



## diet & dental decay

You know that what you eat can make a difference in the way you feel and perform. That is why you should try to choose foods that will help your body stay strong and healthy. But did you know that your choice of foods and your eating patterns also may affect your dental health?

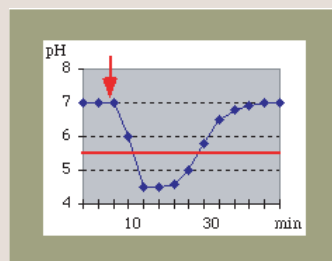
How does diet affect dental health?

If your diet is low in certain nutrients, it may be harder for the tissues of your mouth to resist infection. This may be a contributing factor to periodontal (gum) disease, the main cause of tooth loss in adults. Although poor nutrition does not actually cause periodontal disease, many researchers believe that the disease progresses faster and is more severe in patients whose diet does not supply the necessary nutrients.

It should be understood that the food per se does not cause dental caries (if diet itself has a low pH, it may cause "erosions" which is different from dental caries). Diet operates via the bacteria and the result of bacterial digestion of food may be a low pH at which the tooth starts to dissolve. The role of diet for proper tooth formation is a separate issue.

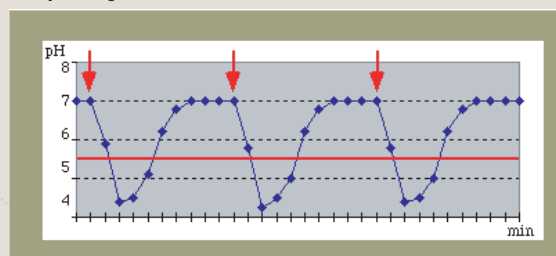
Frequency of Meals

The figure below illustrates what may happen in dental plaque after a food intake containing fermentable carbohydrates (red arrow).



It shows that already after a few minutes, pH drops (more acidity) and in this case to a level below the "critical pH" (red line) - i.e. a level at which the enamel is demineralised i.e. starts to break down (around pH 5.5).  
pH neutral 7  
pH 1 - 7 acidic  
pH 7 - 14 alkaline

The next figure illustrates an important aspect on the role of diet in dental caries, namely the **frequency** of food intakes:



After each intake, pH drops to a level at which the caries (decay) process starts. Repeated intakes mean several acid attacks on the teeth resulting in demineralisation.

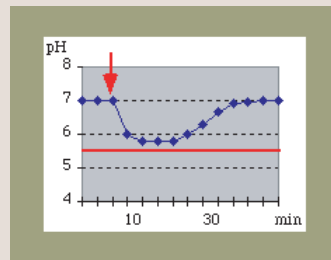
From the two figures shown it can be understood that there are two main measures which can be taken to reduce the unwanted local effects of diet with respect to caries:

- Selecting food products that only lead to a slight and/or short pH drop, e.g. fruit, vegetables and dairy products
- Reducing number of intakes



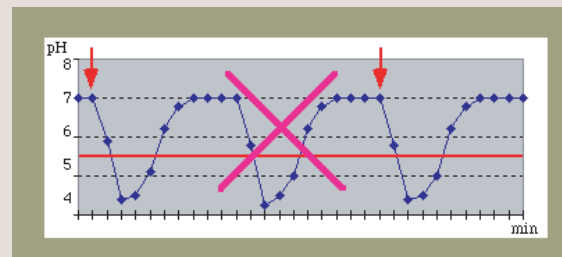
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The result of the first point is illustrated below:



The picture shows that although a pH drop was obtained, it did not reach a level at which demineralisation starts.

The result of the second point is illustrated below:



The picture shows that if the number of intakes can be reduced, fewer decalcifications will take place. Time for remineralisation will increase.

As mentioned above, the **Critical pH** means the level at which demineralisation starts. For enamel, the critical pH is about 5.5 - 5.7 and for a root surface, the demineralisation may start already at pH 6.2. Many common food products containing fermentable carbohydrates can, after consumption, lead to a pH of about 4.

There are a number of individual factors that decide which pH level will be reached, and for how long time. In addition to the composition of diet, such factors include:

- Type and amount of bacteria on the teeth
- Saliva secretion rate
- Saliva buffer capacity
- Ability to eliminate food and in particular sugars

The "sugar-clock" is a good way of visualising the patient's acid attacks. For those suffering from dental decay, or for those at high risk for developing cavities, the number of intakes resulting in acid-formation should be restricted to 5-6 per day, if possible.

To facilitate the patient to reduce the number of snacks, it may be necessary to improve the main meals. If the main meals are highly nutritious, the desire of eating between meals is reduced. The goal is not to exclude sugar from the diet but rather eat sugar in a "sensible way" which means reasonable amounts and mainly at meal-times - "sugar discipline".

If asked to, please keep a diary as outlined below to allow our hygiene team to determine the possible cause of your decay. For any further questions to simplify this, just ask our experienced hygiene team.