

# Incorporating Xylitol Into Your Practice

by Dr. John Bruinsma



*Second opinions are common in health care; whether a doctor is sorting out a difficult case or a patient is not sure what to do next. In the context of our magazine, the first opinion will always belong to the reader. This feature will allow fellow dental professionals to share their opinions on various topics, providing you with a "Second Opinion." Perhaps some of these observations will change your mind; while others will solidify your position. In the end, our goal is to create discussion and debate to enrich our profession.* — Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*

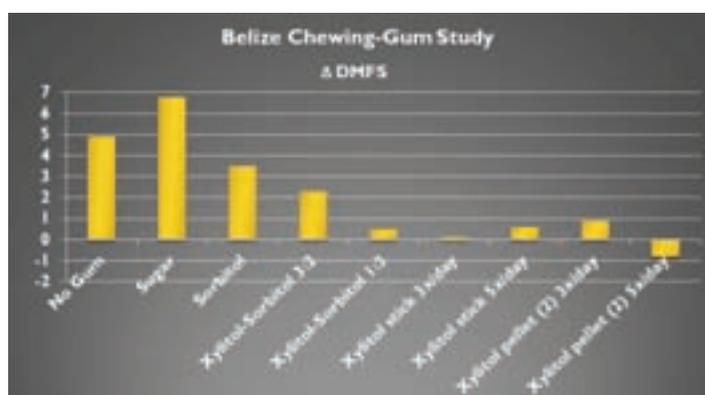
It's all-natural, it's consumable (you don't have to spit it out) and it prevents dental decay. You probably know this ingredient by its odd name – yes, it's xylitol. And it's so easy to promote and deliver xylitol and its oral health benefits to your patients.

## Studies

There have been hundreds of studies undertaken to determine the oral health benefits of xylitol, utilizing a variety of delivery vehicles, dosing frequencies and quantities. A few of the more comprehensive and interesting studies are the following:

**Belize City: Xylitol Chewing Gums and Caries Rates: 1995:** Published in 1995 and conducted from 1989 to 1993, a 40-month double-blind cohort study on the relationship between the use of chewing gums and dental caries was performed with 1,277 participants in Belize, Central America. The participants were assigned to nine treatment groups and the mean age was 10.2 years (the entire fourth grade public school class enrolled in Belize City). The primary endpoint was the development of an unequivocal carious lesion on a previous structurally intact tooth surface. The average per capita consumption of sucrose products in Belize was approximately 53 percent more than that of the USA population at the time of the study. The average consumption frequency of sucrose-containing products was 12 to 14 times per day. No attempt was made to change participants dietary habits or oral hygiene practices during the study period. Also, most children in Belize use fluoridated toothpaste but the drinking water is not fluoridated.

The graph below illustrates the results of the Belize study. Please note the chewing gum delivery vehicle was in stick or pellet form, was consumed for five-minute periods three times per day, unless noted as five times per day, and total xylitol consumption ranged from 4.3g to 9.0g per day for the four xylitol-only groups.

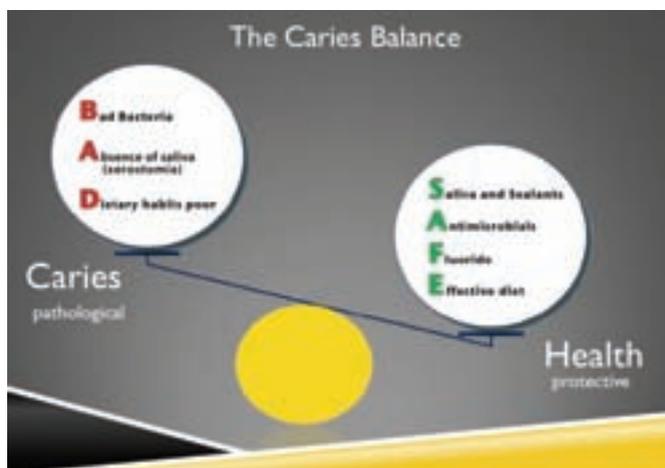


Following baseline examination, then one year of xylitol consumption, and ending with the 40-month examination, the xylitol-only groups averaged nearly zero new carious lesions! These results were achieved without any induced behavioral changes. In other words, the participants likely continued to consume sucrose products 12 to 14 times per day during and after the xylitol consumption period. Consider this potent and long-lasting effect the next time you encounter any patient with multiple areas of decay.

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**Occurrence of Dental Decay in Children after Maternal Consumption of Xylitol: 2000:** Studies have been completed investigating the transmission of *strep mutans* from mother to child after maternal xylitol consumption. In a nutshell, mothers were given four servings of xylitol chewing gum totaling six to seven grams of xylitol per day for 21 months, beginning three months post-delivery. At two years of age their children demonstrated significant reduction of *strep mutans* colonization, which is a reliable surrogate marker for dental decay. Also, at the end of the study five years later, children of mothers who consumed xylitol demonstrated a DMF reduction 70 percent greater than children whose mothers received only fluoride varnish or chlorhexidine varnish treatments.

