

# Artificial Sweeteners Linked to Diabetes and Weight Gain

By Jodi Friedlander M.S., N.C.

Recent research studies, and much clinical and anecdotal evidence, suggest sugar substitutes—including aspartame and Splenda®—are contributing to weight gain and diabetes. This is in addition to the many other side effects connected with them. Recent research studies, and much clinical and anecdotal evidence, suggest sugar substitutes—including aspartame and Splenda®—are contributing to weight gain and diabetes. This is in addition to the many other side effects connected with them.

The most widely used sweetener in diet sodas, aspartame also has approximately 92 side effects attributed to it, some of which closely resemble the symptoms of insulin reactions. Internist and endocrinologist, H. J. Roberts, M.D., has spent many years documenting his diabetic and hypoglycemic patients' reactions to aspartame and has written two books containing their stories. His findings(1) include:

“the loss of diabetic control, the intensification of hypoglycemia...that proved to be aspartame reactions, and the precipitation, aggravation or simulation of diabetic complications...while using these products...” and “[d]ramatic improvement of such features after avoiding aspartame, AND the prompt predictable recurrence of these problems when the patient resumed aspartame products...”

An article in Technology Review suggested that aspartame may stimulate appetite and carbohydrate cravings(cited in 2). This may be due to the fact that it causes the brain to cease its production of serotonin, the neurotransmitter that rises in response to significant carbohydrate ingestion, creating post-meal relaxation(2). Without this serotonin reaction it is possible that the feeling of satiation will never occur, making overeating much more likely. Interestingly, it is pretty well known that aspartame promotes weight gain, a fact that is even acknowledged by the American Cancer Society (cited in 2).

Sucralose, as the advertising says, is made from sugar, but it is actually an artificial sweetener, made from sugar but with three atoms of chlorine substituting for three hydroxyl groups in the sugar molecule(3). There is much speculation concerning its possible similarity to chlorine-based pesticides, but none of this has been confirmed, and it is too soon to determine long term health effects. Splenda®, though, is not sucralose, which is 320-1000 times sweeter than sugar. This concentration of sweetness means that measuring out a portion becomes difficult due to its nearly microscopic size. So a product was created that includes filler material to increase the volume of a serving size to proportions similar to those of table sugar. Splenda Granular® and Splenda Packets® both contain fillers: maltodextrin and dextrose(4), which are made from high-fructose corn syrup(5). These are both sugars and make up 99% of these products. In an interesting legal loophole, if a product contains less than a one gram amount per serving, the manufacturer is allowed to claim zero calories(5). A serving of one of these sucralose products actually contains four calories per serving, but consumers are duped into believing they are calorie-, and therefore carbohydrate-free. This could have serious implications for diabetics who depend on these “free” foods as sweet additions to their diets. The concern with Splenda® is not the use of an individual serving but its continued use over time, because it truly is a sugar-containing additive. Its long term health effects are also completely unknown.

“Sugar free” foods are often no lower in calories and overall carbohydrate load than their sugary counterparts (just check the labels). What’s often overlooked is that many of them, especially baked goods, contain large amounts of refined flour, which contributes far more carbohydrate than do these sugar substitutes. Many also contain maltodextrin (a sugar, often synthesized from corn) and various forms of starch--food starch, corn starch, modified corn starch--all refined carbohydrates capable of raising blood sugar. And as if this isn’t enough, approximately 70% of all the vegetable oils used in processed baked and fried foods are partially hydrogenated, which research has shown to raise blood glucose levels and cause weight gain.

But this may not even be the greatest concern. Research suggests, in what is known as a cephalic response, that

the mere taste of sweetness—be it from real sugars or sugar substitutes—may be enough to elicit a rise in blood glucose and a corresponding surge in insulin (6). It seems that the brain, which throughout human history has evolved to send control signals in response to natural sugars, really cannot differentiate well between those and newer artificial sweeteners. So simply removing sugar but not sweetness, especially from processed foods high in other refined carbohydrates, may be helping to create the very problems sugar substitutes were designed to ameliorate—blood sugar dysregulation and weight gain.

