

Sugar

Sugars are carbohydrates. Like all carbohydrates, they provide a source of energy in our diet. Sugar is a term that includes all sweet carbohydrates, although the term most often is used to describe sucrose or table sugar, a 'double sugar'. The body breaks down carbohydrates into simple sugars, for example glucose, that can be readily used in the body.

There are several different sugars. Sugars occur naturally in some foods, such as fruit and dairy products and are also added to a wide variety of foods. Sugar can take many different forms including white, raw or brown sugar, honey or corn syrup.

Too much sugar in the diet can contribute to health problems including obesity and tooth decay. Refined (or processed) sugar provides a quick, simple source of energy but it doesn't contain other nutrients such as vitamins and minerals.

Sugars are popular in the processed food industry because they add taste, colour, bulk and thickness to food products. They also prevent mould forming and act as a preservative.

A little sugar is OK

A 'moderate' intake of refined sugar can be an acceptable part of a healthy diet. Experts define a moderate intake as about 10 per cent of the total energy intake per day. However, people who consume a lot of sugary food and drinks, at the expense of more nutritious food choices, may be taking in a lot of 'empty calories'.

Adding a little sugar to nutritious grain foods, such as wholegrain bread and cereals, may encourage people to eat more of these foods by making them more tasty.

Sugar and obesity

There has been a lot of debate about the link between high sugar intake and being overweight or obese. But there is general agreement that energy (kilojoules) above the body's needs will be stored as fat.

Sugar is a form of carbohydrate and it provides the same amount of energy or kilojoules (kJ) per gram as other forms of carbohydrates found in breads, rice, pasta and fruits.

One gram of carbohydrate provides 16kJ of energy. One gram of fat provides 37kJ. So fats in food contribute double the energy than the equivalent amounts provided by sugar.

It's easy to have too much sugar

Although sugar provides less energy than fat, it can contribute to the 'energy density' (number of kilojoules) of foods and drinks. It's easy to overindulge in foods, especially drinks, with high sugar content.

Having too much sugar is not the only reason for obesity or being overweight, but it does add to the amount of kilojoules in food. Eating too much of any food, without doing enough exercise, will cause you to become overweight.

Soft drinks are high in sugar

Sweetened drinks are heavily advertised, cheap and commonly available. In Australia, the consumption of soft drinks, which are sweetened with sugar, has increased by 30 per cent in 10 years.

The standard serving size for soft drink has also increased. Ten years ago soft drink was available in 375ml cans. Soft drinks are now commonly sold in 600ml bottles, which provide at least 12–15 teaspoons of sugar.

For an average 14 year old girl, a 600ml bottle of soft drink alone will provide more than 12 per cent of her daily energy needs. This means she would exceed the recommended energy intake from refined sugar with just one drink.

Studies of children in the United States found that drinking more sweetened soft drink was linked to increasing overweight and obesity. It's best to keep these drinks to a minimum.

Watch out for fats in sweet foods

Sugars are often found together with fats in foods like chocolate, biscuits and cakes. A high fat intake is quite likely to contribute to being overweight or obese because fat is very 'energy dense'.

It is a healthy choice to limit both the fat and the sugar content in the foods you eat. Lots of commercially produced sweet foods contain high levels of saturated fat, which will increase your blood cholesterol levels and your risk of heart disease.

Carbohydrates and glucose

The body breaks down carbohydrates and converts them into a simple sugar called glucose. This ready form of energy is carried through the blood and delivered to every cell.

The supply of glucose needs to be constant and dependable, so the body has developed a number of systems to ensure this supply. For instance, the pancreas secretes a hormone called insulin that regulates the amount of glucose in the blood.

Insulin allows glucose to enter body cells. It also helps with the storage of excess glucose in the liver, which supplements blood glucose levels if they start to fall. A person with diabetes has either insufficient or inefficient insulin, which means their blood glucose levels tend to be too high.

A small amount of sugar is safe for people with diabetes

There is no evidence that a diet high in sugar directly causes either type 1 or type 2 diabetes. However, being overweight or obese is a risk factor for type 2 diabetes and perhaps someone who is overweight might also eat a lot of sugar.

