



This Food Science Fact Sheet is one of a series compiled by Institute of Food Science and Technology, providing clear, concise and scientifically reliable information on key food science topics for consumers.

Sugars

What are sugars?

Sugars are the basic building blocks of carbohydrates found in nature; they can be found in milk, honey, tree saps such as maple syrup, and many fruits and vegetables. The most common sugars found in foods are single sugars called *monosaccharides* e.g. glucose, fructose and galactose and double sugars called *disaccharides* e.g. sucrose (table sugar), lactose (milk sugar) and maltose.

Glucose is found naturally in many foods and has a vital role in providing energy, in particular for the brain. Fructose is the sweetest of the naturally occurring sugars; many fruits and vegetables are rich in fructose. Sucrose (table sugar) is glucose and fructose linked together in a 1:1 ratio. Honey also contains glucose and fructose in a 1:1 ratio (50% glucose, 50% fructose). Other naturally sweet produce might have different ratios - for example, apple juice 65% fructose, 35% glucose.

What is the function of sugars?

Sugars provide many functions in foods. They not only provide sweetness but deliver body to beverages, texture and structure to baked goods, and react with other ingredients to produce colour and flavour. They preserve food and fruits, for example in jams.

Can sugars be replaced?

There are many sugars replacers available that have very few or no calories and do not contribute to dental caries. Some are very sweet and are used to replace some or all of the sweetness of sugars; these cannot replace the volume or browning properties of sugar

however. Others replace some of the sweetness and structure (bulk) but do not perform in the same way in the finished food. There is no single ingredient that can replace all of the functions of sugars in every product. Therefore, different, and often more, ingredients are used in food and drinks when sugars are reduced or replaced.

'Sugars are the basic carbohydrates found in nature.'

Are there differences between sugars?

Recent reports on the role of sugars in a healthy diet have led to the development of new terms that try to differentiate between those sugars that are naturally present in foods and those that have been added. 'Free sugars' has been defined¹ as those that are added to food (e.g. sucrose) and those naturally present in honey, syrups and juices. Lactose from milk and milk products is excluded from the 'free sugars', which we are encouraged to reduce, as are those sugars contained in whole fruit.



FOOD SCIENCE FACT SHEET continued

Sugars



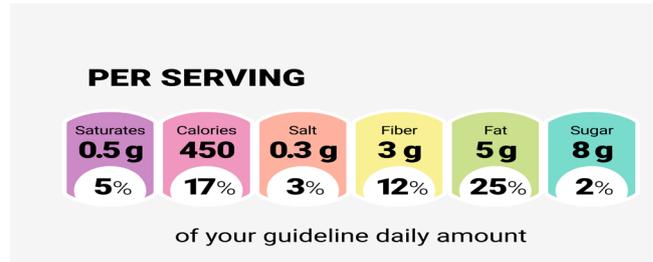
It is not possible to distinguish analytically between the same sugar from natural or man-made sources, and our bodies use them in the same way, irrespective of the source.

All sugars: 1 g. = 4 Calories (kcal.)

How much sugar should I consume?

Sugars like all carbohydrates have a calorie content of 4 kcal/g (17 kJ/g). Current dietary guidance is that the total amount of sugars that should be consumed is 90 g (or just over 3 oz.), as part of a total energy intake of 2000 kcal (Cal.)/8400 kJ per day. On food labels this amount is called the Reference Intake and is used to calculate the % of total sugars per serving.

A recent report¹ by the Government's Scientific Committee on Nutrition (SACN) recommended that 'free sugars' intake should not exceed 5 % of total energy intake in a day. This is about 100 Calories (kcal) from 'free sugars', which equates to about 25 g or 1 oz. per day. Dietary surveys indicate that less than 10% of the population currently meets this target, and consequently meeting it would mean major changes to the diet of most people. Just as it is not possible to identify analytically 'free sugars' in a product, it is not possible to identify 'free sugars' from the label; it is possible to tell how much sugar is in the food however, either from the nutrition information panel or other, often colour coded, labels.



Is sugar bad for you?

Sugars from carbohydrates are a key component of the diet, and the body's main source of energy. Many expert committees have reviewed the scientific evidence on sugars and their effects on health, in particular in relation to overweight/obesity and dental health. The consequences to health of being overweight are significant, including the risk of developing Type-2 diabetes. The risks from consuming sugars *per se* are less clear.

There is no evidence that sugar (in drinks) makes children hyperactive or has effects on attention or behaviour.

While research into the relationships between the food and drinks we consume and our health continue, a healthy balanced diet, and maintaining a healthy weight, can only be beneficial. Food scientists and technologists are working closely with those who produce and make the food we eat to ensure that achieving this goal - and the recommendations of the experts - is not only possible, but delivers food and drinks that we can be confident are safe and tasty.

For more information on this topic, and the sources used to develop the Fact Sheet please refer to the **IFST Information Statement on Sugars.**

References

Scientific Advisory Committee on Nutrition (2015):
Carbohydrates & Health