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
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.
Pediatric Dental Care Protocols

- Preventive Care Protocols

Socio emotional Patients

Patient and caregiver home care instructions given.

Spry Xylitol with fluoride toothpaste and Spry Floss Xylitol candies, rinse or gum to aid in reduction of xerostomia - medication induced.

TMJ - TMD (Migraines) - bruxism
Pediatric Dental Care Protocols

- TMD- FDA Approved Treatment
- Tens, transcutaneous electronic neurostimulation
- Botox
Pediatric Dental Care Protocols

- TMD- FDA Approved Treatment
- Tens, transcutaneous electronic neurostimulation
- Botox
Pediatric Dental Care Protocols

- **TMD- FDA Approved Treatment**
- **Botox**
  - Had many occlusal guards and orthotics
  - Relief with TENS but didn’t want to use “forever”
• TMD- FDA Approved Treatment
• Botox
  – Use washable pens
  – Mark out injections
  – 5 units each
  – Inject next to mark
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
**ONCOLOGY**

**oral mucositis**

---

**Oncology**

Extra soft toothbrush recommended, brush as able. Prevention Oncology or Spry mouth rinse to soothe and for gingival health.

Oral probiotic use, PerioBalance to restore bacterial flora and to reduce inflammation. PerioBiotic or Spry Xylitol with Aloe toothpaste to soothe, 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 chemoradiotherapy.
Pediatric Dental Care Protocols

• Recurrent Aphthous Ulcers

Aphthous Ulcer
Laser oblated
Lactobacilli brevis CD2 lozenges
Lactobacilli reuteri Sunstar Butler PerioBalance probiotic lozenge
Streptococcus salivarius K12 BLIS gum or lozenge
Cervitec Plus chlorhexidine varnish
Canker Cover- Quantum Health
OraPatch- AloeCeuticals
Apthasol 5% (only FDA approved treatment?)
Amlexanox is used as a paste in the mouth to treat aphthous ulcers (canker sores) amlexanox is available only with prescription. Also available as OraDisk A and B. Trinolone Paste
No matter how bad my life gets, at least I'm not a PACKER FAN!
Practice Management Concepts

• Staff is greatest asset
  • (After the Doc!)

• Lead by example

• Expect a lot and empower even more!
Practice Management Concepts

- Embezzlement! – a huge problem in Dentistry!

“Look at the bright side... maybe business is really good, but the money is being embezzled.”
Practice Management Concepts

- Hire the person - not the job!
- Find and recruit honest hard working pleasant people with a strong moral core.
- Do not keep hustlers and those that abuse insurance, public aid, or commit other fraud.
Probiotics - Antagonism and Inhibition

Ongoing Research

Working in the "probiotic"?

What causes gluten Sensitivity??

Is it an ORAL disease?????
What is the dough doing while it is “resting”
Gluten sensitivity epidemic

The two "celiac disease genes" – HLA-DQ2 and HLA-DQ8 (HLA stands for "human leukocyte antigen") – appear in about 35% to 40% of the U.S. population, most commonly among those with European ancestors. But only about 1% to 4% of those with the "celiac disease genes" will ever be diagnosed with celiac disease, which affects about one in 100 people overall.
Gluten sensitivity epidemic

2. Hybridized grains

3. Microflora changes
Gluten sensitivity epidemic

1746 Isolation of Gluten-degrading Enzyme(s) from Oral Bacteria

Friday, March 22, 2013: 10:45 a.m. - 12:15 p.m.
Location: Room 614 (Washington State Convention Center)
Presentation Type: Oral Session
G. WEI, N. TIAN, F.G. OPPENHEIM, and E.J. HELMERHORST, Dept. of Periodontology & Oral Biol, Boston University, Boston, MA

2266 Human Oral Bacterial Enzymes: Novel Therapeutic Perspectives for Celiac Disease

Friday, March 22, 2013: 3:30 p.m. - 4:45 p.m.
Location: Room 614 (Washington State Convention Center)
Presentation Type: Poster Discussion Session
N. TIAN¹, G. WEI¹, D. SCHUPPAN², F.G. OPPENHEIM¹, and E.J. HELMERHORST¹, ¹Dept. of Periodontology & Oral Biol, Boston University, Boston, MA, ²Beth Israel Deaconess Medical Center, Boston, MA
3. Microflora changes

What causes oral microflora changes?
Objectives: The search for therapies for celiac disease includes investigations into luminal enzymes capable of cleaving gluten into fragments that are unable to elicit inflammatory immune responses. We recently provided evidence that the oral cavity, representing the port of entry to the gastro-intestinal tract, harbors gluten-degrading microorganisms. The goal of this study was to conduct a comprehensive screening of human dental plaque and saliva samples to isolate and identify novel resident gluten/gliadin-degrading bacteria.
**Results:** The culturing strategy yielded 87 aerobic and 63 anaerobic strains. Twenty one aerobic strains representing seven oral species showed activity in at least two of the four assays with two species being active in all four assays.

**Conclusions:** New gluten-degrading microorganisms were identified that naturally colonize the upper gastro-intestinal tract. A cocktail of the most active oral bacteria, or their isolated enzymes, may offer promising new treatment modalities for celiac disease.
The purpose of this study was to determine if there is any inhibition of beneficial oral biofilm species such as Rothia aeria, R. mucilaginosa and R. dentocariosa, Streptococcus mutans (pathogen-negative control) and also Lactobacillus reuteri strains (isolated from PERIO Probiotic) by over-the-counter (OTC) oral anti-microbials utilizing in vitro laboratory technique. The secondary objective was to determine the antagonism, if any, of the Rothia genus by Streptococcus species (mutans and salivarius) and known pathogens. Rothia aeria and mucilaginosa are believed to be important in the processing of gluten.
## Probiotics - Antagonism and Inhibition

