



# Should you be concerned about your child eating sugar?

Making sure that fruits, vegetables, whole grains and other fiber-rich foods, and calcium-rich dairy products are the centerpieces of your child's diet is important dietary advice. Sugar makes many of these healthy foods palatable. A bowl of nutrient and fiber-rich homemade oatmeal tastes great with a heaping teaspoon of brown sugar.

Foods and beverages that contribute calories but few vitamins and minerals should be considered treat foods. But, just because a food contains sugar does not make it a food that should be avoided.

## What Is Sugar?

All green plants produce sugar (sucrose) through photosynthesis, the process by which plants transform sunlight into the food they need to grow.

Once photosynthesis creates sugar, plants have the unique ability to change sugar to starch and starch to various sugars for storage. This diversity provides us with a wide variety of tasty fruits and vegetables, from the starchy potato to the sweet carrot.

Sugar/sucrose is a carbohydrate that occurs naturally in almost every fruit and vegetable. For example, there are four grams of naturally occurring sucrose in a peach. The sucrose in that peach is identical to the sugar you buy at the store to put on your cereal.

Sucrose occurs most abundantly in sugarcane and sugar beets. The refining process simply separates the sucrose from the sugarcane or sugar beet plant matter. Since sugar is not chemically manipulated it is completely natural and has just 15 calories per teaspoon.

## What Does the Science Say About Sugar Intake?

It seems like every week a new study comes out that grabs the headlines. A single study on any subject is not conclusive and needs further investigation therefore is not a strong basis to change behavior. The average person does not understand the

criteria needed to measure the reliability of a study or how to evaluate that information in the larger context of the total scientific evidence.

Sugar has been an important ingredient in people's diets for centuries and the subject of countless studies. When the full body of science is evaluated during a major review of scientific literature, experts continue to conclude that sugars intake is not a causative factor in any disease, including obesity.

Starting with its 1986 review of 1000 scientific papers, the Food and Drug Administration's (FDA) Sugars Task Force in their report on "Evaluation of Health Aspects of Sugars contained in Carbohydrate Sweeteners" reported that "with the exception of dental caries, the scientific evidence clears sugars of links with other diseases including diabetes, hypertension, behavior and obesity."

The 1989 National Academy of Sciences Report on Diet and Health stated, "Sugar consumption (by those with an adequate diet) has not been established as a risk factor for any chronic disease other than dental caries in humans."

In 1997, a joint Food and Agriculture Organization/World Health Organization expert consultation concurred that "there is no evidence of direct involvement of sucrose, other sugars and starch in the etiology of lifestyle diseases." This conclusion was published in the Food and Agriculture Organization's "Carbohydrates in human nutrition" report.

A 3-year National Academy of Sciences comprehensive review of the scientific literature was completed in 2003. Based on the 279 scientific references cited in Chapter 6 (Dietary Carbohydrates: Sugars and Starches), the Academy panel concluded that,

"Based on the data available on dental caries, behavior, cancer, risk of obesity, and risk of hyperlipidemia [excess blood fat like triglycerides or cholesterol], there is insufficient evi-

**Make an informed choice.**

**Choose pure natural sugar – 15 calories per teaspoon.**

dence to set a UL (upper level) for total or added sugars.”

The Academy report states unequivocally,

“There is no clear and consistent association between increased intakes of added sugars and BMI [body mass index]”

### Does Sugar Cause Diabetes?

There is no reason to be concerned that if your child eats sugar it will lead to diabetes.

Normally, carbohydrates in the foods we eat are digested and changed into glucose, the sugar that circulates in the blood and is one of the body’s major sources of energy. Before the body can use glucose as energy, insulin (a hormone produced by the pancreas) must be present to allow body tissue to convert glucose to energy.

A person with diabetes either does not produce enough insulin or cannot properly use the insulin the pancreas does produce.

