

Sugar, Plaque and Decay

How are they related?

We all have bacteria in our mouths, however good our brushing and flossing. You can't get rid of them and you wouldn't want to[1] - they're friendly bacteria, BUT, like most living things they need oxygen for normal respiration. Starved of oxygen by deep plaque layers they switch to anaerobic respiration, which creates lactic acid as by products rather than CO₂ and water.

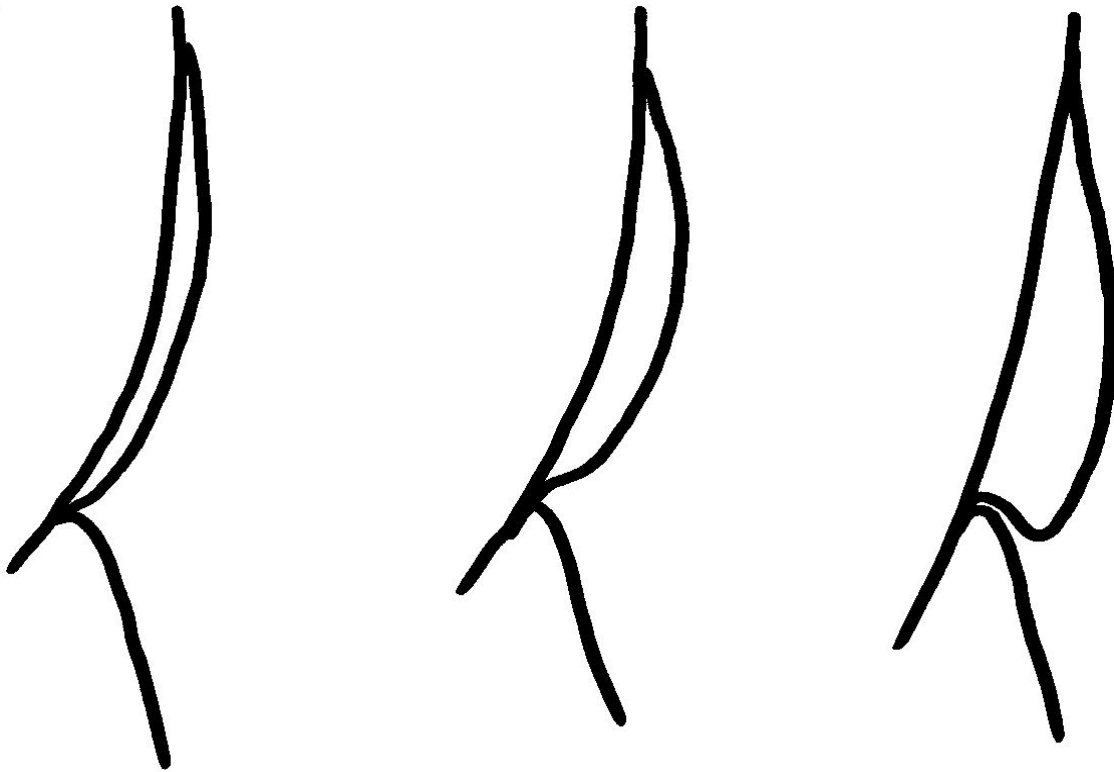


Diagram 1 – Plaque buildup with time on the neck of a tooth

So the bacteria are more-or-less harmless when there's enough oxygen. How does it all go wrong? The problem begins when the layer of plaque, the sticky transparent film on all our teeth, created by normal mouth bacteria builds up to a sufficient thickness to starve the bacteria in the lowest layers of oxygen. From then on, until the plaque is removed, the bacteria produce acid.

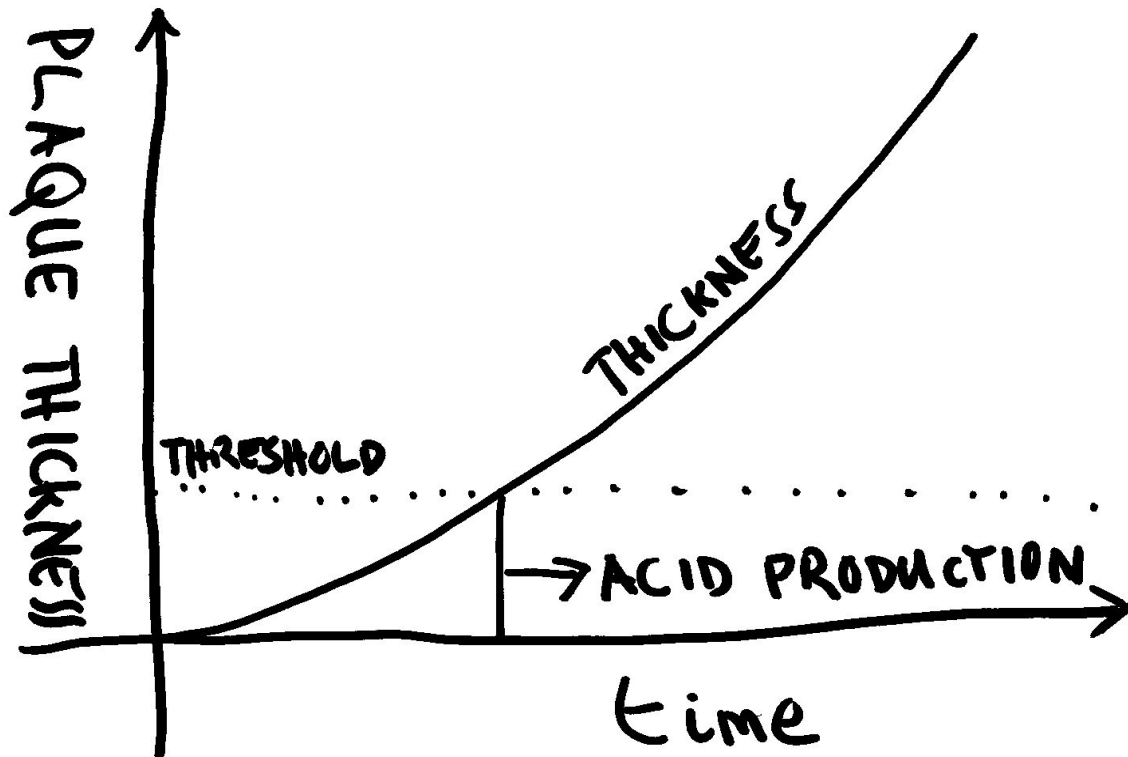


Diagram 2 – plaque film thickness vs. time

Where does sugar fit into the picture? The bacteria make the plaque from sugar. They can't make it from anything else. Without sugar there can be no plaque. We could all avoid much of the problem by excluding sugar from our diets. Unfortunately evolution has equipped us with a natural 'sweet tooth', every time we taste something sweet we get a release of endorphins, a brain chemical that makes us feel good.

[1] Powerful, aggressive mouthwashes that 'kill bacteria' may be doing more harm than good.

Questions

1. What is plaque? 2. Where does it come from? 3. Why does it matter? 4. Why does sugar taste so good?