"Dental
Whole B

Mark Cannon DDS MS
Professor- Feinberg School of Medicine
Northwestern University, Ann and Robert Lurie Children's Hospital (Children's Memorial Hospital)

Oral and gut bacteria are repeatedly reported in the research literature to be involved in:

- Autism
- Diabetes Type II
- RA
- Depression and anxiety

Commensal bacteria protect against food allergen sensitization

Andrew T. Stefka[a,1], Taylor Feehley[a,1], Prabhanshu Tripathi[a], Ju Qiu[b], Kathy McCoy[c], Sarkis K. Mazmanian[d], Melissa Y. Tjota[e], Goo-Young Seo[a], Severine Cao[a], Betty R. Theri
Dionysios A. Antonopoulos[e,g], Liang Zhou[b], Eugene B. Chang[e], Yang-Xin Fu[a], and Cathr

- Reactive lung disease
- All autoimmune disorders
- Aging
- Gluten sensitivity
- Celiacs

al

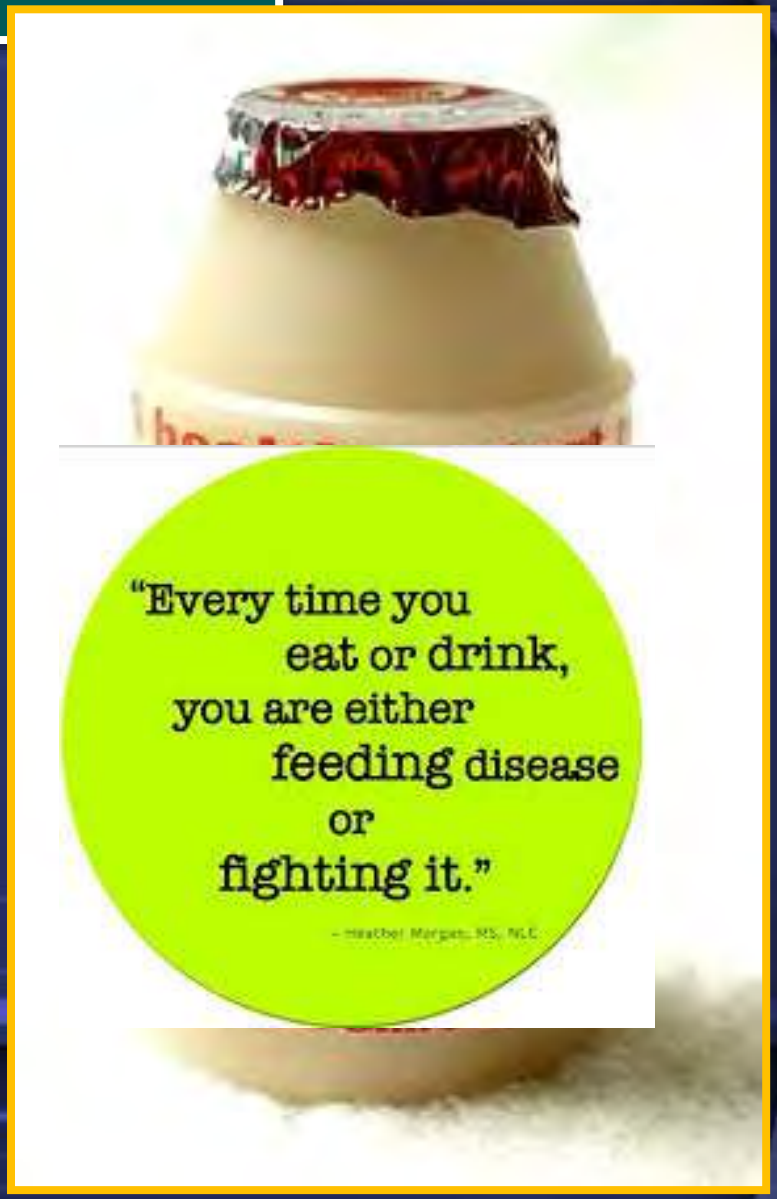
Infectious Disease Lab-

- **Gluten Metabolizers**
- **Oral Probiotics**
- **Inhibition agents**

Dental Products: Probiotic Supplements

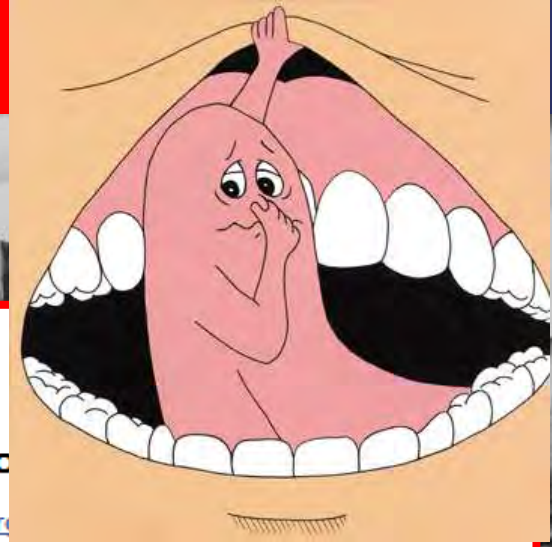
- The use of probiotic supplements is important because whenever there are changes to the oral environment, the type of bacteria found in the oral microflora is also

Many medications have also been associated with saliva reduction that not only decrease the saliva's buffering and antibody capability but may increase the growth of unhealthy (pathogenic) bacteria.



Save Our Germs!

MILLIONS
of bacteria are making
a home in your mouth
right now.



55(C): 93–100.
1.013

r nitrate-reducing oral bacteria in bloc

ar,[a] Vanessa Pearl,[a] Jon O. Lundberg,[b] Eddie Weitzber

Author information ► Article notes ► Copyright and License information ►

This article has been cited by other articles in PMC.

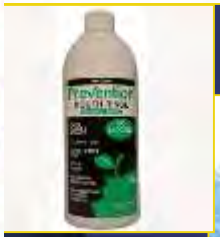
Abstract

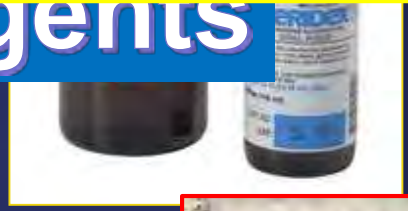
Go to:

Circulating nitrate (NO_3^-), derived from dietary sources or endogenous nitric oxide production, is extracted from blood by the salivary glands, accumulates in saliva, and is then reduced to nitrite (NO_2^-) by the oral microflora. This process has historically been viewed as harmful, because nitrite can promote formation of potentially carcinogenic *N*-nitrosamines. More recent research, however, suggests that nitrite can also serve as a precursor for systemic generation of vasodilatory nitric oxide, and exogenous administration of nitrate reduces blood pressure in humans. However, whether oral nitrate-reducing bacteria participate in "setting" blood pressure is unknown. We investigated whether suppression of the oral microflora affects systemic nitrite levels and hence blood pressure in healthy individuals. We measured blood pressure (clinic, home, and 24-h ambulatory) in 19 healthy volunteers during an initial 7-day control period followed by a 7-day treatment period with a chlorhexidine-based antiseptic mouthwash. Oral nitrate-reducing capacity and nitrite levels were measured after each study period. Antiseptic mouthwash treatment reduced oral nitrite production by 90% ($p < 0.001$) and plasma nitrite levels by 25% ($p = 0.001$) compared to the control period. Systolic and diastolic blood pressure increased by 2–3 .5 mm Hg, increases correlated to a decrease in circulating nitrite concentrations ($r^2 = 0.56$, $p = 0.002$). The blood pressure effect appeared within 1 day of disruption of the oral microflora and was

motherapeutic Age

Agents





Probio

BioGaia Probiotic

A

lozenges contai
your oral health.
You let the lozer
Probiotic chewir
flavor.

BioGaia Probiotic st

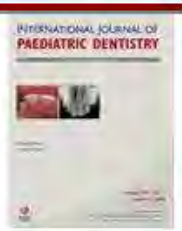
Anoth

your system is the
cells contained in a
BioGaia Probiotic S
sold either separat

International Journal of Paediatric Dentistry

Volume 18 Issue 1 Page 35-39, January 2008

To cite this article: ESBER ÇAGLAR, OZGUR ONDER KUSCU, SULE KAVALOGLU CILDIR, SENEM SELUI KUVVETLI, NUKET SANDALLI (2008) A probiotic lozenge administered medical device and its effect on salivary mutans streptococci and lactobacilli
International Journal of Paediatric Dentistry 18 (1) , 35–39 doi:10.1111/j.1365-263X.2007.00866.x



10 days lozenge

Abstract

A probiotic lozenge administered medical device and its effect on salivary mutans streptococci and lactobacilli

ESBER ÇAGLAR, OZGUR ONDER KUSCU, SULE KAVALOGLU CILDIR, SENEM SELUI KUVVETLI & NUKET SANDALLI

Department of Paediatric Dentistry, Dental School, Yeditepe University, Istanbul, Turkey

Correspondence to:Dr Esber Caglar, Department of Pediatric Dentistry, School of Dentistry, Yeditepe University, Bagdat cad 238, Goztepe 34728 Istanbul, Turkey. Tel. +90 216 3636044/323; Fax: +90 216 3636211; E-mail: caglares@yahoo.com

International Journal of Paediatric Dentistry 2008; 18: 35–39

Abstract

Background. Previous studies have suggested that lactobacilli-derived probiotics in dairy products may affect oral ecology, but the effects of different delivery methods have received little attention.

Aim. The aim of the present study was to investigate the effect of the probiotic *Lactobacillus reuteri*, delivered by a new medical device, on the levels of salivary mutans streptococci and lactobacilli in young women with high *Streptococcus mutans* counts.

Design. This is a randomized, double-blind, placebo-controlled study involving 20 healthy young women (aged 20 years): 10 as subjects and 10 as controls. The study subjects (Group A) sucked the medical device containing the probiotic lozenge with *L. reuteri* ATCC 55730/*L. reuteri* ATCC PTA 5289 (1.1×10^8 CFU) once daily for 10 days, while the control subjects (Group B) received placebo medical devices without bacteria. Salivary mutans streptococci and lactobacilli were enumerated with chair-side kits at baseline and 1 day after the final ingestion.

Results. Salivary *S. mutans* levels in the probiotic test group were significantly reduced, with statistical significance of reduction ($P < 0.05$).

Conclusions. A short-term daily ingestion of lactobacilli-derived probiotics delivered via medical device containing probiotic lozenge reduced the levels of salivary mutans.

Cervitec Plus- Ivoclar

- FDA approved in 2008
- Used in Europe for many years
- 1% chlorhexidine and 1% thymol varnish

Cervitec Plus- Ivoclar

- Swollen and inflamed gingival tissues
- Periodontal Classification Type I- gingivitis

Cervitec Plus- Ivoclar

Use of chlorhexidine varnish to prevent root caries may benefit some patients

A critical summary of Slot DE, Vaandrager NC, Van Loveren C, Van Palenstein Helderman WH, Van der Weijden GA. The effect of chlorhexidine varnish on root caries: a systematic review. Caries Res 2011;45(2):162-173.

