Sweet Solutions – The Oral & Systemic Benefits of Xylitol
April 21, 2017

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 Strept Mutans

- Xylitol Promotes Remineralization
  - “Xylitol can induce remineralization of deeper layers of demineralized enamel by facilitating Ca2+ 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.*”

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.”

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.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 or email me for more information. [Julie.Seager@Xlear.com](mailto:Julie.Seager@Xlear.com)*