Why is Xylitol good for teeth?

Clinical studies show that supplementing a normal diet with regular consumption of xylitol (xylitol chewing gum 2 times a day) is beneficial for teeth. Research clearly established that the use of xylitol sweetened foods provides additional help in the battle against tooth decay by significantly decreasing plaque accumulation.

How does Xylitol Fights Tooth Decay?

When carbohydrate or sugars are consumed acid is produced in the mouth and the pH drops rapidly below pH 5.7, causing demineralization of tooth enamel and potential cavities. Since xylitol is a five-carbon polyol, oral bacteria do not metabolize it and therefore no acid is produced. This means that xylitol reduces the quantity of plaque, creating additional caries (decay) protection between periods of brushing and flossing. It also inhibits the growth of streptococcus mutans, the main bacteria associated with dental caries (decay). Xylitol actually decreases the amount of insoluble plaque polysaccharides that actually make plaque less adhesive to the tooth surface. When xylitol products are used the pH balance in the oral cavity is quickly returned to a safety level above pH 5.7, minimizing the erosion of enamel and enhancing the remineralization process. Remineralization is the process of reversing superficial cavities confined to the enamel surface.

When xylitol is consumed habitually for several months, the streptococci mutans bacteria are shed from plaque to the saliva. Although high numbers may still be found in saliva, they are less virulent and do not adhere as tightly to the teeth, and this means acid attack is not occurring at the tooth surface.

Studies have shown that Xylitol gum and Xylitol candy prevent the development of new carious lesions (cavities) in both children and adolescents. Research suggests that the value of xylitol may be highest during periods of high dental activity such as the eruption of new teeth especially when the first and second molars erupt. One landmark study showed that chewing a Xylitol gum 3-5 times a day actually stops the transmission of Streptococcus Mutans from mother to child. It’s use is recommended for mothers with children from birth to age 2 which is the age when the bacteria that cause cavities colonize the mouth. Using Xylitol during this stage can actually prevent colonization of those cavity-causing bacteria in an infant and prevent future dental cavities for the child.

Research suggests that xylitol and fluoride act synergistically to increase the efficacy of oral hygiene products. Fluoride reduces demineralization of the tooth surface and helps to promote remineralization process of enamel. Regular use of a fluoride toothpaste and fluoridated water is recommended as the first step in caries (decay) prevention. Xylitol should be added in high risk individuals who are more susceptible to caries. When fluoride and Xylitol are combined in products such as toothpaste, the two together are complementary. Those at high risk would be those who have exposed root surfaces,
suffer from xerostomia (dry mouth), oral cancer survivors, diabetics and anyone suffering from a compromised immune system because they are at higher risk of caries. By sucking on Xylitol candy or Xylitol gum, rather than other sugar-filled products, their risk of decay will decrease.

**Xylitol other benefits:**

The sweetness and pleasant cooling effect of Xylitol-sweetened products (such as mints and chewing gum) create an increase in salivary flow, which helps rinse away excess sugar residues and neutralize any acids that have been formed. Saliva helps with cleaning and protecting teeth from decay. Xylitol also raises the Ph of saliva so it changes both the quantity and the quality of saliva, thus aiding the remineralization process.

**Xylitol and Diabetes:**

Control of blood glucose, lipids and weight are the three major goals of diabetes management today. Xylitol is a low glycaemic sweetener, is slowly absorbed and is metabolized independently of insulin. Xylitol does not cause the sharp increase in blood sugar level or the associated serum insulin response, which is usually seen following consumption of other carbohydrates. Thus, Xylitol can be recommended as a sugar-free sweetener suitable for diabetics as well as for the general population seeking a healthier lifestyle. The reduced caloric value (2.4 calories per gram versus 4.0 for sugar) of Xylitol is consistent with the objective of weight control.

Despite the improvement in dental health achieved through the use of fluoride, cavities incidence is still widespread and cause for concern in many countries. Decreasing sugar intake and finding practical means of combating its detrimental effects remains a priority in controlling the incidence of cavities. One way to achieve this goal is to provide confectionery sweetened with dentally safe sugar substitutes.

Xylitol is particularly recommended for this purpose since in addition to not causing cavities it actually:

- Helps reduce the development of cavities (dental caries).
- Resists fermentation by mouth bacteria.
- Reduces plaque formation.
- Increases salivary flow to aid in the repair of damaged tooth enamel.
- Compliments fluoride in oral hygiene products.
- Has a good taste with no unpleasant aftertaste.
- Provides One-Third Fewer Calories than Sugar – about 2.4 Calories per Gram

**Xylitol Daily Dosage Amount**
The recommended dose for dental cavity prevention is 6-10 grams per day. For those with temporomandibular joint dysfunction (TMJ) and have difficulty chewing, Xylitol candy should be used instead of chewing gum. At high dosages Xylitol can cause diarrhea in children at 45 grams per day and 100 grams per day in adults.

To be effective, xylitol needs to be used daily on an ongoing basis and its use does not replace brushing and / or flossing. Brushing and Flossing are part of maintaining overall dental health. Children need to brush daily with a fluoride toothpaste and will also benefit from the use of an over the counter fluoride mouthrinse. Xylitol can be added to our dental arsenal tool kit in the fight against dental decay. It is this long term daily compliance use which is the only drawback. The primary source of xylitol is candy and gum. To be therapeutic the dosage of xylitol is most important, around 6 to 10 grams of Xylitol per day.

The amount tolerated varies with individual susceptibility and body weight. Most adults can tolerate 40g per day. When reading the product label, Xylitol should be the first sugar listed and, ideally, the only sugar included.

**Xylitol - Summary**

Xylitol is a substance similar in look and texture to sugar. It is a sweet-tasting, natural sweetener that can be found in certain fruits and trees as well as inside our bodies as a natural component of the metabolic process. It has been used as a food additive over the last half of the century with fewer calories than everyday sugar. Xylitol currently is being used for medicinal purposes as it has been shown to reduce tooth decay.

Xylitol is an easy and healthy way to combat and prevent tooth decay. It comes in mints, candies, and gums like Trident Gum. Xylitol is effective in preventing and combating tooth decay because instead of promoting the growth of bacteria like other sweeteners, it reduces it. It also changes the amount of saliva and the acidity of it to help keep the teeth and mouth cleaner. The bacterium that is reduced includes cavity-causing bacteria ("strep mutans") which can be virtually eliminated with less than 15 grams of xylitol a day. This can be achieved with at least three pieces of xylitol gum/mints/candies (gum is believed to be most effective) daily as well as implementing xylitol-enriched fruits like plums and raspberries into a daily diet.

Xylitol products are also available in oral hygiene products like toothpaste, mouthwash, and floss.

Dr. Friedman’s Chews-4-Health Chewable Dietary Supplement contains Xylitol.

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