

## Ten Myths About High-Fructose Corn Syrup

High-fructose corn syrup, the sweetener used in most carbonated beverages in the United States, drew very little attention over its 30-year history until the past two years, when some researchers in the nutrition community claimed that it bears a unique responsibility for the current obesity epidemic. Such claims are largely myths based on misunderstandings of the chemistry, food science, and nutrition of HFCS.

**Myth 1: HFCS is high in fructose.** The name high-fructose corn syrup was given to acknowledge its fructose content and to differentiate it from regular corn syrup, which contains only glucose and glucose polymers. HFCS is nearly identical in fructose-to-glucose ratio to sucrose and honey, which explains its comparable metabolism and sweetness.

**Myth 2: HFCS, fructose, and corn syrup are the same.** They are different products, with distinct physical, functional, and metabolic properties. Commercial fructose is pure crystalline fructose. Corn syrup contains only glucose and glucose polymers. HFCS contains nearly equal amounts of fructose and glucose.

**Myth 3: There is something unique about HFCS that is to blame for obesity and diabetes.** HFCS accounts for only about 10% of the world's sweetener. Since many parts of the world are seeing rising rates of obesity and diabetes despite

having little or no HFCS in their foods and beverages, HFCS clearly cannot play a unique role in obesity and diabetes.

**Myth 4: HFCS is metabolized differently from sugar and blocks the body's ability to know when it is full.** HFCS, sugar, and honey are composed of nearly equal amounts of fructose and glucose. Though the absorption of HFCS and honey differs somewhat from that of sucrose, the human body cannot distinguish these sweeteners from one another once they

*Claims that HFCS bears a unique responsibility for the current obesity epidemic are based on misunderstandings. . . .*

reach the bloodstream. That fructose and glucose have distinct metabolic pathways is unimportant when comparing HFCS, sucrose, and honey, since they all feed the *same* sugars at the *same* ratios into the *same* metabolic pathways.

The supposition that HFCS blocks the body's ability to know when it is full is based on improper extrapolation of data gathered with pure fructose—not a suitable model for HFCS—at exaggerated dietary levels. Recent research directly comparing HFCS to sucrose—a far better model—shows no difference on appetite or satiety control hormones.

**Myth 5: HFCS is not natural.** HFCS is made from corn, a natural grain. The process

begins by steeping corn to soften and separate the kernel into its starch, corn hull, protein, and oil components. Many of the subsequent processes used to make HFCS are also used to produce other foods and ingredients that are considered natural. HFCS contains no artificial or synthetic materials or color additives and meets Food and Drug Administration guidelines for natural food ingredients.

**Myth 6: Sugar is healthier than HFCS.** Absolutely no data support this notion. Both ingre-

dients have received the same clean bill of health from every expert body that has evaluated their impact on human health.

**Myth 7: HFCS is sweeter than sugar.** Those claiming this and implying that this has seduced the public into consuming greater quantities of foods have misrepresented the literature on sweetness. HFCS-55 was intentionally designed to be equal in sweetness to sucrose so that they could be used interchangeably in foods and beverages.

**Myth 8: HFCS is used only because it is cheap.** Price may have catalyzed the switch from sucrose to HFCS 20 years ago, but its unique functional properties have sustained its use. It benefits consumers by reducing food spoilage, retaining moisture

in foods, helping canned foods taste fresher, enhancing fruit and spice flavors, and prolonging shelf life. Food companies value its ease of use in liquid formulations and its stability in acidic products, providing superior performance in carbonated beverages and fruit preparations.

**Myth 9: HFCS costs taxpayers millions of dollars in tax subsidies.** While the U.S. government provides support to certain farmers to guarantee a stable farm economy and a reliable food supply, manufacturers of HFCS do not receive these subsidies.

**Myth 10: HFCS contains DNA from genetically modified corn.** Corn used to produce HFCS may or may not come from genetically enhanced grain. However, corn DNA is removed during processing and cannot be detected in measurable amounts in HFCS.

In summary, HFCS—like other carbohydrates, fats, proteins, and alcohol—is a caloric ingredient. If foods and beverages containing any ingredient are overconsumed, weight gain will likely occur.

Obesity is a complex problem. Attacking a single ingredient as the sole cause is clearly wrong and counterproductive, because it stands in the way of our finding true and effective solutions. **FT**

*John S. White, Ph.D., a Professional Member of IFT, is President, White Technical Research, Argenta, IL 62501 (white.tech.res@gmail.com). John P. Foreyt, Ph.D., is Professor of Medicine, Baylor College of Medicine, Houston, TX 77030 (jforeyt@bcm.tmc.edu).*