David Leader, DMD, MPH

Systematic review conclusion. Chlorhexidine varnish (CHX-V) may be effective in preventing root caries in the absence of regular professional tooth cleaning and oral hygiene instructions for patients who need special care.
Critical summary assessment. A review of six randomized controlled trials demonstrates that CHX-V may benefit patients who require special care.
Evidence quality rating. Limited.

(which they assessed according to color and texture). The studies had, on average, a moderate estimated risk of bias. Meta-analysis of two studies that involved applications of CHX-V 1 percent and one study that involved CHX-V 10 percent

Cervitec Plus- Ivoclar

Inside Dentistry

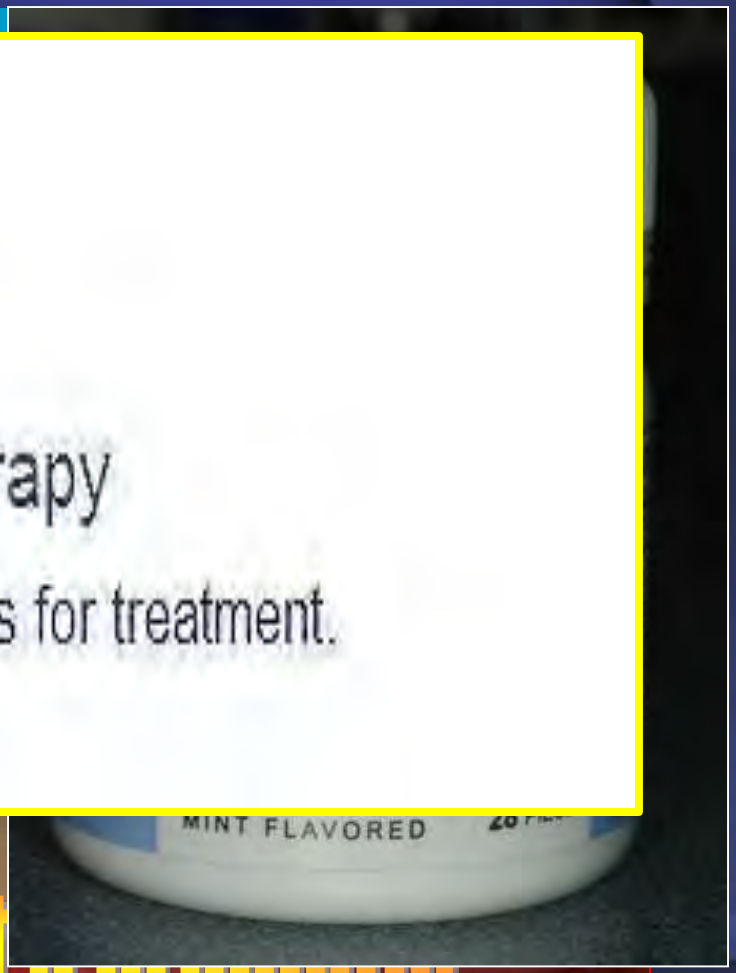
June 2011, Volume 7, Issue 6

Published by AEGIS Communications

Clinical Application of Probiotic Therapy

New adjunctive therapies offer new alternatives for treatment.

By Mark L. Cannon, DDS, MS

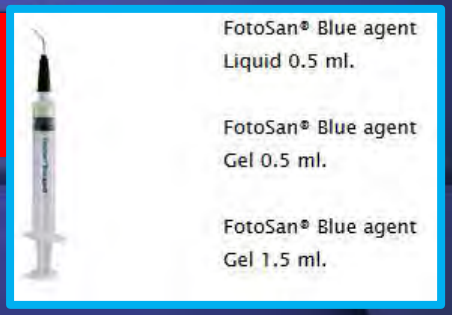


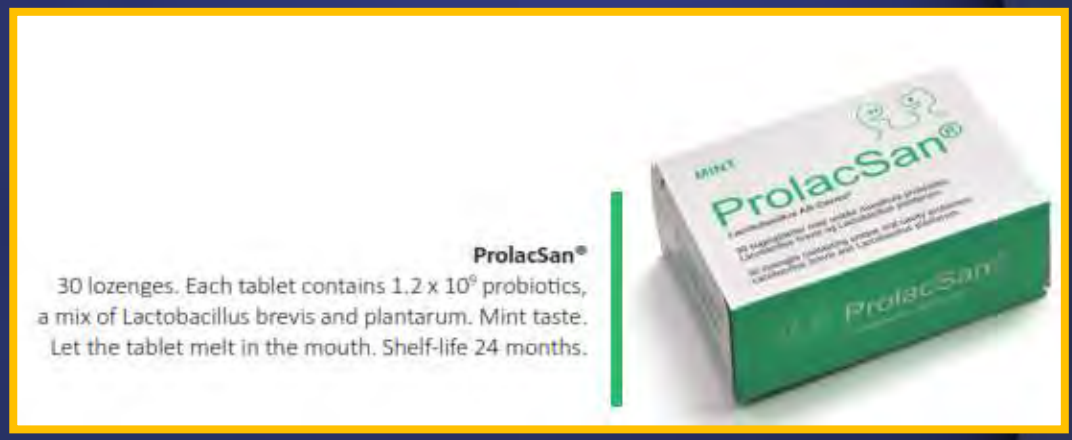
Oral Health Probiotics- what to use?

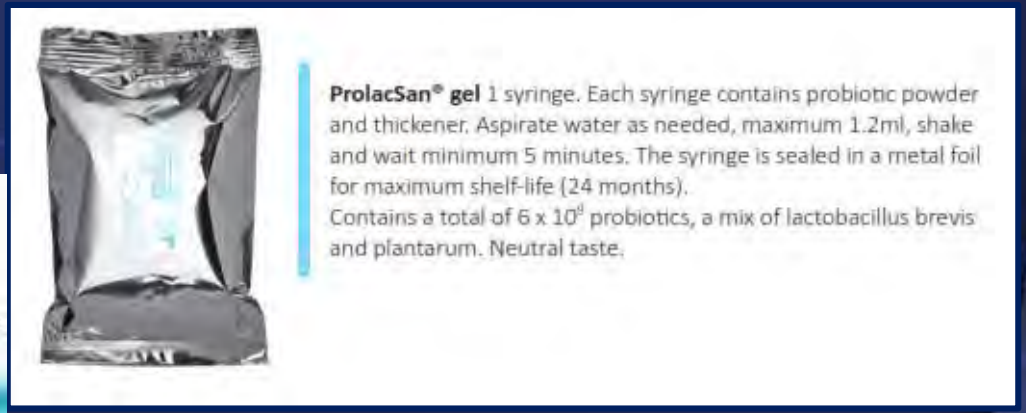
- Periobalance
- Evora Pro
- Evora Plus
- Biogaia
- ProlacSan
- BLIS K12
- Prodegin
- Gluten metabolizers

ProlacSan and FotoSan Therapy

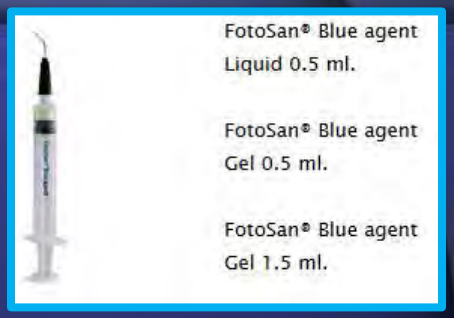
- ProlacSan
  - Lactobacilli brevis and plantarum, provided as gel and as tablets
- FotoSan
  - Light Activated Disinfection







ProlacSan and FotoSan Therapy



Med Sci Monit. 2011 Feb 25;17(3):MT21-5.

In vitro evaluation of the cytotoxicity of FotoSan™ light-activated disinfection on human fibroblasts.

Gambarini G[1], Plotino G, Grande NM, Nocca G, Lupi A, Giardina B, De Luca M, Testarelli L.

Author information

Abstract

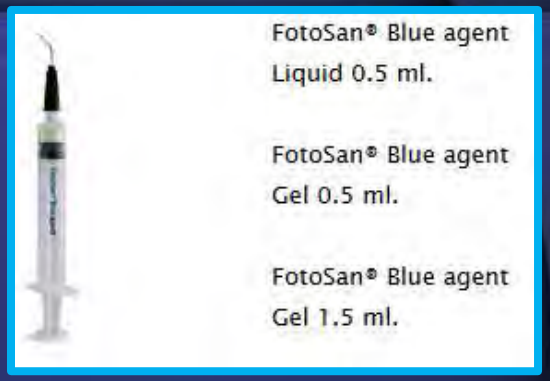
BACKGROUND: Root canal disinfection needs to be improved because actual techniques are not able to eliminate all microorganisms present in the root canal system. The aim of the present study was to investigate the in vitro cytotoxicity of FotoSan (CMS Dental APS, Copenhagen Denmark), 17% EDTA and 2% chlorhexidine.

MATERIAL/METHODS: Fibroblasts of periodontal ligament from healthy patients were cultured. FotoSan (with and without light activation for 30 sec.), 17% EDTA and 2% chlorexidine were used for the cell viability tests. Untreated cells were used as control. The cellular vitality was evaluated by MTT test. The production of reactive oxygen species (ROS) was measured using an oxidation-sensitive fluorescent probe. Results were statistically analyzed by ANOVA, followed by a multiple comparison of means by Student-Newman-Keuls, and the statistical significance was set at $p<0.05$.

RESULTS: MTT tests showed that cytotoxic effects of FotoSan (both photocured and uncured) were statistically lower ($p<0.05$) than that observed using 2% Chlorhexidine, while no significant differences were found in comparison with 17% EDTA. No alterations in ROS production were detectable in any of the tested materials.

CONCLUSIONS: Since the toxicity of the FotoSan photosensitizer, both light-activated and not light-activated, is similar to common endodontic irrigants, it can be clinically used with precautions of use similar to those usually recommended for the above-mentioned irrigating solutions.

ProlacSan and FotoSan Therapy



Lasers Med Sci. 2014 Jan;29(1):1-8. doi: 10.1007/s10103-012-1225-x. Epub 2012 Nov 9.

Light-activated disinfection using a light-emitting diode lamp in the red spectrum: clinical and microbiological short-term findings on periodontitis patients in maintenance. A randomized controlled split-mouth clinical trial.

Mongardini C[1], Di Tanna GL, Pilloni A.

