High Fructose Corn Syrup: Myths vs. Science

By Neva Cochran, MS, RD, LD

Neva Cochran is a Nutrition Communications Consultant in Dallas, Texas. She has been a writer and researcher for Woman’s World magazine for the last 18 years. In addition, she serves as a consultant for a variety of food and nutrition organizations currently including the Egg Nutrition Center and the Corn Refiners Association.

In my conversations over the past year with school nutrition dietitians and other staff, one of the issues I often hear is that parents and school personnel have concerns about high fructose corn syrup, particularly in flavored milk served with school meals.

The bottom line is all caloric sweeteners should be used in moderation as part of a balanced, nutrient-rich diet based on current dietary guidelines, including school nutrition programs. Rather than eliminating sugars, I promote choosing your sugars by the “company” they keep. Foods and beverages like chocolate milk, flavored yogurt, oatmeal cookies and breakfast cereals all provide an abundance of nutrients that children need for a healthy diet along with the small amounts of sucrose or high fructose corn syrup they contain.

Because misconceptions and misinformation about high fructose corn syrup abound, I want to provide information you can use to dispel some of the most common myths.

**MYTH: High fructose corn syrup is driving the obesity epidemic, especially in children**

According to USDA data, Americans are consuming an average of 600 more calories/day than in 1970. (1) Of this, caloric sweetener intake (from sucrose, HFCS, honey and other sweeteners) has increased by only 50 calories a day while grains and flour products have risen by about 200 calories/day and added fats by approximately 300 calories/day. So it’s impossible to blame one food or ingredient as the cause of rising weights; rather, the problem is an overall increase in food intake from all sources as well as a decline in physical activity.

**MYTH: High fructose corn syrup is high in fructose**

Actually HFCS is only higher in fructose than traditional corn syrup which is 100% glucose, and this is why it was given its name when it was developed in the 1970’s. HFCS has either 55% fructose or 42% fructose depending on the product, which is similar to sucrose, or table sugar, which has 50% fructose. The body is unable to distinguish the difference between fructose that comes from sucrose vs. that from HFCS.

**MYTH: Fructose in high fructose corn syrup is metabolized differently from fructose in sucrose**

In studies(2,3) comparing two groups of women drinking beverages at meals sweetened with either HFCS or sucrose as part of a balanced diet, there were no differences in blood glucose, insulin, leptin, ghrelin, hunger or desire to eat ratings. According to the Academy of Nutrition and Dietetics Evidence Analysis Library review of thirteen studies that examined the effects of high fructose corn syrup (HFCS) compared with other nutritive sweeteners: “These studies consistently found little evidence that HFCS differs uniquely from sucrose and other nutritive sweeteners in metabolic effects (circulating glucose, insulin, postprandial triglycerides, leptin and ghrelin), subjective effects (hunger, satiety and energy intake at subsequent meals) and adverse effects such as risk of weight gain. Randomized trials dealing specifically with HFCS were of limited number, short duration and of small sample size; therefore, long-term data is needed.” (4)

**MYTH: High fructose corn syrup doesn’t promote satiety**

In the previously mentioned study(2), no differences were found between hunger, desire to eat or appetite hormone levels in women consuming either HFCS or sucrose-sweetened beverages as part of a balanced diet. In addition, several other studies(5,6,7,8) have confirmed this, concluding that there is no evidence that either sucrose or HFCS have significantly different effects on hunger, satiety or short-term calorie intakes.

**MYTH: There is no reason HFCS needs to be in so many food products**

On the contrary, HFCS in small amounts has several functional properties that enhance food products beyond sweetening. These include maintaining freshness in condiments, promoting browning of baked goods, enhancing fruit and spice flavors in marinades, aiding in fermentation of breads and yogurts, retaining moisture in breakfast bars and cereals, making high fiber baked goods and cereals more palatable, maintaining consistent flavors in beverages and keeping ingredients evenly mixed in salad dressings. Sugar is used in foods for these same purposes as well.

continued on page 10
MYTH: There are studies that show HFCS differs from sucrose in its metabolic effects

While headlines in the popular media may proclaim this, studies directly comparing HFCS and sucrose consistently have found no differences. The misperception exists because results of studies using pure fructose are being mistakenly applied to HFCS. In the human diet, we do not eat pure fructose. Fructose is always found in combination with glucose in fruits, vegetables and sweeteners like sucrose, honey and HFCS. In addition, extremely high levels of HFCS, far in excess of those consumed in the typical diet, are extrapolated to high fructose corn syrup consumed in normal amounts as part of a mixed diet.

In a 2010 Princeton study, rats were fed HFCS in amounts equivalent to a human consuming 3000 calories of HFCS/day without comparing them with sucrose controls. According to Karen Teff, PhD, Associate Director, Institute for Diabetes, Obesity & Metabolism at the University of Pennsylvania School of Medicine, “This study is poorly designed and poorly controlled and does not prove or even suggest that HFCS is more likely to lead to obesity than sucrose.”

Another study compared glucose-sweetened beverages to fructose-sweetened ones yet results were applied to HFCS vs. sucrose-sweetened beverages. In conclusion, high fructose corn syrup is basically the same as sucrose in its composition and metabolic effects. The key is to consume all sugars in moderation as part of a nutrient-rich diet based on current dietary guidelines with appropriate portions sizes and calorie intake balanced with adequate physical activity.


