

Sugars:

10 Facts You May Not Know

Sugar or dietary *sugars* have been under scrutiny for years. Sugars have been blamed for causing everything from cavities to obesity and a lot of conditions in between. Here are the facts about sugars to help you decide how to sensibly incorporate sugars into your diet.

Fact 1 Not All Sugars Are the Same

People often think that the word “sugar” means table sugar. It does, but it also refers to many other types of sugars, too, including, fructose, galactose, glucose, lactose, maltose, and sucrose



(the table sugar mentioned above). These sugars are found naturally in fruits, vegetables, and dairy products and in such foods as honey, molasses, and maple syrup. Sugars also are

extracted from their sources to produce ingredients such as table sugar. This can include sugars from corn such as corn syrup or high fructose corn syrup as well as the sources for table sugar such as sugar beets or sugar cane. Many sugars are used to sweeten or preserve other food products. The human body cannot tell the difference between sugars that come from foods naturally or those that are added to foods. Once eaten all are broken down by the body to produce energy and metabolic building blocks. Most commonly used sugars (table sugar, honey, HFCS) contain glucose, which is the only fuel used by the brain and the primary fuel used by working muscles.

Fact 2 Dental Cavities are Caused by Bacteria—Not Sugars

Sugars and cooked starches (e.g., bread, pasta, crackers, and chips) are fermentable carbohydrates that contribute to the risk for dental cavities. In the absence of proper oral hygiene, bacteria present on the teeth can break down sugars and cooked starches to produce acid and without proper dental hygiene can eventually lead to dental cavities. The degree of risk from a carbohydrate-rich food is related to several factors such as how often the foods are consumed and the amount of time these foods remain on the teeth. However, risk can be decreased through several practices, the most important being proper oral hygiene and the use of fluoridated toothpaste and fluoridated water. Also important in reducing the risk of cavities is eating a balanced diet in line with current dietary guidelines.

Fact 3 Sugars Do Not Cause Obesity, Diabetes and Other Serious Diseases

Sugars have a long history of safe use in foods. In addition, many health aspects of sugars have been periodically examined by independent scientists. The totality of the data does not single out sugars as a dietary risk factor for chronic diseases, such as diabetes, heart disease and obesity. Since 1997, no fewer than five leading scientific and health organizations including the Food and Agriculture Organization, World Health Organization, the Institute of Medicine, and the Academy of Nutrition and Dietetics have all concluded that dietary sugars are not associated with causing illness or chronic diseases, including obesity.

Fact 4 Sugars Do Not Cause Hyperactivity

Although the medical and scientific communities long ago concluded that sugars are not responsible for hyperactivity in children, many parents and teachers still believe that sugar affects children’s behavior. When studies are done where the observers do not know which children were given sugar and which were not (double blind studies) no differences in “hyperactivity” are found. The Institute of Medicine reviewed more than 23 studies conducted over a 12-year



period and concluded that sugar intake does not affect hyperactivity in children. Although it is true that a poor diet—one low in nutrients and energy—can lead to poor test performance, it is not true that restricting any single food or any single food ingredient will improve behavior. In fact, some studies have shown the opposite to be true: across all age groups, consuming small amounts of sugar has been shown to boost performance on tests of mental abilities and staying on task.

Fact 5 Sugar Is Not “Addictive”

We are genetically inclined to like sweet foods and for good reasons, mother’s milk is sweet; sweet tasting foods such as berries are safe and nutritious foods while bitter substances often are poisonous;

and glucose, which tastes sweet, is the only fuel that the brain can use. Without a “taste” for sweets, our ancestors would not have survived. Today, even though most people can easily find the food sources they need for survival, we still are genetically inclined to like and enjoy sweet foods. This does not, however, mean that these foods are “addictive”. Drugs of abuse are addictive in a way that individuals crave the substance and abuse it without control due to induced physiological changes in the brain. Food sustains life while these drugs do not.

Fact 6 Eliminating Sugars From Your Diet Is Not Necessary in Order to Lose Weight

As sugars are ingredients in favorite foods it may be natural to suspect that they have a role in contributing to over-consumption and increased body weight. The truth is that many epidemiologic studies

(studies that look at what large groups of people are eating and their health status) have shown that high sucrose (sugar) diets are not linked to higher body weight or higher body mass index (BMI). In fact, high sugar intakes are often linked to lower BMI. Several studies have found that as the percent of sugar in the diet increases, body weight and BMI decrease. In its 2002 report on dietary carbohydrates and sugars, the Institute of Medicine noted that for both children and adults, higher intakes of sugars tend to be associated with lower BMI or obesity.

Studies also have examined whether diets high in sugars make losing weight more difficult. When compared to a weight-loss diet high in complex carbohydrates, a weight-loss diet high in sugars resulted in similar weight loss amounts with no effect on dieters’ moods, concentration, or hunger levels. In addition, both weight loss groups experienced similar improvements in their blood pressure levels and plasma lipid levels. What matters for weight management is total caloric intake balanced with physical activity, not one specific food or type of food.



Fact 7 Moderate Amounts of Sugars Are Part of a Healthful Diet and Fit Into the *Dietary Guidelines for Americans*



For more than 20 years, the *Dietary Guidelines for Americans* have provided the basis for healthful eating advice for Americans two years

of age and older. Every five years, a committee of acknowledged nutrition scientists and experts reviews the current scientific data on nutrition and health. Following their review, they develop a set of healthful eating guidelines, some of which have changed over the years and some of which have remained remarkably similar to past advice. In general, the 2010 *Dietary Guidelines for Americans* emphasize the importance of consuming a diet high in nutrients yet modest in calories, a concept known as nutrient density. Although sugars themselves are not sources of vitamins or minerals, they can increase the enjoyment of foods like dairy products, such as yogurts or milk, or whole grains such as cereals, which are significant sources of nutrients.

