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

- TMD- FDA Approved Treatment
- Tens, transcutaneous electronic neurostimulation
- Botox

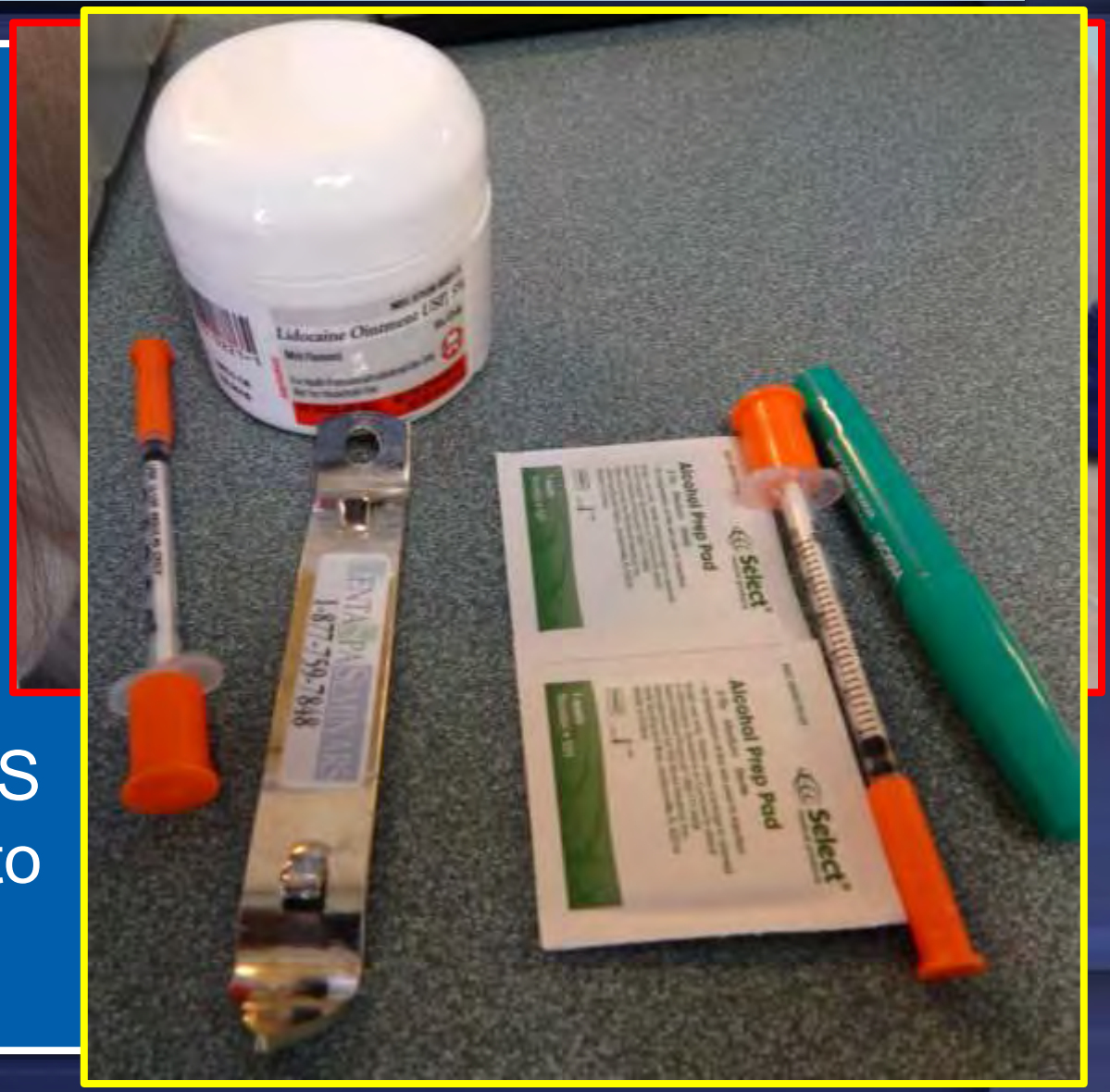
BOTOX®
Botulinum Toxin Type A

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"



Pediatric Der

- 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

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

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

Preventive Care

847-634-6166

Practice Management Concepts

- Sta
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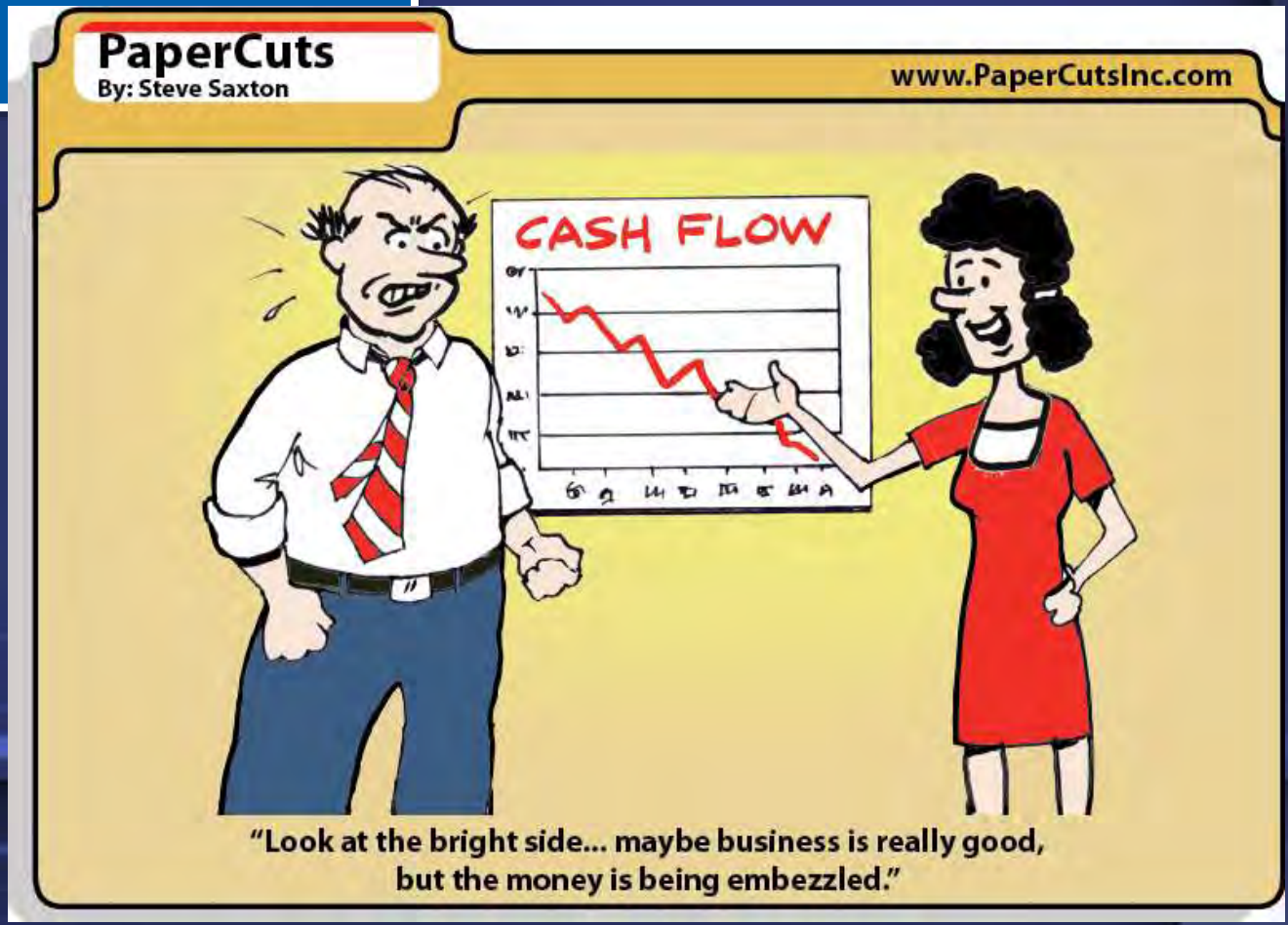
Practice Management Concepts

- Embezzlement! – a huge problem in Dentistry!



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?????

Probiotics- Antagonism and Inhibition

What is the dough doing while it is “resting”

Alimentary Pharmacology & Therapeutics

Systematic Review: Worldwide Variation in the Frequency of Coeliac Disease and Changes Over Time

J. Y. Kang, A. H. Y. Kang, A. Green, K. A. Gwee, K.Y. Ho | Disclosures

Aliment Pharmacol Ther. 2013;38(3):226-245.

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. TIAN[1], G. WEI[1], D. SCHUPPAN[2], F.G. OPPENHEIM[1], and E.J. HELMERHORST[1], [1]Dept. of Periodontology & Oral Biol, Boston University, Boston, MA, [2]Beth Israel Deaconess Medical Center, Boston, MA

Gluten sensitivity epidemic

1745 Comprehensive Screening of Saliva and Dental Plaque for Gluten-Degrading Microorganisms

Friday, March 22, 2013: 10:45 a.m. - 12:15 p.m.
Location: Room 614 (Washington State Convention Center)
Presentation Type: Oral Session
M. FERNANDEZ-FEO[1], G. WEI[1], F.E. DEWHIRST[2], D. SCHUPPAN[3], F.G. OPPENHEIM[1], and **E.J. HELMERHORST**[1], [1]Dept. of Periodontology & Oral Biol, Boston University, Boston, MA, [2]Forsyth Institute, Cambridge, MA, [3]Harvard University, Boston, MA

3. Microflora changes

What causes oral microflora changes?

Gluten sensitivity epidemic

- 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**.

Gluten sensitivity epidemic

- 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.

