

# Artificial Sweeteners: Unrightfully Controversial

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Artificial sweeteners – Can they be trusted in your diet or are they potentially harmful to you and your family? Saccharin, Aspartame, and Sucralose are three of the most common types of artificial sweeteners. They are more commonly known under the brand names Sweet’N Low, Equal, and Splenda, respectively. These sweeteners have been used as replacements for sucrose (table sugar) in many different “diet” branded substances. One can imagine a great potential of artificial sweeteners; the health benefits of reducing sugar intake are alluring. But the question remains: are artificial sweeteners unhealthy in and of themselves?

Scientific research has proved otherwise; there are no conclusive studies validating artificial sweeteners as dangerous.

## CAN SWEETNERS CAUSE CANCER?

Artificial sweeteners are still receiving ongoing suspicion about whether they can be ingested.

Artificiality has been linked cancer only in the sense that the public has been misinformed to believe this is true. Popular conceptions have become “common knowledge.” But, in actuality, different studies have

both affirmed and negated links between artificial sweeteners and increased risks of cancers. Which studies are trustworthy? In Canada studies found that over a period of time a series of rats developed bladder cancer while ingesting large amounts of

### POPULAR ARTIFICIAL SWEETENERS

#### Interesting Facts

- Not digested in the body, does not turn into fat
- Yield little to no calories
- Can help with weight loss in conjunction with exercise and a healthy varied diet
- Sweeteners are much sweeter than table sugar, little is needed in comparison

#### Sweet’N Low (Saccharin)

- 20x sweeter than your average table sugar (sucrose)
- Destroyed with heat

#### Equal (Aspartame)

- 200x sweeter than sucrose
- Avoid intake if you have a known sensitivity to phenylalanine

#### Splenda (Sucralose)

- 600x sweeter than sucrose

saccharin (4). Compared to humans these rats were ingesting “850 cans of soda,” more than any person is likely to consume at once. The rats used as experimental subjects in this study also created speculation of whether saccharin actually does promote bladder cancer. The studied rats that yielded the positive results of saccharin as a carcinogenic, were ACI rats, predisposed to be “infected with the bladder parasite *Trichosomoides crassicauda*, which are more susceptible to saccharin-induced bladder cell proliferation” (10). The FDA recommends a total of 50 mg of aspartame per kilogram of body weight. A 127-pound woman would have to consume about 15 cans of soda in order to reach the bottom of this level (4). Under similar conditions, other lab studies have been done on the safety of the artificial sweetener aspartame. Researchers at the European Ramazzini Foundation tested aspartame and found a carcinogenic risk leading to leukemia, lymphoma, and breast cancer in rats (8). Again, the dose was relatively high, at nearly 100 times the amount that any human is likely to ingest (8). ***No studies done on humans have found evidence of any carcinogenic risk with the ingestion of saccharin, aspartame, or sucralose*** within dietary recommendations.

#### **ARTIFICIAL SWEETNERS**

Could it be that these accusations rest within the suspicion of the word “artificial?” Artificiality can be a tenuous subject when dealing with a food source. Running & FitNews asserts in its 6<sup>th</sup> issue of 2008 (2) that the media puts emphasis on “natural” products. Any food item that has been processed or manipulated, other than being pulled off a plant or picked from an animal, has become taboo. The fact is that even sucrose, or normal white granulated sugar, is not completely “natural, it must undergo a process of refining, which itself is not found in nature” (2).

## KEEPING THINGS SWEET

Recent commercials, especially in advertisements for Splenda, suggest replacing sugar with artificial sweeteners when baking to lower caloric intake. If substitution for sugar lowers ingestion of “empty calories,” or calories without a nutritive purpose, then why do people hesitate to switch to sugar replacement? The reason lies again in gossip. Popular hearsay suggests artificial sweeteners do not help people lose weight because they increase appetite, and, therefore, food consumption. An article in the *Journal Nutrition Reviews* of June 2003 stated that artificial sweeteners were found to decrease the weight of subjects by “1.0 kg, whereas the condition eating foods that contained sucrose gained an average of 1.6 kg” (1). Supporting this study was a review article by Barbara J. Rolls, who showed data that went against the notion that artificial sweeteners cause overeating or increased appetite in adults and children (9). Rolls mentions that “normal-weight non-dieting males and females did not eat significantly more at a buffet lunch even though they were consuming either a high calorie or artificially sweetened low calorie pudding” (9).

