PRIMEVIEW

DENTAL CARIES

nature REVIEWS DISEASE PRIMERS

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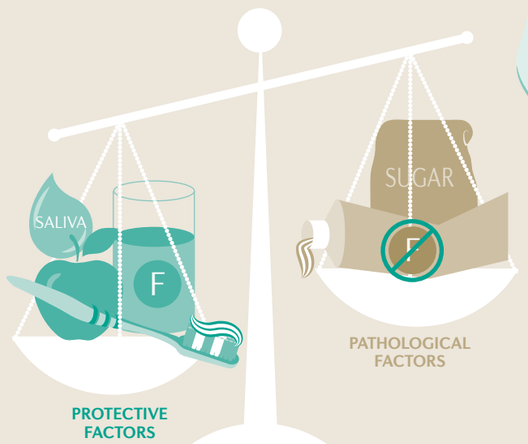
Dental caries formation involves the interaction between the tooth, the microbial biofilm at the tooth surface and dietary sugars. Dental caries is common and can affect individuals at any age.

EPIDEMIOLOGY

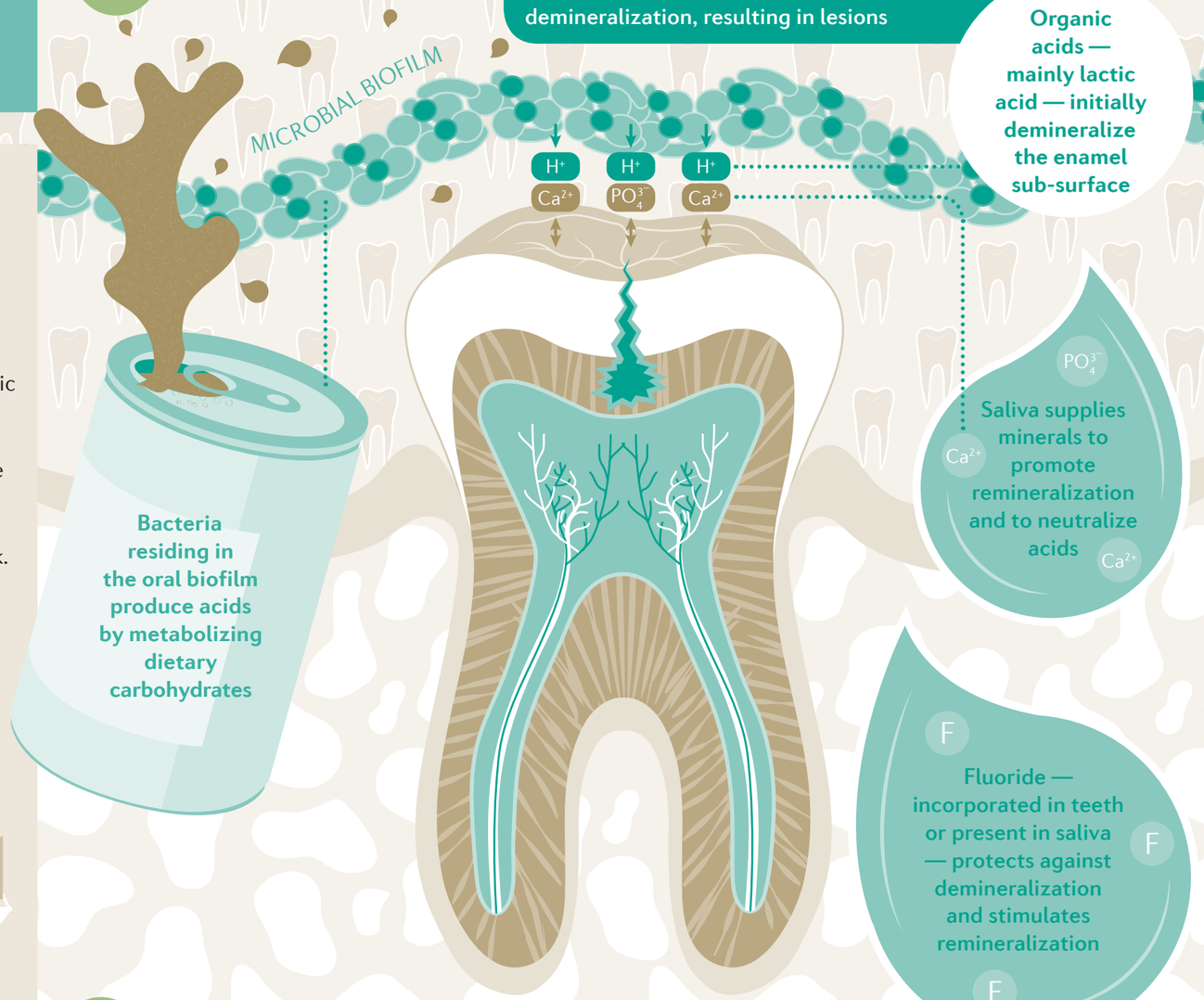
Untreated dental caries in permanent teeth is the most prevalent condition across all medical conditions assessed in the Global Burden of Disease Study, with a global prevalence of 35% for all ages combined and 2.4 billion individuals affected. Dental caries is the most common chronic childhood disease and the prevalence in children 2–5 years of age has been increasing, making this a priority group for prevention. Several factors are involved in the development of dental caries and the balance between protective and pathological factors will ultimately determine dental caries risk. The daily use of fluoride toothpaste is the main reason for the overall decline of caries worldwide over recent decades.



The prevalence of dental caries has traditionally been lower in developing countries than in developed countries, but this situation has become more complex owing to changes in diet and lifestyle in many countries

MECHANISMS

Dental caries is a multifactorial disease in which the continuous process of tooth demineralization and remineralization is shifted towards net demineralization, resulting in lesions



DIAGNOSIS

Diagnosis is aimed at finding any lesions that are present and assessing their severity, activity and risk of progression. Visual inspection after professional tooth cleaning is usually insufficient to make a full assessment; radiographic scans are often needed.

Sharp dental probes pressed into the tooth surface have little diagnostic benefit and can activate an inactive lesion

MANAGEMENT

Initial lesions are managed through non-surgical care involving behavioural changes and remineralization therapy. The latter is aimed at stopping progression or even reversing the lesion usually by using fluoride-containing products. Non-invasive therapies, such as mechanical blocking (with resin-based sealants) and fluoride treatment, are optimal for moderate lesions. Extensive lesions are subject to surgical interventions in which the affected tissue is removed and replaced with filling material.

PREVENTION

Fluoride has an important role in the prevention of dental caries. Effective population-based measures to prevent dental caries include community water and salt fluoridation and taxes on sugary products. Dental sealant programmes, in which professionally applied resin material is painted onto the caries-prone dental surfaces, are cost-effective when applied to populations at high risk, such as those with a low socioeconomic status.

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