Gluten sensitivity epidemic

- Inhibition of Rothia Species by OTC Products and Bacterial Antagonists

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

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

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

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

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

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

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

	S. aureus	*S. salivarius*	*E. coli*	*P. aeruginosa*	VRE
Spry™ Mouthwash	0	0	0	0	0
Embrace™ varnish	0	0	0	0	0
Spry™ Xylitol gel diluted in PBS	0	0	0	0*	0
PBS control	0	0	0	0	0

Note: All dimensions shown in millimeters

*but for a short period showed inhibition

Probiotics- Antagonism and Inhibition

Rothia inhibition and antagonism

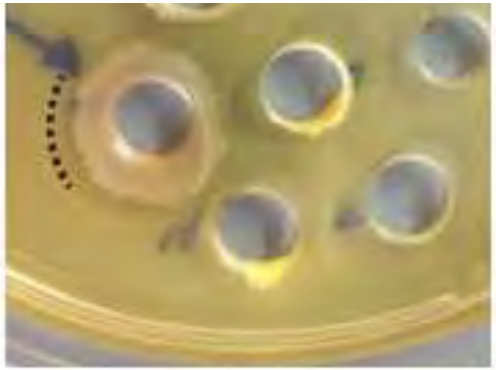
TABLE 3. Diffusion Experiment: Bacterial Species Inhibition of Each Other

	R. dentocariosa	*R. mucilaginosa*	*S. salivarius*	*E. coli*	*P. aeruginosa*
R. mucilaginosa	0, 0	0, 0	0, 0	0, 0	0, 0
VRE	0, 0	0, 0	0, 0	0, 0	0, 0
E. coli	0, 0	0, 0	0, 0	0, 0	0, 0
P. aeruginosa	inhibits	0, 0	0, 0	0, 0	0, 0
S. salivarius	0, 0	0, 0	0, 0	0, 0	0, 0
R. dentocariosa	0, 0	0, 0	0, 0	0, 0	0, 0
S. aureus	0, 0	inhibits	0, 0	0, 0	0, 0

Note: All dimensions shown in millimeters

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

R. dentocariosa inhibits *P. aeruginosa*.



Probiotics- Antagonism and Inhibition

Inhibition of Rothia Species by OTC Products and Bacterial Antagonists

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

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

Introduction:

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. Inhibition of these beneficial bacteria by OTC products, either directly or indirectly, would increase gluten sensitivity in patients. Beneficial bacteria may be indirectly inhibited by certain antagonistic bacteria that are relatively less sensitive to OTC products.

Methods:

Susceptibility Experiment

Three colonies of *R. aeria, R. dentocariosa, R. mucilaginosa, S. mutans*, or Lactobacillus were obtained from isolation plates and grown in Mueller-Hinton media to a McFarland Standard of 0.5. Either Brucella agar plates, Rogosa agar, or Mueller-Hinton agar plates with 5% sheep blood were wholly spread with one cotton swab inoculation of chosen bacteria. Five cotton discs were evenly distributed on the plate and 10 microliters of full strength reagent was pipetted directly onto each corresponding disc. The plates were evaluated after 30 hours of growth at 36 degrees. Calipers were used to measure zones of inhibition.

Diffusion Experiment

Trypticase Soy Agar (TSA) was autoclaved and cooled to 56 degrees and aliquots of 25mL were cooled and inoculated with 2mL of 0.5 McFarland Standard suspensions of *R. dentocariosa, R. mucilaginosa, Streptococcus salivarius, Escherichia coli*, or *Pseudomonas aeruginosa* prior to pouring agar plates. Impregnated plates were then inoculated in punched zones using a disposable 10 microliter loop with 0.5 McFarland Standards of bacteria species: *Streptococcus salivarius, Staphylococcus aureus*, Vancomycin-resistant *Enterococcus, Pseudomonas aeruginosa, Escherichia coli*, and *R. dentocariosa* or *R. mucilaginosa*. The plates were evaluated after 24 hours of growth at 36 degrees. Calipers were used to measure zones of inhibition.

Results:

Bacterial growths of all tested bacteria were inhibited by Crest ProHealth™, ACT™, Listerine SmartRinse™, and Chlorhexidine. *R. aeria* and *R. mucilaginosa* were also inhibited by Embrace™ varnish, and Spry™ Xylitol Toothpaste Gel inhibited *R. mucilaginosa*. Growth of *R. dentocariosa* was inhibited by *P. aeruginosa* and growth of *R. mucilaginosa* was inhibited by *S. aureus*.

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

Reagent	*Rothia Aeria* on blood agar	*R. dentocariosa*		*R. mucilaginosa*		PERIO probiotic (*Lactobacillus*)		*S. Mutans* on blood agar
		on blood agar	on Brucella	on blood agar	on Brucella	on blood agar	on Rogosa	
Spry Xylitol Mouthwash™	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0
Crest ProHealth™	9, 9	12, 12	11, 11	14,16	14, 10	15, 13	16, 13	12, 12
ACT fluoride rinse™	10, 10	11, 12	14	12, 14	16, 14	17, 15	16, 15	13
Listerine SmartRinse™	9, 9	10, 11	9, 9	14, 14	9, 8	14, 12	13, 12	11, 11
Chlorhexidine (11.6% alcohol)	13, 12	18, 18	13, 12	14, 14	11, 11	16, 16	15, 15	15, 14
Listerine™ (27% Alcohol)	0, 0	0, 0	0, 0	0, 0	0, 0	9, 8	0, 0	0, 0
Phosphate Buffered Saline (PBS)	0	0, 0	0	0, 0	0	0	0	0
27% Alcohol	0, 0	0, 0	10	0, 0	0	10	0	0
Embrace Varnish™ (has xylitol	8, 9	0, 0	0, 0	12, 12	0, 0	0, 0	0, 0	0, 0
Spry™ Xylitol toothpaste gel	0, 0	0, 0	0, 0	10, 12	0, 0	0, 0	0, 0	0, 0
50% Spry™ Xylitol toothpaste gel in PBS		0, 0		0, 0				
Levofloxacin (5 micrograms)	30	30	30	30	20	0	0	20

Note: All dimensions shown in millimeters

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

	S. aureus	*S. salivarius*	*E. coli*	*P. aeruginosa*	VRE
Spry™ Mouthwash	0	0	0	0	0
Embrace™ varnish	0	0	0	0	0
Spry™ xylitol gel diluted in PBS	0	0	0	0*	0
PBS control	0	0	0	0	0

Note: All dimensions shown in millimeters

*but not a strict partial diameter inhibition

TABLE 2. Diffusion Experiment: Bacterial Species Inhibition of Each Other

	R. dentocariosa	*R. mucilaginosa*	*S. salivarius*	*E. coli*	*P. aeruginosa*
R. mucilaginosa	0, 0	0, 0	0, 0	0, 0	0, 0
VRE	0, 0	0, 0	0, 0	0, 0	0, 0
E. coli	0, 0	0, 0	0, 0	0, 0	0, 0
P. aeruginosa	completely	0, 0	0, 0	0, 0	0, 0
S. salivarius	0, 0	0, 0	0, 0	0, 0	0, 0
R. dentocariosa	0, 0	0, 0	0, 0	0, 0	0, 0
S. aureus	0, 0	completely	0, 0	0, 0	0, 0

Note: All dimensions shown in millimeters

Discussion:

In vitro results should not be interpreted as being always applicable to the 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 limited the significance of in vitro studies for actionable consequences they are, however, always necessary before progressing into more extensive, time consuming and financially demanding studies. The mere fact that OTC products, that may be used ad libitum by patients, contribute to a reduction in beneficial bacteria should be a concern to all health practitioners. Of greater interest should be the extent of the inhibition, as the zones of inhibition were 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 as such, is paramount in importance. The results were significant 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 effect the entire oral microbiome, which is the gateway to the digestive tract.

Conclusion:

Rothia species, *S. mutans* and Lactobacillus species, are decreased in quantity by the over use 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 Bowel Syndrome, and exacerbating ulcerative colitis increasing Celiac disease clinical prevalence. The Forsyth Institute noted at the poster session of the AADR 2012 meeting that *Rothia aeria* and *R. mucilaginosa* were identified as gluten-degrading strains in the oral cavity. While the human digestive enzyme system lacks the capacity to cleave immunogenic gluten, such activities are naturally present in the oral microbial enzyme repertoire (Wei, G, Zamkhcharli, M, Dewhirst, F, Schuppan, D, Oppenheim, F, Helmerhorst, E. Rothia Bacteria as Gluten-Degrading Natural Colonizers of the Oral Cavity, 2012).

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

Rothia mucilaginosa is inhibited by:
3. ACT fluoride rinse™
4. Crest Prohealth™

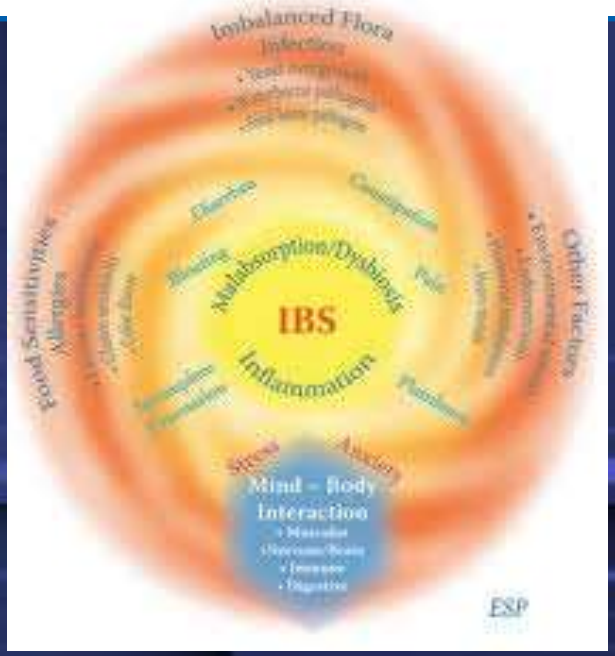
Rothia dentocariosa is inhibited by:
5. Levofloxacin
6. 27% alcohol.

R. dentocariosa inhibits *P aeruginosa*.

Gluten sensitivity epidemic

Conclusion:

Rothia species*, S. mutans* and Lactobacillus species, are decreased in quantity by the over use 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.



Probiotics- Antagonism and Inhibition

Fluoride Inhibits Good and Bad Bacteria- Benefit/Risk Ratio

Oral Microbiol Immunol. 2005 Dec;20(6):323-32.

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.

Probiotics- Antagonism and Inhibition

Fluoride inhibits enzymes, proton-translocating F-ATPases- at low levels of only 0.1mM

Can J Microbiol. 1995 Nov;41(11):955-64.

Antimicrobial actions of fluoride for oral bacteria.

Marquis RE.

Department of Microbiology, University of Rochester Medical Center, NY 14642-8672, USA.

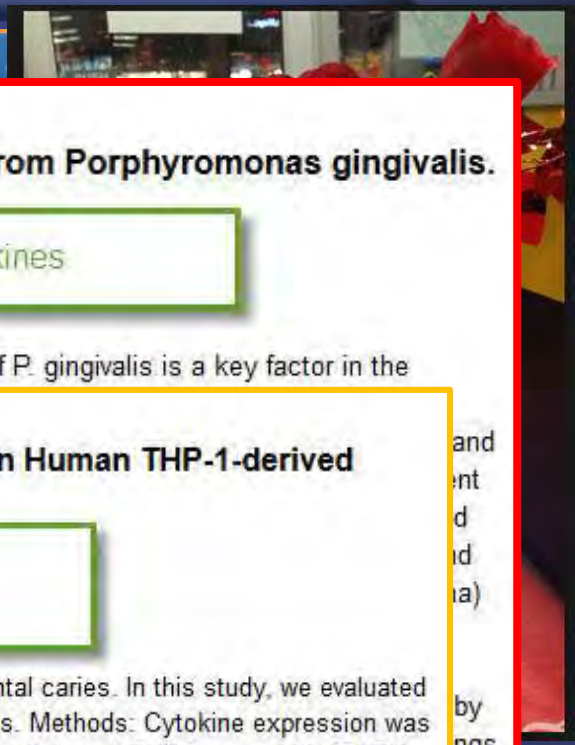
Acid Tolerance

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-irreversible 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-acid effects.

