a lower risk for colorectal cancer. Even with these results, the authors stressed that the magnitude of the associations wasn't large.

On the other hand, studies that show clearly positive effects often have links to the sweetener industry, as demonstrated in [conflicts of interest](#) and/or funding statements. That doesn't negate the findings, but it may suggest some level of bias.

For certain people with obesity, though, even unfunded research finds short-term use of these sweeteners to be safe and effective for weight loss. So what do you tell your patients?



Lindsay Malone,
MS, RD, LD

“I think the question isn't just, are artificial sweeteners helpful to treat or manage obesity? But also, what else are they doing?” said Lindsay Malone, MS, RD, LD, an instructor in the Department of Nutrition at the Case Western Reserve University School of Medicine in Cleveland. “We don't want to trade one problem for another.”

Using Sweeteners for Weight Loss

Studies of short-term use, usually randomized controlled trials lasting 3 months or less, show LNCSs can be helpful for people with obesity — but only if their regular diet included lots of added sugars. The connection is clear: LNCSs help with calorie reduction, just as plain water does.

A 2020 systematic [review and meta-analysis](#) in the *International Journal of Obesity* found that the more sugar was replaced by LNCSs, the greater the difference it made in body weight. Those effects disappeared when compared with water.

Two years later, a systematic [review and meta-analysis](#) in *JAMA Network Open* returned with similar results. In studies with a median duration of 12-13 weeks, replacing sugar-sweetened beverages with artificially sweetened ones was associated with reductions in body weight and cardiometabolic risk factors, while comparisons of artificially sweetened beverages with water showed a little difference in results.

Things get murkier with long-term use. A [2023 study](#) in the *International Journal of Obesity* used 20 years' worth of data from men and women enrolled in the Coronary Artery Risk Development in Young Adults cohort. For the 2745 participants who didn't have obesity at baseline, drinking diet beverages and using LNCSs in general was linked to a *greater* risk for obesity, with approximately 8%-15% greater volumes of body fat for those in the top quintiles than those in the bottom quintiles.

But this was an observational study, so it's possible reverse causation factored in — over time, participants may have turned to LNCSs in response to weight gain. One of the study's authors, Lyn Steffen, PhD, MPH, a professor in the Division of Epidemiology and Community Health at the University of Minnesota, Minneapolis, explained via email:

“We cannot infer causality from this observational study. We observed that people who were not obese at baseline and consumed artificial sweeteners over many years had greater adipose tissue than those who did not consume artificial sweeteners. There are other reasons for greater or less adipose tissue...such as

Recommendations

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genetics and other environmental factors that were not accurately reported or information was not collected.”

As a dietitian, Steffen does not recommend the use of artificial sweeteners.

Deceiving the Brain

It's not clear why long-term use seems to backfire for patients with obesity, but it may be linked to the powerful sweetening effects LNCSs provide — they're hundreds of times sweeter than regular sugar.

A small, recent [randomized crossover trial](#) in *Nature Metabolism* found that sucralose — which is used widely in diet beverages — affects the hypothalamus differently from regular sugar, leading to increased hunger. The effect was [stronger among people with obesity](#), especially among women with obesity.

“Our studies suggest there are a lot of differences in terms of the brain and the body's response to noncaloric sweeteners,” said principal investigator Katie Page, MD, director of the Diabetes and Obesity Research Institute at the Keck School of Medicine of the University of Southern California, Los Angeles. “Women, people with obesity, people with insulin resistance — those are the people that had the most exaggerated response in their brains, in terms of the appetite-stimulating effects. That really is important. For people who are lean, it may not really matter.”

Page's lab has performed several studies on LNCSs and brain function. In a [2021 paper](#) published in *JAMA Network Open*, she and her colleagues found that participants with obesity showed the greatest appetite-stimulating effects of LNCSs in the brain.

“Even if you've replaced [the sugar with LNCSs], are you suppressing your cravings for the sweetness? Our data suggests that might not be the case,” she said. “You might still crave the sugar because your brain isn't being satisfied by getting sweetness that in nature is paired with calories.”

Mixed Results With Diabetes

Even when it comes to diabetes, where patients must lower sugar consumption, it remains unclear how helpful LNCSs really are. In the 2025 *Standards of Care in Diabetes*, the American Diabetes Association [made some changes](#). They now recommend water over LNCS beverages for people with diabetes but also say it's fine to use LNCSs instead of sugar or sugar-sweetened products — in moderation, and for the short term.

For people who don't yet have type 2 diabetes, a systematic review conducted by the 2025 Dietary Guidelines Advisory Committee found [mixed results](#): Out of 21 articles comparing low- or non-caloric sweetened beverages with water, 10 reported no association with an increased risk for type 2 diabetes, while 11 did.

A [2023 study](#) in *Diabetes Care* looked at a prospective cohort of more than 100,000 people. Compared with people who didn't use them, higher consumers of LNCSs were more likely to develop type 2 diabetes over a median follow-up of 9.1 years.

Page is an endocrinologist. She advises her patients with type 2 diabetes not to use LNCSs at all.

“That's not how sweetness is found in nature,” she said. “I try to get them to consume fruits that have natural sugars combined with fiber and antioxidants.”

Cardiovascular Concerns

Numerous studies have linked the use of LNCSs to heart-related conditions, including [stroke](#), [coronary heart disease](#), and [atrial fibrillation](#). Because obesity is a risk factor for all these ailments, it's cause for concern.

A 2025 systematic [review and meta-analysis](#) in *Current Problems in Cardiology* looked at 12 prospective cohort studies with more than 1.2 million participants combined. It found that people who drank one or more artificially sweetened beverage each day had a:

- 29% higher risk of dying from heart disease.
- 15% higher risk of having a stroke.
- 14% higher risk of dying from any cause.

“For patients with obesity, artificial sweeteners are often recommended as a strategy to reduce caloric intake and support weight loss,” co-author Ivo Queiroz, MD, a researcher at Catholic University of Pernambuco, Recife, Brazil, said in an email. “However, given the potential for adverse cardiometabolic effects — including those highlighted in our analysis — clinicians should discuss both the benefits and possible risks with their patients, although current evidence is limited for a high-certainty assumption of artificial sweeteners being ‘bad’ for the average patient's health.”

The Bottom Line

As with so many things related to diet and health, the overall picture for people with obesity involves moderation: Using LNCSs is fine — but short term, and mostly to reduce sugar consumption.

“If you're used to a lot of sugar-sweetened beverages and you're replacing it, you're achieving a caloric deficit. For many people, that can be helpful. You can't just say, ‘Do something different, have carbonated water.’ Some people don't want to do that,” Malone said. “So could you switch to Diet Coke, but get the mini

cans, and maybe you'll go from four cans a day to three? It's about finding ways to individualize those interventions, so it's not so black and white."

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