Sweeteners and diabetes

When used in moderation, artificial sweeteners can help you to add variety to your diet and to manage your weight, writes **Ann Mullan**

Most of us enjoy the taste of sweet foods and use them as a source of pleasure in the good times and comfort in the bad. So a diagnosis of diabetes, with its emphasis on sweet foods as occasional treats rather than staple foods, can feel harsh. Over time, some people find their taste buds adjust to this reduced sugar eating pattern. But for others the sweet craving persists and the lack of sugar can feel like a daily deprivation. So, many people with diabetes use some form of artificial sweetener, added either directly to their food and drinks or in the manufacturing process.

There are two main groups of sweeteners used in Ireland. The first is the low calorie artificial sweeteners *(see Table 1).* These are all suitable for people with diabetes. They are very low in calories, contain little or no carbohydrate and so won't cause any rise in blood sugars. They don't cause dental caries and their low calorie content means they won't contribute to weight gain. Some evidence suggests they can also help people maintain weight loss after weight reduction. When used in moderation as part of a healthy eating pattern, artificial sweeteners can help add taste and variety to meals and beverages.

So what does 'use in moderation' mean? It's just being sensible and putting a half or one teaspoon of sweetener in your tea rather than heaping in two or three spoons. In young children's diets the biggest contributors of artificial sweeteners are no-added-sugar and diet squashes. If parents are concerned, they can reduce their child's intake by making squashes more dilute.

In older children and teens diet fizzy drinks are often the biggest source of artificial sweeteners so encourage them to drink a range of beverages rather than relying on diet minerals as their main drink. For anyone concerned about their intake of sweeteners, avoid using the same sweetener in everything. For example, if your diet drinks are all sweetened with aspartame, use a different sweetener like saccharin *(see Table 1)* at the table or in cooking.

Cooking and baking

While most sweeteners will substitute fairly well for sugar in beverages and cereals, cooking and baking with artificial sweeteners is a different matter. Most people with diabetes avoid this whole issue by simply sticking to having occasional small portions of regular confectionary, which is fine when taken as part of a healthy eating pattern.

People who find they are craving more of the sweet taste without the extra calories – or people who like to cook or bake – may want to experiment with using artificial sweeteners. In many recipes, with a bit of trial and error, these can be used very successfully instead of sugar. However, remember that volume for volume, sweeteners weigh much less than sugar and some of them are intensely sweet. So try using a sweetener that matches sugar

TABLE 1: LOW CALORIE ARTIFICIAL SWEETENERS

Sweetener	Found in	Home uses
Saccharin (E954)	• Hermesetas • Tesco Value sweetener • Cologran low calorie sweetener	• Available in tablet or granulated form • Can be used to sweeten beverages and desserts and to sprinkle on cereals • Is heat stable so can be used in cooking and baking but may cause a bitter aftertaste if more than a small amount is used
Aspartame* (E951)	• Canderel (original) • Tesco's Low Calorie Sweetener • Silverspoon sweetener • Silverspoon Sweet & Light • Cologran granulated sweetener	• Available in tablet and granulated form • Can be used to sweeten beverages and desserts and to sprinkle on cereals • Lengthy heat exposure may cause flavour change so not recommended for baking • Not suitable for making jams or marmalade
Sucralose (E955)	• Splenda • Canderel Yellow	• Available in tablet or granulated form • Can be used to sweeten beverages and desserts and to sprinkle on cereals • Is heat stable so can be used in cooking and baking

**Please note: aspartame cannot be used if you have the medical condition phenylketonuria*

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TABLE 2: SUGARS AND BULK SWEETENERS