Author information

reduced red complex bacteria and decreased BOP and PPD

Abstract

Eradication or suppression of pathogens is a major goal in periodontal therapy. Due to the increase in antibiotic resistance, the need of new disinfection therapies is raising. Photodynamic therapy (PDT) has demonstrated anti-infective potential. No data are available on the use of light-emitting diode (LED) lights as the light source in PDT. The aim of this study was to investigate the microbiological and clinical adjunctive outcome of a new photodynamic LED device, compared to scaling and root planing in periodontitis patients in maintenance [supportive periodontal therapy (SPT)]. In this masked, split-mouth design study, 30 treated chronic periodontitis subjects (mean age, 46.2 years; 13 males) in SPT were included. Two residual interdental sites with probing pocket depth (PPD) ≥ 5 mm in two opposite quadrants, with positive bleeding on probing (BOP) and comparable periodontal breakdown, were selected. PPD, BOP and subgingival microbiological samples for real-time PCR analysis (Carpegen® PerioDiagnostics, Carpegen GmbH, Münster, Germany) were recorded at baseline and 1 week after treatment. Scaling and root planing was performed under local anesthesia. Randomly one of the sites was selected to receive adjunctive photodynamic therapy by inserting a photosensitizer (toluidine blue O solution) and exposing it to a LED light in the red spectrum (Fotosan, CMS Dental, Copenhagen, Denmark), according to the manufacturer's instructions. After 1 week, 73 % of the control sites and 27 % of the test sites were still BOP+. These differences compared to baseline values and in-between groups were statistically significantly different ($p < 0.001$). Mean PPD decreased from 5.47 mm (±0.68) to 4.73 mm (±0.74, $p < 0.001$) in control sites and from 5.63 mm (±0.85) to 4.43 mm (±1.25, $p < 0.001$, test vs control $p = 0.01$) in the test group. Microbiologically, higher reductions of relative proportions of red complex bacteria were observed in test sites (68.1 vs. 4.1 %; $p = 0.01$). This study showed that adjunctive photodynamic treatment by LED light may enhance short-term clinical and microbiological outcome in periodontitis subjects in SPT.

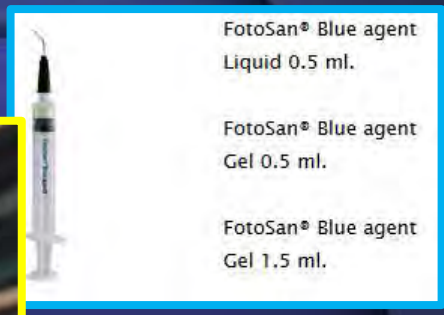
ProlacSan and FotoSan Therapy

- Technique
  - Ultrasonic scale and polish
  - Measure PPD
  - Apply FotoSan Blue Agent
  - Light Activate
  - Apply ProlacSan

ProlacSan and FotoSan Therapy

- Plaque culture
- Debris
- Measure
- Treat

ProlacSan and FotoSan Therapy



ProlacSan and FotoSan Therapy

- FotoSan
  - Light Activated Disinfection

ProlacSan and FotoSan Therapy

- ProlacSan
  - Lactobacilli brevis and plantarum, provided as gel and as tablets

Subgingival

Bacterial replacement therapy

Boost the bacterial shift to healthy ones by injecting the Prolacsan® Gel directly into all the treated pockets.

The gel contains Lactobacillus brevis and plantarum.

The chosen species have excellent abilities to aggregate and adhere to mucosa and tooth surfaces. This means that the probiotic species do not flush out of the pocket as a chemical would.

ProlacSan®

30 lozenges. Each tablet contains 1.2 x 10^{9} probiotics, a mix of Lactobacillus brevis and plantarum. Mint taste. Let the tablet melt in the mouth. Shelf-life 24 months.

Lactobacilli paracasei

pasteurized bacteria

BASF set to commercialize pro-t-action™ eliminating caries causing bacteria from the mouth

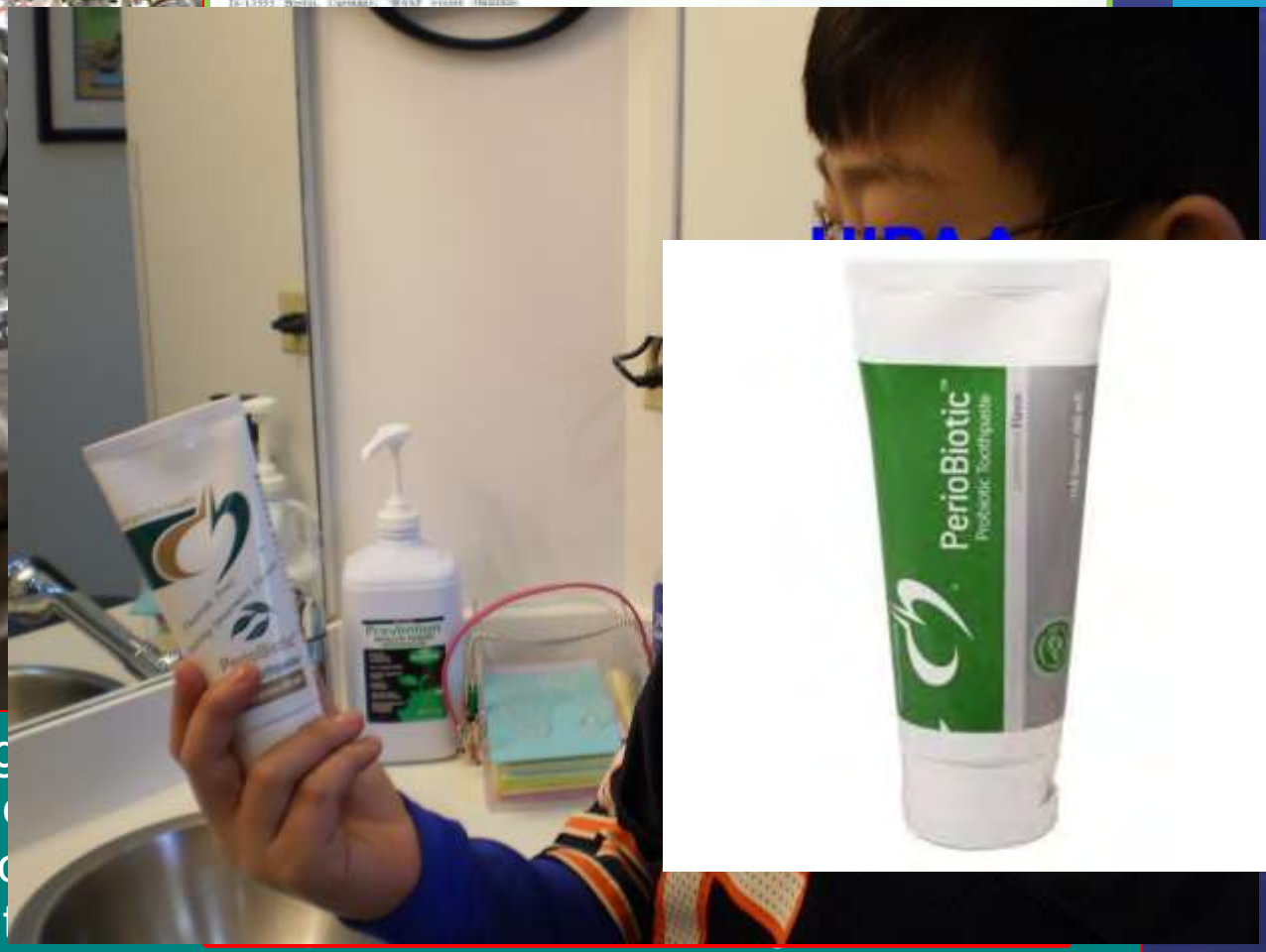
BASF
The Chemical Company

RESEARCH REPORTS
Biological

C. Lang*, M. Böttner, C. Holz, M. Veen, M. Ryser, A. Reindl, M. Pompejus, and J.M. Tanzer

Specific Lactobacillus/Mutans Streptococcus Co-aggregation

BASF
The Chemical Company



The active ing
active ingredi
During produc
elements, salt
used. The microorganisms are fermented, and stabilized, pasteurized and dried after harvesting. Like with all BASF products, comprehensive safety and toxicological testing have been conducted in full.

Probiotics? Some caution necessary!

Pediatrics

Lacto

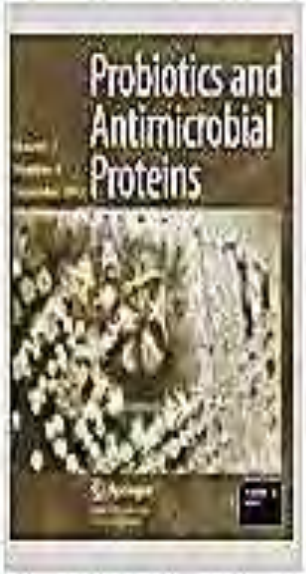
Land MH

Departme

Abstra

Probiotic
probiotic
and sep
samples
associat
as a rem

PROBIOTICS AND ANTIMICROBIAL PROTEINS
Volume 3, Number 2, 63-67, DOI: 10.1007/s12602-011-9072-9



A Review of Probiotic Therapy in Preventive Dental Practice

Mark L. Cannon

- What is changing? What needs to change? Requires understanding.

Pediatric Protocols

New Concepts in Preventive Care

Susan Hagen RDH
Lisa Lange- DA
Megan Weirich- DA
Associated Dental Specialists of Long Grove
Grove Medical Center, Long Grove, IL USA

