

Xylitol – The sweet miracle

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There is a reason that the health departments of Italy, Japan and Finland recommend the use of xylitol for active oral care. An increasing number of national dental associations in Europe have also begun to follow that recommendation.

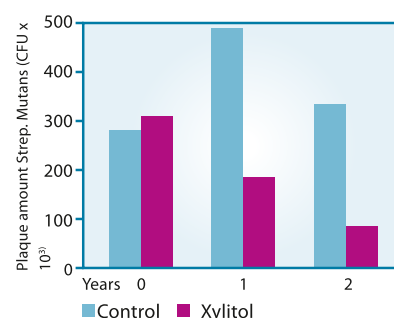
What is so special about xylitol? Is there any evidence to support its claimed properties, such as being anti-cariogenic and able to advance enamel remineralisation? These and other questions are matters of current debate among experts. It is fact that that the very extensive Turku study, which was conducted between 1970 and 1976 (Table I), showed a 85 per cent reduction in caries in patients consuming xylitol compared with a control group.¹ These results sparked a wave of follow-up studies. Many studies conducted under the umbrella of the World Health Organization have since confirmed a significant caries reduction of between 50 and 85 per cent.²⁻⁴

Why then has xylitol not become commonplace by now and why is it still being debated? In addition to lack of awareness, a possible explanation could lie in economics. Xylitol as a raw material is 20 times more expensive than sugar in production and much more costly than other sugar substitutes. Processing is more labour intensive, as well as more costly, and therefore less attractive for manufacturers. In contrast to synthetic sweeteners like aspartame and acesulfame, the taste of xylitol is not prolonged. Compared with gum containing other sweeteners, chewing gum only sweetened with xylitol loses its natural flavour after about five minutes. Therefore, synthetically sweetened gums hold more value for the industry. From a medical perspective, chewing gum sweetened with xylitol becomes effective after five minutes by neutralising the significantly reduced pH value resulting from food consumption.



Xylitol was originally harvested from birch bark.

Xylitol blocks streptococcus mutans



© Mäkinen KK, et al. (1989) Caries Res 23, 261-267

Overview of relevant studies

	Research center	Duration in years	Dose g / day	Reduction of caries incidence %
1.	Turku, Finland	2	67	> 85
2.	UdSSR	2	30	73
3.	WHO – Thailand Polynesia Hungary	2.3 – 2.7 3 2 – 3	20 up to 20 14 – 20	concludes prophylactic effect 58 – 68 37 – 45
4.	Montreal, Canada	1 – 2	1 – 3.9	52
5.	Ylivieska, Finland	3	7 – 10	59 – 84
6.	Dayton, OH*	1.8	up to 8.5	80
7.	Ylivieska, Finland „Von der Mutter - Kind“	21 months	6 – 7	70

* Root surface caries



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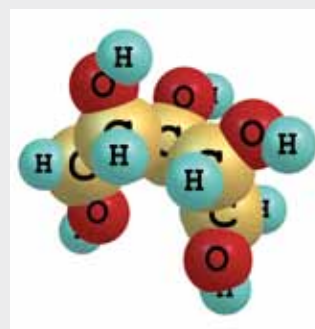
Despite the abovementioned evidence-based studies on xylitol, there is need for more research regarding the known positive properties of this sweet miracle. For example, Park et al. have found that xylitol reduces inflammation in the case of *Porphyromonas gingivalis*.⁵ Uttamo et al. have described the effectiveness of xylitol against *Candida albicans* and the carcinogenic effect of acetaldehyde in the oral cavity,⁶ which could be of interest to smokers particularly.

Xylitol cannot replace fluoride entirely. It should rather be regarded as a valuable addition to dental prophylaxis. Critics of xylitol often point to the effectiveness of fluoride, but may not consider that both substances complement each other perfectly. Xylitol is within reach even when no toothbrush is around. It is for a reason that the European Food Safety Authority (EFSA) has confirmed health claims that chewing gum only sweetened with xylitol is anticariogenic⁷ and highly effective against caries.

As a rule, as many products containing xylitol as possible should be used in daily practice. In order to achieve extraordinary results in patients, the use of chewing gum sweetened only with xylitol is recommended. Studies evaluated by the EFSA confirm this. The latest analysis by German consumer watchdog publication ÖKO-TEST (September 2015 issue) of a variety of chewing gums only rated brands containing xylitol as "good" or "very good", while some of the global competing products containing other sweeteners were rated only "fair" or "poor". There are plenty of good alternatives to chewing gum, such as boiled sweets and xylitol powder, which compares almost one to one to granulated sugar in its sweetness. In order to benefit fully from its positive properties, five grams of xylitol a day is generally recommended. An intake of 50 grams for adults and 30 grams for children is well tolerated. In order to ensure that products only contain xylitol and no other sweeteners, the list of ingredients should be checked.

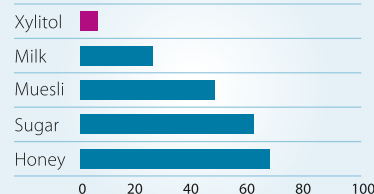


miradent Dental Care Chewing Gum sweetened with 100% xylitol (Hager & Werken)



Molecular structure of xylitol

Glycaemic Index



Xylitol is also favoured by diabetics.

© D. Fritsche: „Diabetes: Der Ernährungskompass“, Gräfe und Unzer Verlag, Germany (2008)



Xylitol Chewing Gum, Spearmint, 30 g	REF 630 079
Xylitol Chewing Gum for Kids, Apple flavor, 30 g	REF 630 192
Xylitol Chewing Gum Dispenser box, 200 pcs.	REF 635 069
Xylitol Drops, Cherry, 60 g	REF 630 171
Xylitol Drops Dispenser Box, 100 pcs.	REF 635 183
AQUAMED Lozenges against mouth dryness, 60 g	REF 630 164
Xylitol Powder, 350 g	REF 630 119

Sources:

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- [6] Uttamo J. et al.: Xylitol inhibits carcinogenic acetaldehyde production by *Candida* species, *Int J Cancer.* 2011 Oct 15;129(8), pp. 2038-2041
- [7] The EFSA Journal (2008) 852, pp. 1-15: Xylitol chewing gum/pastilles and reduction of the risk of tooth decay, Scientific substantiation of a health claim related to xylitol chewing gum/pastilles and reduction the risk of tooth decay pursuant to Article 14 of Regulation (EC) No 1924/2006, Scientific Opinion of the Panel on Dietetic Products, Nutrition and Allergies (Question No EFSA-Q-2008-321) Adopted on 30 October 2008 by written procedure

