



Sugar and dental health

WHAT CAUSES TOOTH DECAY?

There is no doubt that carbohydrate foods that include sugars play a role in the development of tooth decay (dental caries). But it is also well recognised that an important factor in the severity of tooth decay is related to the frequency of drinking sweetened drinks and eating these foods, as well as other factors such as cleaning teeth and the use of fluorides. A comprehensive literature review recently concluded; “that the role of the diet is not so much related to the diet itself but to the individual behaviour of people. Where oral hygiene and fluoride supplementation are adequate, the diet has become a lesser factor in caries prevention.”¹

Diet also plays an important role in protecting teeth. Just as we should eat well to maintain a healthy body, we need to eat appropriately to maintain a healthy mouth. Carbohydrate foods, including sugar, need not pose a significant risk to dental health.

The impact of carbohydrates on dental caries is dependent mainly on the frequency of consumption and not necessarily the amount consumed. Tooth decay is also affected by the type of food consumed, degree of oral hygiene performed, availability of fluoride, salivary function and possibly genetic factors.² Prevention programmes to control and eliminate dental decay need to focus on dietary habits as well as on the use of fluorides, good oral hygiene and regular check ups.

The following fact sheet provides an overview of factors contributing to dental decay and shows how they can be managed to reduce the risk.

WHAT IS TOOTH DECAY?

Tooth decay occurs when the hard outer enamel layer of the tooth is damaged. Most damage to tooth enamel is caused by acids produced by bacteria in the plaque that forms on teeth. The bacterial acid (that is produced each time food is eaten) causes calcium and phosphate to be dissolved out of the tooth enamel. If this occurs often over many months, the enamel crystals will finally break and holes (referred to as a dental caries or decay) will occur.

Dental erosion can also occur in the mouth. This occurs when the teeth are eroded

away either by acids from foods and drinks or gastric reflux. The acids dissolve the dental enamel across its whole surface and the teeth become very sensitive.

UNDERSTANDING AND MANAGING THE CAUSES OF TOOTH DECAY

The Type of Food

Most foods contain some form of carbohydrate or sugars. Some plaque bacteria can make acid from any food or drink that contains carbohydrates.

There are also some carbohydrate-containing foods which can have a protective role and are therefore particularly useful for consumption between meals. These include dairy foods, or foods which have milk or cheese added. Because fruits and vegetables stimulate saliva they are not usually a problem. However, sticky foods such as dried fruits, fruit leathers and chewy sweets are concentrated sources of sugar and stick to teeth for a long time.

There is also growing concern about the dental erosion linked to any drinks which are acidic. These include all cordials, fruit-based drinks and carbonated drinks whether they contain sugars or not. Important general advice is to limit the overall consumption of these drinks and when consumed, to do so in a short space of time rather than by continual sipping.

Frequency of Consumption

How often we eat can influence dental health. It's therefore important to allow time between snacks and meals so that the natural saliva in our mouths can go to work counteracting the acid that causes tooth decay. Saliva can even repair some of the damage caused by acid. This natural process needs time to work. It can't happen while there is food in the mouth, so it's important to leave at least two hours between eating for saliva to start the repair process. The key health message here is to “Give teeth a rest”.

Constant sipping of drinks can also pose a risk to teeth. This is particularly important for young children to avoid. If children go to bed with a bottle or walk around sucking on a bottle or feeding cup for extended periods of time, the chances of dental decay and erosion are very high. Likewise, if older children use sipper bottles filled with cordial, soft drink or fruit juice, their teeth will also be at risk of erosion. If

children want to sip on a drink, give them water and save milk, sweetened drinks or juices for meal and snack times. Young people should also be discouraged from the current trend of sipping drinks (including water) from sipper bottles over prolonged periods of time as this may interfere with the work of saliva in the repair process.

Salivary Function

Saliva plays an important role in dental health. Not only does it assist in washing foods away from teeth, and neutralising the acids, but it also re-mineralises teeth and repairs minor damage caused by plaque acids.

There are some circumstances where individuals may not be producing sufficient saliva. This occurs with some illnesses and some medications. One way to stimulate saliva is to chew gum after eating. Your dentist can suggest other ways to increase saliva or limit the damage caused by too little saliva.

Oral Hygiene

Regular brushing and flossing of teeth not only removes foods which might cause decay but also harmful plaque bacteria. Adults should be aware that they can inadvertently transfer their own plaque bacteria to children when they taste foods, share drinks or even use their own mouth to clean pacifiers. Such practices are advised against, as they not only pose risks to dental health but can also result in the transfer of other more harmful bacteria such as hepatitis and meningococcal meningitis.

Some people have special oral hygiene needs due to tooth spacing, tooth crowding or other factors, so always ask your dentist, orthodontist, dental hygienist or dental therapist about the best way of cleaning your teeth.

Education

The key message with respect to food intake is more about when and how often we eat a particular food rather than labelling individual foods as 'good' and

'bad'. Encouraging children to avoid a particular food can be counterproductive. More emphasis should be given to the overall diet rather than singling out particular foods. This, combined with a greater focus on tooth brushing using a fluoride toothpaste, needs to be the key focus of dental health education.³

Fluoride

Reduction in tooth decay in industrialised countries has largely been attributed to fluoride. Fluoride slows down the softening of dental enamel by acid and speeds up the rehardening by saliva. Use of optimally fluoridated water and toothpaste is a key strategy to reduce tooth decay. In regions where water is not fluoridated other fluoride products can be recommended. This should be discussed with your dentist, dental hygienist or dental therapist.

TOOTH TRENDS

The severity of tooth decay in children in industrialised countries has decreased over the last three decades, but this trend has halted in younger children and may be reversing in some groups.⁴

We are all aware of the trend towards aging populations, and older people are now more likely to retain their teeth throughout their life. This makes protection of teeth earlier in life, to minimise later maintenance, more important than ever. The risk of decay of teeth roots (root decay) increases in older people. They need to follow the same preventive oral hygiene practices as those recommended for the general population.

TOP TEETH TIPS

There are many ways in which we can keep our teeth in top condition. Here are some simple strategies:

- **Use a fluoride toothpaste even if you live in a fluoridated area. It is one of the most effective means of delivering fluoride.⁵**
- **Limit the amount and frequency of intake of sweetened drinks in order to minimise dental erosion.**
- **Take dental hygiene seriously. Brush and floss twice daily and make regular visits to your dentist or dental hygienist.**
- **Enjoy treats, but try to restrict the amounts of sugary foods eaten and keep to meal times, or special occasions, rather than snacking throughout the day.**
- **Try to include dairy foods in at least three eating occasions during the day, particularly with snacks.**
- **Don't allow toddlers to continuously suck on a bottle or feeding cup. Save juice and milk for mealtimes and if a child does need something to sip in-between meals, make it water – keeping in mind the need for saliva production.**
- **Leave a two-hour break between snacks or meals.**

References

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