Protocols

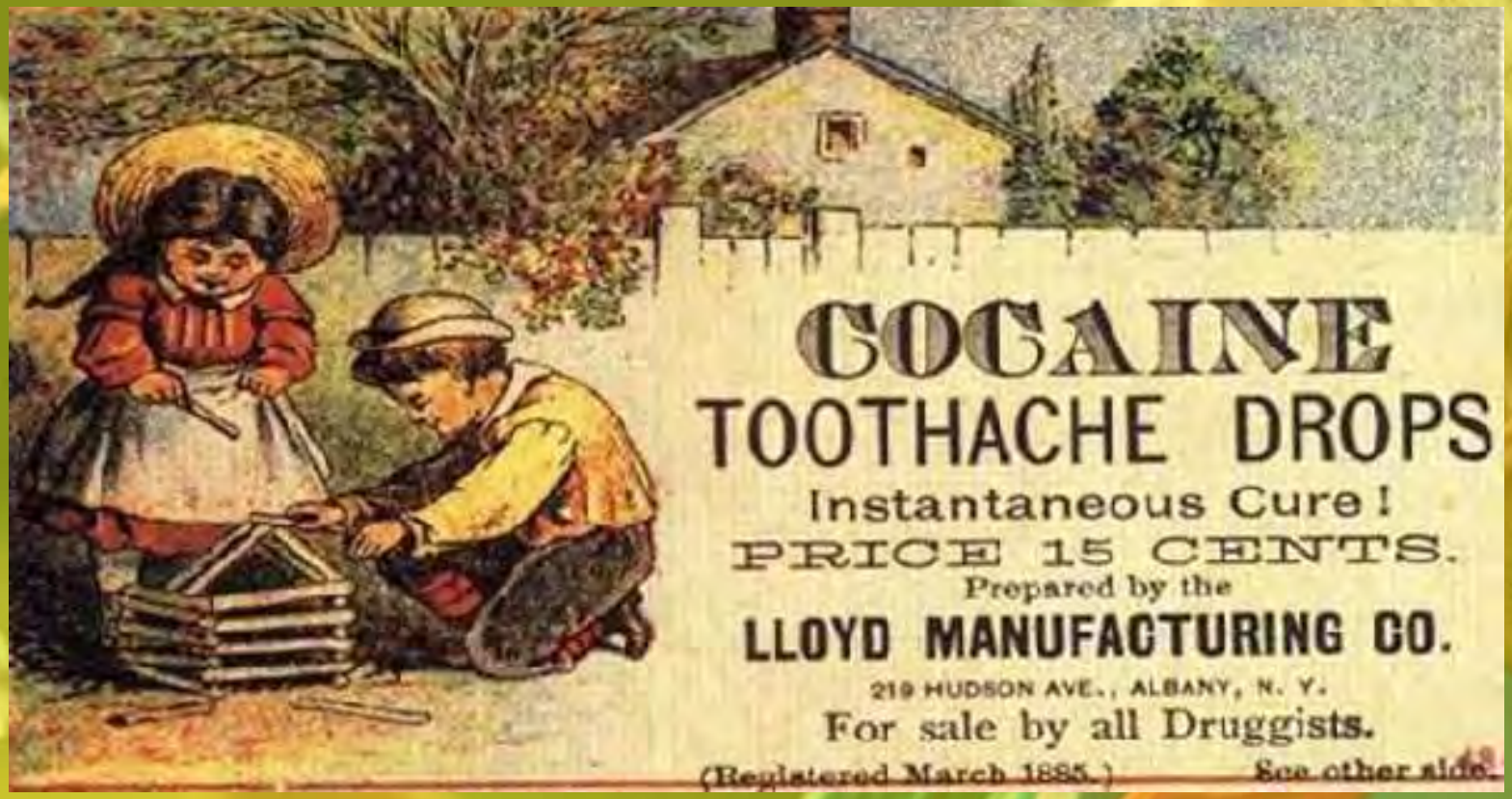
Standardize Care
Minimizes Mistakes
Increase Efficiency

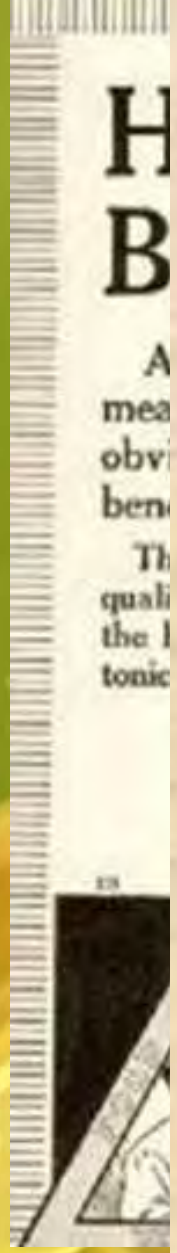
Education

Practitioner
Staff
Patients and Parents

Concepts

How things have changed!!!
Re-educate, that is the key.





How
Re-educate, that is

Family

Keith, Andrea, Christopher, Michelle and Ryan Cannon

Pediatric Dental Care Protocols

- Defined by:

Medical/Dental history

Infant Examination

All infants to three years of age.

Detailed medical history obtained prior to appointment. Maternal/child dental history obtained.

Parental questions and concerns are extremely important and must be considered at the beginning of each appointment.

Child exam and prophylaxis as able with MI fluoride varnish application.

Inform and encourage the use of xylitol products for child and caregiver.

Infant Oral Care

Pediatric Dental Care Protocols

- Treatment determined by Diagnosis and History
- Educate parent
- Parent education

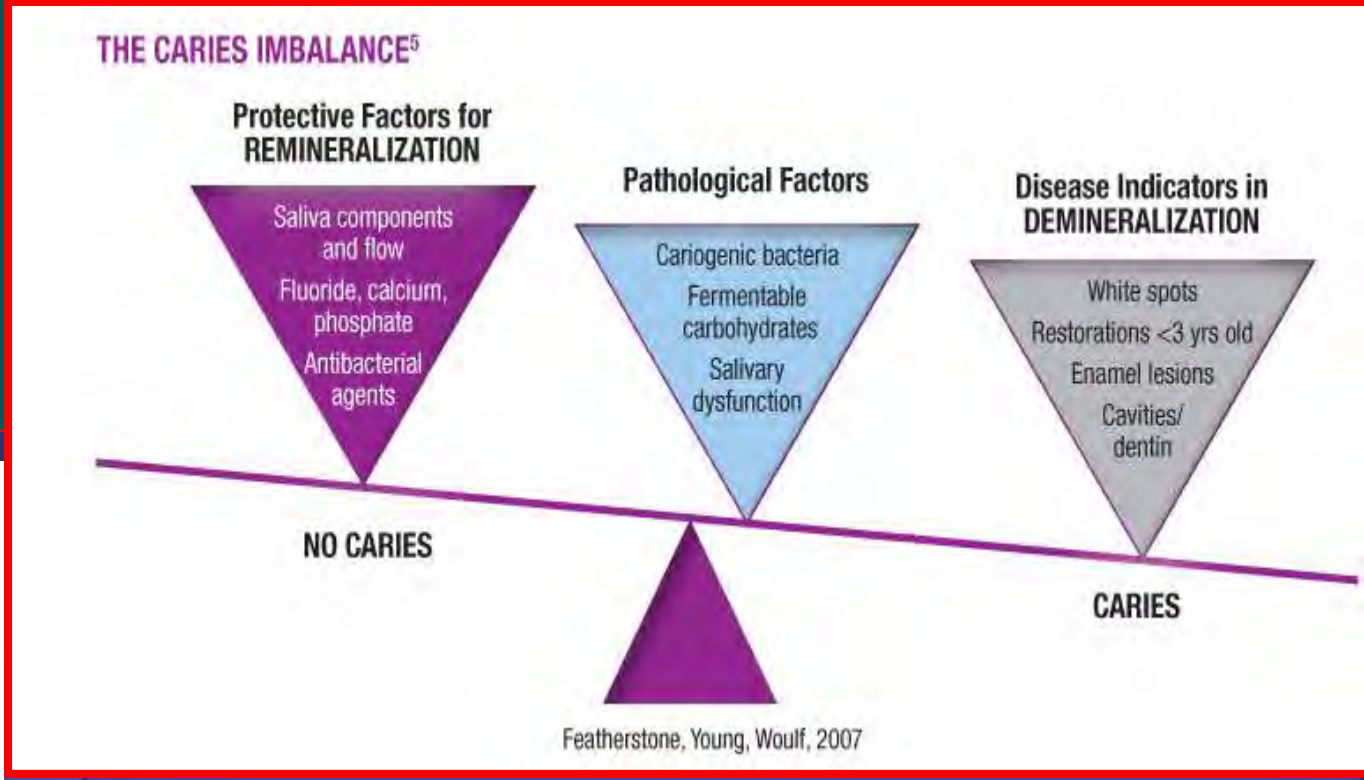
Give positive advice on diet, decay prevention, bottle use, and sucking habits.
Tooth brushing instructions given to parent/child.
Explain Importance of establishing dental home in case of trauma.
Regular recare visits stressed.
Preventive products given as needed—xylitol products, toothpaste, MIPaste, probiotic drops
Maternal intervention

Infant Oral Care

Pediatric Dental Care Protocols

- CAMBRA
  - Patient treated as an individual and according to need

CAries Management By Risk Assessment



Infant Oral Care

Pediatric Dental Care Protocols

- New Patient and Recare Evaluations

New Patient/Recare Examination Appointment

All new patients require an extensive evaluation and consultation. Whenever possible, new patients with known medical/dental issues should be scheduled on the doctor's schedule to increase patient contact especially in preventive

uld be available to present s plus provide insurance

allow for E-Reports.

Use New Technology

Patient Evaluation

RESULTS: Attentional deficits have been reported in up to 95% of OSA patients. In full syndromal ADHD, a high incidence (20% to 30%) of OSA has been shown. All 6 interventional studies reported improvements in behavior, inattention, and overall ADHD after treatment of OSA.

Is obstructive sleep apnea associated with ADHD?

Nagy A. Youssef, MD
Margaret Ege, MD
Sohair S. Angly, MD
Jennifer L. Strauss, PhD
Christine E. Marx, MD, MA

BACKGROUND: It has been suggested that obstructive sleep apnea (OSA) may result in symptoms similar to those experienced in attention-deficit/hyperactivity disorder (ADHD). Because this may have important public health implications, we reviewed the literature regarding this association, with a focus on interventional studies examining the effect of OSA treatment on change in ADHD symptoms.

Patient Evaluation

Pediatric Dental Care Protocols

- Facial exam
  - Do they look and function normally?
  - Allergies- Morgan Dennie Lines and venous pooling

apnea- p

Patient Evaluation

Pediatric Dental Care Proto

Obstructive Sleep

Sleep Medicine Center

The Sleep Medicine Center at Lurie Children's is the only comprehensive sleep center in Illinois dedicated solely to children. The center provides clinical evaluation, diagnosis and management of children with all forms of sleep disorders. Sleep disorders treated by our staff include sleep-disordered breathing, sleep apnea, nightmares, insomnia, parasomnias, narcolepsy and circadian rhythm disorders. Since its opening in 1995, the sleep specialists have seen more than 5,000 patients, and more than 14,000 patient studies have been conducted.

posterior crossbites

- Maxillary hypoplasia

Our Specialists

The center is directed by Stephen H. Sheldon, DO. Dr. Sheldon is board-certified in both pediatrics and sleep disorders medicine. He has served as a member of the board of directors and was Secretary/Treasurer of the American Academy of Sleep Medicine. He has been a faculty member of the National Sleep Medicine Course (sponsored by the AASM) and is course director of the Advanced Pediatric Sleep Medicine Program of the Atlanta School of Sleep Medicine, Northside Hospital, Atlanta, Georgia.

Darius A. Loghmanee, MD, board-certified in internal medicine, pediatrics and sleep disorders medicine. Since 2008, Dr. Loghmanee has treated patients at Lurie Children's with sleep-disordered breathing, insomnia, parasomnias, narcolepsy, circadian rhythm disorders and other conditions in the spectrum of sleep disorders.