Probiotics- dietary effects - implications

- Autoimmune response



Clin Diagn Lab Immunol. 2005 Nov;12(11):1285-91.

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

Han SJ[1], Jeong SY, Nam YJ, Yang KH, Lim HS, Chung J.

⊕ **Author information**

Xylitol inhibits inflammatory cytokines

Abstract

Porphyromonas gingivalis is one of the suspected periodontopathic bacteria. The lipopolysaccharide (LPS) of P. gingivalis is a key factor in the

J Periodontol. 2014 Mar 4. [Epub ahead of print]

Xylitol, an Anti-caries Agent, Exhibits Potent Inhibition of Inflammatory Responses in Human THP-1-derived Macrophages Infected With Porphyromonas Gingivalis.

Park E[1], Na HS, Kim SM, Wallet S, Cha S, Chung J.

⊕ **Author information**

Xylitol an anti-inflammatory agent

Abstract

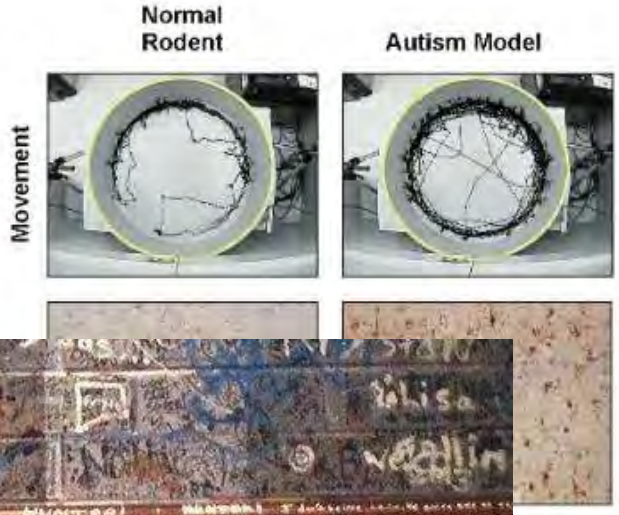
Background: Xylitol is a well-known anti-caries agent and has been used for the prevention and treatment of dental caries. In this study, we evaluated the anti-inflammatory effects of xylitol for possible usage in the prevention and treatment of periodontal infections. Methods: Cytokine expression was 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, [illegible] periodontitis.

Xylitol

Probiotics- Neurologic Implications

- Autism
- "Autism Spectrum Disorder"
- Evidence mounts,

Short-chain fatty aci
products of the gut
implications in autis
disorders



Transl Psychiatry. 2013 Jan 22;3:e220. doi: 1

Unique acyl-carnitine profile
disorder.

Frye RE[1], Melnyk S, Macfabe DF.

⊕ Author information

Abstract

Autism spectrum disorder (ASD) has
a specific genetic mutation to explain
Acquired MD has been demonstrated
ASD-associated gut bacteria, is infus
neuropathologic and neurophysiologic
short-chain and long-chain acyl-carnit
abnormal fatty-acid metabolism are p
underwent screening for metabolic dis
reviewed. Acyl-carnitine panels were
these abnormalities were verified by repeated testing. Overall, 17% of individuals with ASD demonstrated consistently abnormal acyl-carnitine panels.

Probiotics- Neurologic Implications

J Clin Gastroenterol. 2012 Jan;46(1):16-24. doi: 10.1097/MCG.0b013e31823711fd.

The intestinal microbiota and obesity.

Kallus SJ[1], Brandt LJ.

⊕ Author information

PLoS One. 2013 Jul 10;8(7):e6

Microbial reprogra

Poutahidis T[1], Kleinewietfe
Erdman SE.

⊕ Author information

Abstract

A recent epidemiological
prevented age-associated
role in this process. Here
(Th)17-biased immunity a
eating probiotic yogurt to
serve to lessen fat patholo
therapy alone was sufficie
in mice regardless of thei
alone. Specifically, bacte
without significantly chan
cell balance and yielded
weight management and

for dietary variation wh

EPMA J. 2014 Jan 13;5(1):2. doi: 10.1186/1878-5085-5-2.

The efficacy of probiotics for monosodium glutamate-induced obesity: dietology concerns and opportunities for prevention.

Savcheniuk OA, Virchenko OV, Falalyeyeva TM, Beregova TV, Babenko LP, Lazarenko LM, Demchenko OM, Bubnov RV[1], Spivak MY.

⊕ Author information

Abstract

INTRODUCTION: Obesity becomes endemic today. Monosodium glutamate was proved as obesogenic food additive. Probiotics are discussed to impact on obesity development.

AIMS AND OBJECTIVES: The aim was to study the effects of probiotics on the development of monosodium glutamate (MSG)-induced obesity in rats.

MATERIAL AND METHODS: We included 45 Wistar male rats and divided into three groups (n = 15). Newborn rats of group 1 (control) received subcutaneously 8 μl/g saline. Group 2 received 3 to 4 mg/g MSG subcutaneously on the second, fourth, sixth, eighth and tenth day of life. Within 4 months after birth, rats were on standard diet. Group 3 received an aqueous solution of probiotics mixture (2:1:1 Lactobacillus casei IMVB-7280, Bifidobacterium animalis VKL, Bifidobacterium adolescentis VKM Ac-1409 D) at the dose of 5 × 10[9] CFU/kg/day/kg intragastrically. Administration of probiotics was started at the age of 4 weeks just after weaning and continued for 3 months during experiments. Group 2 received intragastrically 2.5 ml/kg water. Organometric and biochemical parameters in all groups of rats were analyzed over 4 months. The concentration of adiponectin was determined in serum, and leptin - in adipose tissue.

RESULTS: Administration of MSG led to the development of obesity in rats; body weight had increased by 7.9% vs controls ($p < 0.05$); body length had increased by 5.4% ($p < 0.05$). Body mass index and Lee index and visceral fat mass had increased ($p < 0.001$). Under the neonatal injection of MSG, the concentration of total cholesterol, triglycerides, VLDL cholesterol and LDL cholesterol significantly increased ($p < 0.001$), in comparison with controls. Adipose-derived hormones changed in MSG obesity rats: adiponectin decreased by 58.8% ($p < 0.01$), and leptin concentration in adipose tissue had increased by 74.7% ($p < 0.01$). The probiotic therapy of rats from group 3 prevented obesity development. Parameters of rats treated with probiotic mixture did not differ from that in the control.

CONCLUSIONS: The introduction of MSG to newborn rats caused the obesity in adulthood. Periodic administration of probiotic mixture to rat injected with MSG neonatally resulted in recovery of lipid metabolism and prevention of the obesity development.

Probiotics prevented Weight gain!

Déjà vu- it's1907 again!

Probiotics- Neurologic Implications

- Prevention and Probiotics- kefir and BLIS?

013.02.043. Epub 2013

otic modulates brain activity.

Legrain-Raspaud S, Trotin B, Naliboff B, Mayer EA.

Abstract

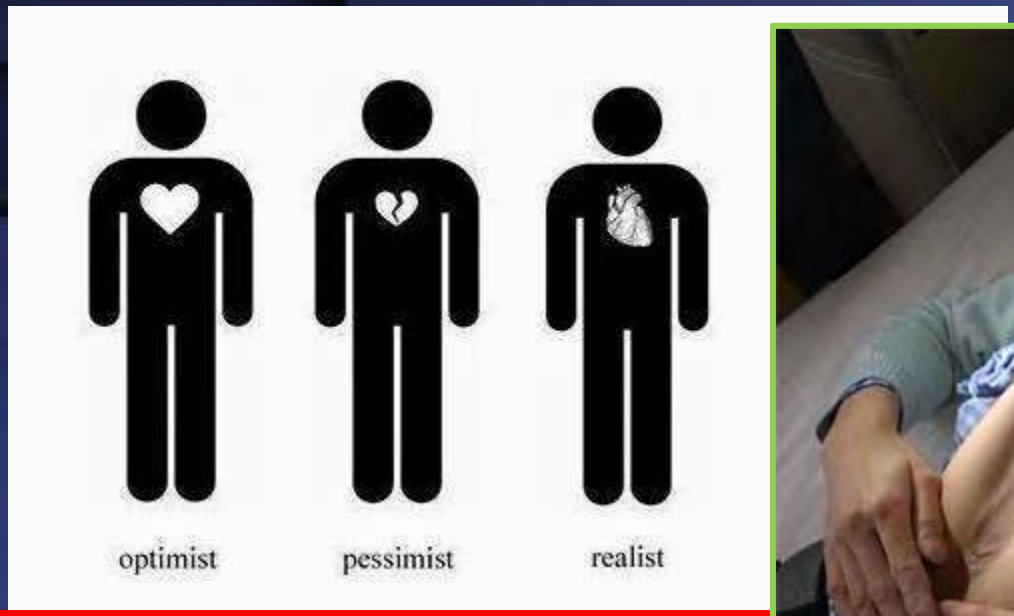
BACKGROUND & AIMS: Changes in gut microbiota have been reported to alter signaling mechanisms, emotional behavior, and visceral nociceptive reflexes in rodents. However, alteration of the intestinal microbiota with antibiotics or probiotics has not been shown to produce these changes in humans. We investigated 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 thermophiles, 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 faces attention task and resting brain activity. Multivariate and region of interest analyses were performed.

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.

