Confused About Sweeteners? You're not alone!

Highlights from the 2009 Annual WADE Conference
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While the Food & Drug Administration (FDA), American Dietetic Association and American Diabetes Association say that all FDA approved natural and artificial sweeteners are safe in reasonable amounts, there continues to be consumer, educator and research concerns about the use of high fructose corn syrup, Sucrose, NutraSweet and most other sweeteners currently approved for use in the United States. It is certainly reasonable to follow the recommendations from these respected organizations and some educators may choose to do so. However, as we learned with trans fats, there is often a "lag" time between nutrition research and nutrition recommendations. Nutrition research is extremely challenging and absolute conclusions are difficult to arrive at. Because the economic and political impact of nutrition recommendations can be significant, organizations must have absolutely conclusive evidence before modifying current nutrition recommendations. Absolute conclusive nutrition research is very expensive to do and there are many confounding factors involved. It is highly unlikely that once a food additive is FDA approved that it will be removed from the food supply. So, this leaves diabetes educators with some challenges: Do we tell our patients that all sweeteners are safe in reasonable amounts . . . or is there some evidence to support other recommendations? The following are some recent considerations from research and other sources for us to contemplate:

1. FDA requirements for food additive approval is indeed extensive and includes studies on toxicology, carcinogenicity, reproductive toxicity, metabolism and pharmacokinetics. Most recently they are requiring neurological studies as well. When NutraSweet was approved, neurological studies were not required. While some human studies may be done, the FDA only requires that food additive studies be done on rats and hamsters. Unlike approved drugs, once a food additive is approved, there are no surveillance requirements regarding any negative impacts of the additive on human health. The acceptable daily intake (ADI) of an artificial sweetener is 100 times less than the maximum level at which no observed effect occurs in animals.

2. An excellent and well respected non-profit resource that has reviewed many of the currently available FDA approved sweeteners is the Center for Science in the Public Interest (CSPInet.org). This organization discourages the use of all artificial sweeteners except Splenda. You can review their rationale at their website, but basically it involves concerns about research design and study conclusions. A second organization, the American Dietetic Association has approved artificial sweeteners for use. However, their evidence based library (eatright.org) states that there is "limited" evidence to support their safety.

3. Some recent research on Splenda, that is not included in the CSPI reviews, involves a significant physiological impact of the sweetener. One study done in rats found that Splenda can destroy much of the natural gut microflora (Abou-Donia, M. J. Toxicology & Environmental Health 2008; 71:1415-1429.) The natural & valuable bacteria that live in our intestines is proving to have a

profound impact on human health-immune function in particular. We don't want them destroyed! While additional research is needed to confirm these study results, the research outcomes suggest that the FDA approval process for additives may fall short in identifying all physiologic impacts of a food additive. Food additive research does not look at the impact on gut health, inflammatory factors and more.

4. The recent controversy around high fructose corn syrup (HFCS) and negative health outcomes needs clarification. The molecular composition of HFCS is nearly identical to sucrose (common sugar). Both of these sugars contain about 50% fructose and 50% glucose. The commercial ads by the Corn Industry state: "There is no scientific research that HFCS deserves the blame for obesity more than sugar or other caloric sweeteners." This is a very accurate statement. Recent studies point to BOTH sucrose (sugar) and HFCS as having significant negative metabolic consequences in many individuals. The research has focused on fructose in particular. For decades we have known that fructose (NOT glucose) in large amounts causes all the symptoms of metabolic syndrome in animal studies—including, insulin resistance, elevated triglycerides, abdominal obesity, elevated blood pressure, inflammation, oxidative stress, fatty liver, gout and renal disease (Sanchez-Lozada L. AmJClinNutr 2008: 88:1189-90). Human studies are just emerging to support these metabolic consequences in humans. What we know for sure is that fructose, not glucose, elevates post-prandial triglycerides and free fatty acids significantly in obese individuals. The American Diabetes Association discourages the use of added fructose as a sweetening agent in the diabetic because of the adverse affect on plasma lipids. For some reason we forget that both sucrose and HFCS are half fructose and therefore should be limited not only in the diabetic diet, but all diets. The USDA Food Guide recommends that added sugar be limited to 3 teaspoons per day in a 1600 calorie diet. Americans consume an average of 20-30 teaspoons of added sugar per day.

5. We need to be careful to not create a negative recommendation around fruit consumption. While whole fruit does contain fructose, it is not in large amounts and is part of a whole food that includes other nutrients, fiber and carbohydrates that may minimize the metabolic consequences of fructose. We still want to encourage 2-4 servings of whole fruit each day and to limit fruit juices to less than 4 oz. per day.

6. Because of negative health effects of added fructose (in the form of HFCS or sucrose) and all artificial sweeteners we are left with little to satisfy our insatiable sweet tooth. What to do? Here was my talk conclusion: "Include <u>one small serving</u> of a sweet treat each day, sweetened with whatever you want!" For example, Choose ONE: 12 oz. diet soda, 2 small cookies, ½ cup ice cream, ½ cup diet Jello, etc. This conclusion is certainly subject to much debate and is only the conclusion of the author. For more information you can certainly email me at CBrinn@peacehealth.org . . I would love you thoughts!