Pediatric Dental Care Protocols

- Wilson Quadhelix for maxillary arch development
- Expand both anterior and posterior segments

Pediatric Dental Care Protocols

- Post operative view with upper arch expansion evident
- Note molar bands and no snoring/sleep issues

Pediatric Dental Care Protocols

- Four year old girl with anterior crossbite and prognathic profile
- Patient bites edge to edge and slides anteriorly
- Parents concerned about profile
- No family history of Class III relationships
- OSA!! Sleep Study

Pediatric Dental Care Protocols

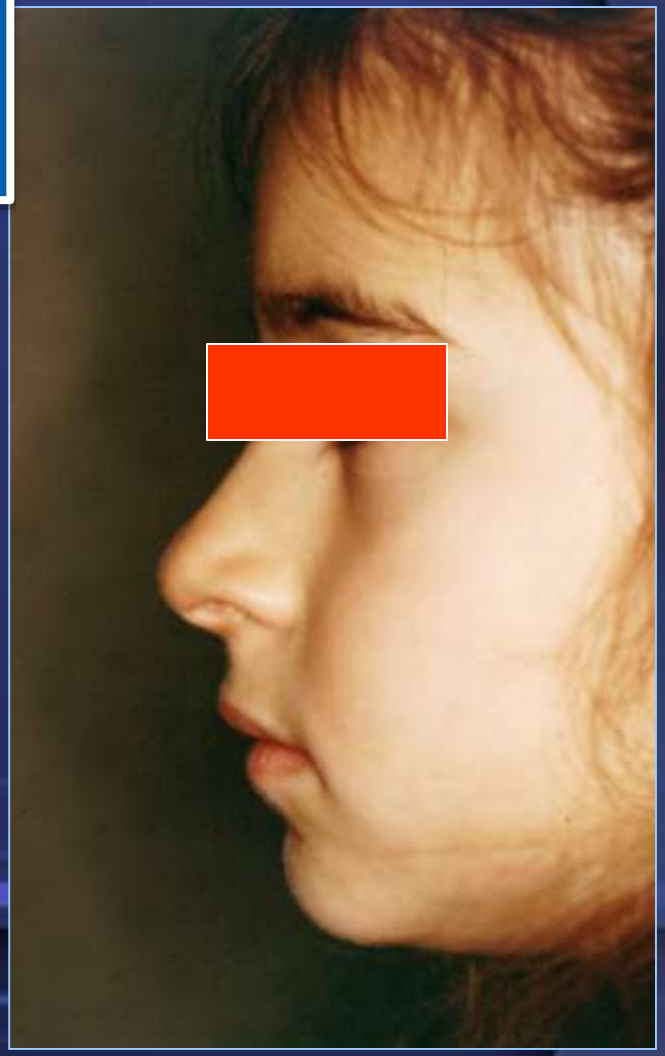
- Frontal view in full occlusion- pre-operative photo
- Sleep apnea reported- snoring/ sleep issues
- Wilson Quadhelix cemented and crossbite corrected

Pediatric Dental Care Protocols

- Child no longer appears prognathic and crossbite corrected, mother quite happy no snoring/OSA

Pediatric Dental Care Protocols

Anterior crossbite with retrognathic profile
Treated with Wilson Quadhelix appliance
Snoring with sleep apnea episodes- ENT “normal”



Pediatric Dental Care Protocols

- Anterior crossbite corrected
- Molars bands left on for one year post treatment
- A
no
- N

J Clin Sleep Med. Oct 15, 2012; 8(5): 473–476.
Published online Oct 15, 2012. doi: 10.5664/jcsm.2132
PMCID: PMC3459190

PRO: "Not Just Little Adults": AASM Should Require Pediatric Accreditation for Integrated Sleep Medicine Programs Serving Both Children (0-16 years) and Adults

Judith Owens, M.D., M.P.H., F.A.A.S.M.,[1] Sanjeev Kothare, M.D., F.A.A.S.M.,[2] and Stephen Sheldon, D.O., F.A.A.S.M.[3]

Pediatric Dental Care Protocols

- Cariscreen from Oral Biotech

Cariscreen- sample of plaque swabbed from two teeth of patient. Parents are instructed prior to appointment regarding food and drink restriction or brushing within an hour previous to testing. They should not be taking antibiotics for the test to be accurate. The test takes the least time, very reliable. 60 seconds to equilibrate, 15 seconds to run plaque sample.

Patient Evaluation

Pediatric Dental Care Protocols

- Saliva check mutans
- GC America

Saliva check mutans- sample of saliva collected by chewing wax, specific only for *Streptococcus mutans*, uses antibody/antigen specificity, not as universal as it does not test for all pathogens, 15-20 minutes for test and results.

Patient Evaluation

- C
  T
- D

Pediatric Dental Care P

- Ir
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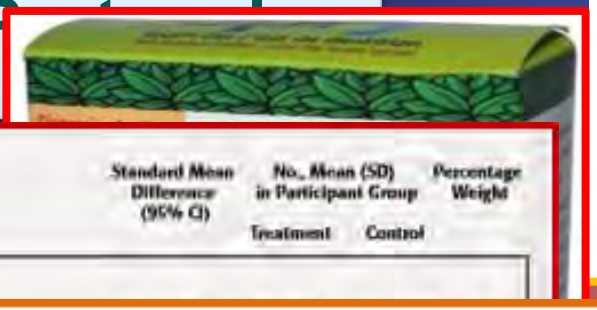


Study Involving Children at High Risk of Experiencing Caries

	Standard Mean Difference (95% CI)	No., Mean (SD) in Participant Group: Treatment	No., Mean (SD) in Participant Group: Control	Percentage Weight
Toothpaste Fluoride Content > 1,450 ppm				

Study Involving Children at Normal Risk of Experiencing Caries

	Standard Mean Difference (95% CI)	No., Mean (SD) in Participant Group: Treatment	No., Mean (SD) in Participant Group: Control
Davies and colleagues[13] (1,450 ppm)	−0.14 (−0.21 to −0.06)	1,186, 2.15 (2.96)	1,368, 2.57 (3.16)
Davies and colleagues[13] (440 ppm)	−0.03 (−0.10 to 0.05)	1,176, 2.49 (3.16)	1,368, 2.57 (3.16)

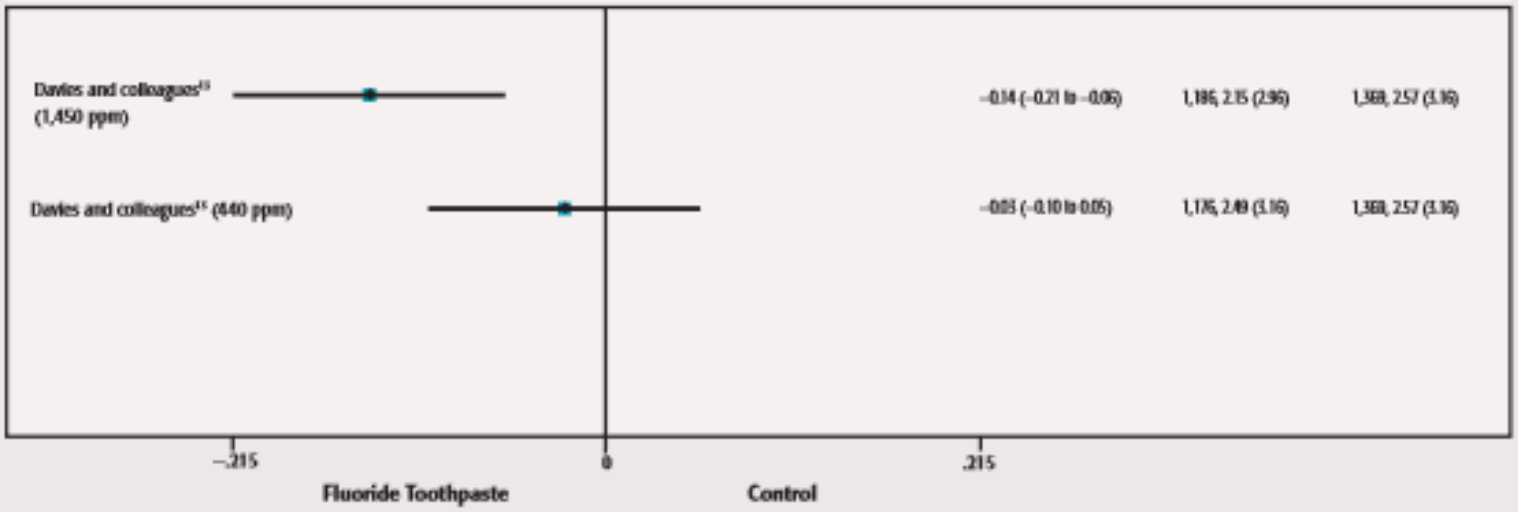


Figure 3. The effect of brushing with fluoride toothpastes (1,450 parts per million fluoride and 450 ppm fluoride) on caries (decayed, missing and filled primary teeth) in children younger than 6 years who are not at high risk of developing caries. CI: Confidence interval. SD: Standard deviation.

young.

J. Timot
Helen R
Camero

Preventive Care

Dental Products: Brushes and Flossies

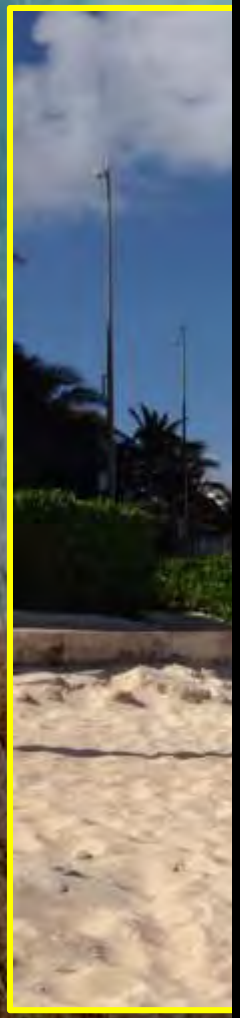
- Soft bristle toothbrushes with rounded head and easy grips are best for

Little patients- easier to ipulate

Dental Products: Floss

- Some will tolerate flossing well by using floss holders, such as, “Flossies”.
- Floss holders with large handles are easier to use
- Care must be taken not to “saw” back and forth
with the floss.

Xylitol- Part of your palette!