Rothia inhibition and antagonism

### TABLE 1a. Susceptibility Experiment: The Effect of Over the counter Oral Hygiene Products on Oral Bacteria

<table>
<thead>
<tr>
<th>Reagent</th>
<th>Rothia Aeria on blood agar</th>
<th><em>R. dentocariosa</em> on blood agar</th>
<th><em>R. mucilaginosa</em> on blood agar</th>
<th><em>R. mucilaginosa</em> on Brucella</th>
<th>PERIO probiotic (Lactobacillus) on blood agar</th>
<th>S. Mutans on blood agar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spry Xyitol Mouthwash™</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>Crest Prohealth™</td>
<td>0, 9</td>
<td>12, 12</td>
<td>11, 11</td>
<td>14, 14</td>
<td>14, 10</td>
<td>15, 13</td>
</tr>
<tr>
<td>ACT fluoride rinse™</td>
<td>10, 10</td>
<td>11, 12</td>
<td>14</td>
<td>12, 14</td>
<td>16, 14</td>
<td>17, 15</td>
</tr>
<tr>
<td>Listerine Smartrinse™</td>
<td>9, 9</td>
<td>10, 11</td>
<td>9, 9</td>
<td>14, 14</td>
<td>9, 8</td>
<td>14, 12</td>
</tr>
<tr>
<td>Chlorhexidine (11.6% alcohol)</td>
<td>13, 12</td>
<td>18, 18</td>
<td>13, 12</td>
<td>14, 14</td>
<td>11, 11</td>
<td>16, 15</td>
</tr>
<tr>
<td>Listerine™ (27% Alcohol)</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>9, 9</td>
<td>0, 0</td>
</tr>
<tr>
<td>Phosphate Buffered Saline (PBS)</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>27% Alcohol</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>Embrace Varnish™ (has xyitol)</td>
<td>8, 9</td>
<td>0, 0</td>
<td>0, 0</td>
<td>12, 12</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>Spry™ Xyitol toothpaste gel</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>10, 12</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>50% Spry™ Xyitol toothpaste gel in PBS</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>Levofloxacin (5 micrograms)</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>36</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

**Note:** All dimensions shown in millimeters.
Probiotics- Antagonism and Inhibition

Rothia inhibition and antagonism

Rothia Aeria is inhibited by:
1. Chlorhexidine
2. Listerine SmartRinse™

**TABLE 1b. Susceptibility Experiment: The Effect of OTC Oral Hygiene Products on Other Bacteria of the Human Flora**

<table>
<thead>
<tr>
<th></th>
<th>S. aureus</th>
<th>S. salivarius</th>
<th>E. coli</th>
<th>P. aeruginosa</th>
<th>VRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spry™ Mouthwash</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Embrace™ varnish</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spry™ Xylitol gel diluted in PBS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0*</td>
<td>0</td>
</tr>
<tr>
<td>PBS control</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: All dimensions shown in millimeters

*but for a short period showed inhibition
### Probiotics - Antagonism and Inhibition

**Rothia inhibition and antagonism**

<table>
<thead>
<tr>
<th></th>
<th>R. dentocariosa</th>
<th>R. mucilaginosa</th>
<th>S. salivarius</th>
<th>E. coli</th>
<th>P. aeruginosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. mucilaginosa</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>VRE</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>E. coli</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>P. aeruginosa</td>
<td>inhibits</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>S. salivarius</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>P. dentocariosa</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>S. aureus</td>
<td>0, 0</td>
<td>inhibits</td>
<td>0, 0</td>
<td>0, 0</td>
<td>0, 0</td>
</tr>
</tbody>
</table>

Note: All dimensions shown in millimeters.

**Rothia dentocariosa**
- inhibited by:
  5. Levofloxacin
  6. 27% alcohol.

**R. dentocariosa** inhibits **P. aeruginosa**.
Inhibition of Rothia Species by OTC Products and Bacterial Antagonists

Garcia K, Barstad D, Cannon M, Kabat B, Yoge R, Jantra L, Muhammad A, Vorachek A

Introduction:
The purpose of this study was to determine if there is any inhibition of beneficial oral bacteria species such as Rothia aeria, R. mucilaginosus, and P. denticola. Streplococcus mutans (pathogen-negative control) and Lactobacillus (neutral) strains isolated from IHEM patients by the counter (OTC) oral products utilizing in vitro methodology. The secondary objective was to determine the antagonism, if any, of the Rothia genus by Streplococcus species (mutans and framentosus) and known pathogens. Rothia aeria and R. mucilaginosus are believed to be important in the processing of plaque, inhibition of these beneficial bacteria by OTC products, either directly or indirectly, would increase plaque formation in the mouth. Beneficial bacteria may be indirectly inhibited by antagonistic bacteria that are relatively more sensitive to OTC products.

Methods:

Susceptibility Experiment:

Three colonies of R. aeria, R. denticola, R. mucilaginosus, S. mutans, and Lactobacillus were obtained from spiral plates and grown in Mueller-Hinton broth to a McFarland Standard of 0.5. Either Fusobacteria agar plates, Rogosa agar, or Mueller-Hinton agar plates with 5% sheep blood were wholly spread with one cotton swab inoculation of each strain. Five cotton swabs were evenly distributed on the plates and 10 microliters of full strength regent was poured directly onto each corresponding disc. The plates were evaluated after 20 hours of growth at 36 degrees. Calipers were used to measure zones of inhibition.

Diffusion Experiment:

Fusobacterium Nucleatum (FDA) were autolysed and counted to 106 degrees and aliquots of 2% were cooled and inoculated with 4% of 0.5 McFarland Standard suspensions of R. aeria, R. mucilaginosus, S. mutans, and Lactobacillus. Escherichia coli, and Pseudomonas aeruginosa prior to pouring agar plates. Inoculated plates were then incubated at 37 degrees Celsius for 24 hours. The plates were scored for inhibition at 24 hours and evaluated with a magnifying glass.

Results:

Bacterial growth of all tested bacteria were inhibited by Crest ProHealth®, ACT®, Listerine SmartXide®, and Hi Health. R. aeria and R. mucilaginosus were also inhibited by Embrace™ vitaflor and Spry™ Xylitol Toothpaste Gel inhibited R. mucilaginosus. Growth of R. denticola was inhibited by P. aeruginosa and growth of R. mucilaginosus was inhibited by S. mutans.