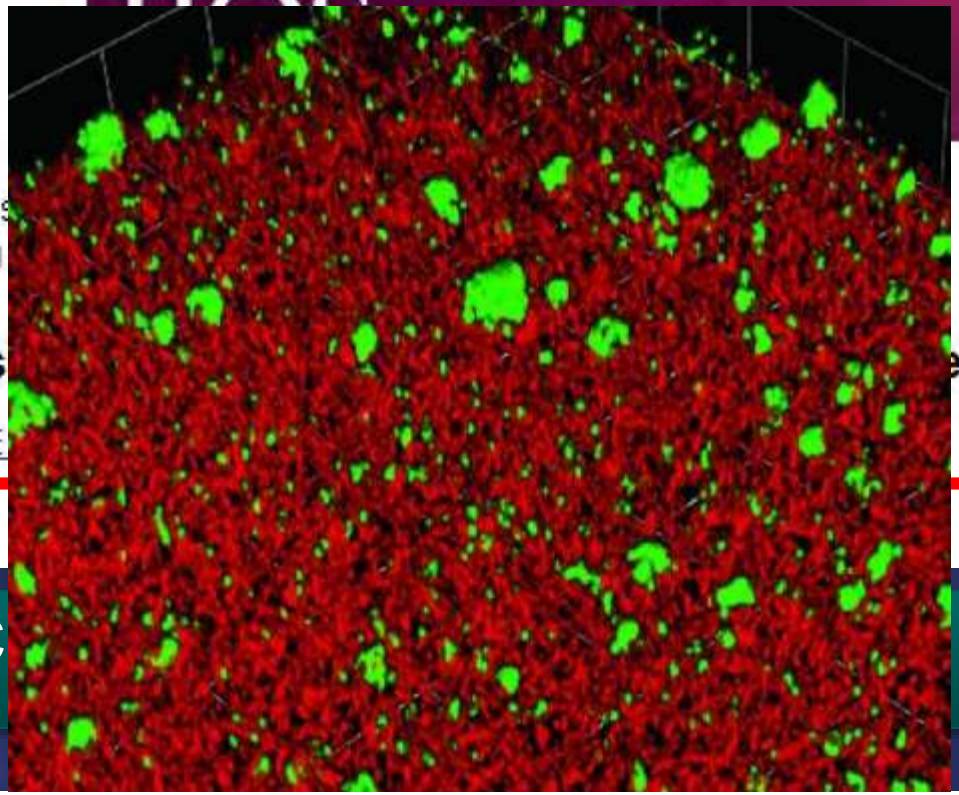
MRI and emotional brain tasking

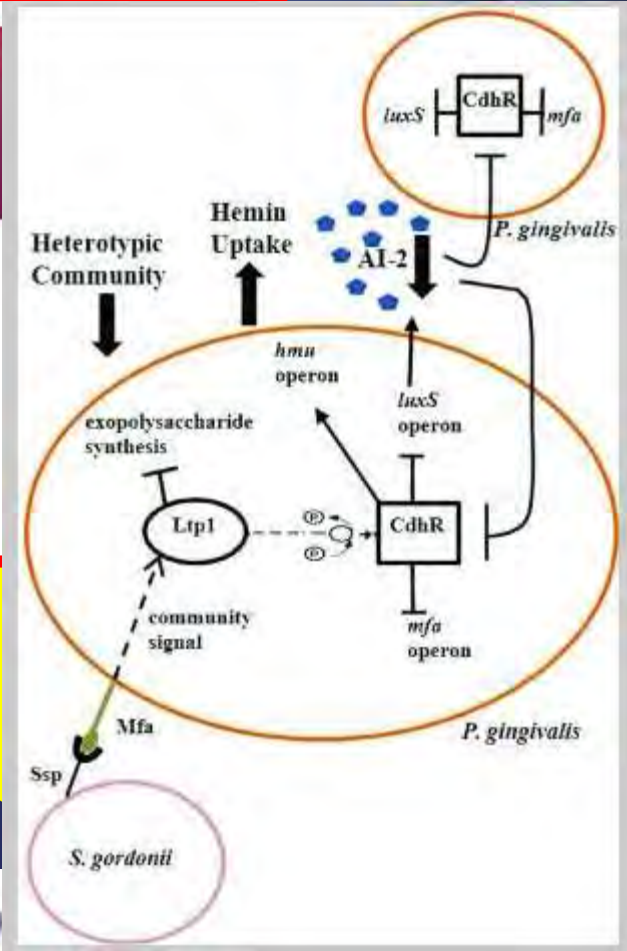


"The best way to not get your heart broken, is pretending you don't have one."

- Charlie Sheen

Probiotics- Neurologic Implications



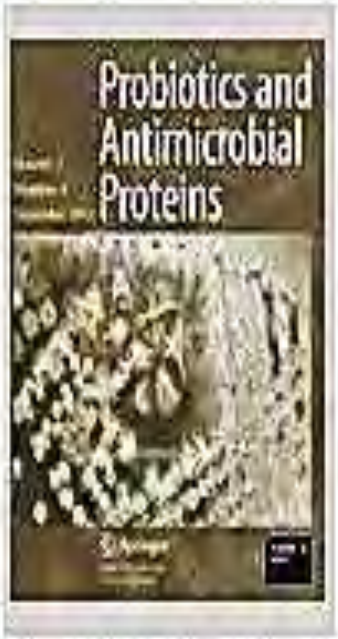


- TC

High levels of STEP proteins keep synapses in the brain from stren
strengthening is a process that is required for people to turn short-term memories into
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



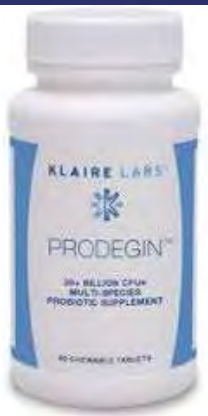
A Review of Probiotic Therapy in Preventive Dental Practice

Mark L. Cannon

change? Requires understanding.

Oral Health Probiotics- what to use?

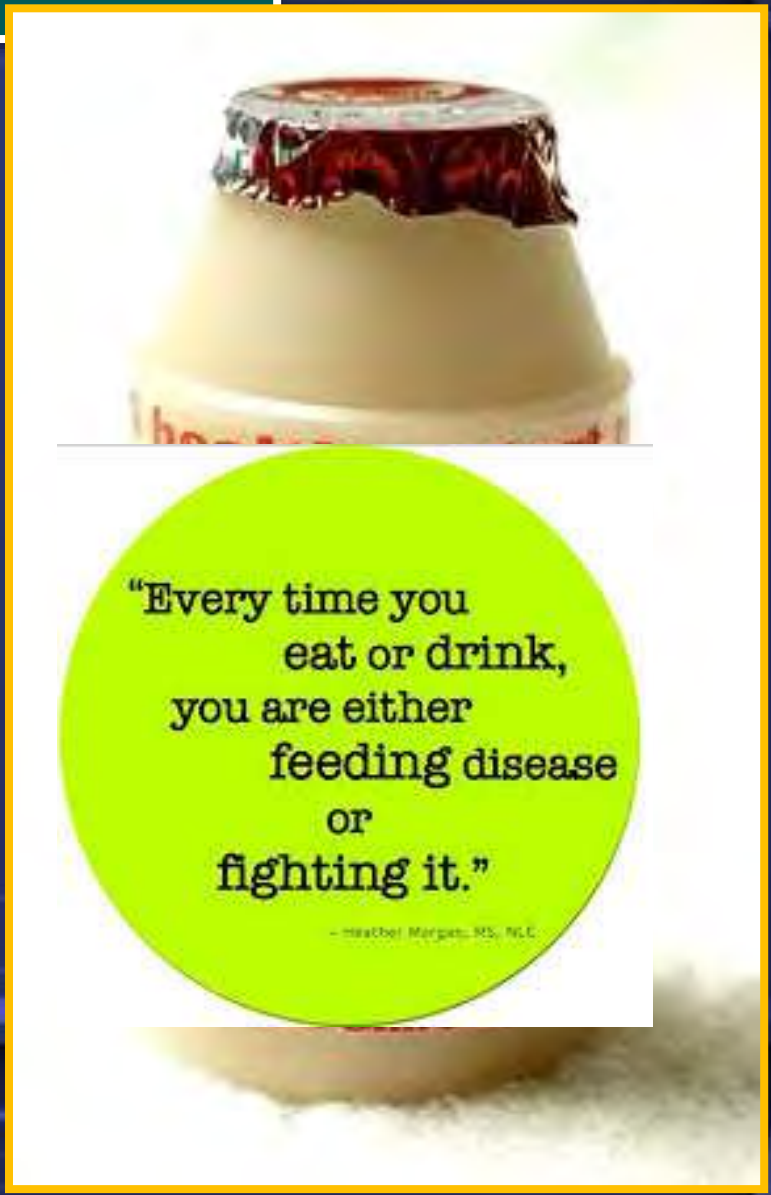
- Periobalance
- Evora Pro
- Evora Plus
- Biogaia
- ProlacSan
- BLIS K12
- Prodegin
- Gluten metabolizers



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.



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

ProlacSan and FotoSan Therapy

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

FotoSan® Blue agent
Liquid 0.5 ml.

FotoSan® Blue agent
Gel 0.5 ml.

FotoSan® Blue agent
Gel 1.5 ml.

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.

Subgingival
Bacterial replacement therapy

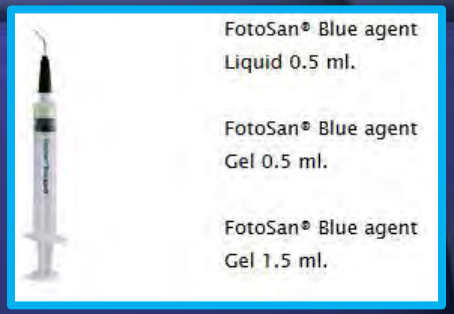
Boost the bacterial shift to healthy ones by injecting the Prolacsan® Gel directly into all the treated pockets.

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 1.2ml, 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 x 10^8 probiotics, a mix of lactobacillus brevis and plantarum. Neutral taste.

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

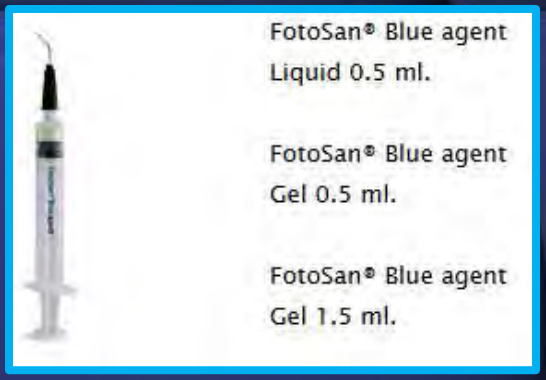
BACKGROUND: Root canal disinfection needs to be improved because actual techniques are not able to eliminate all microorganisms present in the root canal system. The aim of the present study was to investigate the in vitro cytotoxicity of FotoSan (CMS Dental APS, Copenhagen Denmark), 17% EDTA and 2%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

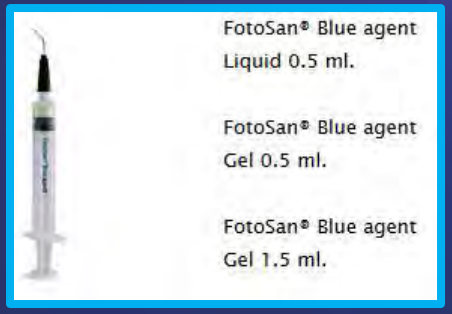
Author information

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

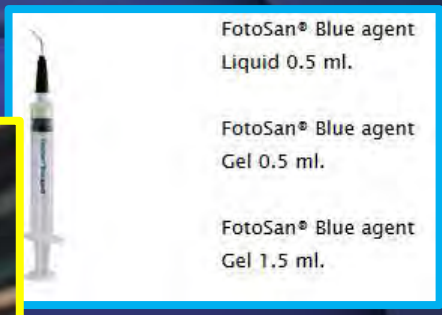


- Technique
  - Ultrasonic scale and polish
  - Measure PPD
  - Apply FotoSan Blue Agent
  - Light Activate
  - Apply ProlacSan

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.

