



SOMETHING TO CEREBRATE

High fructose corn syrup: The Corn Refiners Association vs. The Scientists

BY KATE MORSE, CCH

According to their website SweetSurprise.com, the Corn Refiners Association of America says these are the facts about high fructose corn syrup—HFCS—a sweetener processed from corn:

- The American Medical Association stated in June 2008 that "...HFCS does not appear to contribute to obesity more than other caloric sweeteners..." The American Dietetic Association concluded in December 2008 that "No persuasive evidence supports the claim that HFCS is a unique contributor to obesity."
- In 1983, the U.S. Food and Drug Administration (FDA) formally listed HFCS as safe for use in food and reaffirmed that decision in 1996.
- HFCS, sugar and honey all contain the same number of calories (four calories per gram).
- HFCS and sugar are handled similarly by the body.

Other people say HFCS is metabolized differently, raises triglycerides, makes you fatter than sugar, and contains mercury. Research-wise, they've been busy proving it, even though they haven't funded television commercials touting it.

In results published online Feb. 26, 2010, by the journal *Pharmacology, Biochemistry and Behavior*, Princeton University researchers reported on two experiments investigating the link between the consumption of high-fructose corn syrup and obesity. According to Princeton.com:

"The first study showed that male rats given HFCS in addition to a standard diet gained much more weight than male rats given sucrose (table sugar) in conjunction with the standard diet. The concentration of sugar in the sucrose solution was the same as is found in some commercial soft drinks, while the HFCS solution was half as concentrated as most sodas," even though the total caloric intake was the same.

"The second experiment—the first long-term study of the effects of HFCS consumption on obesity in lab animals—monitored weight gain, body fat and

triglyceride levels in rats with access to HFCS over a period of six months. Compared to animals eating only rat chow, rats on a diet rich in HFCS showed signs of a dangerous condition known in humans as the metabolic syndrome, including abnormal weight gain, significant increases in circulating triglycerides and augmented fat deposition, especially visceral fat around the belly. Male rats in particular ballooned in size. Animals with access to HFCS gained 48 percent more weight than those eating a normal diet."



Photo: Denise Applewhite

All sugars aren't equal

Princeton professor Bart Hebbel says it isn't true that all sugars are equal. "When rats are drinking high-fructose corn syrup at levels well below those in soda pop, they're becoming obese—every single one, across the board. Even when rats are fed a high-fat diet, you don't see this; they don't all gain extra weight."

According to the Princeton researchers, HFCS and sugar both contain fructose and glucose—sugar contains them 50/50; HFCS has 55% fructose, 42% glucose, and the rest in large saccharides. "As a result of the manufacturing process

for high-fructose corn syrup, the fructose molecules are unbound, ready for absorption and utilization. In contrast, every fructose molecule in sucrose that comes from cane sugar or beet sugar is bound to a corresponding glucose molecule and must go through an extra metabolic step before it can be utilized. This might explain why excess fructose is metabolized to produce fat, while glucose is largely being processed for energy or stored as a carbohydrate, called glycogen, in the liver and muscles."

Mercury, too.

Reuters.com, the online news source, reported in January, 2009, that researchers discovered that more than 40% of HFCS samples, as well as one third of HFCS-containing grocery store products tested contain detectable levels of the toxic metal mercury. One researcher is a former FDA scientist who reported her findings in the journal *Environment*. She also said that the FDA declined to act on her report. The researcher who found mercury in yogurt, barbecue sauce, jam, chocolate syrup and other products was from the nonprofit Institute for Agriculture and Trade Policy.

HFCS was introduced in the 1960s, and is found in numerous foods and beverages, including fruit juice, soda, cereal, bread, yogurt, ketchup, and mayonnaise. The Centers for Disease Control, which is concerned with America's skyrocketing obesity, says the average person consumes 60 pounds of HFCS annually. According to Healthmad.com, HFCS is unlike other sugars in that it "doesn't cause the pancreas to produce insulin, which acts as a hunger quenching signal to the brain." Earlier research on HFCS at Princeton showed HFCS is, for want of a better word, addictive. The U.S. Dept. of Public Health helped fund Princeton's recent research.

Restaurants—especially fast-food chains—rely heavily on processed foods, which in turn utilize HFCS not just for sweetening, but for stabilizing the food, increasing shelf-life, and enhancing other flavors. Many low-fat processed foods use HFCS as flavor and texture compensators. SweetSurprise.com says HFCS offers "unique functional benefits that help

companies offer more choices in food products." Notice they said "food products," not "food."

Princeton is far from the only source of elucidation on the trouble with HFCS. Take a look at the website of Dr. Joseph Mercola, at mercola.com. Put HFCS in the search box to see his coverage of this topic, and the miles of scientific journals he cites in his footnotes.

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Why would they say that?

Do the American Medical Association and American Diabetic Association really say that high fructose corn syrup is as innocuous as the SweetSurprise.com quotations indicate?

SweetSurprise.com quotes just a smidgen of the AMA point of view. In entirety, the AMA website hedges a bit, saying that we should decrease our in-take of all sweeteners, and that more research needs to be done.

As for the American Diabetic Association, a search of articles on their website shows some anti-HFCS leaning, including this statement: "Studies show that the rise in average bodyweight can be linked to the consumption of high fructose corn syrup."

The FDA's policy and lack of activity related to HFCS can be explained according to your personal opinion on the function of government.

Keep in mind that doctors, on the whole, don't get a ton of education about the links between diet and disease. As recently as the late 90's, for example, the American Cancer Association said food had no role in cancer prevention.



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