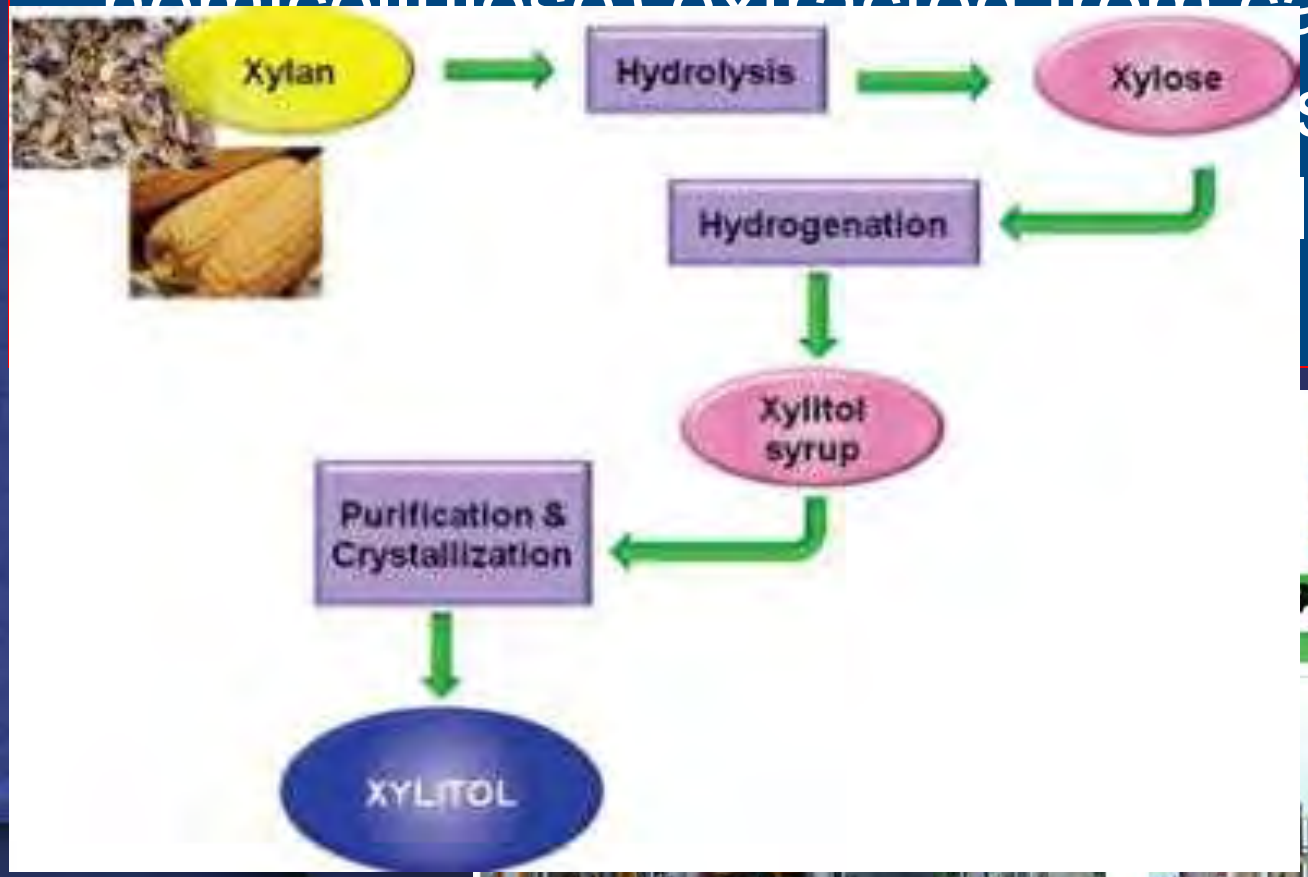


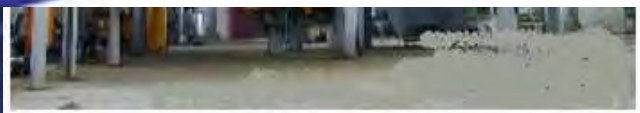
Xylitol- 5 carbon chain

lon (woo
alcohol). Xylitol is
many fruits and v
be extracted from
oats, and mushro
fibrous material s
and sugar cane b

Xylitol- from xylose

- Production starts from xylan (a hemicellulose) extracted from cane,
s
lytically





Xylitol- research

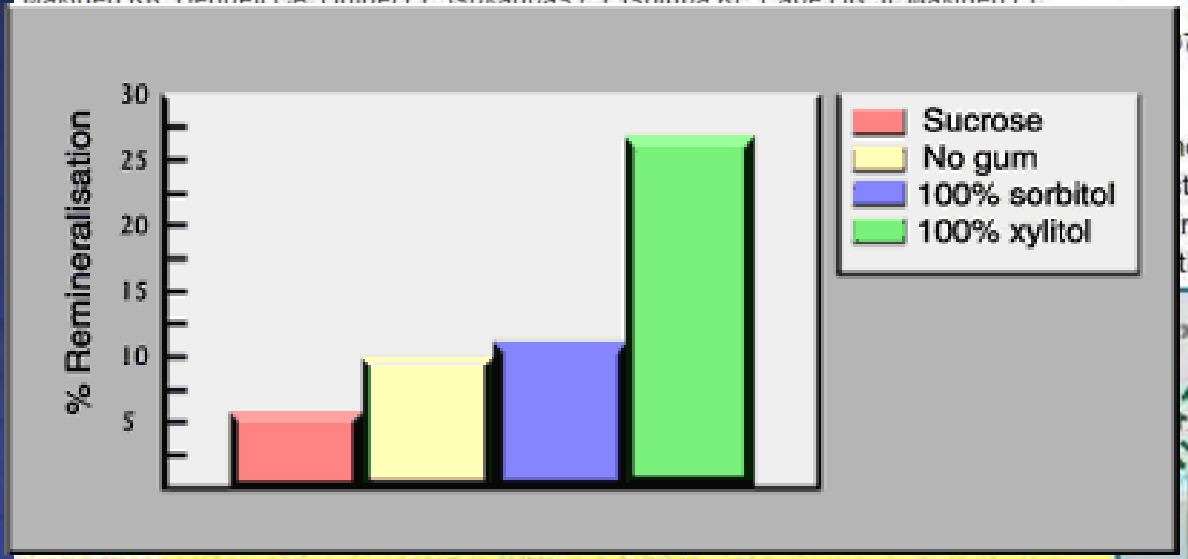
J Dent Res. 1995 Dec;74(12):1904-13.

Xylitol chewing gums and caries rates: a 40-month cohort study.

Mäkinen KK, Bennett CA, Hujoel PP, Isokangas PJ, Isotupa KP, Pape HR, Jr, Mäkinen PL

Belize Study

78 USA.



es considerable health care resources. The chewing of
tudy has simultaneously investigated the effectiveness
nd cohort study on the relationship between the use of
thousand two hundred and seventy-seven subjects

0.27; 95% confidence interval, 0.20 to 0.36; p = 0.0001). This gum was superior to any
effective than xylitol, but they reduced caries rates significantly compared with the no-gu
conclusions. The results suggest that systematic usage of polyol-based chewing gums
being more effective than sorbitol gums.

Xylitol- research

Caries Res. 1996;30(6):408-17.

Polyol chewing gums and caries rates in primary dentition: a 24-month cohort study.

Mäkinen KK, Hujoel PP, Bennett CA, Isotupa KP, Mäkinen PL, Allen P.

Department of Biologic and Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor, USA.

school program

Abstract

The effect of 2-year chewing-gum use on the caries rates of primary teeth was studied in a combined school and home program in a sample of 510 initially 6-year-old subjects with high caries experience, low availability of fluoride, and difficult access to dental care. The gum, formed into either sticks or pellets, comprised either xylitol, sorbitol, or mixtures thereof. The gum was chewed for 5 min under supervision five times a day during the school year, and for [illegible] times during non-school days. Seven groups were studied. One group received no gum; two xylitol gum groups received either pellet or stick gum [illegible] response variable was the development of [illegible] those surfaces of primary teeth that were not cavitated at baseline. Caries rates associated with the use of each of the gum types were compared to the caries rates in the no-gum group. The usage of all polyol gums resulted in a significant decrease of the caries onset rate ($p < 0.05$). The caries onset risk for a primary surface in the xylitol pellet and the sorbitol pellet groups was 35 and 44% of that in the no-gum group (relative risk, 0.35; 95% confidence interval, 0.21-0.59; relative risk, 0.44; 95% confidence interval, 0.30-0.63, respectively). The caries onset risk in the xylitol stick gum group was 53% of that in the no-gum group (relative risk, 0.53; 95% confidence interval, 0.39-0.72), which was marginally ($p = 0.1520$) lower than in the sorbitol stick gum group (relative risk, 0.70; 95% confidence interval, 0.52-0.94). The usage of both xylitol/sorbitol mixtures in pellet form was associated with a caries onset rate comparable with the usage of the xylitol stick gum. The largest caries risk reduction was observed in the group receiving xylitol pellet gum.

Xylitol better than Sorbitol

Xylitol- research

J Dent Res. 2000 Mar;79(3):882-7.

Influence of maternal xylitol consumption on acquisition of mutans streptococci by infants.

Söderling E, Isokangas P, Pienihäkkinen K, Tenovuo J.

Institute of Dentistry, University of Turku, Finland. eva.soderling@utu.fi

classic 2000

Abstract

Xylitol is effective as a non-cariogenic sugar substitute. Habitual xylitol consumption appears to select for mutans streptococci (MS) with impaired adhesion properties, i.e., they shed easily to saliva from plaque. One hundred sixty-nine mother-child pairs participated in a two-year study exploring whether the mothers' xylitol consumption could be used to prevent mother-child transmission of mutans streptococci. All mothers showed high salivary levels of mutans streptococci during pregnancy. The mothers in the xylitol group (n = 106) were requested to chew xylitol-sweetened gum (65% w/w) at least 2 or 3 times a day, starting three months after delivery. In the two control groups, the mothers received either chlorhexidine (n = 30) or fluoride [illegible] 12, [illegible] or [illegible] varnish [illegible] MS were assessed from the mothers' [illegible] two-year [illegible] examinations. The [illegible] were cultured on Mitis salivarius agars containing bacitracin. The salivary MS levels of the mothers remained high and not significantly different among the three study groups throughout the study. At two years of age, 9.7% of the children in the xylitol, 28.6% in the chlorhexidine, and 48.5% in the fluoride varnish group showed a detectable level of MS. In conclusion, [illegible] consumption by mothers was associated with a statistically significant reduction of the probability of mother-child transmission of MS [illegible] two years of age. The effect was superior to that obtained with either chlorhexidine or fluoride varnish treatments performed as single applications at six-month intervals.

Xylitol better than F and CHX

Xylitol- research

Reduces MS but not probiotics

Eur J Dent. 2011 Jan;5(1):24-31.

The effect of xylitol on the composition of the oral flora: a pilot study.

2011

Söderling E, Hirvonen A, Karjalainen S, Fontana M, Catt D, Seppä L.

Adjunct Professor, Institute of Dentistry, University of Turku, Finland. eva.soderling@utu.fi

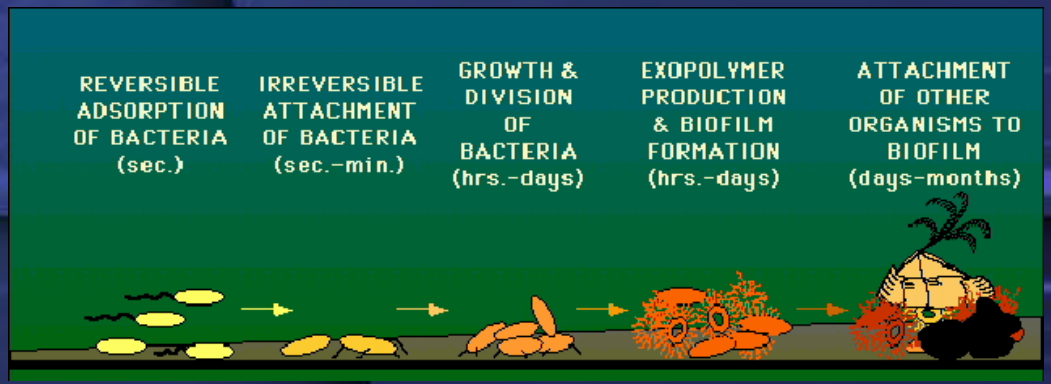
Abstract

OBJECTIVES: Our aim was to investigate the effect of short-term xylitol consumption on the microbial composition of plaque and saliva.

