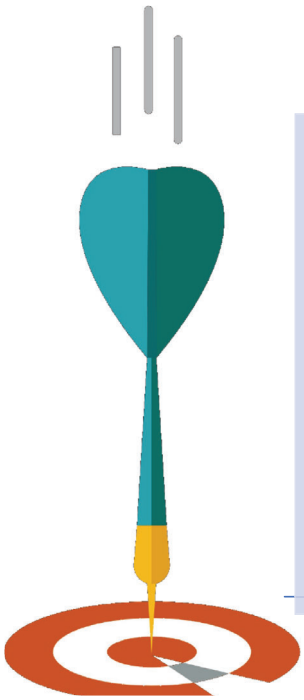
Disclosures

- I volunteer for the ADA but my opinions are my own
  - ADA Council of Scientific Affairs (2012-2016)
  - A cariology consultant for the ADA (current)
- Financial relationships:
  - GC America
  - Elevate Oral Care
  - Oral BioTech
- Products: broad diverse sample of what is available, no endorsements are implied



OBJECTIVES

1. Use a person-centered care approach using motivational interviewing and shared decision making to communicate
2. Properly perform a caries risk assessment and propose evidence-based treatment options
3. List products to treat caries disease

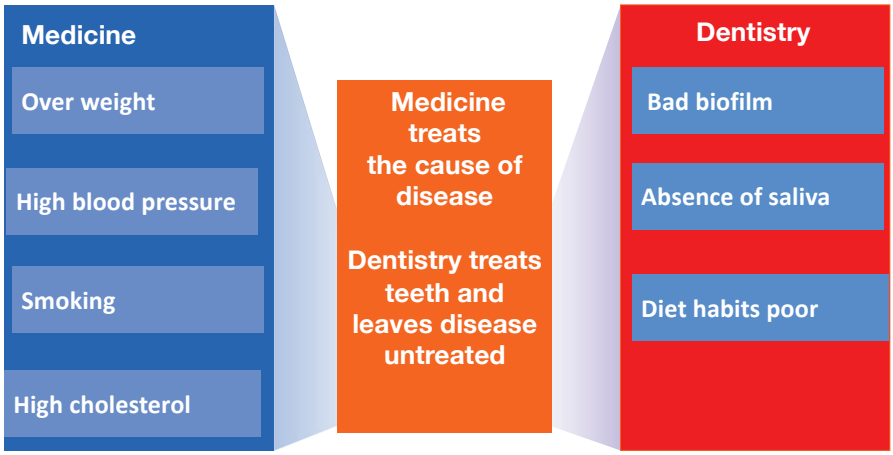
Person-centered Care

using shared decision making and motivational interviewing

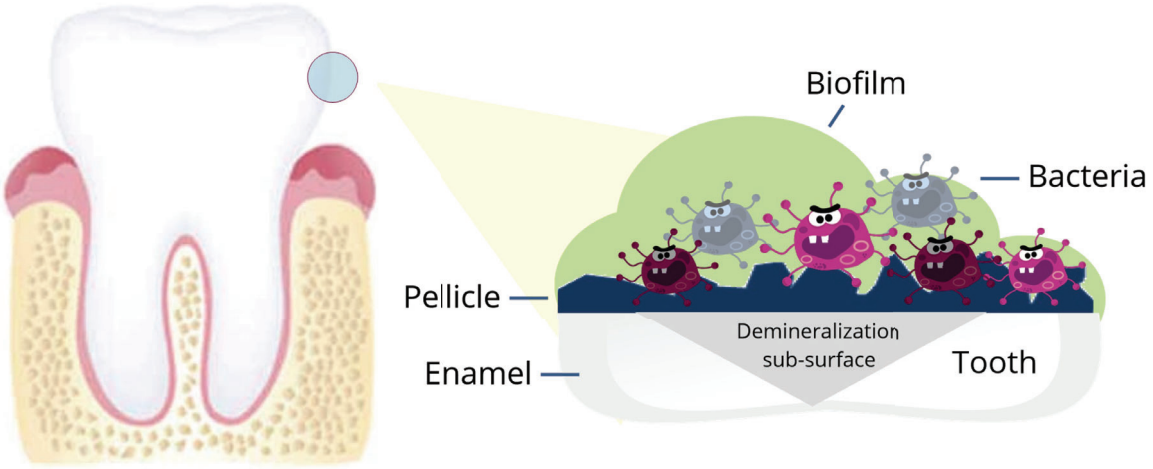
- Viewed not as the patient but as the person
- Their values and preferences are elicited and once expressed, guide all aspects of their health care
- Person-centered care has been found to be associated with improved patient outcomes

Allen M. The value of values: shared decision-making in person-centered, value-based oral health care. J Public Health Dent 2020;80 Suppl 2:S86-S88.

