

Xylitol:

How Sweet It Is



Dental caries is the most common chronic disease worldwide, affecting people of all ages and circumstances. As a dental hygienist and primary health care provider, you play an essential role in educating your clients on how to prevent caries, guiding them on proper toothbrushing techniques, interproximal cleaning, using antibacterial and fluoride mouth rinses, and recommending fluoride treatments when appropriate. But your clients at high risk for caries may need more.

What is xylitol?

Xylitol is a natural sugar alcohol found in fruits and vegetables. It is artificially manufactured from plant materials such as birch and beechwood. Xylitol has a sweet taste and has been used as a sugar substitute since the 1940s, but unlike sugar it doesn't cause caries and may even be beneficial to oral health.



Does xylitol improve oral health?

Research conducted in Finland during the early 1970s found that consumption of xylitol reduced the growth of dental biofilm; further studies revealed that xylitol consumption was associated with caries reduction.¹

Chewing gum sweetened with xylitol also combats xerostomia, another contributor to caries formation, by increasing saliva production.

Why is xylitol effective?

Xylitol has been shown to be an anticariogenic and remineralization agent. When we eat and drink, oral bacteria, such as *Streptococcus mutans* (*S. mutans*), consume refined sugars and carbohydrates, creating an acidic environment that demineralizes tooth enamel leading to caries. Because xylitol cannot be consumed by *S. mutans*, it raises the pH level in the oral cavity to a neutral state, preventing demineralization. It also reduces biofilm adhesion to the tooth structure.

In addition, xylitol stimulates salivary flow, rich in calcium and phosphate, which helps to remineralize carious lesions in their initial stages. When pH is above 7, the calcium and phosphate in saliva will re-harden areas of weak tooth enamel.

SCENARIO

Parents and other caregivers often share food or utensils with young children. In doing so, they may inadvertently transmit *S. mutans* from their mouth to the child's. Research has shown that children whose mothers consumed xylitol daily were significantly less likely to have *S. mutans* in their oral flora.² They also had a lower rate of caries.

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What products contain xylitol?



Chewing gum
(highest level of efficacy)



Mints/lozenges
(highest level of efficacy)



Toothpaste



Mouth rinse

How much xylitol should clients ingest per day?

Optimal inhibition of *S. mutans* occurs when total daily consumption of xylitol is 6 g to 10 g, divided into 3 or more small doses taken after meals.³ If more than 20 g is ingested per day, the individual may experience gastrointestinal issues.³ Consumers should read packaging ingredients to determine the quantity of xylitol in the product.



Xylitol is **dangerous** to dogs!

Dogs have a different metabolic system than humans and cannot process xylitol. Ingestion of xylitol by a dog may cause rapid onset of hypoglycemia leading to severe illness and even death. If you suspect your dog has ingested xylitol, contact your veterinarian immediately.

Consumption of refined sugars (sucrose, glucose, and high-fructose corn syrup) and carbohydrates is said to be the leading cause of caries in children and adults.⁴ Xylitol prevents demineralization and promotes remineralization of tooth enamel. If you have a client who is struggling to manage dental caries and/or xerostomia, consider recommending xylitol as an addition to their home oral care toolbox.

References

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