

# Dispensing *dietary* advice

You might know your chocolate cake from your fruit salad, but can you advise patients on diet and dental health? This article is based on a reference guide Dr Paula Moynihan from Newcastle University produced for the *BDJ*.<sup>1</sup> Adapted by **Kate Maynard**.

In recent years it would seem that we have been bombarded with advice about what to eat and what not to eat. But do you know what to say if one of your patients asks you for dietary advice? Sugars are the biggest contributor to dental caries, and the level of sugar intake in the UK has become an issue of growing concern over the last few decades. Additional dietary advice is required to help patients reduce their risk of dental erosion, so providing clear, consistent information is essential. This article will point you in the right direction to giving practical advice – and practising what you preach can only be a good thing too!

## Diet and decay

Studies have shown that more than 40% of youngsters in the UK have dental decay. The occurrence of decay is influenced by tooth composition, the type and quantity of oral bacteria, composition and flow rate of saliva, the presence of dietary sugars, the residence time of sugars in the mouth, and the presence or absence of fluoride. Foods and drinks that

contribute to dietary sugars and their detrimental effect on teeth are listed in Table 1.

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Fluoride, through the water supply or from fluoride toothpaste, can reduce caries, but limiting sugar intake has a much greater significance in preventing it. Frequency of sugar

consumption and the amount of sugar consumed are both important. However, it is easier to advise patients to consume sugars less often, and this in turn should result in a reduction in the quantity consumed overall.

There is a difference between sugars naturally integrated in food (intrinsic sugars), such as those naturally present in milk and milk products, and those added to food (extrinsic sugars). Potentially damaging sugars or ‘non-milk extrinsic sugars’ (NMES) include all added sugars, sugars in fresh fruit juices, honey and syrups. A maximum of 60 g/day of NMES should be consumed, approximately 10% of your daily energy intake (whichever is the lesser amount).

Studies have shown that boys aged 4-18 consume around 85 g/day of NMES and girls in the same age group consume 69 g/day – which equates to around 17% of their daily energy intake. The main source of this intake is sugared, non-low-calorie soft drinks, followed by confectionery, and generally they are consumed as snacks between meals. Not only is this a concern for dental health, but it may also be connected to obesity.



### Starch and fruit

The consumption of starch-rich staple foods should be encouraged, such as bread, potatoes, unsweetened breakfast cereals and grains, and vegetables that naturally contain starch. There is no evidence to show that these foods are harmful to teeth. However, often these foods are refined to varying degrees in different types of manufactured foods, and cooked, highly refined starch has the potential to cause dental decay. So too do combinations of cooked starch and sucrose found in biscuits and cakes; these foods can in fact be as damaging to teeth as sugar on its own.

We all know that we are supposed to include at least five portions of fruit and vegetables in our daily diet, as they provide essential

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nutrients for good health. Fruit does contain sugar and many are acidic, but on the whole it doesn't cause tooth decay, and should be recommended as a replacement for the foods in Table 1.

Milk, cheese and yoghurt (which contain intrinsic sugars) can be considered safe for teeth, but not if they have extra sugar added. Increasingly food products carry nutrition labels, and it is wise to check these for total sugar content.

### A wholesome diet

To maintain a healthy, balanced diet, the UK Food Standards Agency recommends that one third of your food consumption should be provided by bread, other cereals and potatoes, choosing whole-grain varieties wherever possible. A further third of your diet should be

**Table 1 Foods and drinks that contain the dietary sugars that can cause tooth decay**

- Sugar and chocolate confectionery
- Cakes and biscuits
- Buns, pastries, fruit pies
- Sponge and other puddings
- Table sugar
- Sugared breakfast cereals
- Jams, preserves, honey
- Ice cream
- Fruit in syrup
- Fresh fruit juices
- Sugared soft drinks
- Sugared, milk-based beverages
- Sugar-containing alcoholic beverages

**Table 2 Foods which should be eaten sparingly**

- Butter and margarine
- Oils and dressings
- Cream
- Confectionery
- Sugar
- Crisps
- Biscuits
- Cakes and pastries
- Puddings
- Ice cream
- Rich sauces and fatty gravies

fruit and vegetables, which can include fresh, frozen and canned. A glass of fruit juice per day may also contribute to this. A moderate amount of milk and dairy foods and of meat and fish – lower fat versions where possible – may also be consumed, ideally including one to two portions of oily fish a week. Items that should be eaten sparingly are listed in Table 2. These general guidelines apply to the population aged between five and 65 years old\*.

\* Dietary advice for the elderly, infants and young children is not included here.

If sugars-containing foods and drinks are to be consumed, they should be restricted to mealtimes only, and never close to bedtime when salivary flow is low. If between-meals snacking is unavoidable, for example when following an 'eat little, often' eating pattern, it is important to consume foods and drinks with a low risk of causing dental caries, like those shown in Table 3. Also shown here are foods which can be eaten following a meal, to neutralise the effects of dietary sugars. As little as 5 g of hard cheese has been shown to be effective against dental caries in children (by stimulating salivary flow and increasing plaque calcium concentration) and this quantity would make an insignificant contribution to fat intake.

**Dental erosion**

Dental erosion is the loss of dental hard tissue by a process that does not involve bacteria. Causes of erosion include acids in drinks and foods, intrinsic acids (from vomiting or reflux) or environmental acids. Acids in the diet are the most commonly cited causes of erosion, and may include citric, malic, phosphoric, tartaric, acetic, oxalic and carbonic – so look out for these on nutrition labels. Carbonic acid, which is present in carbonated water, is the least erosive dietary acid.

Erosion often co-exists with other forms of tooth wear where enamel softened by acid has been worn away by over-zealous tooth-brushing or grinding of teeth. Foods and drinks with the potential to cause dental

erosion include soft drinks, fruit juices, wine, alcopops, cider, some herbal teas, citrus fruit and apples, vinegar, pickles, and acidic sweets. Citrus fruits have mainly been shown as high risk in cases of excessive daily consumption, so encouraging people to eat more (whole fresh) fruit is unlikely to cause an increase in erosion. Most surveys have shown soft drinks to be the biggest contributor to acidic food and drink consumption – so avoid that vending machine or follow a soft drink with a food to help neutralise the acid (see Table 3). The best drinks for children and adults are milk and water.

**The golden rules**

It is important that all dental care professionals are clear and consistent in the dietary advice that is given to patients. Advice should be personal and positive and should be in line with dietary advice for general health. If your patients ask for dietary advice, the main points to remember are:

- Reduce the amount and frequency of consumption of sugary food and drinks and limit their intake to mealtimes
- Eat more vegetables and fruit and starchy staple foods such as bread, potatoes, unsweetened breakfast cereals and grains
- Drink milk and water rather than sugary and/or acidic soft drinks.

1. Moynihan P J. Dietary advice in dental practice. *Br Dent J* 2002; **193**: 563-568.



**Table 3 Foods and drinks with low risk of causing dental caries**

Low/no caries risk	Foods which neutralise the effects of dietary sugars
Bread (sandwiches, toast, crumpets, pitta bread) Pasta, rice and starchy staple foods Unsweetened or artificially sweetened yoghurt Low-sugar breakfast cereals (eg shredded wheat) Sugar-free confectionery Fresh fruit (whole and not juices) Water Sugar-free drinks*	Milk Cheese Peanuts Sugar-free chewing gum Fibrous foods (eg raw vegetables) Xylitol, gum and mints Tea (unsweetened)

\*Most sugar-free drinks are acidic and may contribute to dental erosion