



Low calorie sweeteners and their beneficial role in oral health

With dental caries being amongst the most frequent non-communicable diseases worldwide, prevention and early treatment are the cornerstones of good oral health¹. Adopting good oral hygiene habits such as tooth brushing twice a day from an early age in life is essential in keeping a healthy mouth, but following a healthy diet is also key in good oral health^{1,2}.

When it comes to a diet for optimal dental health, among other nutritional strategies, frequent and excess eating of fermentable carbohydrates including sugars should be limited³. This is because dental caries (or else tooth decay) are caused by acids produced when fermentable carbohydrates present in our foods or drinks are broken down by oral bacteria of the dental plaque on the tooth surface. The acid produced leads to a loss of calcium and phosphate from the enamel, a process that is called demineralisation.

How can low calorie sweeteners help in maintaining good oral health?



It's simple. Low calorie sweeteners are sweet-tasting food ingredients with no, or practically no, calories, that cannot be fermented by oral bacteria, which is why they are not cariogenic.⁴⁻⁷ So, contrary to fermentable carbohydrates, **low calorie sweeteners are tooth friendly and do not contribute to tooth decay.**

The first scientific evidence regarding the dental health benefits of low calorie sweeteners dates back to the 1970s⁸⁻¹⁰, and since then, a wealth of studies has examined and confirmed the non-cariogenic nature of low calorie sweeteners as also described in a recent thorough review of the literature⁴.

Low calorie sweeteners have dental benefits when used instead of sugar in foods and beverages, toothpaste and medications, provided that other constituents are also non-cariogenic and non-erosive⁷. Therefore, low calorie sweeteners can be safely consumed within an overall tooth-friendly diet and can help people reduce overall carbohydrate intake while still enjoying sweet taste in the diet.

Scientific evidence: the role of low calorie sweeteners in oral health

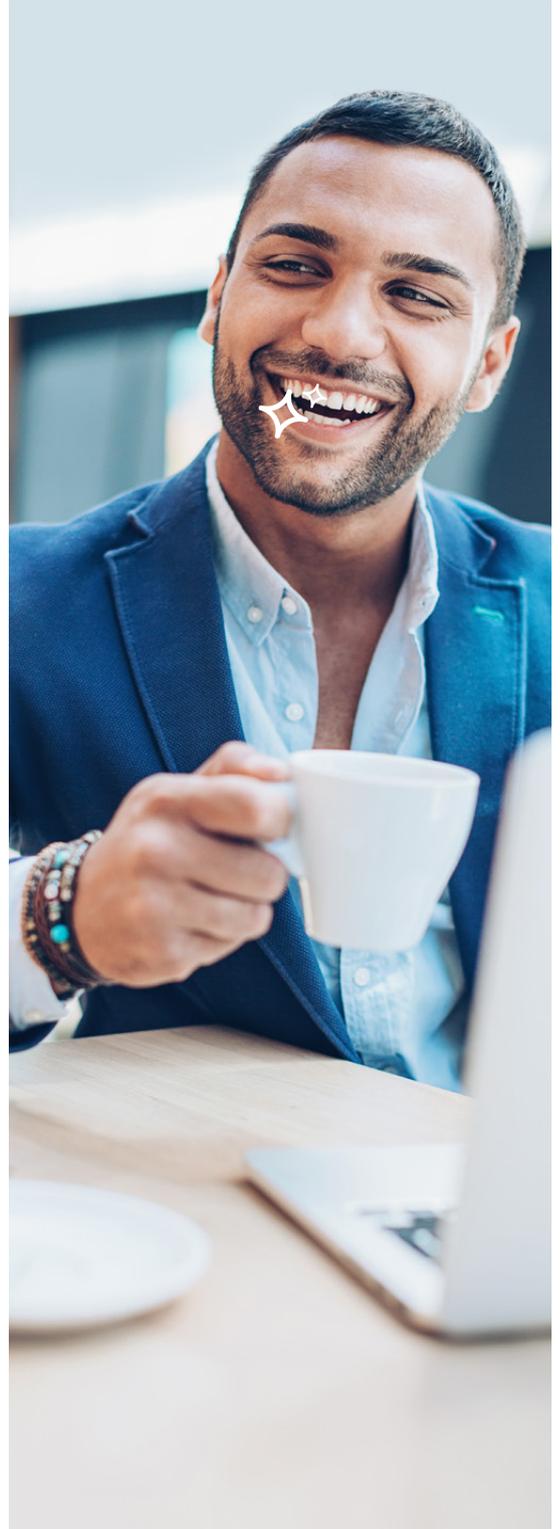
Weighing the evidence about low calorie sweeteners' effects on dental health, the European Food Safety Authority (EFSA) supports in a series of scientific opinions that:



There is sufficient scientific information to support the claims that intense sweeteners, as all sugar replacers, maintain tooth mineralisation by **decreasing tooth demineralisation if consumed instead of sugars** (EFSA, 2011)¹¹.