Discussion:

In vivo results should not be interpreted as being always applicable to this clinical situation. Indeed, the complexity of the human oral microbiome would make it difficult to predict a response to any oral intervention with any certainty. The results of the present study are of a pilot nature; a negative finding would mean that there is little need for further investigation. However, this test's principal value in vivo studies for actionable consequences, they are, however, always necessary before progressing into more extensive time consuming and financially demanding studies. The in vitro tests with OTC products, that may be used for a period by patients, contribute to a reduction in beneficial bacteria should be a concern to all healthcare professionals. Of greater interest should be the extent of the inhibition, as the zone of inhibition was quite significant in diameter. The average diameter of inhibition with an OTC product was 13mm.

Another very important aspect of this study was the interaction between pathogenic and beneficial bacteria. The interaction, or rather, the inhibition of different bacterial species actually determines the health of the host and such is paramount in importance. The results were reported in that growth of Rothia species was inhibited by other bacteria, suggesting that if the oral flora equilibrium is changed by using OTC oral hygiene products, a domino effect can affect the entire oral microflora, which is the gateway to the digestive tract.

Conclusion:

Rothia species, S. mutans, and Lactobacillus species, are decreased in quantity by the use of oral anti-microbials. OTC products may alter the oral microflora creating a situation less conductive for the survival of essential beneficial bacteria. The use of OTC products may decrease the enzymatic degradation of plaque containing foods by Rothia bacteria resulting in stunted biofilm, inhibit Biofilm Syndrome, and exocytobacterium altering cells, increasing Carbic-Resistant Clinical Efficacy. The Forstny Institute noted at the pilot test of the AAO 2012 meeting that Rothia aeria and P. aeruginosa were identified as glucan-degrading strains in the oral cavity. While the human digestive enzyme tyrosine levels the capacity to cleave immunoglobulin, such enzymes are naturally present in the oral microbial enzyme repertoire (Mori, G. Zickmann, M. Dewhurst, T. Schuster, D. Gipstein, F. Henssne, E. Rothia Bacteria as Glucan-Degrading Natural Colonizers of the Oral Cavity, 2012).

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

Rothia aeria is inhibited by:
1. Chlorhexidine
2. Listerine SmartXide
3. ACT Bacteria Control
4. Crest ProHealth

Rothia mucilaginosus inhibited by:
5. L. Difluoroethanol
6. 21% alcohol.

Rothia denticola is inhibited by:
5. L. Lactofen
6. 21% alcohol.

Table: Table 1

<table>
<thead>
<tr>
<th>Regent</th>
<th>R. aeria on mouth rinse</th>
<th>R. mucilaginosus on mouth rinse</th>
<th>P. aeruginosa on mouth rinse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray Xylitol Toothpaste Gel (Xylitol)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crest ProHealth</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ACT Bacteria Control</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Listerine SmartXide</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Chlorhexidine (1% Chlorhexidine)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Listerine (2% Alcohol)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Phosphate Buffer Solution (PBS)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table: Table 2

<table>
<thead>
<tr>
<th>Regent</th>
<th>R. aeria on mouth rinse</th>
<th>R. mucilaginosus on mouth rinse</th>
<th>P. aeruginosa on mouth rinse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray Xylitol Toothpaste Gel (Xylitol)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crest ProHealth</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ACT Bacteria Control</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Listerine SmartXide</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Chlorhexidine (1% Chlorhexidine)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Listerine (2% Alcohol)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Phosphate Buffer Solution (PBS)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Conclusion:

Rothia species, *S. mutans* and Lactobacillus species, are decreased in quantity by the overuse of oral anti-microbials. OTC products may alter the oral microbiome creating a situation less conducive for the survival of essential beneficial bacteria. The use of OTC products may decrease the enzymatic degradation of gluten containing foods by Rothia bacteria resulting in gluten sensitivity, Irritable Bowels Syndrome, and exacerbating ulcerative colitis increasing Celiac disease clinical prevalence.
Mechanisms of inhibition by fluoride of urease activities of cell suspensions and biofilms of Staphylococcus epidermidis, Streptococcus salivarius, Actinomyces naeslundii and of dental plaque.

Barboza-Silva E, Castro AC, Marquis RE.
Department of Microbiology & Immunology, University of Rochester Medical Center, Rochester, NY 14642-8672, USA.

Abstract

BACKGROUND/AIMS: Fluoride is known to be a potent inhibitor of bacterial ureases and can also act in the form of hydrofluoric acid as a transmembrane proton conductor to acidify the cytoplasm of intact cells with possible indirect, acid inhibition of urease. Our research objectives were to assess the inhibitory potencies of fluoride for three urease-positive bacteria commonly found in the mouth and to determine the relative importance of direct and indirect inhibition of ureases for overall inhibition of intact cells or biofilms.

METHODS: The experimental design involved intact bacteria in suspensions, mono-organism biofilms, cell extracts, and dental plaque. Standard enzymatic assays for ammonia production from urea were used.

RESULTS: We found that ureolysis by cells in suspensions or mono-organism biofilms of Staphylococcus epidermidis, Streptococcus salivarius or Actinomyces naeslundii was inhibited by fluoride at plaque levels of 0.1-0.5 mm in a pH-dependent manner. The results of experiments with the organic weak acids indomethacin and capric acid, which do not directly inhibit urease enzyme, indicated that weak-acid effects leading to cytoplasmic acidification are also involved in fluoride inhibition. However, direct fluoride inhibition of urease appeared to be the major mechanism for reduction in ureolytic activity in acid environments. Results of experiments with freshly harvested supragingival dental plaque indicated responses to fluoride similar to those of S. salivarius with pH-dependent fluoride inhibition and both direct and indirect inhibition of urease.

CONCLUSION: Fluoride can act to diminish alkali production from urea by oral bacteria through direct and indirect mechanisms.
Fluoride inhibits enzymes, proton-translocating F-ATPases— at low levels of only 0.1mM.

