



Sylvia R. Karasu M.D.

The Gravity of Weight

Are We Sugar-Coating Sugar Substitutes?

There may be more artifice in artificial sweeteners than we realize

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Read the labels on our packaged foods, and in all likelihood, you will find they are laced with added sweeteners. Ng et al, according to a recently published article (2012) in the *Journal of Academy of Nutrition and Dietetics*, report that of over 85,000 processed foods tested for the years (2005 to 2009) they studied, 75% contain sweeteners of some form. Most commonly, these products contain caloric varieties of sugar (e.g. corn syrup, fruit juice concentrate, honey, etc.), but

increasingly, manufacturers are turning to artificial sweeteners, used either alone or even in combination with caloric sweeteners. For example, the researchers found that noncaloric sweeteners were added in more than a third of yogurts, 42% of flavored waters, and most diet drinks. And there is reason to suspect that far more people are using these sugar substitutes today than even a few years ago, though actual use is hard to quantify since “purchase” is not the same as “use.”

Today the technical term is “nonnutritive” because essentially these substances provide no calories. (Artificial sugars used to sweeten gum, though, such as sorbitol, mannitol, maltitol--the so-called sugar alcohols--actually have two calories per gram.) Currently there are five nonnutritive sweeteners available in the U.S.: Acesulfame-K (e.g. Sunett); Aspartame (e.g. Nutrasweet; Equal) ; Neotame; Saccharin (e.g Sweet ‘N Low); and Sucralose (e.g. Splenda, which is heat-stable and can be used in baking or cooking). Rebaudioside A (e.g. Stevia; Truvia), a “highly purified product” from the stevia plant (and hundreds of

times sweeter than sugar according to the American Diabetes Association website) is also being used and is considered a “food additive” by the FDA.



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These sweeteners are called “artificial” which, of course, means “man-made,” but ironically, “artificial” can also mean “contrived or fabricated for a particular purpose, especially for deception.” (*Oxford English Dictionary*) They deceive us into thinking they are an energy source, for example, because evolutionarily, we have an innate preference for sweets, and we are programmed to associate sweet taste with sources of energy. Are nonnutritive sweeteners deceiving us in other ways as well?

At this point, there is no evidence that these substances are toxic or carcinogenic. Reports have been surfacing for years, though, that these sugar substitutes have been associated with metabolic abnormalities, such as type II diabetes or even weight gain. Studies on humans have produced inconsistent results; some have even found that they are effective for people in controlling weight. Other researchers have suggested that the sweet taste associated with lower calorie foods may paradoxically increase appetite and lead people to overeat. There is even

the suggestion that these substances may change the flora in our intestinal tracts and interfere with the metabolism of many medications. Recently, as well, researchers have discovered that our gut has “sweet taste receptors” just as we have in our mouth, and it is possible that nonnutritive sweeteners may affect the release of hormones involved in satiety and the regulation of glucose metabolism, though there is to date, “no solid evidence” yet in humans.

Pepino and Bourne, writing in the journal *Current Opinion in Clinical Nutrition and Metabolic Care* (2011), make several important points regarding nonnutritive sweeteners.

--Researchers still don't know whether nonnutritive sweeteners are metabolically as inert as originally thought.

--they may not necessarily promote “diet healthfulness”

--they may interfere with physiological responses that are responsible for metabolic homeostasis by “dissociating sweetness from calories”

--they may affect glucose control by interacting with newly discovered so-called sweet-taste receptors in our gut

--future research must acknowledge that sensitivity to sweet taste can vary considerably among different species (e.g even rats and mice differ in their sensitivity to sucralose)

Bottom Line: The jury is still out on these nonnutritive sweeteners. For some of you, they may play a role in watching your overall caloric consumption. For others (probably those of you somewhat genetically challenged), they may make you hungrier and want to eat more, and they may even affect the reward systems in your brain. As every scientific article states, “Further research is needed...”



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About the Author



Sylvia R. Karasu, M.D., is a clinical professor of psychiatry at Weill Cornell Medical College and the senior author of *The Gravity of Weight*.

In Print: *The Gravity of Weight: A Clinical Guide to Weight Loss and Maintenance*

Online: my own website