Small amounts of sugar—unrefined sugar, molasses, honey—as part of a nutrient-rich diet that provides the elements for good health, can be far more healthful than eating these highly refined low-carb products, which almost always contain a plethora of overly processed, non-nutritive foods, as well as chemical coloring and flavoring agents. Most egregious of all, too many of them contain ingredients that have been advertised as being “free foods”, as ones that do not produce insulin reactions and that are, even, healthful. Nothing, unfortunately, could be further from the truth.

## References

- 1) Roberts, H. J., M.D., F.A.C.P., F.C.C.P. “Aspartame and Diabetes – Bad Combination”. August 9, 1994. [aspartametruth.com](http://aspartametruth.com). Retrieved from: <http://aspartametruth.com/diabetes.htm>.
- 2) Mercola, Joseph, D.O. “Aspartame: What You Don’t Know Can Hurt You”. 2006. [mercola.com](http://www.mercola.com). Retrieved from: [http://www.mercola.com/article/aspartame/weight\\_gain\\_myth.htm](http://www.mercola.com/article/aspartame/weight_gain_myth.htm)
- 3) Food and Drug Administration (FDA). “Food Additives Permitted for Direct Addition to Food for Human Consumption; Sucralose”. April 3, 1998. Federal Register: (Volume 63, Number 64). Retrieved from: <http://vm.cfsan.fda.gov/%7Elrd/fr980403.html>
- 4) Popeck, Grace, R.Ph., Pharm D. and Brandl, Lorena, R.Ph., Pharm D., respondees. “Ask the Pharmacist”. May 4, 2006. American Diabetes Association. Retrieved from: <http://www.diabetes.org/live/transcript.jsp?chatid=25>
- 5) Mercola, Joseph, D.O. “Sweet Deception: Why Splenda®, Nutrasweet®, and the FDA May be Hazardous to Your Health” (video clip). 2006. [mercola.com](http://www.mercola.com). Retrieved from: <http://products.mercola.com/sweet-deception/>
- 6) Powley, TL and Berthoud, HR. “Diet and Cephalic Phase Insulin Responses”. 1985. American Journal of Clinical Nutrition. Vol. 42, 991 – 1002.

Many people believe that artificial sweeteners can drive weight gain, despite being low in calories. This article takes a look at the evidence. Several observational studies on artificial sweeteners found that artificially sweetened drinks are linked to weight gain rather than weight loss ( 16Trusted Source ). However, a recent review of nine observational studies noted that artificial sweeteners were associated with a slightly higher BMI " but not with increased body weight or fat mass ( 17Trusted Source ). It's important to remember that observational studies cannot prove cause and effect but only allow researchers to find patterns that warrant further investigation. Artificial sweeteners may increase the risk of weight gain, obesity, and heart disease. Obesity is a public health challenge that affects more than one third of adults in the United States. Furthermore, obesity contributes to type 2 diabetes and cardiovascular disease. Research showing that sugar consumption may fuel the obesity epidemic has triggered the upsurge in popularity of non-nutritive sweeteners (artificial sweeteners), such as aspartame, stevioside, and sucralose. In fact, in 2008, more than 30 percent of U.S. adults consumed artificial sweeteners daily, and this proportion is on the Artificial Sweeteners Again Linked to Obesity and Diabetes. Over the years, an ever-growing number of studies have shown artificial sweeteners raise your risk of both obesity and Type 2 diabetes " perhaps even to a greater degree than sugar does. Most recently, animal research<sup>2,3</sup> presented at the annual Experimental Biology conference in San Diego again confirmed that artificial sweeteners raise your risk of obesity and diabetes. Besides worsening insulin sensitivity and promoting weight gain, aspartame and other artificial sweeteners also promote other health problems associated with excessive sugar consumption, including: Cardiovascular disease and stroke<sup>28,29,30</sup>. Alzheimer's disease.