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

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

- **Autism**
- **Diabetes Type II**
- **RA**
- **Reactive lung disease**
- **All autoimmune disorders**
- **Aging**
- **Gluten sensitivity**
- **Celiacs**

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 ,2

- **Children's Hospital Special Infectious Disease Lab-**
  - **Oral Probiotics**
  - **Inhibition agents**
  - **Gluten Metabolizers**

Practi oals

Pract each

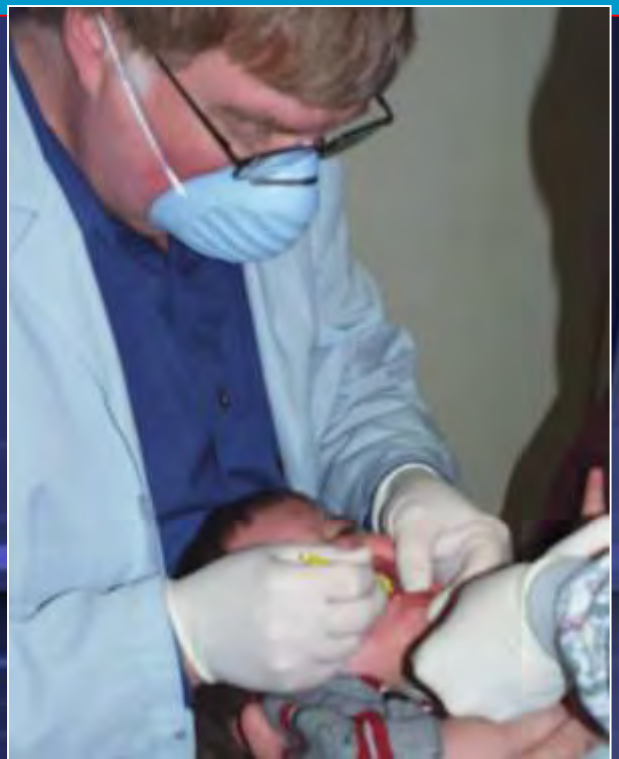
The “Three entistry”

Infant Oral Care

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

Infant Oral Health

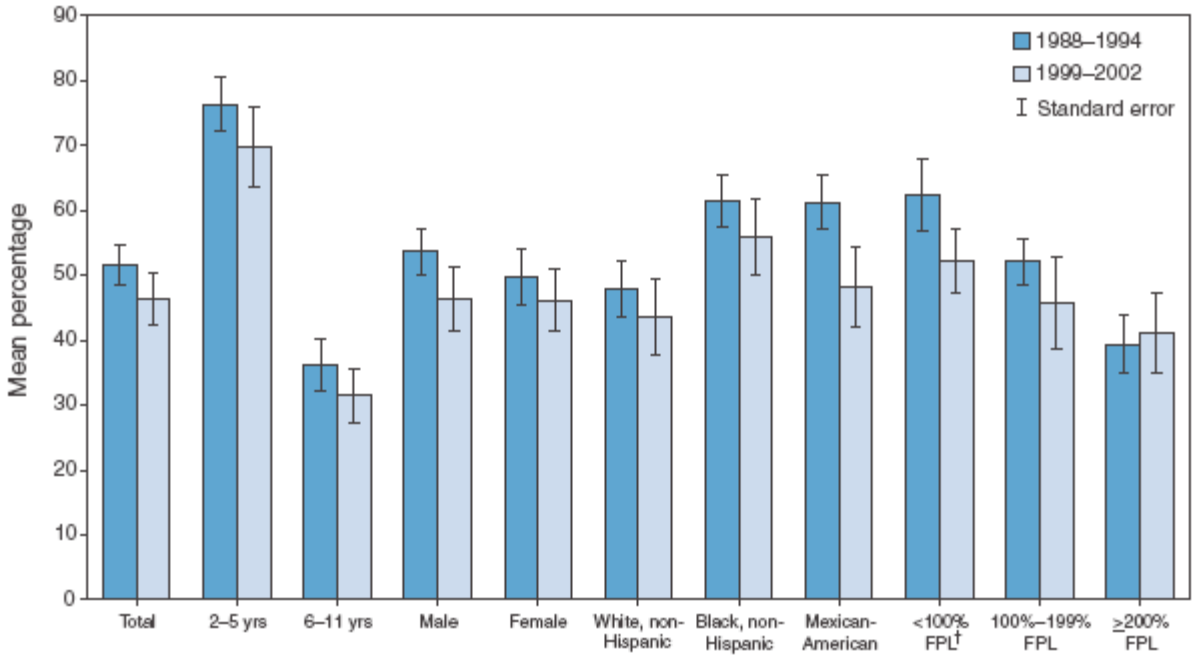
Prevention and Conservative treatment of ECC



Adjuncts to Routine Home Care

- Not much progress! Treated and Untreated

FIGURE 4. Mean percentage of decayed and filled surfaces that are decayed* in primary teeth of children aged 2–11 years, by selected characteristics — United States, National Health and Nutrition Examination Survey, 1988–1994 and 1999–2002



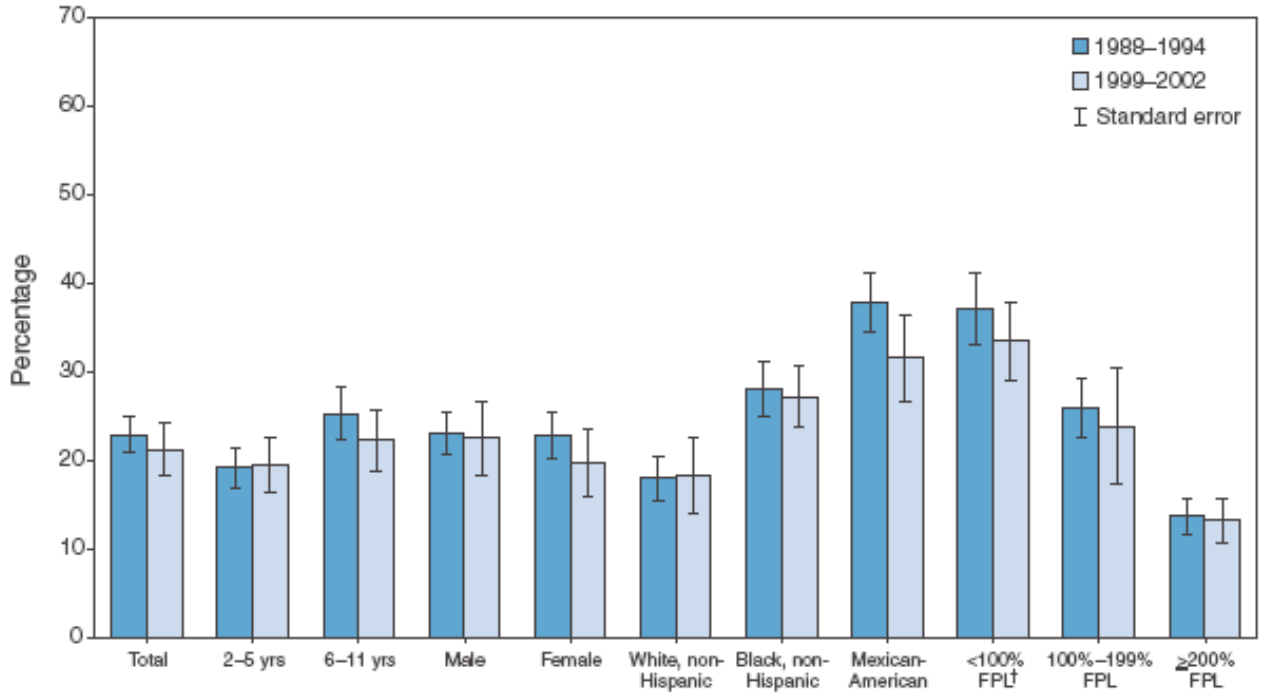
*Denominator includes children with at least one decayed or filled surface in primary teeth (dfs>0). All estimates are adjusted by age (single years) and sex to the U.S. 2000 standard population, except sex, which is adjusted only by age.

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

Adjuncts to Routine Home Care

- Untreated carious teeth 2-11 years

FIGURE 2. Prevalence of untreated tooth decay in primary teeth* among children aged 2–11 years, by selected characteristics — United States, National Health and Nutrition Examination Survey, 1988–1994 and 1999–2002



*Defined as having one or more untreated decayed surfaces in primary teeth (ds>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's Memorial Hospital
Where kids come first.

Infant Oral Health Center

- Children with medical complications have (2 times) significantly more DDE in primary teeth

Children's Memorial Hospital
Where kids come first.

DEVELOPMENTAL ENAMEL DEFECTS IN PRIMARY TEETH IN CHILDREN WITH CEREBRAL PALSY, MENTAL RETARDATION, OR HEARING DEFECTS: A REVIEW

M. BHAT[1] AND K. B. NELSON[2]

[1]*Epidemiology and Oral Disease Prevention Program, National Institute of Dental Research, National Institutes of Health, 5333 Westbard Avenue, Rm. 549, Bethesda, Maryland 20892;* [2]*Neuroepidemiology Branch, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Federal Building, Rm. 8C16, Bethesda, Maryland 20892*

Adv Dent Res 3(2):132-142, September, 1989

ABSTRACT

Developmental enamel defects in primary teeth have been found at least twice as frequently in children with cerebral palsy or mental retardation as in control children, and frequently also in children with sensori-neural hearing deficits. The developing tooth germ is sensitive to a range of systemic disturbances, some of which may also affect neurologic development. Because the enamel cannot recover once it is damaged, it may provide a repository of information on the timing and nature of insults potentially affecting other ectodermally derived structures, including the brain. This paper reviews the literature on developmental defects of enamel in primary teeth, asking whether these might be useful as biological markers of the timing and in some cases the nature of insults. Among systemic factors related to development of enamel that might also have implications for neurologic development are certain genetic disorders including tuberous sclerosis, premature birth, neonatal nutritional disturbances (especially hypocalcemia), viral infections (such as rubella and cytomegalovirus during gestation), thyroid disorders, and maternal diabetes. It is concluded that further research is warranted concerning whether developmental defects of dental enamel can be useful markers for the timing of intra-uterine or perinatal events associated with certain neurologic and sensory disorders of children.

