

The sweet taste of sugar: what are the alternatives?



Diabetes
New Zealand

In what is becoming a carb-conscious world, alternative sweeteners to sugar are gaining in popularity. How safe are they? What benefits do they have? Will they affect your blood glucose levels? Are they really as good as manufacturers lead us to believe? New Zealand registered dietitian **Janene Cooper** provides some answers.

Artificial sweeteners are either non-nutritive (they provide little or no energy) or nutritive (they supply energy).

Non-nutritive sweeteners - providing no kilojoules (energy)

In New Zealand there are five common non-nutritive sweeteners (the figures in brackets are the additive numbers): Aspartame (951) sold as Equal; Acesulfame-K (950); Cyclamate (952) and Saccharin (954) sold as Sucaryl and Sugromax (saccharin and cyclamate mixed); and Sucralose (955) which is Splenda.

Features of these sweeteners:

- Intensely sweet, but contain few or no kilojoules (energy)
- Do not affect blood glucose levels, so can be useful for people with diabetes
- Do not cause dental decay.

You may need to experiment a little when using non-nutritive sweeteners in cooking for successful results.

- Splenda is the most suitable for cooking as it retains its sweetness under high temperatures
- Equal is best used where foods require a shorter cooking time, as it loses its sweetness when exposed to high temperatures
- Improve the bitter taste of Sucaryl or Sugromax by adding at the end of cooking.

Follow the manufacturer's guidelines on the packet when substituting for sugar. Some manufacturers have recipes on their websites which you may find helpful.

Despite safety concerns, there is no evidence to substantiate claims made against these sweeteners. However, saccharin and cyclamate are not recommended for children under 2 years old. Aspartame and sucralose are considered safer.

In pregnancy, aspartame, acesulfame-K and sucralose are considered safe. Saccharin and cyclamate are not recommended for pregnant women.

Nutritive sweeteners - providing kilojoules (energy)

Nutritive sweeteners are called sugar polyols or sugar alcohols because of their chemical structure. However, they do not contain sugar or alcohol.

The common sweeteners of this type in New Zealand are: Sorbitol (420); Mannitol (421); Xylitol (967); Lactitol (966); and Isomalt (953).

Features of sugar alcohols:

- Occur naturally in fruit and vegetables
- Provide sweetness but with fewer kilojoules (0.8 -12KJ/gram) than sugar (16KJ/gram)
- Absorbed more slowly and incompletely than sugar requiring little or no insulin for metabolism resulting in lower blood glucose levels
- Often used with a variety of other artificial sweeteners, with each contributing unique characteristics
- Used to sweeten confectionery, jams, baked products and jellies
- Do not cause dental decay
- May cause bloating, flatulence and diarrhoea when consumed in large quantities
- Approved by the World Health Organisation (WHO) and widely used throughout the world.

Foods containing sugar alcohols but no sugar (sucrose) can be labelled 'sugar-free'. However, this does not mean these foods will not raise blood glucose levels, as they may contain other ingredients which affect blood glucose. Many sugar-free products are also high in fat, up to 30%.

'Sugar-free' means exactly that: the foods are free of sugar but may contain sugar alcohols.

They are not always as healthy as their marketing may suggest. Read the nutrition information panel carefully, checking the total carbohydrate and fat content.

Xylitol

WHO classifies this sugar alcohol as totally natural and safe with no consumption restrictions. It is recommended for all ages, infants and in pregnancy.

Xylitol has beneficial dental properties decreasing oral acidity. It has a low GI of 17, half the energy value of sugar and therefore fewer kilojoules, and has a minimal effect on blood glucose levels.

The body adapts to Xylitol over a shorter period of time than other sugar alcohols, so gastrointestinal discomfort is less likely. You can use it in cooking 1:1 for sugar.

Dentasweet, marketed by Annies, is 100% pure natural Xylitol extracted from rice husk. Unfortunately, the cost means it is an expensive substitute for sugar.

Fructose

Fructose is the natural sugar found in fruit and berries.

- It is 1.5 times sweeter than sugar so you can use smaller amounts
- It has the same energy value as sugar but a lower GI of 19 (sugar GI is 61)
- It is absorbed slowly, requiring smaller amounts of insulin
- If used in large amounts it may affect triglycerides and LDL cholesterol
- It can be used as a table sweetener, in baking and in cooking. But it is more often used in manufactured products, for example, confectionery, baked products and fruit drinks.

Penfold's Sweetaddin, which is 100% fructose, is promoted as tasting like sugar with a similar texture but some people do not find the taste comparable.

Fructose has an advantage when using it in food like meringues which require a great quantity of sugar. With fructose, you could use less and therefore decrease the kilojoules.

Aim to rely on natural sources such as fruit to give the sweetness desired



Honey or sugar?

Honey has more carbohydrate and kilojoules than sugar, but is sweeter so you use less. It also has a lower average GI, but this does depend on the nectar the bees have fed on.

1 Tablespoon	Carbohydrate (g)	Kilojoules	GI
Honey	17	277	average 55
Table Sugar	12	198	61

You will not gain any nutritional advantage by using honey in preference to sugar. It is okay to use a teaspoon on unsweetened porridge but it is important to allow for the extra carbohydrate, as you must do when using honey in any cooking.

Sugar is now considered more acceptable for people with diabetes when used in small amounts as part of a healthy meal plan. Sugar provides no fibre, no nutritional value, and can contribute to weight gain and poor diabetes control if used in excessive amounts.

That sweet taste

- Use a variety of different sweeteners rather than relying on one type
- It is possible to retrain your taste buds to enjoy the taste of food with less sweetness
- Aim to rely on natural sources such as fruit to give the sweetness desired and gain greater nutritional benefits
- Always count sugar and fruit as part of the total carbohydrate eaten.