Abstract
Fluoride is widely used as a highly effective anticaries agent. Although it is felt that its anticaries action is related mainly to effects on mineral phases of teeth and on the process of remineralization, fluoride also has important effects on the bacteria of dental plaque, which are responsible for the acidification of plaque that results in demineralization. The results of recent studies have shown that fluoride can affect bacterial metabolism through a set of actions with fundamentally different mechanisms. It can act directly as an enzyme inhibitor, for example for the glycolytic enzyme enolase, which is inhibited in a quasi-reversible manner. Direct action seems also to occur in inhibition of heme-based peroxidases with binding of fluoride to heme. The flavin-based peroxidases of many oral bacteria are insensitive to fluoride. Another mode of action involves formation of metal-fluoride complexes, most commonly AlF4-. These complexes are responsible for fluoride inhibition of proton-translocating F-ATPases and are thought to act by mimicking phosphate to form complexes with ADP at reaction centers of the enzymes. However, the actions of fluoride that are most pertinent to reducing the cariogenicity of dental plaque are those related to its weak-acid character. Fluoride acts to enhance membrane permeabilities to protons and compromises the functioning of F-ATPases in exporting protons, thereby inducing cytoplasmic acidification and acid inhibition of glycolytic enzymes. Basically, fluoride acts to reduce the acid tolerance of the bacteria. It is most effective at acid pH values. In the acidic conditions of cariogenic plaque, fluoride at levels as low as 0.1 mM can cause complete arrest of glycolysis by intact cells of Streptococcus mutans. Overall, the anticaries actions of fluoride appear to be complex, involving effects both on bacteria and on mineral phases. The antibacterial actions of fluoride appear themselves to be complex but to be dominated by weak-acidic effects.
Probiotics - dietary effects - implications

- Autoimmune response
  - Autoimmune response causes obesity, sedentary lifestyle, mood shift, behavioral issues, dietary changes as cravings change!
  - Comfort food… chocolate, fries, ice cream, etc.
  - Other biofilm modifiers

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Xylitol inhibits inflammatory cytokine expression induced by lipopolysaccharide from Porphyromonas gingivalis.

Hanj S1, Jeong SY, Nam YJ, Yang KH, Lim HS, Chung J

Abstract
Porphyromonas gingivalis is one of the suspected periodontopathic bacteria. The lipopolysaccharide (LPS) of P. gingivalis is a key factor in the development of periodontal disease. The aim of this study was to evaluate the anti-inflammatory effects of xylitol for possible usage in the prevention and treatment of periodontal infections. Methods: Cytokine expression was stimulated in THP-1 (human monocyte cell line)-derived macrophages by live Porphyromonas gingivalis (P. gingivalis), and ELISA and a MILLIPLEX MAP kit were used to determine the effects of xylitol on live P. gingivalis-induced production of cytokine. The effects of xylitol on phagocytosis and the production of nitric oxide were determined using phagocytosis assay, viable cell count, and Griess reagent. The effects of xylitol on P. gingivalis adhesion were determined by immunostaining and co-stimulatory molecule expression was examined by flow cytometry. Results: Live P. gingivalis infection increased the production of representative proinflammatory cytokine, TNFα (Tumor necrosis factor) and IL-1β (Interleukin-1) in a MOI- and time-dependent manner. Live P. gingivalis also enhanced the release of cytokines and chemokines such as IL-12-p40 (Interleukin 12), Eotaxin, IP-10 (Interferon gamma-induced protein 10), MCP-1 (Monocyte chemotactic protein-1), and MIP-1α (Macrophage inflammatory protein-1). The pretreatment of xylitol significantly inhibited the P. gingivalis-induced cytokines production and nitric oxide production. In addition, xylitol inhibited the attachment of live P. gingivalis on THP-1-derived macrophages. Furthermore, xylitol exerted anti-phagocytic activity against both Escherichia coli and P. gingivalis. Conclusions: These findings suggest that xylitol acts as an anti-inflammatory agent in THP-1-derived macrophages infected with live P. gingivalis, and may be a treatment for periodontitis.
Probiotics- Neurologic Implications

- Autism
- “Autism Spectrum Disorder”
- Evidence mounts, very scary!

Short-chain fatty acids: products of the gut microbiome with implications in autism disorders


Unique acyl-carnitine profile in autism spectrum disorder.
Frye RE1, Meinvk S, Macfabe DF.

Abstract
Autism spectrum disorder (ASD) has failed to identify a specific genetic mutation to explain the etiology of the condition. Acquired MD has been demonstrated to be associated with ASD-associated gut bacteria, is infusible with neuropathologic and neurophysiologic studies. Short-chain and long-chain acyl-carnitines, which are abnormal fatty-acid metabolism are part of the metabolic disease. This study reviewed acyl-carnitine panels were determined to be abnormal if three or more individual acyl-carnitine species were abnormal in the panel and these abnormalities were verified by repeated testing. Overall, 17% of individuals with ASD demonstrated consistently abnormal acyl-carnitine panels.
Probiotics prevented weight gain!

Déjà vu- it’s 1907 again!
Probiotics - Neurologic Implications

- Prevention and Probiotics - kefir and BLIS?

MRI and emotional brain tasking

Abstract

BACKGROUND & AIMS: Changes in gut microbiota have been reported to alter signaling mechanisms, emotional behavior, and visceral nociceptive reflexes in rodents. However, alteration of the intestinal microbiota with antibiotics or probiotics has not been shown to produce these changes in humans. We investigated whether consumption of a fermented milk product with probiotic (FMPP) for 4 weeks by healthy women altered brain intrinsic connectivity or responses to emotional attention tasks.

METHODS: Healthy women with no gastrointestinal or psychiatric symptoms were randomly assigned to groups given FMPP (n = 12), a nonfermented milk product (n = 11, controls), or no intervention (n = 13) twice daily for 4 weeks. The FMPP contained Bifidobacterium animalis subsp Lactis, Streptococcus thermophilus, Lactobacillus bulgaricus, and lactococcus lactis subsp Lactis. Participants underwent functional magnetic resonance imaging before and after the intervention to measure brain responses to an emotional face task and resting brain activity.