Infant Oral Health Center

- "Normal Children"- 9.3% DDE
- Prematurely born- 56.5% DDE (pre-mie enamel)

Children's Memorial Hospital
Where kids come first.

THE PREVALENCE OF DEVELOPMENTAL DEFECTS OF TOOTH ENAMEL (DDE) IN A PEDIATRIC HOSPITAL DEPARTMENT OF DENTISTRY POPULATION (Part I)

R.K. HALL
Department of Dentistry, Royal Children's Hospital, Melbourne 3052, Australia

Adv Dent Res 3(2):114-119, September, 1989

ABSTRACT

This paper reports the first part of a three-part study of developmental defects of tooth enamel in a pediatric hospital population. The dental records of 8411 children who were discharged from the Department of Dentistry at the Royal Children's Hospital, Melbourne, Australia, between 1960 and 1987 were divided into an experimental group of 7518 patients comprising 25 groups of medical conditions, and a control group of 893 children who had dental disorders only. The aim of the study was to investigate the prevalence of hypoplastic and severe-opacity developmental defects of tooth enamel (DDE), in children and adolescents with major medical disorders, and to compare the prevalence with that in the control group of normal children. The prevalence figures obtained for the different medical conditions in this study agreed generally with those of other recent investigators. The high prevalence of defects found in Rubella Embryopathy children (81.8%) and in children with Prematurity alone (56.5%) is surprising, whereas the prevalence of 27.9% defects in Clefts of Lip and Palate and 26.4% defects in Clefts of Lip and Alveolus are probably well below the true prevalence. The control group prevalence was 9.3%, which is higher than in some other studies of 'normal' children. A pediatric hospital is a most useful source of fully documented medical and dental histories for the investigation of possible relationships between medical disorders and developmental defects of tooth enamel.

Infant Oral Health Center

Children's Memorial Hospital

TABLE

THE PREVALENCE OF DEVELOPMENTAL DEFECTS OF TOOTH ENAMEL HYPOPLASIA AND SEVERE OPACITIES IN MEDICAL CONDITIONS FROM ROYAL CHILDREN'S HOSPITAL, MELBOURNE

Experimental Group I (Discharged Patients)

Medical Condition	WHO ICD -9-CM Number	No. in Group	% Total Cases	No. of Enamel Defects	% Defects in Group
Rubella embryopathy	771	22	0.3	18	81.8
Prematurity alone	765	23	0.3	13	56.5
Gr2 Cleft Lip & Palate	749.2	437 (58.5% of Clefts)	5.8	122	27.9
Gr1 Cleft Lip & Alveolus	749.1	91 (12.2% of Clefts)	1.2	24	26.4
Metabolic	277.9	110	1.5	26	23.6
Gastro-intestinal	520-599	65	0.9	14	21.5
Dermatologic	680-709	47	0.6	10	21.3
Ophthalmic	378	22	0.3	4	18.2
Thoracic	460-519	562	7.5	81	14.4
Genito-Urinary	580-629	197	2.6	28	14.2
Cardiac	390-459	1135	15.1	140	12.3
(Congenital Defects)	745	955 (84% of Cardiac)	12.7	127	13.3
Neurologic	290-319	1636	21.8	179	10.9
(Cerebral Palsy)	320-389	656 (40% of Neurol)	9.5	86	13.1
Syndromes & Genetic	758				
(inc. Down's Syn.)	759	244	3.2	23	9.4
Endocrine	240-279	486	6.5	43	8.8
Craniofacial/Plastic	755	70	0.9	6	8.6
E.N.T	461-463	101	1.3	8	7.9
Gr3 Cleft Palate	749.0	219 (29.3% of Clefts)	2.9	17	7.8
General Paediatric	780-799	28	0.4	2	7.1
Haematol/Oncol	280-289 140-239	649	8.6	43	6.6
General Infections	001-139	32	0.4	2	6.3
Traumatic Injuries (Teeth & Jaws)	802	800	10.6	46	5.8
Psychiatric	290-319	254	3.4	13	5.1

Infant Oral Health Center

Dental indic

Stephen M. Dura

Department of A

*Correspondenc

KEYWORDS

hypoplasias • hy

ABSTRACT

Considerable ev
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(DDE) Index. The
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The modal value
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defects may be

Biolo

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
- At what age did he/she stop? _____
- If no, skip to question #3
- 1b. If yes, does your child use the bottle at specific times or whenever he/she desires?
- 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 time per week _____
- 4. Does your child drink juice?
- If yes, what kink of juice _____ and how many times per week _____
- 5. Does you 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 you level of education?
- Junior High High School Technical School College Post Graduate

Children's Memorial Hospital
Where kids come first.

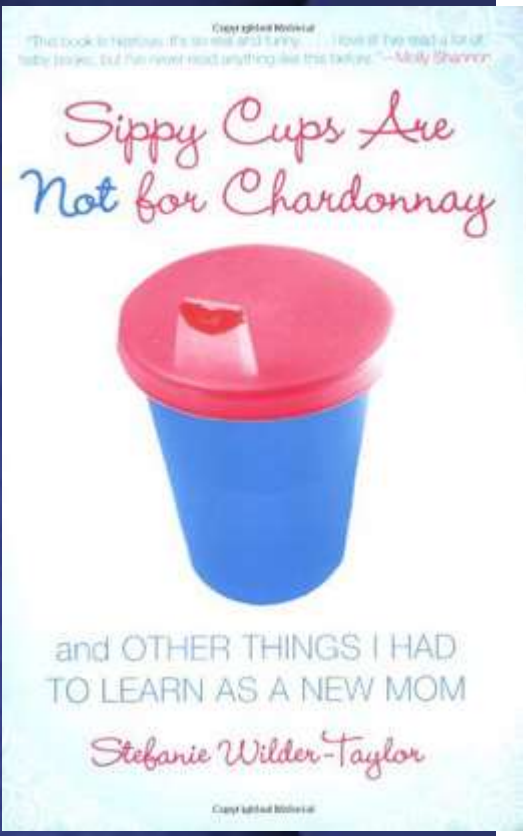
Current Studies:

-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?_____

Infant Health Questionnaire

5. Does your child regularly eat table food? YES NO
   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. YES NO
   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? YES NO
   At what age?_____

7. Do you help your child brush his/her teeth? YES NO
   How many times a day?_____

Infant Health Questionnaire

Do you floss their teeth? YES NO
How often? _____
Do they swallow the toothpaste? YES NO
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? YES NO
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”.

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

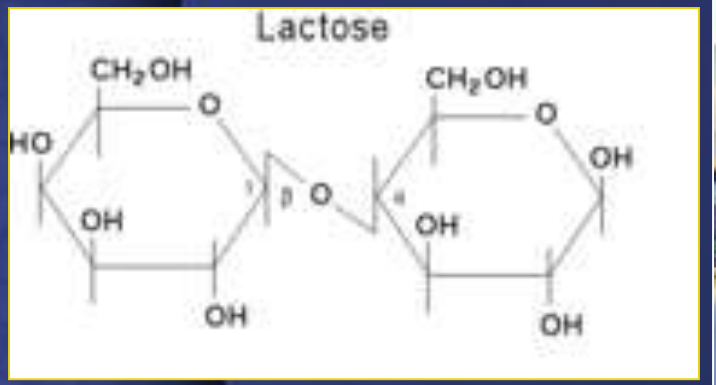
Two years- language leaps, understands prepositions, can follow story with pictures

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

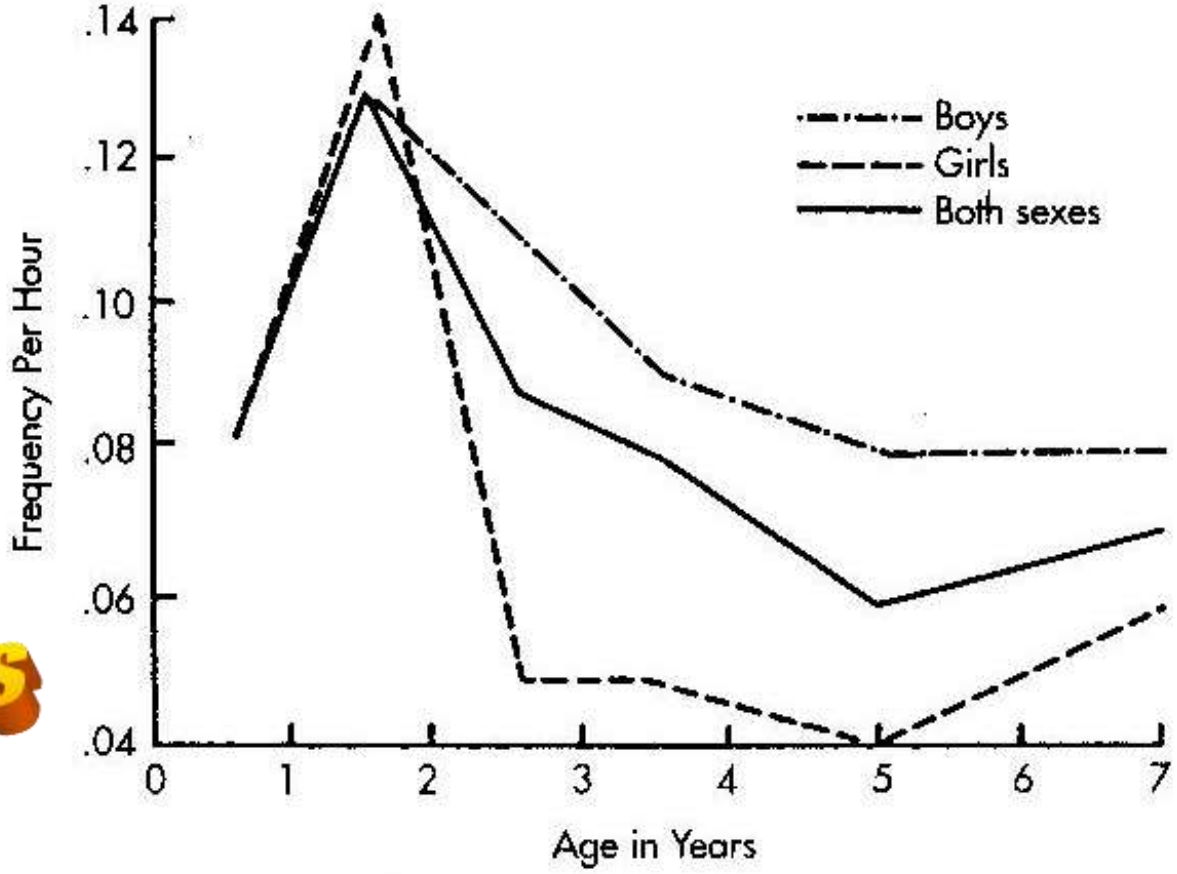
Avoidant child- unresponsive to mom and demonstrates little distress if she leaves

