

added sugars in general, and fructose in particular, favour the fat-making pathways and impair the fat-clearing pathways in the liver. The resulting blood lipid profile increases the risk of heart disease. As the liver busily makes lipids, its handling of glucose becomes unbalanced and insulin resistance develops – an indicator of prediabetes. All in all, research is finding links between added sugars and the risk of diabetes, inflammation, hypertension and heart disease. Importantly, moderate intakes of sugars do not cause these health problems. For this reason, researchers suggest replacing sugar-sweetened beverages with water.

Nutrient deficiencies

Foods that contain large amounts of added sugar, such as cakes, lollies and soft drinks, deliver glucose and energy with few, if any, other nutrients. By comparison, foods such as whole grains, vegetables, legumes and fruits that contain some natural sugars and lots of starches and dietary fibre deliver protein, vitamins and minerals along with their glucose and energy.

A person spending 800 kilojoules of a day's energy allowance on a 650-millilitre soft drink gets little of value for those energy 'dollars'. In contrast, a person using 800 kilojoules on three slices of wholegrain bread gets at least 9 grams of protein, 6 grams of fibre, plus several of the B vitamins with those kilojoules. For the person who wants something sweet, a reasonable compromise might be two slices of bread with a teaspoon of jam on each. The amount of sugar a person can afford to eat depends on how many kilojoules are available beyond those needed to deliver indispensable vitamins and minerals.

Some people believe that because honey is a natural food, it is nutritious – or, at least, more nutritious than sugar.* A look at their chemical structures reveals the truth. Honey, like table sugar, contains glucose and fructose. The primary difference is that in table sugar, the two monosaccharides are bonded together as a disaccharide, whereas in honey some of them are free. Whether a person eats monosaccharides individually, as in honey, or linked together, as in table sugar, they end up the same way in the body: as glucose and fructose.

Honey does contain a few vitamins and minerals, but not many. Honey is denser than crystalline sugar, too, so it provides more energy per spoonful.

This is not to say that all sugar sources are alike, for some are more nutritious than others. Consider a fruit, such as an orange. The fruit may give you the same amounts of fructose and glucose and the same amount of energy as a spoonful of sugar or honey, but the packaging is more valuable nutritionally. The sugars in fruit arrive in the body diluted in a large volume of water, packaged in dietary fibre and mixed with essential vitamins, minerals and phytochemicals.

As these comparisons illustrate, the significant difference between sugar sources is not between 'natural' honey and 'purified' sugar but between concentrated sweets and the diluted, naturally occurring sugars that sweeten foods. You can suspect an exaggerated nutrition claim when someone asserts that one product is more nutritious than another because it contains honey.

Sugar can contribute to nutrient deficiencies only by displacing nutrients. For nutrition's sake, the appropriate attitude to take is not that sugar is 'bad' and must be avoided, but that nutritious foods must come first. If nutritious foods crowd sugar out of the diet, that is fine – but not the other way around. As always, the goals to seek are balance, variety and moderation.

* Honey should never be fed to infants because of the risk of botulism. Chapters 16 and 19 provide more details.



Over half of the added sugars in our diet come from soft drinks and table sugar; however, baked goods, fruit drinks, ice-cream, lollies and breakfast cereals also make substantial contributions.