RESULTS: FMPP intake was associated with reduced task-related response of a distributed functional network (49% cross-block covariance; P = .004) containing affective, viscerosensory, and somatosensory cortices. Alterations in intrinsic activity of resting brain indicated that ingestion of FMPP was associated with changes in midbrain connectivity, which could explain the observed differences in activity during the task.

CONCLUSIONS: Four-week intake of an FMPP by healthy women affected activity of brain regions that control central processing of emotion and sensation.
Yes sweetheart, the way to a man's heart is through his stomach.

“The best way to not get your heart broken, is pretending you don't have one.”

- Charlie Sheen
Probiotics - Neurologic Implications

High levels of STEP proteins keep synapses in the brain from strengthening, i.e., a process that is required for people to learn and form long-term memories. When STEP is elevated in the brain, it depletes receptors from synaptic sites and inactivates other proteins that are necessary for proper cognitive function. This disruption can result in Alzheimer's disease or a number of neuropsychiatric and neurodegenerative disorders, all marked by cognitive deficits.
Probiotics? Some caution necessary!

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

change? Requires understanding.
Oral Health Probiotics - what to use?

- Periobalance
- Evora Pro
- Evora Plus
- Biogaia
- ProlacSan
- BLIS K12
- Prodegin
- Gluten metabolizers
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 changed. 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.
Dental Products: Probiotic Supplements

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

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 Kalvan Mohanty, Sudhir Bahadur

Published Online: July 08, 2011
ProlacSan and FotoSan Therapy

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

- **FotoSan**
  - Light Activated Disinfection

**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® gel**

1 syringe. Each syringe contains probiotic powder and thickener. Aspirate water as needed, maximum 1.2 mL, shake and wait minimum 5 minutes. The syringe is sealed in a metal foil for maximum shelf-life (24 months). Contains a total of $6 \times 10^6$ probiotics, a mix of lactobacillus brevis and plantarum. Neutral taste.

**FotoSan®**

Blue agent
- Liquid 0.5 mL
- Gel 0.5 mL
- Gel 1.5 mL

Light Activated Disinfection

30 lozenges. Each tablet contains $1.2 \times 10^7$ probiotics, a mix of Lactobacillus brevis and plantarum. Mint taste. Let the tablet melt in the mouth. Shelf-life 24 months.
In vitro evaluation of the cytotoxicity of FotoSan™ light-activated disinfection on human fibroblasts.


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% chlorhexidine 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**

**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 (Carpeggen® PerioDiagnostics, Carpeggen 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

**FotoSan**

*Light Activated Disinfection*  
*Tratamiento antibacteriano sin medicación*

**ProlacSan**

*FotoSan® Blue agent*  
*Liquid 0.5 ml.*
*FotoSan® Blue agent*  
*Gel 0.5 ml.*
*FotoSan® Blue agent*  
*Gel 1.5 ml.*
ProlacSan and FotoSan Therapy

- Plaque culture
- Debris
- Measure
- Treat
ProlacSan and FotoSan Therapy

• Plaque culture
• Debris
• Measure
• Treat
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.
Oral and gut bacteria are repeatedly reported in the research literature to be involved in:

- Autism
- Diabetes Type II
- RA
- Autism
- Diabetes Type II
- RA
- Depression and anxiety
- Obesity
- Dental disease
- Periodontal disease
- Cardiac disease
- Reactive lung disease
- All autoimmune disorders
- Aging
- Gluten sensitivity
- Celiacs

Commensal bacteria protect against food allergen sensitization

Andrew T. Stefka, Taylor Feeley, Prabahanshu Tripathi, Ju Qiu, Kathy McCoy, Sarkis K. Mazmanian, Melissa Y. Tjota, Goo-Young Seo, Severine Cao, Betty R. Therri, Dionysios A. Antonopoulos, Liang Zhou, Eugene B. Chang, Yang-Xin Fu, and Cathr...
The “Three Horsemen of Pediatric Dentistry”
Infant Oral Care

- Creating the ideal dental patient
- Concern for emotional health
- Start by age one or sooner depending on incisor eruption

Here's the deal... If you cooperate with me I'll use the good-boy-drill. Jerk me around and you get this.
Infant Oral Health

Prevention and Conservative treatment of ECC
Adjuncts to Routine Home Care

- Not much progress! Treated and Untreated
Adjuncts to Routine Home Care

- Untreated carious teeth 2-11 years


*Defined as having one or more untreated decayed surfaces in primary teeth (d>0) among those with at least one primary tooth. All estimates are adjusted by age (single years) and sex to the U.S. 2000 standard population, except sex, which is adjusted only by age.

†Percentage of the Federal Poverty Level (FPL), which varies by income and number of persons living in the household.
Infant Oral Health Center

- Established to provide total oral care for medically compromised Infants and Toddlers
  - Cardiology
  - Hematology
  - Oncology
  - Neurology
  - Infectious diseases
Children with medical complications have (2 times) significantly more DDE in primary teeth.
Infant Oral Health Center

- “Normal Children” - 9.3% DDE
- Prematurely born - 56.5% DDE (pre-mie enamel)
# The Prevalence of Developmental Defects of Tooth Enamel Hypoplasia and Severe Opacities

