



#### Experiment

Perform an experiment that illustrates how acids produced by bacteria act on teeth and how you can protect teeth from their negative effects.

Bacteria in the oral cavity produce acids when metabolizing simple sugars. These acids are by-products of their metabolism and are excreted outside the cell (bacterium). Acids are washed away from the mucosa and the teeth by saliva, but the acids on the teeth first demineralize the enamel. Demineralized enamel is an easier point of attachment for bacteria. 2-3 minutes after a meal, pH drops below 5 - i.e., the oral cavity environment acidifies, which is conducive to bacterial growth. It takes about an hour for it to return to a neutral pH 7. Enamel starts to demineralize below pH 5.5. Fluoride lowers that threshold to pH 4.5, which means that more acid or longer action by acid is necessary in order to do as much damage as to teeth that are unprotected by fluoride. The health of teeth is dependent on the balance of harmful factors (sugars and bacteria) and protective factors (saliva and fluoride). If there is a preponderance of the former factors, tooth decay progresses, whilst if there is a preponderance of the protective factors, tooth decay can be stopped.

Due to the hardness of enamel and its resistance to acids, carious lesions (changes due to tooth decay) are initially small. However, once the caries progresses to the much softer - and less resistant to acids - dentin, it accelerates and progresses on a larger scale.



Manual exercise

Students check whether they know how to brush their teeth properly and learn the correct brushing technique.

[http://www.cdc.gov/oralhealth/children\\_adults/child.htm](http://www.cdc.gov/oralhealth/children_adults/child.htm)