

*Webinar 5 Handout:*  
**DANGERS OF DIET SODA**

It's important to highlight diet soda because it continues to be popular and is such a part of our culture. Those who are drinking diet sodas are most likely looking for that sweet taste without the extra sugar and calories. Unfortunately, research suggests that sweet taste comes with sugar cravings, increased caloric intake throughout the day, and other risks for health. So what are we really gaining from drinking those diet beverages? I'd say *nothing*, with the added baggage that you are actually causing yourself harm.

Here is what you are putting yourself at risk for:

- **Cancer:** One of the first diet soda dangers we learned about was the link between artificial sweeteners and risk of cancer. Most cut-and-dry evidence comes from laboratory studies (aka in rats), but even observational data from large cohort studies (aka in humans) has demonstrated a link between artificial sweetener intake and certain types of cancer including non-Hodgkin lymphoma, multiple myeloma, and leukemia.
- **Diabetes:** Consumption of diet soda can also increase risk of diabetes. In one published study, consuming diet soda daily was associated with 67% greater risk of developing type 2 diabetes, and diet soda drinkers also had 36% greater risk of developing metabolic syndrome, which includes increased blood pressure, high triglycerides, elevated blood sugar, high cholesterol, and a bigger waistline. In another study, women who regularly consumed artificial sweeteners for more than 10 years were twice as likely to develop type 2 diabetes compared women who never or rarely consumed them.
- **Heart disease:** A study by the *American Stroke Association* followed 2,500 New Yorkers who drank diet soda every day and found that these individuals had a 61% higher risk of vascular events (including stroke and heart attack) than those who did not consume diet drinks. Frequent diet soda drinkers were also more likely to have higher blood pressure.

- **Weight gain:** This may sound counterintuitive, but many studies have shown that diet soda doesn't help people lose weight. In fact, research shows people who drink it daily gain more weight than those who don't. There might be multiple mechanisms behind this weight gain, including variation in hormone levels, insulin sensitivity, and glucose absorption rates. Artificial sweeteners might also interfere with enzymes needed to prevent obesity and alter the gut microflora, which we know is connected to weight management. In addition to the physiological changes that take place due to artificial sweetener consumption, people tend to justify eating more because they had a "0 calorie" drink and this can lead to an overall increase in daily calories.

*Example: You might be more tempted to add a large side of fries when you opt for the diet soda instead of the sweetened drink.*

## Is Diet Soda Even Safe?

After reading all of information above, the next logical question is, "Why is this stuff allowed on the shelves? Is it even safe?"

Any substance intentionally added to food, including artificial sweeteners, has to be reviewed and approved by the FDA in order for it be considered Generally Recognized As Safe (GRAS), which means the FDA thinks it's okay to eat as long as you don't go over the Acceptable Daily Intake (ADI). The ADIs for sucralose and Ace-K work out to about 6 cans of diet soda per day, and for aspartame is about 18 cans of diet soda per day - *wow*. Evidence for determining if something is GRAS usually comes from studies done in animal models and sometimes from human trials. The artificial sweeteners found in food *are* considered GRAS, but that doesn't necessarily mean they are completely safe to eat.

The list of GRAS foods is always changing as research continues to shine light on how these substances affect our bodies. Take trans fats for instance. They were widely used in processed foods beginning in the 1950s, but the FDA has since made a decision to ban them from the food supply. Or what about food colorings? There are 5 specific colorings including Food Red 17 and Blue 1 that are used in the US but are banned in Europe after research pointed to them having negative effects on health. Sorry Uncle Sam, just because you give it the stamp of approval, doesn't mean it's safe. There are studies being conducted all the time looking at the impact of diet soda on humans and in time we might find even more detrimental side effects.

You may also be wondering what phenylalanine is and if you should be concerned about it. Phenylalanine is an amino acid regularly found in protein foods like beef, poultry, pork, fish, dairy, eggs and soy and a big concern for people who have a rare genetic condition called PKU. With PKU, eating phenylalanine can lead to seizures or brain damage. It's pretty obvious that protein foods would have this amino acid because it occurs naturally in those foods, but it's chemically added to some artificial sweeteners and most people wouldn't realize it's there. For this reason, a warning is put on labels to ensure that people with PKU know that phenylalanine is in the soda and that they shouldn't drink it. However, phenylalanine in diet soda might not be as harmless for others as we once thought. Researchers from Harvard have discovered phenylalanine can inhibit an anti-inflammatory gut enzyme called alkaline phosphatase, which has been shown in animal studies to prevent metabolic syndrome. So when you drink too much diet soda with phenylalanine, it becomes harder to lose weight and your risk of obesity goes up.

**Nutritious Life Tip:** When helping your clients to ditch diet soda, it is important to take artificial sweeteners out of their food supply completely. Here are some easy ways to do just that. Encourage clients to:

- **Remove temptation.** Gather all the colored packets in the house and dump them out. Remove diet sodas and sugar free products that may contain artificial sweeteners from the kitchen. There should be no artificial sweeteners anywhere in sight -- out of sight, out of mind.
- **Know what's available.** Scope out local coffee shops and make sure they have alternatives like almond milk, honey or vanilla. If alternatives aren't available, keep a stash in the desk or fridge at work to add to a morning cup of joe.
- **Read labels carefully.** Watch out for "healthy" alternatives when grocery shopping. Teach clients to check the labels on products for sugar substitutes (you've got a list now, so you can avoid them).
- **Try something new.** Add lemon wedges, orange slices or other naturally sweet fruits to tea. They are natural, pure and delicious! Cinnamon and nutmeg are sweet spices that add flavor and antioxidant power to foods without adding calories, and vanilla extract also adds amazing sweetness without sugar. Try them in yogurt, smoothies, and cereals.

- **Go natural.** If you're really craving sweetness in your cup, reach for small amounts of raw sugar or honey, but try to let your brew speak for itself every once in awhile. Instead of white sugar, try a less refined option with more flavor like honey, coconut sugar or turbinado sugar. Honey has a distinctive taste and powerful antioxidant and antibacterial properties. Turbinado sugar is a less refined and unbleached sugar. Muscovado sugar is unrefined natural sugar that is made by soaking sugar cane, pressing it through a filter, and then allowing the water to evaporate, leaving crystals with a delicious crunchy texture. Make sure you work with clients to understand what proper portions look like (a teaspoon or two will do the trick!). It may not be appropriate for some clients to add caloric sweeteners to their diets. In these cases, I recommend the most natural forms of non-caloric sweeteners, particularly stevia extract as a better alternative to synthetic artificial sweeteners. In any of these cases, small amounts of sweetness is the key.