

Benefits of sugarfree gum



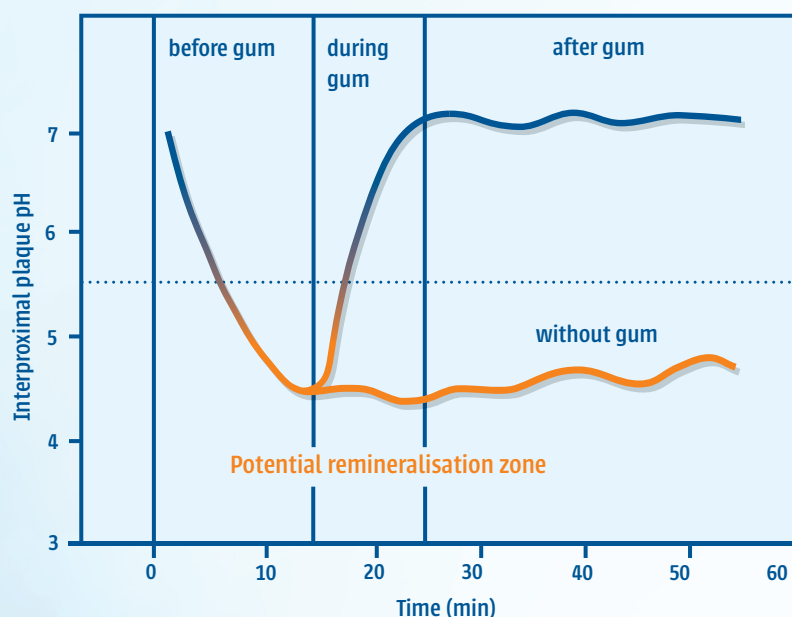
Chewing sugarfree gum for 20 minutes after eating or drinking has been proven to complement a healthy oral care routine primarily through increasing the production of saliva flow.¹ This has a positive impact on dental health and plaque neutralisation, helping to reduce dental cavities, also known as caries. The benefits of chewing sugarfree gum as part of a healthy oral care routine are recognised by the Australian Dental Association, the New Zealand Dental Association and 20 other national dental associations around the world.²

Plaque and the cause of dental caries

Plaque is a soft, sticky substance made of bacteria, which builds up near the gums and between teeth. Consumption of carbohydrate-dense foods cause the bacteria in plaque to produce plaque acids. This plaque acid, combined with acids from food, causes the mouth's pH level to drop to dangerously low levels, increasing the risk of tooth decay.

Foods which lower oral pH below 5.5, known as the 'critical pH,' can negatively impact oral health, as enamel becomes demineralised due to acid production.

The importance of saliva



Saliva is the body's own natural defence mechanism which protects our teeth. Saliva helps to wash away food particles that may have lodged in teeth and gums to neutralise harmful plaque acid in the mouth. Stimulated saliva contains more bicarbonate, calcium and phosphate, not only helping rebalance the pH in the mouth after eating and drinking, but also helping to remineralise tooth enamel and neutralise plaque acid.³

Saliva protects teeth in three ways:



Restores the pH balance in the mouth, neutralising acids



Helps to wash away food debris that may have lodged in teeth and gums



Increases mineral concentration in the mouth to repair 'white spots' or lesions caused by plaque acid.

The effect of chewing sugarfree gum on saliva

Chewing sugarfree gum increases the rate of saliva flow by almost 10-12 times.¹ This increase in saliva raises the mineral concentration in the mouth, raising the pH of the saliva and increasing its buffering power. This improves the saliva's ability to neutralise and protect teeth from food acids and acids produced by plaque.³

These changes in the composition of stimulated saliva lead to a greater ability to protect against tooth decay caused by plaque acid.

¹ Dawes C, Macpherson LM. Effects of nine different chewinggums and lozenges on salivary flow rate and pH. *Caries Res.* 1992;26:176-82.

² Dodds, MWJ. 'The oral health benefits of chewing gum', *Journal Of The Irish Dental Association*, 2012. Accessed: http://www.wrigleyoralhealthcare.co.uk/_uploads/downloads/caries/JIDAPeerReviewedPaperOctNov2012.pdf

³ Kandelman D, Gagnon G. 'A 24-month study of the incidence and progression of dental caries in relation to consumption of chewing gum containing xylitol in school preventive programs.' *J Dent Res.* 69(11):1771-775, 1990.