## in Medical Conditions from Royal Children’s Hospital, Melbourne

<table>
<thead>
<tr>
<th>Medical Group 1 (Discharged Patients)</th>
<th>WHO ICD Number</th>
<th>No. in Group</th>
<th>% Total Cases</th>
<th>No. of Enamel Defects</th>
<th>% Defects in Group</th>
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<tbody>
<tr>
<td>Rubella embryopathy</td>
<td>771</td>
<td>22</td>
<td>0.3</td>
<td>18</td>
<td>81.8</td>
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<tr>
<td>Prematurity alone</td>
<td>765</td>
<td>23</td>
<td>0.3</td>
<td>13</td>
<td>56.5</td>
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<tr>
<td>Gr2 Cleft Lip &amp; Palate</td>
<td>749.2</td>
<td>437</td>
<td>5.8</td>
<td>122</td>
<td>27.9</td>
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<tr>
<td>Gr1 Cleft Lip &amp; Alveolus</td>
<td>749.1</td>
<td>91</td>
<td>1.2</td>
<td>24</td>
<td>26.4</td>
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<tr>
<td>Metabolic</td>
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<td>110</td>
<td>1.5</td>
<td>26</td>
<td>23.6</td>
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<tr>
<td>Gastro-intestinal</td>
<td>520-599</td>
<td>65</td>
<td>0.9</td>
<td>14</td>
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<tr>
<td>Dermatologic</td>
<td>680-709</td>
<td>47</td>
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<td>10</td>
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<tr>
<td>Ophthalmic</td>
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<td>22</td>
<td>0.3</td>
<td>4</td>
<td>18.2</td>
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<td>Thoracic</td>
<td>460-519</td>
<td>562</td>
<td>7.5</td>
<td>81</td>
<td>14.4</td>
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<td>Genito-Urinary</td>
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<td>Cardiac</td>
<td>390-459</td>
<td>1135</td>
<td>15.1</td>
<td>140</td>
<td>12.3</td>
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<td>(Congenital Defects)</td>
<td>745</td>
<td>955</td>
<td>12.7</td>
<td>127</td>
<td>13.3</td>
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<tr>
<td>Neurologic (Cerebral Palsy)</td>
<td>290-319</td>
<td>1636</td>
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<td>10.9</td>
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<td>(40% of Neurval)</td>
<td>320-389</td>
<td>656</td>
<td>9.5</td>
<td>86</td>
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<td>Syndromes &amp; Genetic (inc. Down’s Syn.)</td>
<td>759</td>
<td>244</td>
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<td>23</td>
<td>9.4</td>
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<tr>
<td>Endocrine</td>
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<td>486</td>
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<td>43</td>
<td>8.8</td>
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<td>Craniofacial/Plastic</td>
<td>755</td>
<td>70</td>
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<td>8.6</td>
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<tr>
<td>E.N.T</td>
<td>461-463</td>
<td>101</td>
<td>1.3</td>
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<td>7.9</td>
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<td>Gr3 Cleft</td>
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<td>219</td>
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<td>17</td>
<td>7.8</td>
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<td>(29.3% of Clefts)</td>
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<td>General Paediatric</td>
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<td>28</td>
<td>0.4</td>
<td>2</td>
<td>7.1</td>
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<td>Haematol/Oncol</td>
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<td>649</td>
<td>8.6</td>
<td>43</td>
<td>6.6</td>
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<td>140-239</td>
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<tr>
<td>General Infections</td>
<td>801-139</td>
<td>32</td>
<td>0.4</td>
<td>2</td>
<td>6.3</td>
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<tr>
<td>Traumatic Injuries</td>
<td>802</td>
<td>800</td>
<td>10.6</td>
<td>46</td>
<td>5.8</td>
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<tr>
<td>(Teeth &amp; Jaws)</td>
<td>290-319</td>
<td>254</td>
<td>3.4</td>
<td>13</td>
<td>5.1</td>
</tr>
<tr>
<td>Psychiatric</td>
<td></td>
<td></td>
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</tbody>
</table>
Biological damage to the immune system in pre-natal and post natal development
Infant Oral Health Center

Infant Oral Health Clinic Diet History

Infant Questions

1a. Is your child currently on the bottle or being breast-fed?
   Y/N

1b. If yes, does your child use the bottle at specific times or whenever he/she desires?
   Y/N

2. Does your child sleep or take naps with the bottle?
   Y/N

If yes, what drink is usually in the bottle? (Circle the best choice)
   Milk   Juice   Water   Soda   Other

3. Does your child drink soda pop?
   Y/N

   If yes, what type ______ and how many times per week _________

4. Does your child drink juice?
   Y/N

   If yes, what kind of juice _______ and how many times per week _________

5. Does your child regularly eat table foods?
   Y/N

   If yes, please circle all foods that apply
   Cheerios   Bread   Cookies   Cereals   Vegetables   Fruits   Rice
   Crackers   Pasta   Cheese   Candy   Yogurt   Meats   Cakes   Other

Parent Questions

1. Do you receive regular dental care?
   Y/N

   (Routine 6-month exams, cleanings, fillings, non-emergent treatment)

2. Do you practice daily oral hygiene?
   Y/N

   How many times a day do you brush? ______
   How many times a day do you floss? ______

3. Please estimate the number of fillings and extractions you have had on your adult teeth.
   Number of fillings ______
   Number of extractions ______

4. What is your level of education?
   Junior High   High School   Technical School   College   Post Graduate

Current Studies:
- Parental attitudes
- Parental and patients dietary habits
- MI Paste and Stannous Fluoride effectiveness
Infant Health Questionnaire

Associated Dental Specialists of Long Grove

Infant Health Questionnaire

The three most important factors that can affect your child’s oral health are home care, diet, and oral habits. In order to help us evaluate your child’s dental health, please answer the following questions:

INFANT QUESTIONS

1. Is your child currently on the bottle or being breast fed? YES NO
   If no, at what age did he/she stop?
   If yes, does your child use the bottle/breast at specific times or whenever he/she desires?
   How many times per day?

2. Does your child sleep or take naps with the bottle? YES NO
   If yes, what drink is usually in the bottle? Circle the best choice.
   MILK  JUICE  WATER  SODA  OTHER

3. Does your child drink soda pop? YES NO
   If yes, what type?
   How many 8 oz. cups per week?

4. Does you child drink juices? YES NO
   If yes, what kind?
   How many 8 oz. cups or juice boxes per week?
5. Does your child regularly eat table food?  
   If yes, please circle all foods that apply. CHEERIOS BREAD COOKIES CRACKERS CANDY CAKES CEREALS VEGETABLES FRUITS RICE PASTA CHEESE YOGURT FRUIT ROLL UPS GUMMY BEARS OTHER ________________________________

6. Does your child have any oral sucking habits? Please circle.  
   FINGER THUMB BLANKET PACIFIER  
   If your child uses a pacifier, is it ever dipped in honey or other sweet substance?  
   YES NO
   Has he/her stopped sucking?  
   At what age? ______________________

7. Do you help your child brush his/her teeth?  
   How many times a day? ______________________
Do you floss their teeth?  
How often? ________________________

Do they swallow the toothpaste?  

