



Low/no calorie sweeteners and their beneficial role in oral health

HIGHLIGHTS

Low/no calorie sweeteners are sweet-tasting food ingredients with no, or virtually no calories that, contrary to sugars, cannot be fermented by oral bacteria and, therefore, do not contribute to dental caries.

Consumption of foods/drinks containing low/no calorie sweeteners instead of sugar may help maintain tooth mineralisation by decreasing mineral (calcium and phosphate) loss from the enamel.



Oral diseases can impact many different aspects of life, from overall health to personal relationships and self-confidence, to even enjoying food.¹

According to the FDI World Dental Federation's definition for oral health, "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 (head, face, and oral cavity)."¹

Facts about oral health^{2, 3}



Oral diseases affect nearly 3,5 billion people worldwide.



Between 1990 and 2019, estimated case numbers grew by 50%.



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



Risk factors for oral diseases include poor oral hygiene, diets high in sugar, tobacco use and excess alcohol consumption.

Oral diseases are largely preventable and can be treated in their early stages.

Tooth decay is the most widespread chronic disease worldwide and constitutes a major global public health challenge affecting people of all ages across the lifespan.² Dental caries form over time, when bacteria in the mouth break down sugars and other fermentable carbohydrates, producing acids that cause mineral loss and damage the hard tissues of the tooth leading to the formation of cavities.⁴

How can low/no calorie sweeteners help in maintaining good oral health?

Low/no calorie sweeteners are not substrates for, and cannot be fermented by oral bacteria, and that is why they are not cariogenic, meaning they do not contribute to tooth decay.^{4,5} Unlike sugars, low/no calorie sweeteners have also been shown to inhibit oral biofilm formation and activity by suppressing the expression of biofilm- and virulence-related genes.⁶

In a policy statement, the FDI World Dental Federation supported that when sugars are replaced with non-cariogenic sugar substitutes in products such as confectionary, chewing gum and drinks, the risk of dental caries is reduced.⁷ Therefore, low/no calorie sweeteners have dental health benefits when used instead of sugars in foods and beverages, toothpaste and medications, provided that other constituents are also non-cariogenic and non-erosive.⁸

The role of sugar-free chewing gum in oral health

Due to their non-fermentable nature, low/no calorie sweeteners are frequently used in sugar free chewing gums. Chewing sugar-free gum stimulates the production of saliva and has been shown to have important oral health benefits.⁹

The oral health benefits of chewing sugar-free gum are recognised by the European Union, federal health departments and bodies in Canada and Australia, the FDI World Dental Federation, and more than 20 national oral or dental health associations around the world.¹⁰⁻¹³

The FDI World Dental Federation supports the assertion that regular use of chewing gum containing non-cariogenic sweeteners has a role to play in preventing dental caries because of its non-cariogenic nature and its salivary stimulatory effect.⁷

Scientific evidence into EU regulation

Reviewing the available evidence, the European Food Safety Authority (EFSA) concluded in the respective Scientific Opinions that:

- there is sufficient scientific information to support the claims that low/no calorie sweeteners, as all sugar replacers, maintain tooth mineralisation by decreasing tooth demineralisation if consumed instead of sugars.¹⁴
- a cause-and-effect relationship has been established between the consumption of sugar-free chewing gum and reduction of oral dryness, maintenance of tooth mineralisation, and neutralisation of plaque acids, all of which are beneficial to oral health by helping reduce the incidence of caries.¹⁵⁻¹⁷

Based on these Scientific Opinions by EFSA, the European Commission has authorised respective health claims.¹⁰

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Speak to your dentist or health practitioner for further information on oral health. Visit our website www.sweeteners.org for further information on low/no calorie sweeteners.

How does sugar free chewing gum protect our teeth?



Chewing sugar-free gum stimulates the production of saliva – our mouth's defense system against tooth decay



Increasing saliva flow helps reduce dryness in our mouth



It also aids our teeth retain the minerals they need to maintain hardness and strength



Saliva neutralises plaque acids protecting enamel



Brushing our teeth twice a day and chewing sugar-free gum after meals and snacking can help keep our teeth healthy