Sweetener	Examples	Important facts
Sugars Including: • Dextrose • Glucose • Sucrose • Lactose • Maltose • Maltodex-trins • Corn syrup • Invert sugar	• White sugar • Brown sugar • Demerara sugar • Icing sugar • Castor sugar • Honey* • Maple syrup Golden syrup, Molasses	• Small amounts of sugars are acceptable as part of a healthy eating pattern in diabetes • Sugars are carbohydrates so will affect your blood glucose • Excess sugar is likely to adversely affect your weight, blood sugars and blood fats • In diabetes, there is no advantage in using one type of sugar over another (except in the treatment of a 'hypo' where glucose or sucrose is best)
Fructose (in its pure form)	• Fruisana fruit sugar • Dietade fruit sugar • Agave nectar • Honey* • High fructose corn syrup	• Fruit naturally contains small amounts of fructose • It is important to have your five portions of fruit and vegetables each day • Excess fructose is likely to adversely affect your weight, blood sugars and blood fat and may cause gas, bloating or diarrhoea • Fructose is often used to sweeten products labelled 'diabetic'
Sugar alcohols • Sorbitol • Xylitol • Isomal • Polyols • Mallitol • Mannitol	• Xylobrit • Xylosweet	• Sugar alcohols are only partly absorbed by your body. They increase blood glucose more slowly and have fewer calories than sugar and they don't cause dental caries • May be commercially used to sweeten products labelled 'sugar-free' or 'no-added-sugar' • If you eat more than 10grams per day you may experience gas, bloating or diarrhoea • Talk to your dietitian if you are carbohydrate counting and want to use sugars alcohols

Contains a mix of sugars

for volume and sweetness. For example, a sweetener where 1 teaspoon of artificial sweetener replaces 1 teaspoon of sugar.

Look on the sweeteners' own product websites as they will often have a good range of tried and tested recipes. The different sweeteners work well together so you can use small amounts of more than one sweetener when cooking as this minimises the likelihood of a bitter aftertaste.

While jams and marmalades can be made using all but the aspartame-based sweeteners *(see Table 1)*, without sugar they will only keep for a few weeks and must be stored in the fridge.

In baking, sugar doesn't just add sweetness, it helps hold moisture and adds volume to sponges and cakes and in biscuits it adds crispness. While artificial sweeteners can add sweetness, they cannot substitute for these other properties of sugar. So for recipes where these properties are important (like cakes and sponges) a good option is to reduce the amount of sugar in normal recipes by about a third to a half and replace it with the artificial sweetener.

While using artificial sweeteners will help reduce the sugar content of home baking, most of these foods will still have a significant calorie and fat content and so should be eaten in moderation.

Safety issues

There are currently six artificial sweeteners approved for use in the EU. Sweeteners are classified as food additives and each one goes through a rigorous safety assessment by the European Food Safety Authority (EFSA). Even so, questions have arisen about the safety of some artificial sweeteners. Because of these concerns, artificial sweeteners are one of the most exhaustively tested groups of food additives and the EFSA has set an Acceptable Daily Intake (ADI) for each sweetener. The average amount that most people take in is well within the acceptable range.

The one group there was some concern about was children with diabetes as, for their size, they can have a high intake of artificially sweetened products. However, at current intakes, even they are unlikely to exceed the ADI. All the artificial sweeteners approved by the EU are considered safe for use during pregnancy.

Bulk sweeteners

The second group of sweeteners used in Ireland is bulk sweeteners. This group includes sugars and sugar alcohols currently approved by the EU. Along with sweetness they can add structure and volume to food products and increase their shelf life. All the sweeteners in this group:

- Contain calories
- Will cause an increase in blood sugar
- Can contribute to weight gain.

Products containing fructose or the sugar alcohols are often labelled 'diabetic' or 'suitable for people with diabetes'. This can be very misleading as they are often added to high fat, high calorie products (such as chocolate or biscuits). They also tend to be very expensive. For these reasons, it is better for people with diabetes to enjoy small amounts of regular confectionary as part of a healthy eating pattern.

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With grateful acknowledgement to the Canadian Diabetes Association for their kind permission to adapt their original tables

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