Is the amount used larger or smaller than pea sized? ________________________

Does it contain fluoride?  

YES  NO

8. Does your child use any fluoride supplements prescribed by pediatrician or previous dentist?  

What type and dosage? ________________________

When did they start or stop? ________________________

Has your drinking water been tested for fluoride levels?  

YES  NO

9. Do you have any other comments, questions, or concerns about your child’s teeth or oral development?  

________________________________________

________________________________________

________________________________________
Infant Health Questionnaire

PARENT QUESTIONS

1. Do you receive regular dental care? (routine 6 month exams, dental cleanings, fillings, non-emergency treatment) YES NO

2. Do you practice daily dental care? YES NO
   How many times a day do you brush? _________________________
   How many times a day/week do you floss? _________________________

3. Please estimate the number of fillings and extractions you have in your own mouth on adult teeth.
   Number of fillings __________________________________________
   Number of extractions _________________________________________
   Do you have a family history of teeth missing, or “soft” enamel? YES NO

4. What is your level of education? Please circle one.
   JUNIOR HIGH  HIGH SCHOOL  TECHNICAL SCHOOL  COLLEGE POST GRADUATE

Thank you
Adjuncts to Routine Home Care

- MI paste™ contains CPP-ACP, infant intra-oral exam, playing “peek a boo”.

Infant Exam
Adjuncts to Routine Home Care

- MI paste™ contains CPP-ACP, demonstrating methods of application.

So maybe I did bore the child to sleep! Big deal!
Adjuncts to Routine Home Care

• Behavioral Characteristics

Eight to nine months- Exploring and Clinging, begins word comprehension

One Year- One giant step forward, ambulation, single step element commands

Fifteen to eighteen months- declaring independence and pushing the limits, understands simple questions, recognizes many nouns

Two years- language leaps, understands prepositions, can follow story with pictures
Adjuncts to Routine Home Care

- Tooth brushing instructions - child seats on mom’s lap
Adjuncts to Routine Home Care

• MI paste™ contains ACP-CCP, explain to parent the difference between milk allergy and lactose intolerance.
Adjuncts to Routine Home Care

- MI paste™ contains ACP-CCP, demonstrating methods of application.
Adjuncts to Routine Home Care

- Behavioral Characteristics

The Strange Situation:

**Securely attached child** - looks warily at stranger

**Avoidant child** - unresponsive to mom and demonstrates little distress if she leaves

**Resistantly attached** - clings to mom and hits, punishes mom

**Disorganized attachment** - little response
Adjuncts to Routine Home Care

- Behavioral Characteristics - Anger Outbursts

**Terrible Two's**

![Graph showing frequency per hour by age in years for boys, girls, and both sexes. The graph peaks around age 2 for both sexes and shows a decrease with age.]
Adjuncts to Routine Home Care

- Behavioral Characteristics

Dentist visit ends in charges

Round Lake Beach police say covering child's mouth is battery

By Lee Filas
and Corrinne Hess
lee@dailyherald.com,
cor@dailyherald.com

A Round Lake Beach dentist is charged with battery after she was accused of covering the mouth of a 5-year-old patient to stop the girl from crying.

Round Lake Beach Deputy Police Chief Rich Chiarello said Hannah Kim, who owns Grande Smile Dental, 578 E. Rollins Road, gave the girl a shot of novocaine before working on a cavity during an Aug. 30 office visit.

According to police, the Lake Villa girl started crying and Kim covered the child's mouth with her latex-gloved hand. The girl then began to vomit, Chiarello said.

The child and her mother immediately left the office and called police. Kim could not be reached for comment Tuesday.

Her Chicago-based attorney, William Hale, said when the matter goes to court, Kim will indicate she followed the procedure she was taught when dealing with younger patients.

Hale didn't know how long Kim has been a practicing dentist but estimated it to be several years.

Before opening Grande Smile Dental, Kim worked at West Town Dental Service in Chicago as recently as September 2006.

Hale said he has no knowledge of Kim previously being in trouble with the law.

Chiarello confirmed police never have had a complaint against Kim and always have had a good working relationship with the dental office.

Chiarello said Kim has been charged locally, and a judge would determine any

Strip club pays its
Adjuncts to Routine Home Care

- Behavioral Characteristics

**Rapprochement** - ("reconnection") refers to the normal transition from independent play and exploratory activity to a period of clinging to the parent in the presence of other children and adults.
Infant Oral Care

When should treatment begin?

- Bebe Clinica
- Aracatuba, state of Sao Paulo, Brasil
- Drs. Celio Percinoto, Alberto Delbem and Robeson Cunha

Now "natal" oral care
Infant Oral Care

• Drs. Celio Percinoto applying neo-natal MI Paste and complications
MI Paste
“Professional Strength”
Recaldent
(CPP-ACP)

- Casein phosphopeptide
- ACP
- Sorbitol
- Xylitol
Infant Oral Care

- MI Paste
- Not for patients with milk allergies

16 month old
Infant Oral Care

• MI Paste

Don't have to rinse- no suction required
Recaldent
(CPP-ACP)

16 year old
Recaldent

(CPP-ACP)

Preventive Care
Recaldent (CPP-ACP)

Nocturnal Moisture Appliance

Preventive Care
New!

MI Varnish™ with RECALDENT™ (CPP-ACP)

Bioavailable calcium, phosphate and fluoride for an enhanced varnish treatment
MI Varnish™

5% Sodium Fluoride (22,600 ppm) • 2% RECALDENT™ (CPP-ACP)

- Remains on the tooth surface longer than conventional fluoride varnishes.
- Enhances acid resistance of enamel and promotes calcium and phosphate enriched saliva.
- Flows easily into interproximal areas, due to its viscosity.
- Non-clumping white natural translucent shade.
- Excellent retention – stays on longer than the leading varnishes.
- Unique unit dose, easier to open, easy to access varnish, generous volume per unit dose, enough for a full adult dentition.

