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# Sugar Substitutes

## *Better for the body than sugar?*

### **What is a Sugar Substitute?**

A sugar substitute is a low-calorie sweetener or artificial sweetener. Sugar substitutes provide a sweet taste without the calories or carbohydrates that accompany sugar and other sweeteners. They are hundreds of times sweeter than sugar, so it takes much less of them to create the same sweetness. Therefore, the resulting calorie count is insignificant. This is why many dieters choose artificial sweeteners over sugar.

### **Are Sugar Substitutes Safe to Consume?**

There has been much controversy surrounding the safety of sugar substitutes. Some contend that sugar substitutes may cause cancer or brain tumors. However, the Food and Drug Administration (FDA) dismisses these claims, insisting that there have been extensive studies done to alleviate any concern. There are even some organizations which endorse sugar substitutes, such as the American Diabetes

Association; it refers to foods with artificial sweeteners as “free foods” because they make foods taste sweet, yet have essentially no calories and do not raise blood sugar levels.

### **FDA-Approved Sugar Substitutes**

The FDA has approved five artificial sweeteners – saccharin, aspartame, acesulfame-K, sucralose and neotame – for use in a variety of foods. More are under review for possible future release.

### **Saccharin**

The oldest sugar substitute is saccharin, which was discovered in 1879. It was used during both world wars to sweeten foods in place of sugar, which was in short supply. Saccharin is 200 to 700 times sweeter than sugar and is branded as Sweet’N Low<sup>®</sup>, Sweet Twin and Necta Sweet<sup>®</sup>.

In the 1970s, there was concern that saccharin might cause cancer. Recent studies, however, have shown that

saccharin is safe for human consumption. In 2000, it was removed from the government list of possible carcinogens. That same year, the warning label that was implemented in 1977 was removed from all products containing saccharin.

### **Aspartame**

NutraSweet<sup>®</sup>, Sugar Twin<sup>®</sup> and Equal<sup>®</sup> are examples of



aspartame. Aspartame is about 200 times sweeter than sugar and was approved by the FDA in 1981.

Aspartame is perhaps the most controversial artificial sweetener. There are many that believe it can cause adverse affects to the body, such as headaches, depression

and even cancer. However, the FDA refers to this sweetener as one of the most tested and studied food additives that it has ever approved and insists that it is safe to consume.

Products with aspartame are required to carry the label "Phenylketonurics: Contains Phenylalanine," because in large amounts it may be harmful to those born with the rare disease phenylketonuria (PKU). However, it is important to note that products such as meat, milk and other foods with protein contain this substance as well.

### **Acesulfame-K**

Also called Sunett<sup>®</sup> (or acesulfame potassium – the "K" stands for potassium), this sweetener was approved in 1988 and is 200 times sweeter than sugar. Acesulfame-K has been the subject of over 90 studies in the span of 15 years, all of which have determined it safe for consumption. The FDA gave acesulfame-K a general use approval in 2003, and it is currently used in thousands of products.

### **Sucralose**

Splenda<sup>®</sup> is the trade name for sucralose, which is 600 times sweeter than sugar. It tastes like sugar because it is actually made from sugar. The FDA approved it in 1998 for certain uses, and revised its regulation in 2006 to allow it as a general purpose sweetener for all foods. More than 100 studies have been conducted on the safety of sucralose over a 20-year

period and they have all concluded that sucralose does not produce any known side effects.

### **Neotame**

This sugar substitute is 7,000 to 13,000 times sweeter than sugar. Neotame received a general use approval from the FDA in 2002. There have been over 100 studies done on both animals and humans, and all have concluded that neotame does not produce any ill effects on the human body.

### **What Are Sugar Alcohols?**

Sugar alcohols are not technically considered artificial sweeteners, but they are slightly lower in calories than sugar and do not promote tooth decay or cause a spike in blood glucose levels. Sorbitol, xylitol, lactitol, mannitol and maltitol are examples of sugar alcohols, and are used mainly to sweeten sugar-free candy, cookies and gum.

### **Consumption Guidelines**

For every food additive, there is an amount known as the Acceptable Daily Intake (ADI). The ADI is the maximum dose one should consume without experiencing any adverse health effects, based on extensive scientific study. The ADI for the five FDA-approved sugar substitutes is as follows:

- Saccharin* – 350mg/day
- Aspartame* – 3,500mg/day
- Acesulfame-K* – 1,050mg/day
- Sucralose* – 350mg/day
- Neotame* – 1,260mg/day