Resistantly attached- clings to mom and hits, punishes mom

Disorganized attachment- little response

Adjuncts to Routine Home Care

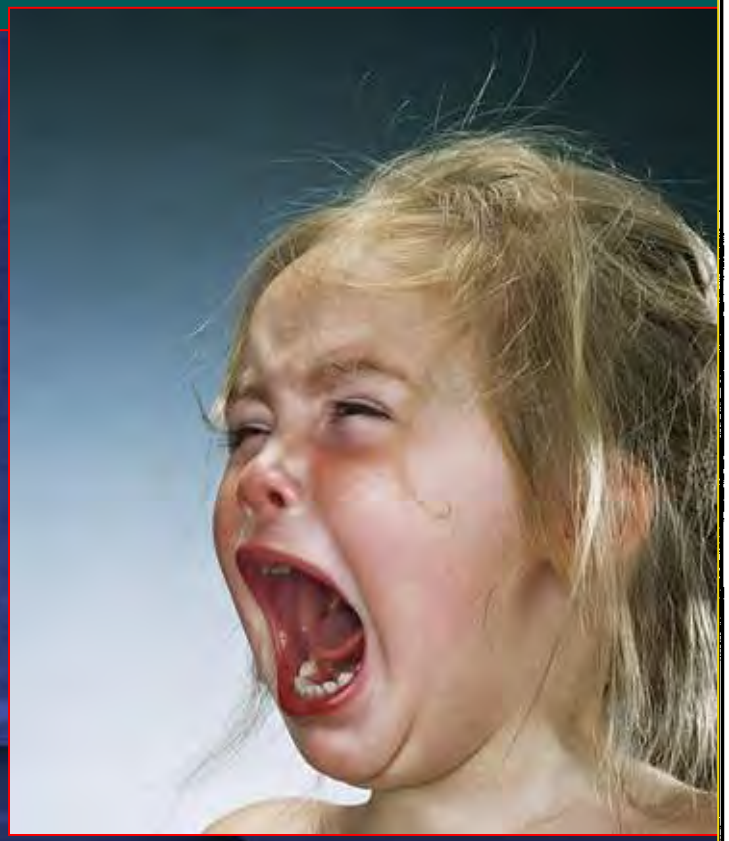
- Behavioral Characteristics- Anger Outbursts



Terrible Two's

Adjuncts to Routine Home

- Behavioral Characteristic



Dentist visit ends in charges

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

By Lee Filas and Corrinne Hess

lfilas@dailyherald.com, chess@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, 978 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

See VISIT on PAGE 9

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

Minimally Invasive Dentistry

Infant Oral Care

- MI Paste
- Not for patients with milk allergies

16 month old

Minimally Invasive Dentistry

Infant Oral Care

- MI Paste

Recaldent

(CPP-ACP)

16 year old

Preventive Care- Repair

Recaldent

(CPP-ACP)

Preventive Care

Recaldent

(CPP-ACP)

Nocturnal Moisture Appliance

Preventive Care

New!

MI Varnish™ with
RECALDENT™ (CPP-ACP)

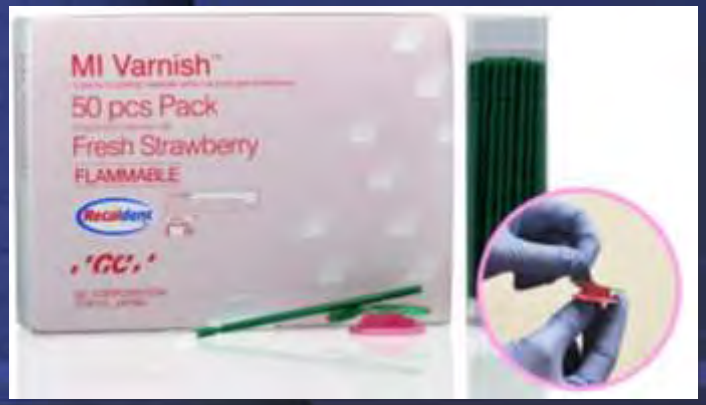
THE DENTAL ADVISOR
www.dentaladvisor.com
Editors' Choice
+ + + +½

*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

Unit Dose Packaging

One unit dose package contains:

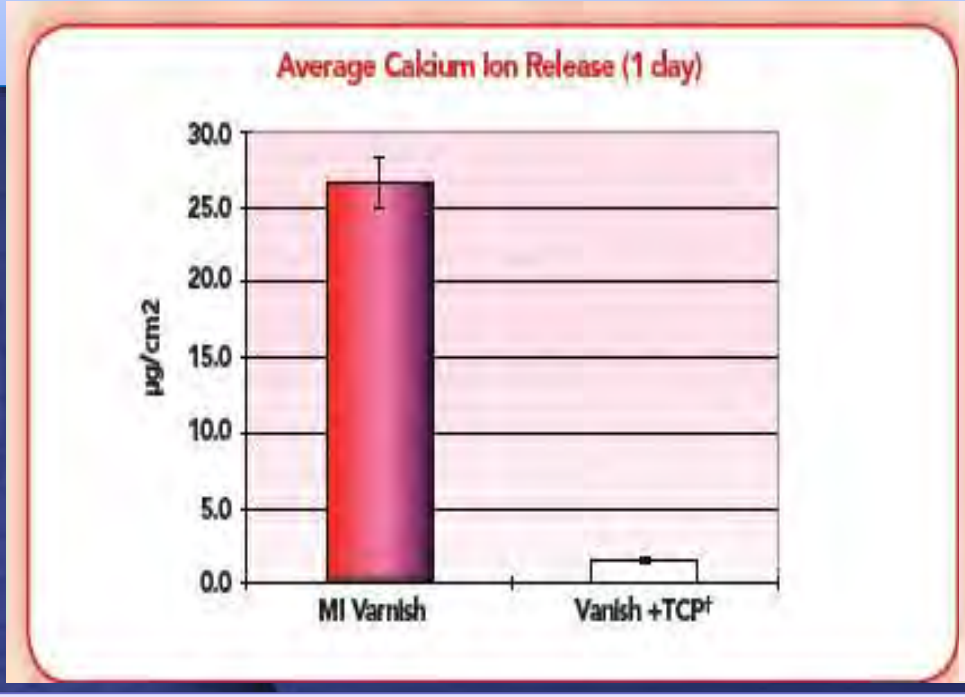
- 0.5mL/0.55g
- 50 unit dose packages
- 50 disposable brushes

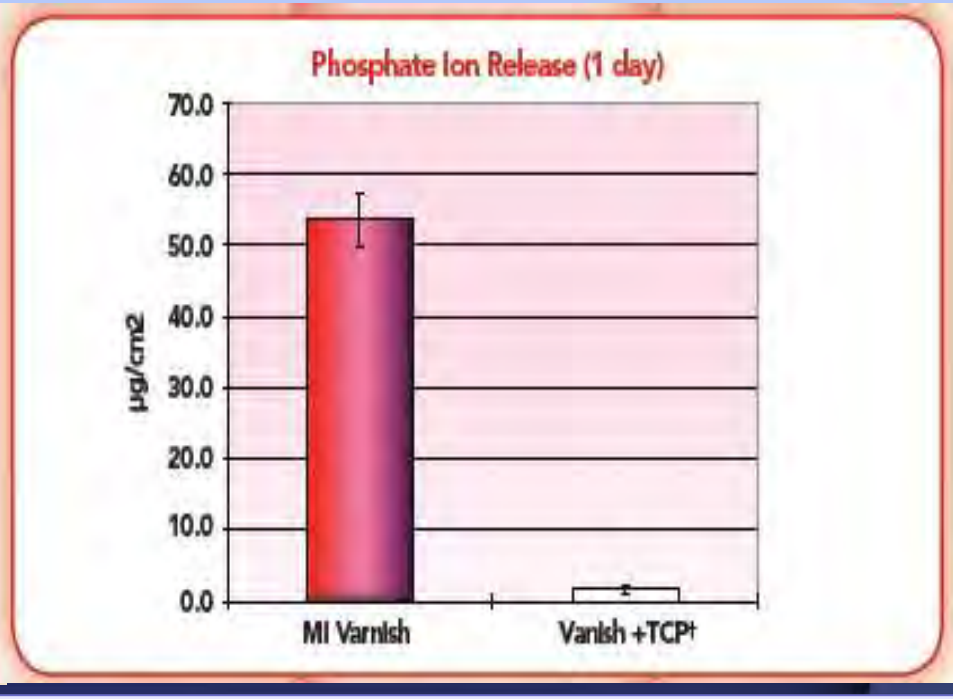
Fresh Strawberry Flavor
accepted by children and adults

0.5mL of MI Varnish contains 0.55g of sodium fluoride – enough for a full adult dentition –

Why MI Varnish?