Numerous clinical trials investigating the effects of sugar-free chewing gum consumption on tooth mineralisation, plaque acid neutralisation, the stimulation of saliva flow, the secretion of buffering components and the associated secretion of salivary components have shown **consistent positive (beneficial) results and a reduction in caries incidence** (EFSA, 2009; EFSA, 2010)^{12,13}.



Oral health is more than a bright smile

Oral diseases can impact many different aspects of life, from overall health to personal relationships and self-confidence, to even enjoying food.²

According to the FDI World Dental Federation's definition for oral health¹⁴,

“Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex.”

Oral diseases are largely preventable and avoidable – in fact, in most cases there is nothing inevitable about them.

Simple everyday steps for a healthy mouth²:



Adopt good oral hygiene habits such as brushing your teeth twice a day using a fluoride toothpaste.



Eat a healthy diet low in sugar and high in fruit and vegetables. By being non-cariogenic, low calorie sweeteners can be part of a tooth-friendly diet.



Avoid excessive alcohol consumption and smoking.



Chewing sugar-free gum after meals or snacks, when brushing isn't possible, can contribute to the maintenance of tooth mineralisation.



Plus, don't miss to schedule regular dental check-ups! Preventive care is always the best option, so seek early detection and treatment to fight oral diseases.

Hard facts about oral health¹...



Oral diseases take many shapes and forms, with the most common being dental caries (tooth decay) and gum disease.



Overall, oral diseases affect 3,9 billion people worldwide.



Dental caries is a major public health challenge worldwide. Over 40% of the global population is dealing with untreated decay of permanent teeth.



Tooth decay is the most common childhood disease, but it also affects people of all ages throughout their lifetime.



If not properly managed, oral diseases can negatively impact our overall health and well-being.

References

1. FDI World Dental Federation. The Challenge of Oral Disease – A call for global action. The Oral Health Atlas. 2nd ed. Geneva. 2015. Available online: https://www.fdiworlddental.org/sites/default/files/media/documents/complete_oh_atlas.pdf
2. FDI World Dental Federation - World Oral Health Day (WOHD). Available online: <http://worldoralhealthday.org>
3. Anderson CA, et al. Sucrose and dental caries: a review of the evidence. *Obesity Reviews* 2009;10(Suppl 1):41-54.
4. Gupta P, et al. Role of Sugar and Sugar Substitutes in Dental Caries: A Review. *ISRN Dent*. 2013:519421
5. Roberts MW and Wright TJ. Nonnutritive, low calorie substitutes for food sugars: clinical implications for addressing the incidence of dental caries and overweight/obesity. *Int J Dent*. 2012; 625701
6. Van Loveren C, et al. Functional foods/ingredients and dental caries. *Eur J Nutr* (2012) 51 (Suppl 2):S15–S25
7. Gibson S et al. Consensus statement on benefits of low-calorie sweeteners. *Nutrition Bulletin* 2014;39(4):386-389
8. Olson BL. An In Vitro Study of the Effects of Artificial Sweeteners on Adherent Plaque Formation. *J Dent Res* 1977;56(11):1426
9. Grenby TH and Saldanha MG. Studies of the Inhibitory Action of Intense Sweeteners on Oral Microorganisms Relating to Dental Health. *Caries Res* 1986;20:7-16
10. Ziesenitz SC and Siebert G. Nonnutritive sweeteners as inhibitors of acid formation by oral microorganisms. *Caries Res* 1986;20:498-502
11. EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA); Scientific Opinion on the substantiation of health claims related to the sugar replacers. *EFSA Journal* 2011;9(4):2076. [25 pp.]. Available online: <https://www.efsa.europa.eu/en/efsajournal/pub/2076>
12. EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA); Scientific Opinion on the substantiation of health claims related to sugar-free chewing gum and dental and oral health. *EFSA Journal* 2009; 7(9):1271. [20 pp.]. Available online: <https://www.efsa.europa.eu/en/efsajournal/pub/1271>
13. EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA); Scientific Opinion on the substantiation of a health claim related to sugar-free chewing gum and neutralisation of plaque acids. *EFSA Journal* 2010;8(10):1776. [14 pp.]. Available online: <http://www.efsa.europa.eu/en/efsajournal/pub/1776>
14. FDI World Dental Federation - FDI's definition of oral health. Available online: <https://www.fdiworlddental.org/oral-health/fdis-definition-of-oral-health>

Speak to your doctor or health practitioner for further information on oral health.

Visit our website www.sweeteners.org for further information on low calorie sweeteners.