- Does not immediately clump upon exposure to saliva allowing ease of use and longer working time.
- Greater fluoride contact time and increased calcium and phosphate bioavailability than gels, foams and varnishes.
- Stands out on tray, easy to identify - brightly colored unit dose
0.5mL of MI Varnish contains 0.55g of sodium fluoride – enough for a full adult dentition –

One unit dose package contains:
- 0.5mL/0.55g
- 50 unit dose packages
- 50 disposable brushes

Fresh Strawberry Flavor accepted by children and adults
Higher fluoride, calcium and phosphate ions released due to the RECALDEN'T™ (CPP-ACP) technology.

- Calcium and phosphate ions are the building blocks for healthy teeth.
- MI Varnish delivers *bioavailable* calcium, phosphate and fluoride ions into the saliva.

Why MI Varnish?
MI Varnish releases higher levels of fluoride initially and over time - GC data
MI Varnish with RECALDENT™ technology delivers a high release of fluoride, calcium and phosphate ions that help to enhance the enamel’s ability to resist acid and contribute to higher calcium and phosphate levels in the saliva.

Working together, the fluoride, calcium and phosphate provide an extra boost of protection for patients with moderate to high caries risk.
MI Varnish with RECALDENT™ (CPP-ACP) enhances enamel acid resistance and boosts salivary fluoride levels.

This chart shows a measurement of available fluoride in the patient’s pooled saliva after MI Varnish has been applied. It shows how much fluoride is available for absorption into the tooth after one hour.

Note: the “Fluoride” source is coming from the MI Varnish! Additionally, the entire dentition benefits from using MI Varnish because the saliva containing the bioavailable calcium, phosphate and fluoride flows everywhere.

MI Varnish shows higher salivary fluoride levels after 1 hour compared to other fluoride varnish products.

SOURCE: GCC R & D
Step by Step

1. Tooth surfaces should be cleaned and dried before application of MI Varnish. *A prophylaxis is not required.*

2. Peel off the foil lid of the unit-dose container of MI Varnish.

3. Apply a thin, uniform layer of MI Varnish on teeth/surfaces using a disposable brush. Note: If separation is observed, stir with the disposable brush before application.

Unique Unidose - Easy to apply – Pleasant Mild Strawberry Flavor

Patient After Care Pad provided in each box.
Because there is no water in MI Varnish to cause a precipitation of the calcium. …So, MI Varnish can stay on the tooth allowing for greater uptake of the calcium, phosphate and fluoride.

Note: MI Paste and MI Paste Plus, contain WATER, which allows for absorption of the Calcium, PO4, and Fluoride (900ppm).
Clinical Cases:

Post orthodontic demineralization. Has been on custom trays with MI Paste—appearance greatly improved. Maryland Bridges to maintain occlusion and spacing until implants. Teeth isolated and dried before MI Varnish application.
Clinical Cases:

MI Varnish applied, goes on very smoothly, not obvious but esthetic, good flavor and well accepted by patients.
Clinical Cases:

Numerous interproximal carious lesions, crowded, family history positive for rampant carious involvement, NO previous preventive program initiated, placed on probiotic (EvoraKids) and MI Paste. MI Varnish applied.
Clinical Cases:

Varnish well tolerated by patients, hard to see so no issues post-operative. Note gingival stripping of lower incisor. Good laser case!!
Combined effects of Er: YAG laser and casein phosphopeptide-amorphous calcium phosphate on the inhibition of enamel demineralization: An *in vitro* study

CONCLUSION

Within the limitations of our study and based on these results, Er:YAG laser was able to decrease the demineralization and can be a potential alternative to preventive dentistry and was more effective when combined with CPP-ACP products.

Effect of casein phosphopeptide-amorphous calcium phosphate and acidulated phosphate fluoride gel on erosive enamel wear

CONCLUSION

We conclude that, CPP-ACP and fluoride are both able to reduce the enamel wear caused by the combination of abrasion and erosion. Moreover, their concurrent use is more effective than using either of them alone.
Biochemical and microbiological characteristics of in situ biofilm formed on materials containing fluoride or amorphous calcium phosphate.

Ferreira L, Pedrini D, Okamoto AC, Jardim Júnior EG, Henriques TA, Cannon M, Delbem AC.

RESULTS: The biofilm formed on F(-)-releasing materials was richer in F, Ca++, and Pi and had lower mutans streptococci counts than enamel biofilm. The biofilm on the ACP-containing material exhibited similar Ca++ and Pi concentrations to biofilm on F(-)-releasing materials. The materials showed buffering action compared with enamel. Biochemical and microbiological characteristics showed a less cariogenic biofilm on materials containing fluoride or amorphous calcium phosphate.

CONCLUSION

The present study showed that the ACP inhibits demineralization in the deeper part of enamel, whereas the fluoride products had a greater effect at the outer part of the enamel. The combination of two remineralizing agents (fluoride and ACP) was highly effective in preventing demineralization.
Research- ACP-CPP
Testimonials

“Nice consistency, great brush, great material, goes on smooth and with one easy layer. MI Varnish flows very nice, not too thick and not too watery. It sticks to the brush very well and does not drip from the brush as you take it from container to tooth. As to the color of the MI Varnish, patients loved it, moms could not see it, kids not bothered by color.”

Lance Kisby, DMD – Chief of Pediatric Dentistry, Program Director, Geisinger Medical Center

“MI Varnish goes on very smooth and creamy. The taste is very mild.”

Mark L. Cannon, DDS - Pediatric Dentist

“The viscosity of MI Varnish was perfect. It flowed easily over the tooth surfaces and inter-proximally. But, more important, my patients loved the flavor and the consistency.”

Sheri B. Doniger, DDS
Rosin, also called colophony or Greek pitch (Pix græca), is a solid form of resin obtained from pines and some other plants, mostly conifers, produced by heating fresh liquid resin to vaporize the volatile liquid terpene components.