According to the American Diabetes Association, sugar does not cause diabetes. You can access information on popular myths about diabetes on the internet at: <http://www.diabetes.org/diabetes-myths.jsp>

**Myth:**  
**Eating too much sugar causes diabetes.**

**No. Diabetes is caused by a combination of genetic and lifestyle factors. However, being overweight does increase your risk for developing type 2 diabetes. If you have a history of diabetes in your family, eating a healthy meal plan and regular exercise are recommended to manage your weight.**

Not only does sugar not cause diabetes but individuals with diabetes do not have to strictly avoid eating sugar according to the American Diabetes Association:

“The available evidence from clinical studies demonstrates that dietary sucrose does not increase glycemia more than isocaloric amounts of starch. Thus, intake of sucrose and sucrose containing foods by people with diabetes does not need to be restricted because of concern about aggravating hyperglycemia. Sucrose should be substituted for other carbohydrate sources in the food/meal plan or, if added to the food/meal plan, adequately covered with insulin or other glucose-lowering medication.”

### Does Sugar Cause a “Sugar High”?

We often hear that when we eat something sweet we get a burst of energy (high) that releases insulin followed by a profound loss of energy (low).

The glycemic index (GI) is a measure of how fast the body breaks down starches and sugars into blood glucose after a food or beverage is consumed.

The common belief that sugar causes a rapid rise in blood glucose (glycemic response) which then triggers an abnormal production of insulin followed by an atypical drop in blood glucose is not a physiological or scientific reality. Sugar is not a high glycemic food and does not uniquely raise blood glucose levels. With a GI of 58 sugar has a low-to-moderate glycemic response.

#### Comparison of glycemic index (GI) and glycemic load (GL) of certain foods

Food	GI	GL
Apple	40	6
Baked potato	85	26
Brown rice	50	16
Carrots	92	5
Corn flakes	92	24
Orange juice	50	13
Plain bagel	72	25
Potato chips	54	11
Wheat bread	53	11
Table sugar (sucrose)	58	6

#### Ranges for GI and GL

	GI	GL
High	70 or more	20 or more
Medium	56 to 69	11 to 19
Low	55 or less	10 or less

K F Powell et al, International table of glycemic index and glycemic load values: 2002, *Am J Clin Nutr* 2002; 76:5-56.

You may have also heard that eating a low GI diet is healthful. Both the U.S. Institute of Medicine and the panel of scientists who developed the 2005 Dietary Guidelines for Americans rejected the concept of GI as a useful measure of diet quality or a helpful weight loss tool. The 2005 Dietary Guidelines Advisory Committee concluded, “Current evidence suggests that the glycemic index and/or glycemic load are of little utility for providing dietary guidance for Americans.”

### Does Sugar Cause Hyperactivity?

Hyperactivity is a specific diagnosable syndrome recognized by professionals as Attention Deficit Hyperactivity Disorder or ADHD. It is a behavioral disorder characterized by chronic problems with

attention, impulsiveness and/or hyperactivity that is inappropriate for a child's age. Under normal conditions a very energetic or "highly active" child has the ability to control his behavior, whereas the truly hyperactive child may be able to modify, but not fully control, his behavior.

Folklore linking certain foods, such as sucrose or table sugar, with very active behavior in children began in the early 1970s, when Dr. Benjamin Feingold proposed the theory that diet may adversely affect children's behavior. Since that time, considerable research has been devoted to the subject. In over 20 studies, including those supported by the Food and Drug Administration, science has been unable to support claims that sugar affects children's behavior.

In carefully controlled studies, meals were provided for two weeks to children whose parents believed their children were affected by sugar. Parents and teachers monitored their behavior after the meals, unaware of whether the children had consumed sugar or artificial sweeteners. No adverse effects were found from either.

A 1995 meta-analysis [a systematic review of the scientific literature] published in the *Journal of the American Medical Association* confirmed clearly that sugar does not cause hyperactivity or behavior problems. This conclusion remains settled science.

Children do, indeed, tend to become excited at special occasions, such as birthdays and Halloween. However, continued scientific review, most recently by the Institute of Medicine, confirm that there is no evidence that sweeteners cause hyperactivity.

### Is Sugar Addictive?

Addiction is compulsive behavior with medically identifiable physiological symptoms. Eating sugar or any other carbohydrate (or proteins or fats) does not produce these symptoms.

