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## **Sweet Solutions – The Oral & Systemic Benefits of Xylitol**

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Xylitol – All Natural Sugar Replacement

Why is Xylitol Different?

- Sugar alcohol or Polyol
- 5 carbon structure vs a 6 carbon structure

Where does Xylitol come from?

- Xylitol is found in many plants, fruits and vegetables
- Xylitol was discovered in 1891
- Discovered in birch tree wood
- Large Scale Production of Xylitol- Now sourced from corn cob or stalk

Food and Drug Administration Approval of Xylitol

- 1963 Approved For Safety
- 2003 Approved for Prevention of Dental Caries

What Good Is Xylitol To Us? Let's First Talk about Sugar

- In 1982 AMA & AHA recommended reducing fat from 40%-30%
- Sugars were increased in foods to make up for loss of taste
- This was shortly after HFCS was introduced into the American diet
- We are all 25 lbs. heavier than we were 25 years ago (NHNES BMI)
- National Health & Nutrition Exam Survey

What is High Fructose Corn Syrup?

Justification of Sugar

- The Liver can only tolerate 12-15 grams of fructose per day
- Energy processing & Storage
- Obesity Profiteers

What about Artificial Sweeteners?

- Saccharin was the first artificial sweetener
- Aspartame
  - What makes aspartame dangerous?
- Sucralose = America's #1 selling artificial sweetener
- Other Sugar Substitutes

American Heart Association Sugar Intake Guidelines

Why Should We Use Xylitol?

Our bodies produce 5-10 Grams of Xylitol each Day – it is natural to us  
Xylitol Pathways

- Xylitol is useful in preventing upper respiratory problems
- Xylitol has been shown to inhibit the growth of certain bacteria

## Cooking with Xylitol

### Diabetes and Xylitol:

Causes little insulin release in people  
Glycemic Index Sucrose (table sugar) =85  
Glycemic Index Xylitol= 7

## Dental Benefits of Xylitol

Anticariogenic properties  
Cariostatic properties  
Prevents oral bacteria from sticking to the teeth and gums  
Humectant - Xylitol Attracts Moisture  
Stimulates Saliva Flow  
Cooling Effect  
Neutralizes salivary pH  
Remineralization - Xylitol is a Carrier for Calcium

## What *Can* Patients with Dry Mouth Do For Relief?

1 packet or 1 tsp Xylitol in a water bottle = 4g xylitol sipped throughout the day  
Provides moisturizing effect  
Neutralizes pH of water

Dip Food in Milk

## Other Dry Mouth Relief Products

## Xylitol Has Been the Subject of over 2,600 research projects

### Pivotal Studies:

- Turku Chewing Gum Study
- Hungarian Study of 1981-1984
- Frequency of xylitol use is important
- Belize City Xylitol Chewing Gum Study 1989-1994  
University of Michigan  
1277 students, 9 control groups  
Data collected by the University of Washington Dental School 5 years after the initial study  
Subjects in the xylitol group had over a 93% reduction in tooth decay 5 years after the study  
Xylitol changes the micro-flora of the mouth creating an inhospitable environment for *Strep Mutans*
- Xylitol Promotes Remineralization  
“Xylitol can induce remineralization of deeper layers of demineralized enamel by facilitating Ca<sup>2+</sup> movement and accessibility.”  
Micro hardness of decalcified enamel increased when 20g xylitol was used for 10 days
- Mother Child Study  
Mothers used xylitol gum from 3 to 24 months after delivery  
Control groups received either fluoride or chlorhexidine varnishes  
At 24 Months of Age Children of Mothers who Received:  
Chlorhexidine Varnish: 3 xs’s more SM than xylitol. Fluoride Varnish: 5 xs’s more SM than xylitol  
Mothers who use xylitol gum are less likely to transmit harmful MS bacteria to their children  
At the age of 5 years, the caries rate was 70% lower in the xylitol than the fluoride or chlorhexidine groups

- Xylitol and Periodontitis  
*Clinical and Diagnostic Laboratory Immunology* vol. 12, no. 11, pp. 1285–1291, 2005.  
“These findings suggest that xylitol may have good clinical effect not only for caries but also for periodontitis by its inhibitory effect on the LPS-induced inflammatory cytokine expression.”  
“This Korean study also showed that xylitol inhibits the growth of P. gingivalis, an important periodontal pathogen.”
- Xylitol, Root Decay and Gingival Health  
*Adv. Dental Research*  
“Along with reductions in occurrence of root surface caries, **xylitol** use also improved gingival health.”  
  