METHODS: Twelve volunteers (22-38 yrs) harboring mutans streptococci (MS) participated in the randomized, double-blind, cross-over study. The experimental chewing gum contained 65% xylitol while the control gum contained 63% sorbitol and 2% maltitol w/w. The polyol dose was approximately 6 g/day. Stimulated saliva and plaque samples were collected before and after the two four-week test periods. The samples were cultured for MS, total streptococci, lactobacilli, and total facultatives. A part of the samples were subjected to DNA-DNA hybridizations of 14 microbial plaque species: Actinomyces naeslundii, A. viscosus, Fusobacterium nucleatum, Lactobacillus acidophilus, L. fermentum, L. paracasei, L. rhamnose, L. plantarum, Streptococcus gordonii, S. oralis, S. parasanguis, S. salivarius, S. sanguinis, Veillonella parvula.

RESULTS: The MS counts of the plaque samples collected from "caries-prone" tooth sites decreased significantly (P<.01) in the xylitol gum group but not in the sorbitol gum group. Also the plaque MS percentage decreased significantly in the xylitol gum group (P<.01). The salivary MS counts did not decrease either in the xylitol or in the sorbitol gum groups. Nor were changes detected in the salivary levels of total streptococci or lactobacilli. The DNA-DNA hybridization assay revealed no study-induced changes in the microbial composition of the dental plaque.

CONCLUSIONS: Within the limitations of this pilot study, xylitol consumption reduced MS counts in plaque but appeared not to affect the microbial composition of plaque or saliva in general.



Xylitol- research

Acta Odontol Scand. 2004 Oct;62(5):245-50.

Salivary mutans streptococci and dental caries in three-year-old children after maternal exposure to chewing gums containing combinations of xylitol, sorbitol, chlorhexidine, and fluoride.

Thorild I, Lindau B, Twetman S.

Public Dental Clinic, Varberg, Sweden.

How Risk kids ? ms levels

Ris

Pr

TANSTAAFL

Xylitol- research

Oral Microbiol Immunol. 2002 Apr;17(2):95-9.

Cariogenic traits in xylitol-resistant and xylitol-sensitive mutans streptococci.

not good

Assev S, Stig S, Scheie AA.

Xylitol resistant MS

Abstract

Long-term xylitol consumption leads to the emerg
cariogenic traits in X-R and xylitol-sensitive (X-S) s
resistance and sensitivity were confirmed by grow
initiated by adding (14)C-labelled glucose, fructos
the major metabolite from glucose, whether the ba
unit was lower in X-S cells than in X-R cells. Fruct
xylitol-5-P was detected in X-S cells only. Total po
[U(14)-C]-sucrose. No difference in polysacchariden
contention that X-R are less cariogenic than X-S n

o compare
ed. Xylitol
f xylitol was
. Lactate was
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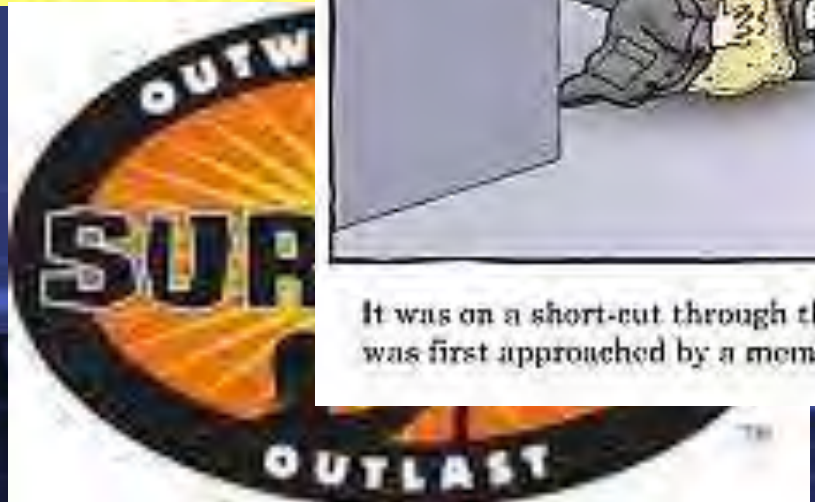
It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.



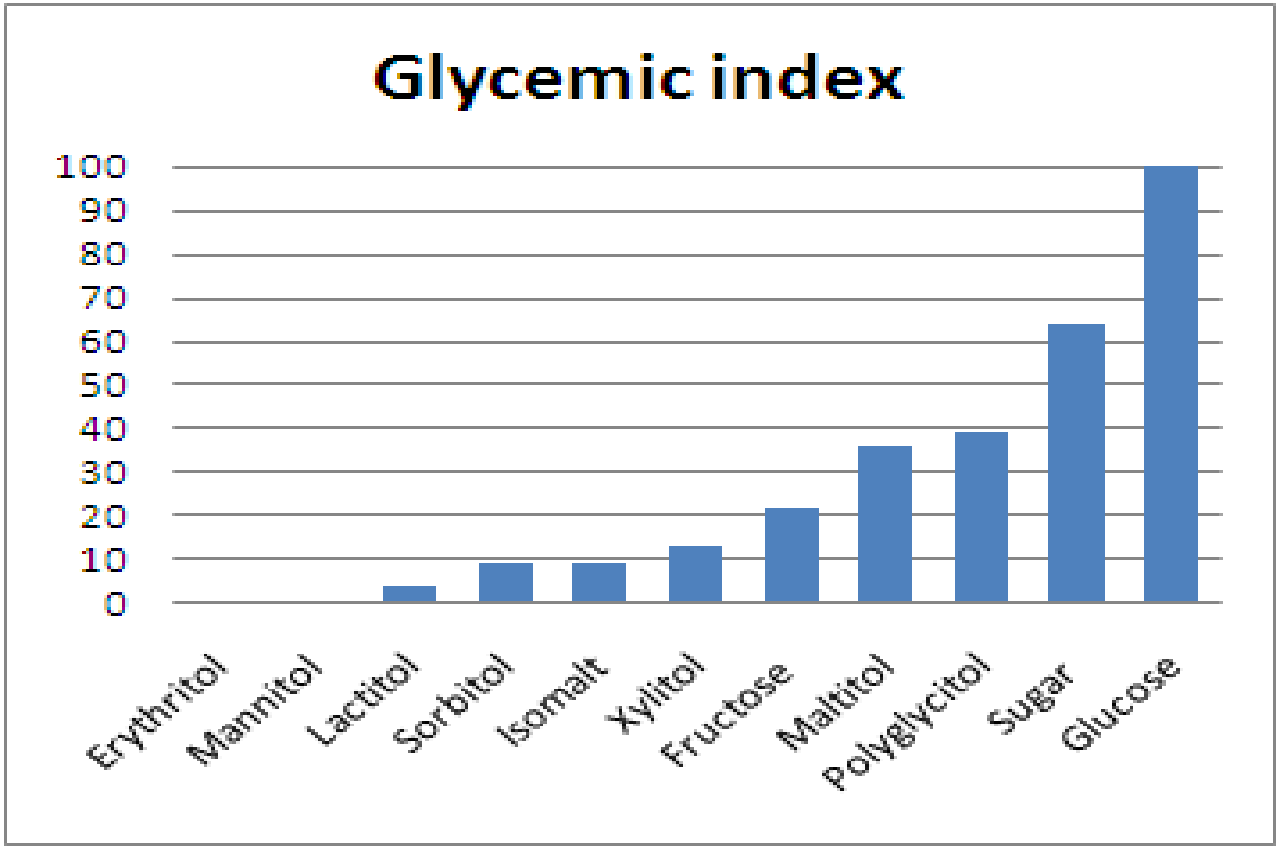
Xylitol- sugar substitute

- The roles of xylitol in maintaining dental health:

- Inhibits the growth of cariogenic bacteria
- Inhibits the formation of dental caries
- Inhibits the growth of plaque
- Suppresses the acidity of plaque
- Accelerates enamel re-mineralization
- Is not an ideal substrate for bacterial growth because of its difficult-to-ferment nature

Xylitol- sugar substitute

- Low glycemic index- safe for diabetics
- Reduces sinus and ear infections



Pediatric Dental Care Protocols

- Diabetes
- Type 1 and 2

Diabetes

Meticulous home care

Explain oral/systemic relationship

Periobiotic or Spry toothpaste, oral probiotics, Prevention or Spry mouth rinse for gingival health as necessary