The premise put forth by some (not the consensus of the scientific community) is the pleasure one experiences from eating food causes changes in brain chemistry that lead to addiction. It is well known that all pleasurable experiences (one good example is exercise) generate chemical responses in the brain, but all changes in neurochemistry do not equate to addiction. The science on food addiction is limited and most of that science has been conducted with rats.

The reality is people like tasty foods. But there are distinct differences between a psychological dependency that is often an emotional response to food and

actual physical dependence. Food does not generate withdrawal, the medically distinct symptoms characteristic of authentic addiction.

### Should I Purchase Sugar Free or Less Sugar Products For My Child?

Recently the Associated Press asked five nutrition scientists to evaluate newly introduced "reduced sugar" kids cereals. The scientists found that the reduced sugar versions of popular kid's cereals provided no reduction in calories or improved nutritional content over the regular sugared versions. The replacement ingredients providing the necessary bulk and texture to the reduced sugar cereals had no nutritional or caloric advantage over sugar.

Since then, some academic institutions, nutrition experts and media professionals have begun to warn consumers that less sugar does not necessarily mean fewer calories or improve nutrition.

Misplaced emphasis on sugar-containing foods is an oversimplification of the current problem and will have the same outcome as the failed low-fat messages of the 1990s.

### Are Artificial Sweeteners the Answer?

Sugar and sugar-sweetened foods are one of life's pleasures, and it is unrealistic to think that people will completely forego this simple form of enjoyment. The question remains, "Is ingredient substitution the best solution for solving today's complicated problems or will it simply create a new set of problems?"

Is there any evidence that the use of artificial sweeteners will help control weight? According to the American Dietetic Association (ADA) 2004 position paper on the use of nutritive and nonnutritive sweeteners, "Nonnutritive sweeteners added to the diet have been shown to promote a modest loss of weight." Yet ADA also stated the undeniable, "The prevalence of obesity has increased substantially at the same time as the consumption of nonnutritive sweeteners has increased."

Sweetener	Times sweeter than sugar	Acceptable Daily Intake
Sucralose	600	5mg/kg/bw/day
Aspartame	60-220	50mg/kg/bw/day
Acesulfame-K	200	15mg/kg/bw/day

With more and more foods containing high intensity sweeteners, there is no doubt that consumption of artificial sweeteners by children will increase. It

is important to note that the FDA sets Acceptable Daily Intakes for artificial sweeteners base on kilograms of body weight per day. (See chart on previous page)

Parents who monitor their children's consumption of artificial sweeteners should look at the ingredient statement of all foods they purchase for their children. Some products, even products that do not make claims to have reduced sugar content, contain multiple artificial sweeteners or sugar alcohols.

#### **Sugar Alcohols/ Polyols Approved in the US**

- Sorbitol
- Mannitol
- Xylitol
- Erythritol
- D-Tagatose
- Isomalt (Palatinat)
- Lactitol
- Maltitol
- Polydextrose
- Hydrogenated Starch Hydrolysis

#### **Artificial Sweeteners Approved in the US**

- Saccharin
- Aspartame
- Acesulfame-K
- Sucralose
- Neotame

Parents should also consider the consequences of changes to accustomed tastes. American consumers are forgetting the taste of real, natural foods as their palates become accustomed to the more intense sweetness of artificial products used to replace sugar.

### **Why You Should Not Be Concerned About Your Child Eating Sugar**

#### **The Facts**

- ◆ Sugar intake has never been linked to any negative health impact, including obesity.
- ◆ Sugar is natural and has only 15 calories per teaspoon.
- ◆ Sugar has added flavor and provided many essential functional properties to our food supply for centuries.
- ◆ Sugar makes many nutrient-rich foods taste better so children will eat them.

Foods or beverages with high levels of sugars and/or fats that don't contribute to key nutrient

intake should be consumed in moderation. Parents can help their children by allowing these foods as occasional treats. Simply eliminating sugar from the diet will not increase health and control weight. The American public, especially children, need to understand that the problem of overweight and obesity are caused by eating too much food, no matter the source.

**Maybe our grandmothers had it right when they told us to eat a little of everything on our plates and then go out and play.**

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