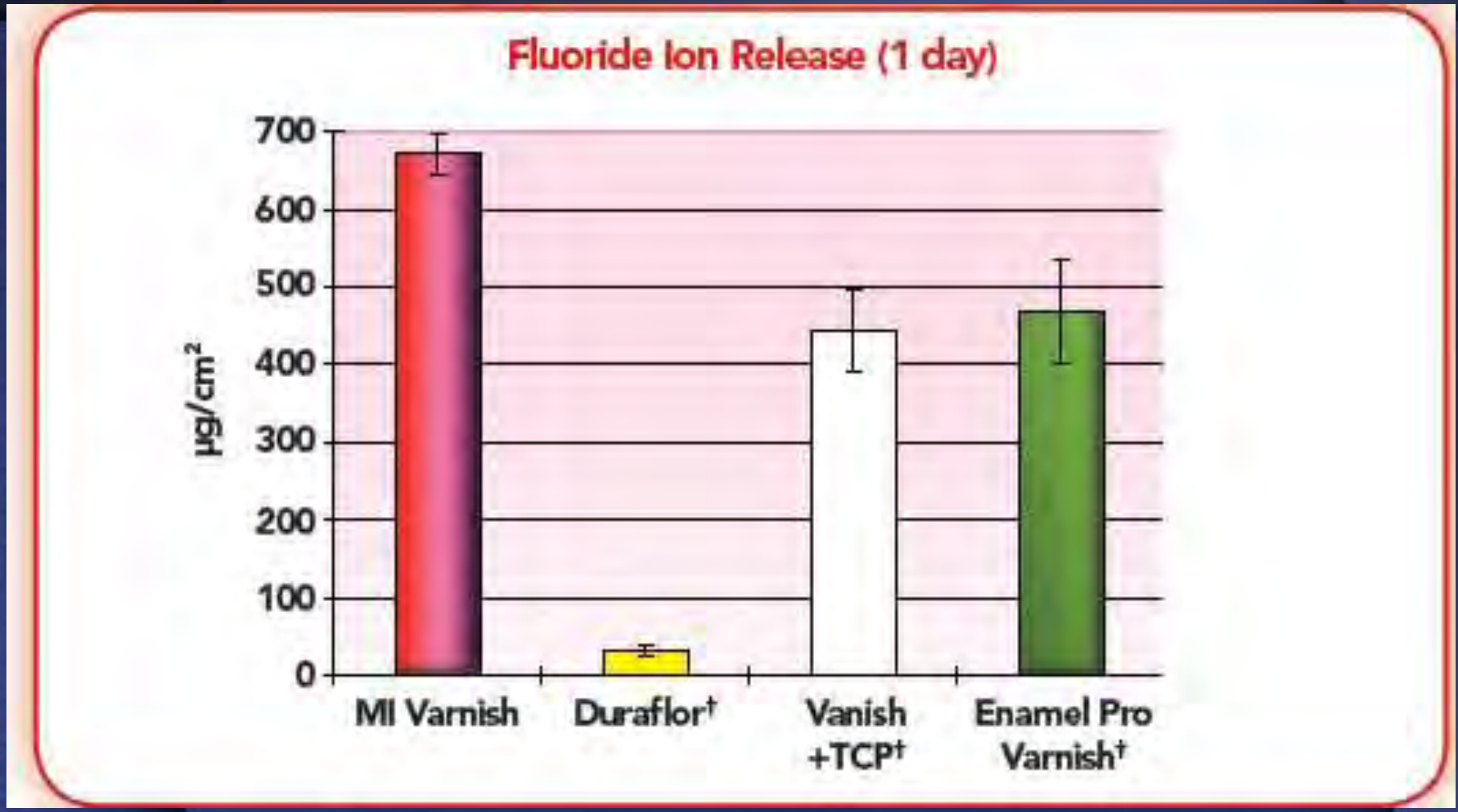
- ✓ Calcium and phosphate ions are the building blocks for healthy teeth.
- ✓ MI Varnish delivers ***bioavailable*** calcium, phosphate and fluoride ions into the saliva.





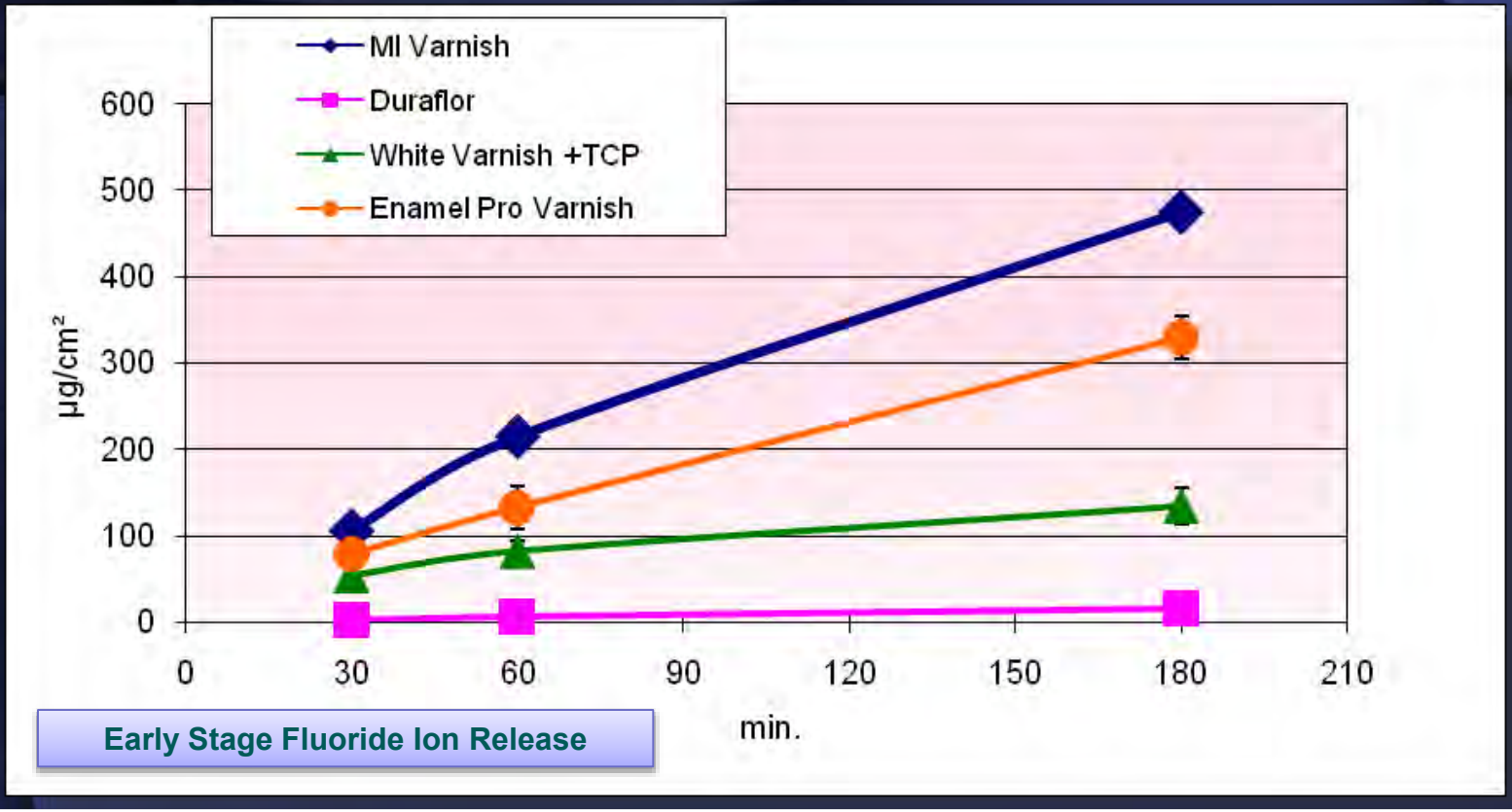
Higher fluoride, calcium and phosphate ions released due to the RECALDENT™ (CPP-ACP) technology

MI Varnish



MI Varnish releases higher levels of fluoride initially and over time- GC data

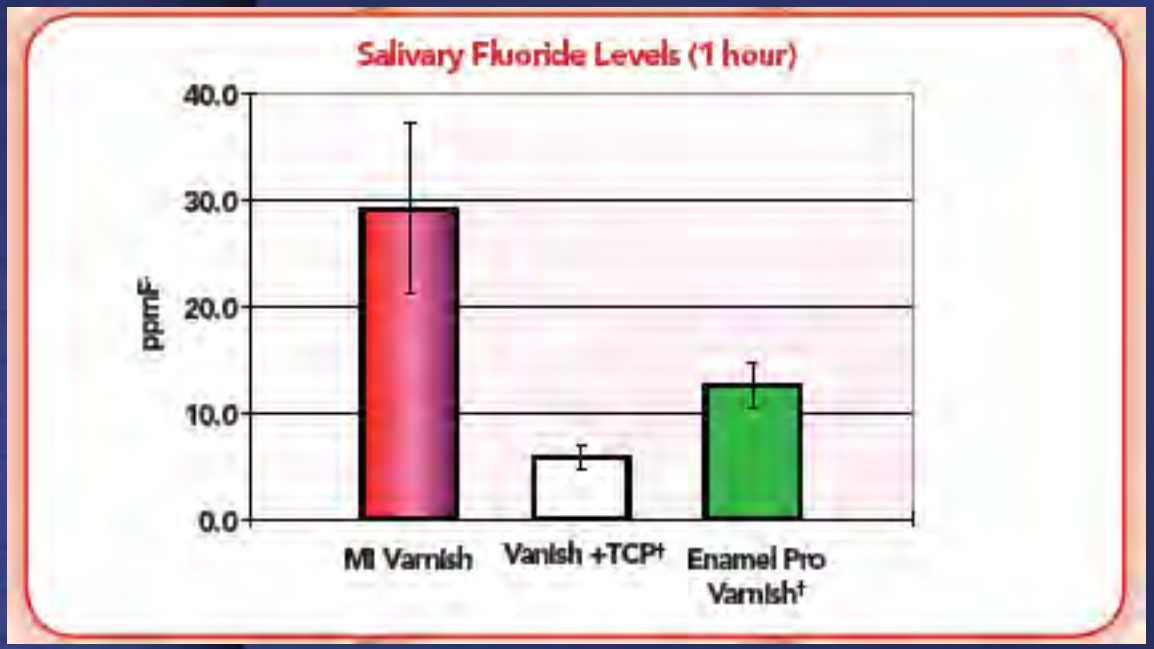
MI Varnish- fluoride ion release in saliva



- ✓ 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- fluoride in pooled saliva

✓ 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.

Directions for Care After MI Varnish™ Treatment

After the application of MI Varnish, you will feel a coating and may notice a difference in color while the varnish remains on your teeth. To obtain the maximum benefit from your MI Varnish application, we recommend you take the following care after you leave our office.

- ☐ Leave MI Varnish on your teeth. Do not brush or floss for at least 4 hours.
- ☐ Avoid hard, hot or sticky foods, and products containing alcohol (oral rinses, beverages etc.) while the MI Varnish is on the teeth.
- ☐ Refrain from using other fluoride containing products such as MI Paste Plus™, prescription toothpastes, fluoride gels and mouth rinses until the next day.

Note:
If you are taking fluoride tablets, it is suggested to stop usage for 2-3 days.

A thorough brushing and flossing will easily remove any remaining MI Varnish after completion of treatment.

GC CORPORATION
TOKYO, JAPAN

MI Varnish with RECALDENT™ (CPP-ACP)

How does the RECALDENT™ (CPP-ACP) in MI Varnish, and 22,600 ppm Fluoride work?

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!!

Research- CPP-ACP

Dent Res J (Isfahan). 2014 Mar-Apr; 11(2): 193–198. PMCID: PMC4052644

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.

Dent Res J (Isfahan). Dec 2011; 8(Suppl1): S64–S70. PMCID: PMC3556290

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.

Research- ACP-CPP

Am J Dent. 2013 Aug;26(4):207-13.

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.

Analysis of Anticaries Potential of Pit and Fissures Sealants

OPERATIVE

RY

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

ALLERGY- ISSUES

To colophony, pine nuts is a contraindication, any ulcers

- 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.