⁴ Topitsoglou V, Birkhed D, Larsson LA, et al. 'Effect of chewing gums containing xylitol, sorbitol or a mixture of xylitol and sorbitol on plaque formation, pH changes and acid production in human dental plaque'. *Caries Res.* 17(4): 369-78, 198.

How gum can make a difference

Chewing sugarfree gum can help protect teeth in a number of ways:



Stimulate saliva flow



Helps reduce plaque



Helps neutralise plaque acids



Helps maintain tooth mineralisation



Clean the mouth of food debris



Relieve dry mouth discomfort*

*Dawes C, Macpherson LM. Effects of nine different chewing gums and lozenges on salivary flow rate and pH. *Caries Res.* 1992; 26(3): 176-82

Sugarfree gum helps reduce plaque and bacteria levels

Chewing sugarfree gum has been associated with the reduction in the quantity and development of plaque on teeth, as well as a reduction in the acid-forming ability of plaque.^{4,5,6}

Chewing sugarfree gums helps clean the mouth of food debris

Food that gets stuck in the teeth or mouth after eating increases the exposure of teeth to the acids produced by plaque from the fermentation of carbohydrates.

Chewing sugarfree gum after eating increases the rate of food debris clearance from teeth compared with not chewing gum during the initial 15 minutes after eating,⁷ reducing the exposure of the teeth to acids produced by plaque.

Chewing sugarfree gum assists with plaque acid neutralisation

Salivary stimulation caused by chewing sugarfree gum after consuming carbohydrate-dense snacks or meals has been demonstrated to reduce the ability of plaque to produce the acids which cause tooth decay.⁸

Enamel remineralisation

Stimulating saliva flow increases the concentration of calcium and phosphate ions in the mouth, which helps to restore minerals in tooth enamel.⁹ Whilst tooth remineralisation is a process which occurs naturally in the mouth, studies have shown subjects that chewed gum as part of their oral care routine experienced double the remineralisation of those who did not chew gum.¹⁰

Relieve dry mouth discomfort

The salivary flow stimulation caused by chewing gum can relieve some of the discomfort of xerostomia or 'dry mouth', which can be a risk factor for dental caries. In fact, chewing sugarfree gum has been shown to be one of the most preferred treatments for xerostomia.^{9,11,12}

Research suggests that in xerostomic patients, the initial stimulated salivary flow rate while chewing sugar-free gum is seven times greater than the unstimulated flow rate.¹²



⁵Söderling E, Mäkinen KK, Chen CY, et al. 'Effect of sorbitol, xylitol and xylitol/sorbitol chewing gums on dental plaque.' *Caries Res.* 23: 378-84, 1989.

⁶Triolo P, Jensen M. 'Effect of chewing gum on food clearance from the dentition.' *J Dent Res.* 69 (1 suppl.): 136, 1990.

⁷Park KK, Schemehorn BR, Stookey GK. 'Effect of Time and Duration of Sorbitol Gum Chewing on Plaque Acidogenicity', *Pediatric Dentistry* 15(3): 197-202, 1993.

⁸Fox PC, Van Der Ven PF, Baum BJ, et al. 'Pilocarpine for the treatment of xerostomia associated with salivary gland dysfunction'. *Oral Surg Oral Med Oral Pathol.* 61(3): 243-48, 1986.

⁹Wennerholm K, Arends J, Birkhed D, Ruben J, Emilson CG, Dijkman AG. 'Effect of xylitol and sorbitol in chewing-gums on mutans streptococci, plaque pH and mineral loss of enamel.' *Caries Res* 28: 48-54, 1984.

¹⁰Olsson H, Axéll T. 'Objective and subjective efficacy of saliva substitutes containing mucin and carboxymethylcellulose.' *Scand J Dent Res.* 99(4): 316-19, 1991.

¹¹Aagaard A, Godiksen G, Teglers PT, et al. 'Comparison between new saliva stimulants in patients with dry mouth: a placebo-controlled double blind crossover study'. *J Oral Pathol Med.* 21(8): 376-80, 1992.

¹²Bots CP et al. *Palliat Med.* 2005; 19(3): 202-7.