*Special Care Dentistry*  
“Xylitol use also stimulated saliva, improved gingival health, and even help reduced cravings for cigarettes in several smokers.”
- Xylitol and Oral Candida  
*Microbial Ecology in Health*  
“C. albicans grown in *galactose* elicited maximal increase in adhesion followed by *glucose and sucrose*. *Maltose and fructose* also promoted adherence of Candida.  
**Xylitol significantly reduced adherence** of Candida to BECs. (Buccal epithelial cells) The dietary carbohydrates, therefore, might represent a risk factor for oral candidiasis. The limitation of their consumption by *substituting* xylitol could be of value in the control of oral Candida colonization and infection.”  
*Microbial Ecology in Health and Disease* vol. 17, no. 3, pp. 156-162, 2005.
- Cochrane report on xylitol (Dental)

#### Xylitol Protocols

Dependent Adults  
Special Needs Children  
General Protocol for Caries Reduction

Xylitol is useful in preventing upper respiratory problems

Preventing bacterial otitis media in children  
Preventing sinus infections  
Preventing asthma

University of Oulu, Finland

Xylitol may be important when treating respiratory infections caused by these bacteria

#### Xylitol and Middle Ear Infections

Dr. Matti Uhari

He concluded xylitol could reduce the carriage of this pathogen

Xylitol could have clinical significance in the prevention of pneumococcal diseases without counteracting the body's defense system

How Xlear Nasal Spray was invented:

Dr. Jones recommended administering a xylitol based nasal spray to his granddaughter who had chronic ear infections

The spray was administered at every diaper change. Her ear infections ceased

Dr. Jones had 10 children in his practice use the nasal spray with the same regimen

Over the next 11 months of regular use of this xylitol based spray children experienced a 93% reduction in ear infections

Ear infections start in the nose

Bacteria make secretions that form *biofilm*, allowing them to stick to mucosal membranes

Bacteria cause inflammation in the Eustachian tube

Inflammation closes the Eustachian tube

- Xylitol and Pediatricians

“Only about half of the pediatricians surveyed knew about medical uses of xylitol. “Future research should focus on prevention and the use of xylitol as a possible prophylaxis regimen for Acute Otitis Media in patients.”

Journal American Academy of Audiology.vol. 21, no. 5, pp. 329-346, May 2010.

The Nose’s Primary Defense: Sweeping

Glands in the nose produce mucus that coat and protect the airway

Pollutants and infecting agents stick in mucus

Mucus is swept toward the back of the nose by cilia

Between these glands’ cilia mucous layer is the airway surface fluid

Fluid provides space so the cilia can trap and propel bacteria and pollutants out of nose

When cilia cannot trap and move harmful bacteria out of the nose, harmful bacteria reside in the upper respiratory passages

Bacteria multiply leading to upper respiratory infection and disease

Otitis Media, Sinusitis, Asthma, Pneumonia, Allergies

Xylitol Nasal Spray, Pressure Bottle, and Neti Rinses Work By:

Decreasing adherence of bacteria

Stimulating natural defense system

Hydrating nasal passage and sinuses

Xylitol Can Help Reduce Seasonal Allergies

When body senses infection or an attack by bacteria and allergens the body releases histamine as part of the immune response

Effects of Histamine Release

Opens blood vessels

Provides more fluid for washing nasal passages by increasing surface fluids

Increases mucus production

Increases sneezing response to expel bacteria or attacking material

Constricts bronchi to prevent attacking material from getting deeper into the body, protecting the lungs

Xylitol can aid in reducing asthma attacks

Daily use of a nasal spray with xylitol, *unlike prescription remedies*, will never damage tissues or result in antibiotic resistance.

Xlear Nasal Spray: Xylitol, Saline, Grapefruit Seed Extract aka: GSE (not from the citrus part of grapefruit – there are no medication contraindications to GSE)

NEW: Xlear Max Nasal Spray: Xylitol, Saline, GSE, Capsicum Oil – for severe congestion.

NetiXlear Nasal Wash: Celtic Sea Salt, Sodium Bicarbonate, Xylitol  
Administered through neti pot or positive pressure bottle

Upper Respiratory Probiotics - *S. salivarius*

- Cochrane Report on Xylitol in a Nasal Spray

Credible Sources for Xylitol Information:

- [www.Pubmed.gov](http://www.Pubmed.gov)
- [www.XylitolEducators.com](http://www.XylitolEducators.com)
- [www.Xylitol.org](http://www.Xylitol.org)
- [www.Xlear.com](http://www.Xlear.com)

\*If you are interested in bringing this information to your office team please email me to set up a live-stream CE Webinar. One-hour courses are listed at [XylitolEducators.com](http://XylitolEducators.com) or email me for more information.

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