

Low Calorie Sweeteners:

Their Role in Healthful Eating



People without a sweet tooth are rare. Our preference for sweets is thought to be a basic survival adaptation. Scientists believe that this preference is evolutionary and ensures that infants accept life-sustaining breast milk because of its slightly sweet taste from milk sugar. As we grow older, sweet foods are an important part of birthdays, holidays and family traditions.



For most of us, however, indulging in sweets must be done with care. More than half of American adults are overweight or obese. Obesity substantially increases the chance of developing chronic diseases and conditions like high blood pressure, type 2 diabetes, heart disease, stroke and some cancers.

When we think about diet and health, there is no magic formula to lose weight and keep it off. If you want to lose weight, you must eat fewer calories than your body burns. To maintain weight, you need to eat the same number of calories as your body burns. The bottom line is simple. Calories do count and regular physical activity is crucial to maintaining healthy weight or for promoting weight loss.

Understanding these facts help you realize that low-calorie sweeteners—and foods and beverages made with them—can play a beneficial role in healthful eating. They can provide sweetness while helping you tow the line on calories. National surveys show that many Americans

expect low-calorie sweeteners and the foods and beverages sweetened with them to help with managing their weight, maintaining an attractive appearance and staying in better overall health.

Four low-calorie sweeteners are now approved for use in the United States. With this variety of sweeteners, more palatable foods and beverages are available to help you achieve your health and nutrition goals.



Common Questions About Low-Calorie Sweeteners and Healthful Eating

Can Low-Calorie Sweeteners Help You Eat Healthfully?

It is clear that to lose weight or to maintain a healthy weight you need to pay careful attention to your calorie intake. The use of low-calorie sweeteners and the growing availability of a wider array of good tasting foods and beverages made with low-calorie sweeteners can help you keep your calorie intake in line with your needs.

According to Adam Drewnowski, Ph.D., professor of nutrition at the University of Washington, “Low-calorie sweeteners offer the best method to date of reducing calories while maintaining the palatability of the diet.” It should be stressed, however, that the use of low-calorie sweeteners alone cannot help people succeed at weight control. They are only a helpful tool. Successful weight control must involve a multi-pronged approach of healthful eating, physical activity, and behavior change.

What Low-Calorie Sweeteners Can Be Found in the Marketplace?

Four low-calorie sweeteners are approved for use in foods and beverages in the United States—acesulfame potassium, aspartame, saccharin and sucralose. Another group of sweeteners, polyols, or sugar alcohols, are reduced-calorie sweeteners and are used primarily in desserts, candy and chewing gum.

Are Low-Calorie Sweeteners Safe to Use?

Yes. All low-calorie sweeteners—acesulfame potassium, aspartame, saccharin, and sucralose—have undergone extensive safety evaluation and approval as food ingredients by the US Food and Drug Administration (FDA). Before receiving FDA approval, these ingredients were first tested in experimental models at consumption levels far in excess than used in products intended for human use.

Can Low Calorie Sweeteners Help You Control or Lose Weight?

The good news is that low-calorie sweeteners have the potential to help people stay on track with a weight loss program and to be more successful in keeping extra weight off. Research has shown that when low-calorie sweetened foods and beverages are substituted for their conventional counterparts people consume fewer calories when they don't know about the substitution. Some studies show

that people may make up for eating fewer calories if they are knowingly served or choose lower-calorie foods. For example, if someone chooses to drink a diet or low-calorie beverage, they might feel freer to eat a piece of cake.

Do Low-Calorie Sweeteners Cause a Change in Appetite?

No. It has been suggested that low-calorie sweeteners may stimulate appetite, thereby increasing calorie intake and promoting weight gain. Scientists have conducted numerous studies to examine this question and not found low-calorie sweeteners to stimulate appetite and cause weight gain.

Can People with Diabetes Use Low-Calorie Sweeteners?

Yes. Low-calorie sweeteners have long played a role in the food choices of people with diabetes by providing alternatives to sugar-containing foods and allowing reduced consumption of sugars and carbohydrates. The recommendations from the American Diabetes Association about sugars and carbohydrates have changed greatly over the years. Today's recommendations suggest that people can choose moderate amounts of foods with sugars within the context of healthful eating guidelines. The most important factor in the control of blood glucose levels is to eat similar amounts of carbohydrates at meals and from day to day. Low-calorie sweeteners continue to be important for people with diabetes, especially the many individuals who need to lose weight to help control their blood glucose levels.

Low-calorie sweeteners contain almost no calories and no carbohydrates. They do not raise blood glucose or insulin levels. People with diabetes can use foods and beverages with low-calorie sweeteners as tools for making healthful food choices.

Can Low-Calorie Sweeteners Be Used Together?

Yes. Blending of two or more low-calorie sweeteners in a food or beverage has been used internationally for many years and is becoming more common in the United States. Low-calorie sweetener blends are important because they can produce a taste profile very similar to that of sugar—the gold standard for sweetness. Blends commonly used today are aspartame and acesulfame potassium, or acesulfame potassium and sucralose.

How Can You Fit Foods with Low-Calorie Sweeteners Into a Healthful Diet?

Whether you are counting calories to reduce or control your weight or counting carbohydrates to control diabetes it is important to know how foods with low-calorie sweeteners can fit into your dietary pattern. There is a tendency to think that because a food is sweetened with a low-calorie sweetener, it contains no calories. True, it might be “sugar-free,” but sugar-free does not mean calorie-free. For example, yogurt or hot cocoa mix sweetened with a low-calorie sweetener does contain calories from other ingredients such as fruit or milk. These foods are not calorie-free. Foods and beverages containing low-calorie sweeteners fit broadly into three groups. Use these guidelines to fit foods with low-calorie sweeteners into your diet.