In the past, people with diabetes were told to avoid eating all foods containing refined sugar. This was because it was believed the sugar would have a bad effect on their blood glucose levels. However, more recent research on the glycaemic index (see below) has shown that sugar affects blood glucose levels less than some other more starchy foods, like refined bread and breakfast cereal.

People with diabetes can have a small amount of sugar in their diet. If adding sugar, it is best to add it to healthier foods such as wholegrain breads and cereals. For example, adding one to two teaspoons of regular jam spread on wholegrain bread is OK.

People with diabetes should limit or avoid foods in which the main ingredient is sugar, such as sweets and cakes. It is also important to maintain a healthy weight to manage diabetes.

Glycaemic index

A food's 'glycaemic index' (GI) refers to how quickly the carbohydrate is broken down and absorbed into the bloodstream. 'High GI' foods enter the bloodstream more quickly than 'low GI' foods, causing a greater increase in the level of blood glucose (this is known as the body's 'glycaemic response').

Recent studies have suggested a link between foods with a high GI and a number of conditions including:

- Abdominal obesity
- Type 2 diabetes

- High cholesterol
- Hypertension (high blood pressure)
- Heart disease.

There is often no direct relationship between a food's glycaemic index and the degree of processing or level of fibre or even sugar in the food. There are books and websites available giving details of the GI of a wide range of foods.

A healthy diet can include moderate amounts of sugar together with a range of low GI carbohydrate choices.

People with diabetes need low GI foods

The glycaemic index is a useful tool for people with diabetes to help regulate their glucose levels. People with type 2 diabetes need the glucose in their diet to be absorbed slowly. They need to eat foods with a low GI. At least one low GI food is recommended at each meal.

The quantity of carbohydrate foods eaten will also affect blood glucose levels. Talk to your dietitian about the recommended quantities of carbohydrate-based foods you need.

People respond differently to different foods, regardless of the food's glycaemic index. If you have diabetes, you will need to monitor your blood glucose levels regularly.

No clear link between sugar and attention deficit hyperactivity disorder

There is no evidence to suggest a direct link between attention deficit hyperactivity disorder (ADHD) and the consumption of sugar.

Tooth decay and sugar

Sugar and tooth decay are closely linked. Dental plaque is a clingy film made up of food particles, bacteria and mucus. The bacteria in plaque depend on sugars to produce acids, which break down the enamel and start tooth decay.

All carbohydrates contribute to this process, not just sugar, but large amounts of sugar in sweets and soft drinks are most likely to contribute to decay. Other nutritious foods (like dried fruits) also allow the bacteria in plaque to produce acids. Sticky sugars that cling to the teeth are worse than sugars that are easily swallowed, such as fresh fruit.

Ways to reduce the risk of tooth decay include:

- Cut down on sticky, sugary foods like lollies.
- Drink water instead of cordials, soft drinks and juices.
- Allow at least two hours between meals.
- Brush and floss regularly and after meals.
- Drink fluoridated water or use fluoride treatments.
- Visit the dentist regularly.

Where to get help

- Your doctor
- An accredited practising dietitian, contact the Dietitians Association of Australia.
- Dentist

Things to remember

- Sugar is a form of carbohydrate that the body converts to glucose.
- Limit soft drinks as they are linked to obesity in children.
- Small amounts of sugar, as part of a meal, are OK.
- Limit foods and drinks with high amounts of added sugar. Choose foods with naturally occurring sugars such as fresh fruits.

This page has been produced in consultation with, and approved by:

Royal Children's Hospital - Nutrition Department

Content on this website is provided for education and information purposes only. Information about a therapy, service, product or treatment does not imply endorsement and is not intended to replace advice from your doctor or other registered health professional. Content has been prepared for Victorian residents and wider Australian audiences, and was accurate at the time of publication. Readers should note that, over time, currency and completeness of the information may change. All users are urged to always seek advice from a registered health care professional for diagnosis and answers to their medical questions.

For the latest updates and more information, visit www.betterhealth.vic.gov.au

Copyright © 1999/2011 State of Victoria. Reproduced from the Better Health Channel (www.betterhealth.vic.gov.au) at no cost with permission of the Victorian Minister for Health. Unauthorised reproduction and other uses comprised in the copyright are prohibited without permission.