Caries control

If I could have an additional sense, I would like to be able to anticipate tooth decay. The teeth are covered by a biofilm called plaque, which forms as a result of continuous interactions between food, drink, saliva, etc. that take place in the mouth. This dental plaque is made up of a cluster of bacteria of different species. In a healthy individual, the microbial composition of dental plaque is constant over time; however, when tooth decay occurs, there is a predominance of acidogenic bacteria, that metabolize sugars into acids [1].

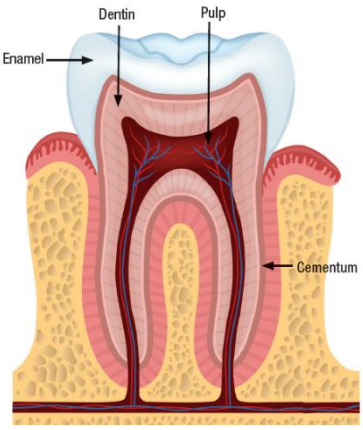

Figure 1. Structure of a tooth [2].

Caries begins in the enamel and, if left untreated, spreads to the dentin and pulp [2] [Figure 1] [2]. When caries is limited to the enamel, the tooth is asymptomatic [2], therefore, a sense that detected caries at an early stage, would allow for an early diagnosis and the consequent treatment, reestablishing the microbial balance of a healthy tooth.

Based on the fact that, for each individual, the microbiota present in dental plaque is very similar to the microbiota on the tongue, Llena-Puy et al. [3] studied the susceptibility to caries in a group of children as a function of the lactic acid presence on the lingual surface. They found a statistically significant correlation between the presence of active cavities and high levels of lactic acid.

The additional sense that I would like to have would allow to detect hazardous concentrations of acids in the mouth, thanks to sensory cells located in the taste buds of the tongue [4]. Transmembrane receptor proteins present in sensory cells would then detect the acid molecules, causing the cell membranes to depolarize and triggering a cascade of signals to the brain, where they would be interpreted.

Bibliography

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