- **Tabletop sweeteners:** A packet or package of a low-calorie sweetener usually has between zero to 2 calories for the equivalent of sweetness of 2 teaspoons of sugar. The calories are not from the low-calorie sweetener, but from bulking agents (usually dextrose or maltodextrin) used to add volume to the product in order to mimic the same amount as in a packet of sugar. These provide negligible calories.
- **Foods with low-calorie sweeteners that contain minimal calories:** Examples are diet soda, gelatins, fruit drinks, powdered drink mixes and sugar-free chewing gums. As long as the Nutrition Facts panel on food products tells you that a serving contains less than 20 calories and less than 5 grams of carbohydrate per serving, consider this a calorie-free food. But keep in mind that the calories from many servings of these foods will add up.
- **Foods sweetened with low-calorie sweeteners that contain other ingredients that contribute calories and carbohydrate:** Examples are hot cocoa mixes, refrigerated yogurts, baked goods, frozen desserts or fruit drinks. Review the Nutrition Facts panel on the product to determine the number of calories and amount of carbohydrate in one serving and how the product fits into your food intake pattern.

Looking for More Information about Low-Calorie Sweeteners and Health?

Visit the International Food Information Council (IFIC) Foundation website, <http://ific.org>, for information on individual low-calorie sweeteners and a scientific review, *Low-Calorie Sweeteners and Health*.

For additional information, contact:

International Food Information Council Foundation
1100 Connecticut Avenue, NW
Suite 430
Washington, DC 20036
<http://ific.org>



THE AMERICAN ACADEMY OF FAMILY PHYSICIANS FOUNDATION HAS FAVORABLY REVIEWED THIS MATERIAL THROUGH 10/2003. FAVORABLE REVIEW MEANS THAT MEDICAL INFORMATION IS ACCURATE, BUT DOES NOT IMPLY ENDORSEMENT OF ANY CONCLUSIONS PRESENTED.

Low-Calorie Sweeteners: The Basics

All low-calorie sweeteners contribute no or very few calories to foods and beverages. Each has undergone extensive safety testing which has been carefully reviewed by the Food and Drug Administration. The scientific data clearly demonstrate that low-calorie sweeteners are not linked to any adverse health reactions. In the United States, the FDA investigates complaints from consumers. It has stated that there are no causal relationships between dietary use of low-calorie sweeteners and alleged adverse reactions.

Acesulfame potassium

Acesulfame potassium or acesulfame K as it is abbreviated on food labels, is calorie-free and about 200 times sweeter than sugar. Acesulfame K is highly stable and has been approved for use in a wide variety of foods, beverages and baked products. Acesulfame potassium is not broken down by the body and is eliminated without providing any calories.

Aspartame

Aspartame is a very low-calorie sweetener and is about 200 times sweeter than sugar. It is made by joining two amino acids, aspartic acid and the methyl ester of phenylalanine. The components of aspartame are also found naturally in common foods, including meat, dairy products, fruits and vegetables. After ingestion, aspartame is broken down to its components and utilized by the body in the same way as when derived in much larger amounts from common foods.

Although aspartame is widely used in foods and beverages, is not recommended for use in recipes that require lengthy heating or baking time, because of a loss of sweetness. It may, however, be added at the end of the cooking cycle in many recipes.

Persons with a rare hereditary disease known as phenylketonuria (PKU) must control their intake of phenylalanine from all sources, including aspartame. Although aspartame contains only a small amount of phenylalanine, labels of aspartame-containing foods and beverages must include a statement advising phenylketonurics of the presence of phenylalanine.

Saccharin

Saccharin is calorie-free and about 300 times sweeter than sugar. Because saccharin is stable when heated, it is suitable for foods, beverages and in cooking and baking. It is not broken down by the body and is eliminated without providing any calories.

Decades ago, there were questions about whether saccharin could cause bladder cancer, based on animal studies. Numerous follow-up studies with animals and humans have shown no overall association between saccharin consumption and cancer incidence. Recently, the federal government removed saccharin from a list of potential cancer-causing agents. For the time being, labels on products with saccharin must include a statement that saccharin has caused cancer in laboratory animals.

Sucralose

Sucralose is calorie-free and is approximately 600 times sweeter than sugar. It is made from sugar through a patented, multi-step process. Sucralose is highly stable and can be used in foods, beverages and in cooking and baking. Sucralose is not recognized by the body as sugar or carbohydrate. It is not broken down by the body and is eliminated without providing any calories.

Polyols

Polyols (or sugar alcohols) are another group of reduced-calorie sweeteners that contain some calories. Polyols are found naturally in berries, apples, plums, and other foods, but are manufactured from carbohydrates for use in sugar-free candies, cookies, chewing gums and other reduced-calorie foods. Familiar names of polyols include sorbitol, mannitol and isomalt.

Since polyols are partially, but not completely broken down by the body, they provide, on average, half the calories of sugar and other carbohydrates. Some polyols, such as sorbitol, may produce gas and discomfort in the stomach and may cause diarrhea in some people when large amounts are consumed. As a result, foods with a significant amount of certain polyols bear the statement, “Excess consumption may have a laxative effect.”

