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Diet Sodas – Panacea or Risk?

By Ann Gerhardt, MD May 2013

Bottom Line at the Top: Drink water, flavored or otherwise. Or tea.

In 2004 sugar-sweetened soft drinks contributed 7.1% of total calorie intake in the U.S. Regular soda packs a load of sugar calories – 160-200 calories per 12 ounce can, and constitutes the largest single calorie source in the American diet. Only 15% of the population chooses non-caloric sweeteners as an alternative. Their use is increasing… but so is the incidence of obesity.

Some people see the rising obesity rate as somehow related to increased non-nutritive sweetener use. Those people ignore the fact that sugared beverage intake has sky-rocketed along with obesity rates. However, some confusing studies in the last few years have added fuel to the fire by suggesting that people may actually gain weight, rather than lose it, when consuming sugar-free beverages. These have been observational studies, ones in which scientists observe, without intervening, while subjects just go about their lives doing what they do. Since there is no randomized intervention with controlled variables, there could be many other factors affecting outcome.

Ignoring possible causes for this counter-intuitive weight gain that don't involve diet soda, scientists have postulated that non-caloric sweeteners somehow activate sweet-taste receptors in the gut or fail to satisfy sweet cravings from appetite centers in the brain. Even if diet sodas have these effects, do they really increase weight?

A critical literature review finds no support for either of these theories. The only semi-definite appetite stimulating effect is an urge to eat food after drinking a diet soda in the absence of a meal, sort of an appetizer effect, but even this has little supporting data. Basically, the preponderance of evidence supports the notion that weight loss requires calorie reduction and that diet sodas may or may not contribute to fewer calories, based on what else people choose to eat.

(Having worked with humans and their nutritional issues for the past thirty years, I've noted that diet soda does affect appetite in some diet soda drinkers' brains: It registers as an excuse to eat a double bacon cheeseburger or extra piece of birthday cake with impunity.)

The only way to sort this out is with studies in which people don't know which they are drinking, so choice is not part of the equation. A Dutch study of young children aged 5-12 proved that sugar-free soda leads to weight loss. For 18 months those given 8 ounces per day of sucralose-sweetened soda gained 2 pounds less weight than those given a 104-calorie, sugar-sweetened drink. Two pounds isn't much, but these were normal weight kids who are supposed to gain weight as they grow, and they only consumed an average of 6 cans of soda per week. Imagine the potential difference in soda-guzzling American kids.

A U.S. trial of an intense education program advising adolescents to replace sugar-containing beverages, including soda, sports drinks, energy drinks and sweetened coffees and teas, with water and "diet" beverages led to similar but less impressive results. Investigators not only educated, but they also delivered sugar-free, replacement beverages to study subjects. Compared to a control group of adolescents not being 'educated' and drinking whatever they wanted, the intervention group had gained less weight at one year. By two years the difference had abated, and wasn't significant, except in Hispanic teens. The fact that the control group, on their own, decreased sweetened beverage consumption over time may have dampened the difference between groups.

A study of adults demonstrated that they reacted to aspartame or regular, high-fructose corn syrup sodas similarly to the adolescents. Caloric intake declined in both males and females who received the aspartame beverages, but only the males lost weight. Even though regular soda led to a modest compensatory decrement of other dietary sugar sources, both men and women gained weight on it.

At a recent symposium at the Experimental Biology meeting in Boston, a prominent obesity scientist gave a well-reasoned summary of the data about diet sodas. His

(and the data's) conclusion was that there is no evidence that soda sweetened with non-nutritive sweeteners either increases food intake or contributes to obesity. In spite of the symposium being sponsored by Pepsico, he didn't pull any punches about the dangers of regular soda.

A large, observational study gives some clues to the genetics of the soda sugar problem, and who should consume non-sugar sodas. Women in the Nurses' Health Study increased their risk of obesity 5-fold if they drank more than one soda per day, while those consuming artificially sweetened beverages had no significant weight change, up or down. Men in the Health Professionals Follow-up Study suffered similar weight changes, but obesity risk only increased 3.6-fold with one soda per day. In both men and women, however, there was variation in individual outcomes. The investigators searched for a possible cause for the variation and found 10 genes that were more common in people who gained weight easily on sugar-sweetened beverages. It appears that calories count, but more so in some people than others.

Weight is not the only danger with sodas. Those who do drink more sugar-sweetened beverages are more likely to become diabetic and have a heart attack or stroke.
So don't drink them.
Do diet sodas protect? The data's not available, so we don't know for sure.
If you are at risk, try sticking with water.