Xylitol sweetener- Xylosweet

More frequent dental recare visits

Xylitol products

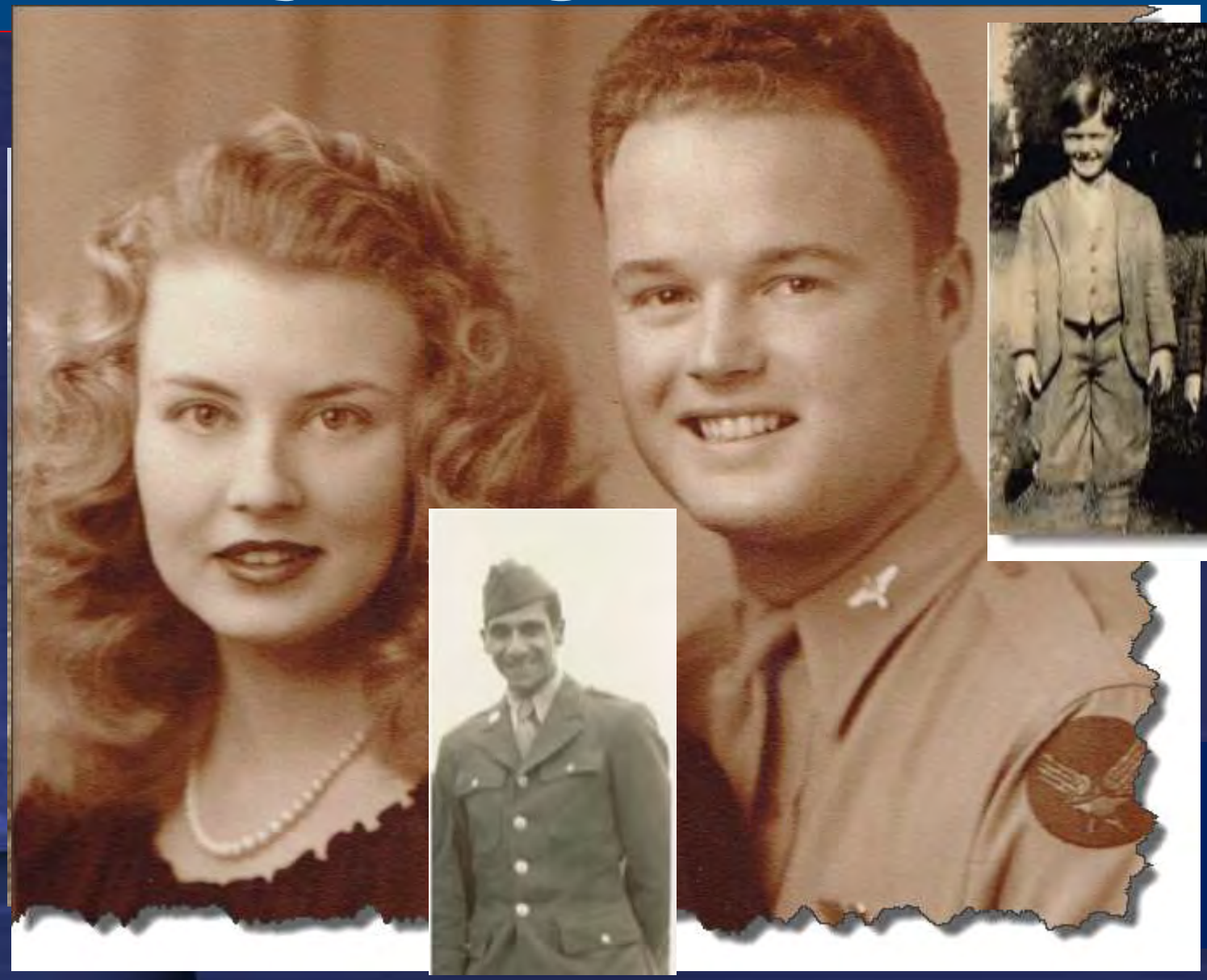
- Xlear (Clear)
- Established 2000 to launch the company's first commercially available product, Xlear® Nasal Spray.

Dr. Alonzo H. Jones, D.O., a family physician in west Texas, now retired, was trying to find a solution for the people coming to see him for upper respiratory issues. He studied the research pointing to the benefits of xylitol for improving oral health and its effects on bacteria. He noted that upper respiratory problems had been steadily increasing since the early 1970s, owing to environmental factors that included poorly conceived drug therapy and growing antibiotic resistance..

Xylitol products

- Xlear (Clear)

MRE- xylitol gum- G.I. issue



Eat

food

MRE- xylitol gum- G.I. issue

Army Developing Anti-Plaque Chewing Gum

By Steven Galvan, U.S. Army Institute Of Surgical Research Public Affairs and Steve Elliott, JBSA-Fort Sam Houston Public Affairs

A study funded by the U.S. Army Medical Research and Materiel Command is the first of its kind to use a pharmaceutical-grade, anti-plaque chewing gum for humans to test the feasibility of delivering a drug through chewing gum.

The compound, developed by the Dental and Trauma Research Detachment at the U.S. Army Institute of Surgical Research at Joint Base San Antonio-Fort Sam Houston, is known as KSL-W. It is a novel anti-microbial peptide that kills bacteria and is designed to prevent the development of dental plaque and may reduce periodontal disease and cavities.

"The initial gum formulation was done with the School of Pharmacy at the University of Kentucky, in collaboration with Dr. Patrick DeLuca (Professor Emeritus)," said Dr. Kia Leung of the USAISR DTRD. "It took three years to characterize the formulation of the gum, the release and stability profiles of the peptide.

"Our oral cavity produces antimicrobial peptides as part of our innate defense," Lueng said. "We modeled the naturally occurring antimicrobial peptides such as defensins and developed several synthetic peptides [that] exhibited similar or more potent antimicrobial activity. The pharmaceutical active, KSL-W peptide, is one of the more potent molecules showing stability in the oral cavity."

The Army is currently testing a new type of pharmaceutical-grade, anti-plaque chewing gum developed by the Dental and Trauma Research Detachment at the U.S. Army Institute of Surgical Research. The gum is designed to decrease dental plaque, reduce periodontal disease and prevent cavities. (Photo by Tim Centers)

Pediatric Dental Care Protocols

- Preventive Care Protocols

Maternal

Discuss with mother xy and why, encourage use.

Give copy of maternal tection from decay research article. Ask r pediatrician. Explain probiotic use to mother Klaire Lab products, and oral probiotics, suc PerioBalance.

Twice yearly dental visi elves and good home care practices.

Pediatric Dental Care Protocols

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Pediatric Dental Care Protocols

- Special Needs Patients- oral hygiene impaired

Special Needs Disabled
Care giver home care instructions given. Power toothbrush should recommended if patient can tolerate.
Non fluoridated xylitol toothpaste, xylitol mouth spray, xylitol chewable candy to aid in caries prevention when swallowing or ability to spit are an issue **ESPECIALLY WITH INSTITUTIONALIZED PATIENTS**

Preventive Care

Pediatric Dental Care Protocols

- Special Needs Patients
- HOME CARE

Special Needs Disabled

PerioBiotic or Spry toothpaste to help gingival health. NO FLUORIDE. Will be swallowed!

MIPaste for enamel defects. Spry Floss

Explain relationship between enamel defects and apthous ulcers and celiac disease.

Powder, liquid or chewable probiotics as needed.

May need 3-4 month recare appointments.

Fluoride varnish when indicated.

Preventive Care

Pediatric Dental Care Protocols

- Preventive Care Protocols

Pediatric Dental Care Protocols

- ONCOLOGY oral mucositis

Oncology

Extra soft toothbrush recommended, brush as able.

Prevention Oncology or Spry mouth rinse to sooth and for gingival health.

Oral probiotic use, PerioBalance to restore bacterial flora and to reduce inflammation.

PerioBiotic or Spry Xylitol with Aloe toothpaste to sooth, gentle on gingival tissue.

Xylitol sweetened and non SLS toothpaste recommended.

Dental recare visits as necessary or advised per physician.

Lactobacillus brevis CD2 lozenges depending on severity of mucositis and tolerance to chemo-radiotherapy.

Preventive Care

Dental Products: Probiotic Supplements

Ann & Robert H. Lurie Children's Hospital of Chicago
Formerly Children's Memorial Hospital

- Lactobacillus brevis CD2
  - Apthous ulcers
  - Ulcers post radiation and chemotherapy

Clinical Study

Use of Lozenges Containing *Lactobacillus brevis*
CD2
Plac

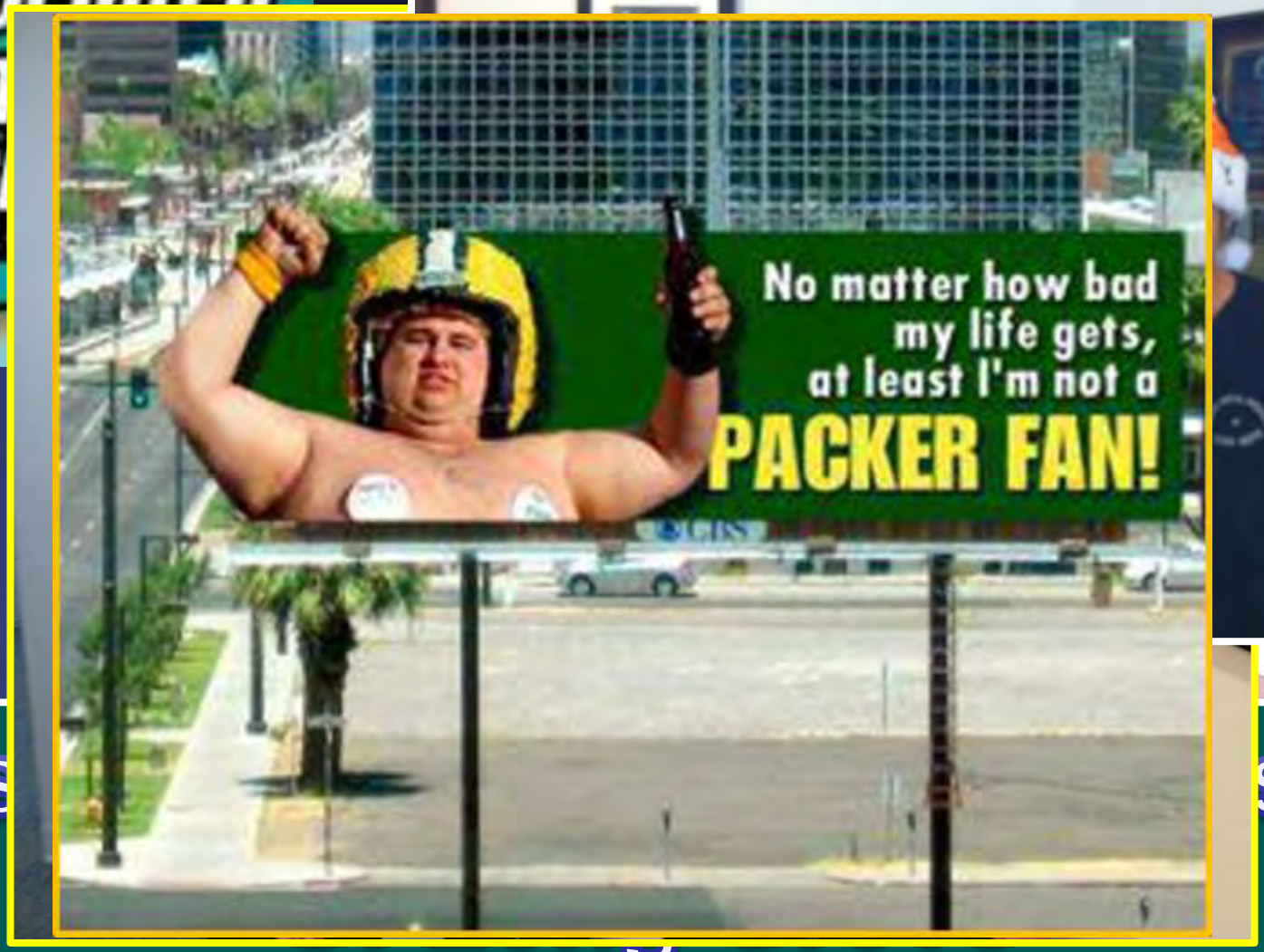
Lactobacillus brevis CD2 lozenges reduce radiation- and chemotherapy-induced mucositis in patients with head and neck cancer: A randomized double-blind placebo-controlled study☆☆☆

Atul Sharma, G.K. Rath, S.P. Chaudhary, Alok Thakar, Bidhu Kalyan Mohanti, Sudhir Bahadur

Published Online: July 08, 2011

Pediatric Dental Care Protocols

Preventive Care



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