**Xylitol, Sweeteners and Dental Caries: 2006:** A conference paper entitled “Xylitol, Sweeteners and Dental Caries” published in 2006, concluded that “Sufficient evidence exists to support the use of xylitol to reduce caries,” and “clinicians and dental associates should push for clear recommendations of efficacious dose and frequency of xylitol use and clear labeling of xylitol content in products to help consumers choose appropriately.” The report concludes that the effective daily dose of xylitol for oral health benefits is six to ten grams per day divided into three to five servings, or two grams per serving. For now, drawing upon the rule of KISS, remember “three to five servings per day.”



### The Consumable Medical Model

Despite all the time, practice and education invested in restorative and operative dentistry, this extremely significant area of expertise accomplishes very little to prevent future dental decay. Enter the rapidly growing importance of the medical model to address the most common infectious disease known to man – dental caries.

The utilization of xylitol as an antimicrobial is an all-natural, at-home, tasty and enjoyable way to employ the medical model and shift the caries balance from pathological to protective. Let's look at the main causative factors of dental caries schematically (at left).

Notice how xylitol impacts all three of the manageable pathologic causes affecting the caries balance; a trifecta!

**Bad Bacteria:** Proper consumption of efficacious xylitol products reduces cavity-causing bacteria by two methods. First, the inability of bacteria to metabolize xylitol, and therefore produce acids responsible for demineralization and reduction of plaque pH, causes intracellular xylitol accumulation and eventually cell death. Secondly, xylitol interferes with bacterial polysaccharide formation, which significantly reduces the adhesive capabilities of the bacteria to everyday events such as eating, drinking and brushing. Literally, the bacteria lose their main mechanisms to cause dental havoc – the ability to stay put, produce acid and thrive.

**Absence of Saliva:** We all know what happens to a dry mouth when the affected individual strongly desires relief and turns to sugar products for a temporary respite. A wide variety of tasty products containing saliva-stimulating xylitol are now available to easily replace almost any similar sugar product.

**Poor Dietary Habits:** Everybody knows that frequent consumption of satisfying treats that contain fermentable carbohydrates cause dental decay, correct? Not in my practice! Informing patients they must give up something very enjoyable is not good news to the recipient. However, the task becomes much easier because as you already know xylitol products are now available to replace almost any sugar-product equivalent

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regarding taste, texture, sweetness and pleasure of consumption. Compliance just became a whole lot easier.

### How Do I Get My Patients to “Get It?”

Thousands of dental professionals from coast to coast have informed me they recommend xylitol but are at a loss to provide patients with further information. It takes time to thoroughly educate patients and often neither party has any idea where to purchase efficacious xylitol products. Also, even if such products were located, how does one consume or use them properly?

So, where do you and your patients get it? For the time being, until a wide variety of dentally efficacious consumable, clearly labeled xylitol products become available in mass retail obtaining some level of popularity similar to that enjoyed in Japan, Korea and Europe, you will have to direct patients to Internet sites or select health-food stores. As the popularity of xylitol increases, so will distribution and subsequent availability. You and your patients are in a position to grow the xylitol retail market locally by speaking with managers of pharmacies and stores as well as touting the benefits of xylitol when communicating with patients via any media.

Utilizing the Internet for patient education and product availability requires Web sites with a dental focus. Here's what to look for in order to minimize time spent while providing your most valued professional asset, your patients, with important preventive information only you can provide them. Refer your patients to a Web site that provides:

- Educational materials and programs that deliver a quick and easy in-office xylitol recommendation and provide the patient with printed information directing them to the Web site for further education and product availability.
- A variety of efficacious xylitol products to increase odds of patient compliance.
- Clear labeling of xylitol products as to proper consumption to maximize oral health benefits.

Hopefully, the only aspect of the educational process that requires recall is “three to five servings per day” as proper product labeling will inform consumers exactly what constitutes a serving.

Yes, momentum is building and xylitol is becoming the hot topic and ingredient it deserves to be. Remember, xylitol is an all-natural and consumable dental caries prevention alternative/addition to chemical rinses and in-office procedures.

Reduction of decay, especially by way of tasty treats, will turn you and your staff into heroes as patients who struggle with decay receive a healthy checkup and give you a big smile! ■

### Author's Bio

**Dr. John Bruinsma** is a 1983 graduate of the University of Michigan School of Dentistry. In 1995, Bruinsma and his wife, Debra, a registered dental hygienist, founded Dr. John's Candies. Dr. John's Candies develops unique consumable products designed to deliver valuable preventative health benefits and provide education to maximize those benefits.

In 2008, Dr. John's Herbal Lollipop, which significantly reduces decay-causing bacteria and was developed in collaboration with Dr. Wenyuan Shi at UCLA/C3 Jian, was featured on ABC's “Good Morning America.” Most recently, Dr. John was chosen as a “New and Emerging Speaker” at the 2011 ADA Annual Session in Las Vegas presenting “Fighting Decay One Lick At A Time.”

Dr. John and Debra continue to research and develop revolutionary consumable products, both internally and for other interested companies, designed to improve oral and overall health. Products are distributed worldwide under the Dr. John's brand “SimplyXylitol” and “Dr. John's Herbal Lollipop,” as well as several private labels.