

The caries balance: the basis for caries management by risk assessment.

Featherstone JD.

Department of Preventive & Restorative Dental Sciences, University of California, San Francisco, 94143, USA. jdbf@itsa.ucsf.edu

Dental caries progression or reversal depends upon the balance between demineralization and remineralization. The 'Caries Balance' is determined by the relative weight of the sums of pathological factors and protective factors. Minimally invasive dentistry aims at the least possible removal of enamel or dentin, including reducing pathological factors and enhancing remineralization to avoid any removal of hard tissues. A structured caries risk assessment should be carried out based upon the concept of the caries balance. Following the risk assessment a treatment plan is devised which leads to the control of dental caries for the patient. The balance between pathological and preventive factors can be swung in the direction of caries intervention and prevention by the active role of the dentist and his/her auxiliary staff. Much is now understood about the mechanism of dental caries. We have known for a long time that demineralization of enamel, dentin or cementum is caused by organic acids that are generated by so-called acidogenic bacteria in the plaque when these bacteria feed upon fermentable carbohydrates (Silverstone, 1973; Featherstone, 2000; Loesche, 1986). The natural repair process is remineralization, which occurs when the pH rises again and calcium and phosphate from saliva together with fluoride enter the subsurface region of the lesion and form a new veneer on the existing crystal remnants in the lesion (Ten Cate and Featherstone, 1991). This veneer is less soluble than the original mineral and resists further acid attacks. **The key to improved dental health for all is now for the dental profession to embrace this knowledge and put it into practice in the real world, to inhibit caries formation and progression, and to enhance the natural repair process.**

Oral Health Prev Dent. 2004;2 Suppl 1:259-64.

[PMID: 15646583 \[PubMed - indexed for MEDLINE\]](#)