When thinking about whether to stay with original sugar or use a sweetener, keep in mind that fructose sweetened sodas can add up to a “pound of weight per week” and that a packet of aspartame rather than 2 tablespoons of sugar (3 times per day) could save an individual up to 100 calories (8). It is important to understand that artificial sweeteners are not just devoid of calories, but they can be used sparingly and in lower concentrations than sucrose because they are comparatively sweeter (8).

## ARTIFICIAL SWEETNERS AND WEIGHT LOSS

Most of us, at one point or another, have been on a “diet.” However, if you are like me, then you are into the habit of rewarding your hard work with a sweet treat. This self-rewarding behavior could be why dieters claim that artificial sweeteners do not decrease weight loss. In these cases the weight gain is not a result of sweeteners but is due to celebratory snacks. Caloric sweeteners used in conjunction with physical activity as part of a healthy diet that can actually be beneficial to weight loss and management (8). These benefits occur because of the decreased caloric intake (1). St-Onge and colleagues reported that “weight gain can be curtailed and potentially even reversed in subjects who are already overweight by replacing sugar with artificial sweeteners” (1).

#### WHAT SWEETNER IS RIGHT FOR YOU

Aspartame and saccharin have been linked to trigger headaches, although this side effect is rare (7). MIT scientists have done a number of studies and have found that artificial sweeteners, according to the subjects used, had no incidence of mood swings, decreased memory behavior, electroencephalograms, physiology problems, headaches, fatigue, nausea, or acne. If you do have sensitivity that does not mean that you cannot use any artificial sweeteners, most people that feel these side effects have it specifically to one type of artificial sweetener.

#### WHO SHOULD AVOID ARTIFICIAL SWEETNERS?

Artificial sweeteners are not recommended for all individuals. Some people need to avoid artificial sweeteners, like those sensitive to phenylalanine, pregnant, or children. Let it be known that there is a rare condition in which some people are sensitive to the amino acid phenylalanine in aspartame (called Phenylketonuria or

PKU) (8). If people with this disorder ingest this amino acid, they can experience severe health problems. Pregnant women should consider staying away from artificial sweeteners, seeing as the amount that the woman and baby are recommended to ingest are different because of body size. Studies regarding this concept have not fully concluded that artificial sweeteners are harmful to pregnant women and their babies, but it is recommended that pregnant mothers maintain a high caloric intake to provide their babies the necessary energy to grow healthily. This same reasoning is provided for children, who need more calories than adults to grow (11).

#### SWEET STUFF SUMMARY

No evidence has proved that artificial sweeteners are harmful to humans within the daily recommendations. Along with a constant exercise regime and varied diet, artificial sweeteners actually help people become healthier and lose weight. If you are looking for an alternative to fad diets popularized by the media, or are simply looking for an alternative to sugar to decrease caloric intake, you should view artificial sweeteners as a safe and effective option. Eating healthy should not be a constant battle but a way to keep mentally and physically fit while still enjoying the food you eat. So have fun and enjoy mealtime by making the change to a healthier you.

## References

1. St-Onge MP, Heymsfield SB,. Usefulness of artificial sweeteners for body weight control. *Nut Rev* 61: p219 3p, 2003.
2. Artificial concerns? *Run and Fit News* 26: 6, 2008.
3. Rajendrakumar P, Sarma R, Grimsley E. Popular sweetener sucralose as migraine trigger. *Headache: The J of Head and Face Pain* 46:1303, 2006.
4. Is the artificially sweetened stuff the right stuff? *Tufts U Diet and Nutr Letter* 10: 4, 1992.
5. Lofshult, Diane. Saccharin linked to weight gain. *IDEA Fit J* 5: 57, 2008.
6. Reams C, Shimmens K. Student research presentations. *Missouri J Health, Phys Ed, Rec, and Dance* 18: 117, 2008.
7. Newman L, Lipton R. *Headache: The J of Head and Face Pain* 41: 899, 2001.
8. Should you sour on aspartame? *Tufts U Health and Nutr Letter* 25: 4, 2007.
9. Rolls, BJ. Effects of intense sweeteners on hunger, food intake, and body weight: a review. *The Am J Clin Nutr* 53: 872-878, 1991.
10. Weihrauch MR, Diehl V. Artificial sweeteners-do they bear a carcinogenic risk? *Annals of Oncology* 15: 1460-1465, 2004.
11. Wardlaw GM, Smith AM. *Contemporary Nutrition*. New York : McGraw-Hill Higher Education, 2009.