Fact 8 Glycemic Index Ratings Are Not Practical for Most People to Use

The glycemic index (GI) was developed in the early 1980's as way of classifying foods with carbohydrates. It is a measure of the rise in blood glucose after eating an individual food containing a specific amount of carbohydrate when compared to consuming the same amount of glucose or white bread. For more than 20 years, studies have been conducted to assess whether the GI is a helpful tool for planning diets for weight loss, diabetes prevention or the management of blood glucose for people with diabetes.

The usefulness of the GI remains controversial globally. In the US, professional groups such as the American Diabetes Association, the Academy of Nutrition and Dietetics, and the 2010 *Dietary Guidelines for Americans* have not recommended the use of the GI as a diet planning tool for people with diabetes, the general population or people trying to lose weight. In fact, even those who support the use of the GI as a useful tool say that foods should not be judged by their GI alone. Other factors such as nutrient density and fat content need to be considered.

Fact 9 People With Diabetes Can Include Some Foods With Sugars as Part of Their Total Diet

Diabetes is a metabolic disorder that occurs when the body cannot regulate blood glucose levels properly. In diabetes, either the pancreas does not make enough insulin (type 1 diabetes)

or the body cannot respond normally to the insulin that is made (type 2 diabetes). The causes of diabetes are complex, although both genetics and environmental factors seem to play a role. Obesity and lack of exercise are important in susceptibility to type 2 diabetes. Interestingly, sugars are not “off limits” for people with diabetes. Current American Diabetes Association nutritional recommendations do not provide specific guidelines for intake of sugars, noting that sugars and other carbohydrates can be substituted for one another on a calorie-for-calorie basis. The American Diabetes Association also recommends limits on dietary fat and dietary saturated fat for people with diabetes. Maintaining a healthy weight also is important in managing diabetes.



Fact 10 High Fructose Corn Syrup (HFCS) Does Not Cause Obesity

Although rising obesity levels have paralleled the increased use of HFCS in foods and beverages, this is merely an association and does not show cause. There has now been considerable research showing that HFCS does not lead to obesity any more than calories from other sources. The American Medical Association states that “HFCS is unlikely to be more harmful to health than other caloric sweeteners.”

HFCS has a similar composition to table sugar (sucrose) consisting of both glucose and fructose, and the same number of calories (4 per gram) as table sugar, glucose and fructose. The primary difference between HFCS and sucrose is the way the individual molecules of glucose and fructose are connected: in sucrose, the glucose and fructose are “bound” together. In HFCS, glucose and fructose are not bound but are “free” sugars. But, when table sugar is digested it quickly turns into free sugars as well.

HFCS and sucrose are similarly metabolized by the body. Studies examining the effects of HFCS on satiety and appetite have shown no differences between sucrose and HFCS. HFCS-containing beverages also have been compared to other drinks with the same calories (e.g., milk) and are found to have similar effects on appetite and food intake.

Over the past 30 years, the average number of calories eaten by adults has increased steadily. According to USDA data, people are consuming more of all types of foods, including caloric sweeteners, in their diets. Sweet beverage consumption, a significant source of HFCS, has increased along with other foods, but it is the total increase in the consumption of all foods that have resulted in increased calorie levels. At the same time, other lifestyle factors also have changed over the past 30 years. More people

consume foods away from home than in the home. For many people the amount of time each day spent being physically active has decreased while the amount of time spent watching television or other screens has increased. All these factors add up and show up on the scales. The increase in obesity is a result of the difficulty in maintaining energy balance (calories in versus calories out) to achieve and stay at a desirable weight.



The Bottom Line

Sugars can be part of a healthful diet when they are consumed in moderation and within daily calorie needs. For those who are trying to manage their weight, keeping an eye on calories is essential—and that includes calories from dietary fats, protein, and carbohydrates, such as starchy foods and sugars. Very physically active people burn more calories through exercise, so they can add more calories to their diet in any form they choose—from dairy products, meats, vegetables, fruits, and yes, an occasional sweet treat.

Your mother was right; enjoy all things in moderation—including sugars.

For additional information:

IFIC Sugars and Health Resources:

http://www.foodinsight.org/Resources/Detail.aspx?topic=Sugars_and_Health_Resource_Page

The Science of Sugars:

Schorin M, Sollid K, Smith Edge M, Bouchoux A. A Closer Look at Sugars. *Nutrition Today*. 2012;47(3);96–101. doi: 10.1097/NT.0b013e3182435de8.

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US Department of Agriculture and US Department of Health and Human Services. *Dietary Guidelines for Americans*, 2010. 7th ed. Washington, DC: US Government Printing Office; 2010

Position Statement for the American Diabetes Association: Nutrition Recommendations and Interventions for Diabetes. *Diabetes Care* 31 (Suppl. 1):S61–S78, 2008

Position of the Academy of Nutrition and Dietetics: Use of Nutritive and Nonnutritive Sweeteners. <http://download.journals.elsevierhealth.com/pdfs/journals/2212-2672/PIIS2212267212003255.pdf>



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