Medical vs. Dental Model



The Caries Disease Process is Chemical and Biological



Tooth, pellicle, pathogenic biofilm (MS,LB, non-MS low pH bacteria), fermentable CHO, acid, = demineralization

The Biological Aspects
Extended Ecological Plaque Hypothesis (2008)

In the presence of **low pH,** non-Mutans Streptococci (MS) bacteria and Actinomyces (normally non-pathogenic) can adapt to produce acid.

Low pH destabilizes the homeostatic biofilm and causing a shift to a more acidogenic biofilm.

MS and Lactobacilli (LB) can then predominate at a lower pH.

Takahashi N, Nyvad B. Caries ecology revisited: microbial dynamics and the caries process. Caries Res 2008;42(6):409-18.
Takahashi N, Nyvad B. The role of bacteria in the caries process: ecological perspectives. J Dent Res 2011;90(3):294-303.

Caries Gone Wild:
Biofilm Behaving Badly

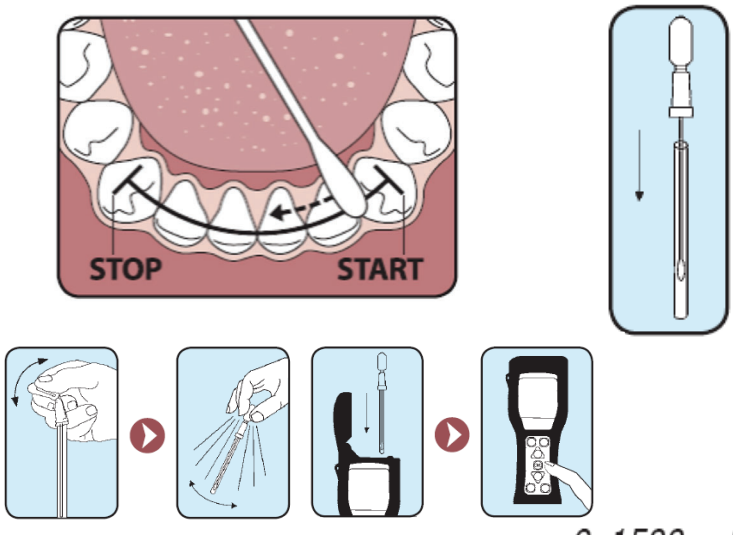
Tools to Help Patients Understand Acid Producing Biofilm Behavior

ATP Bioluminescence & Disclosing Agents

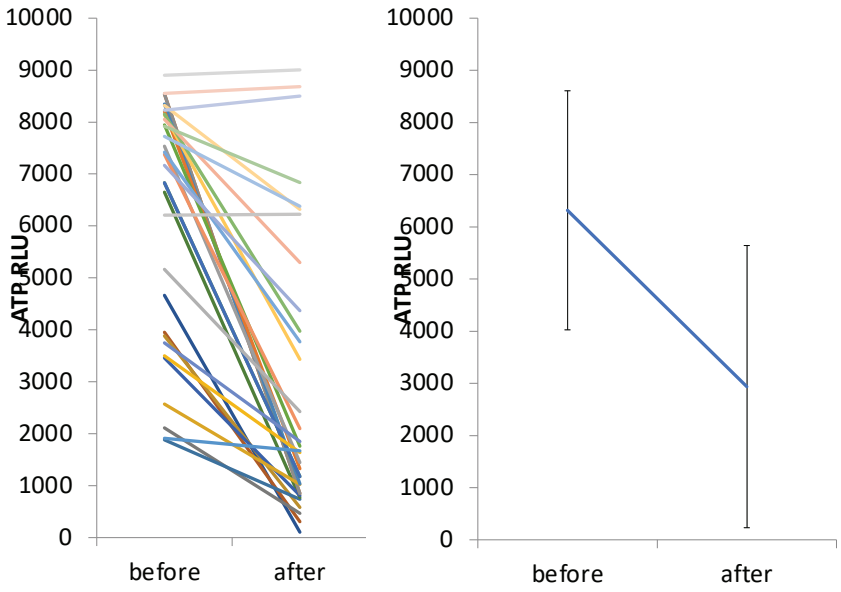
ATP Bioluminescence

- Real time (1 minute) inexpensive screening test for identifying high risk from low risk individuals
- Based on ATP measurements

DO NOT DO THIS! USE VERTICLE SWIPE OF SAME SURFACES INSTEAD



	T-test p-value	0.00000000487



Unique pH Plaque Disclosing Agent

Tube contains 40g(36ml)
US Suggested Retail: $21.85
CANADA Suggested: $22.75 CAD
SKU: 004273

What is GC Tri Plaque ID Gel?

GC Tri Plaque ID Gel works by disclosing plaque in three colors:

Red: Low risk plaque (fresh plaque)

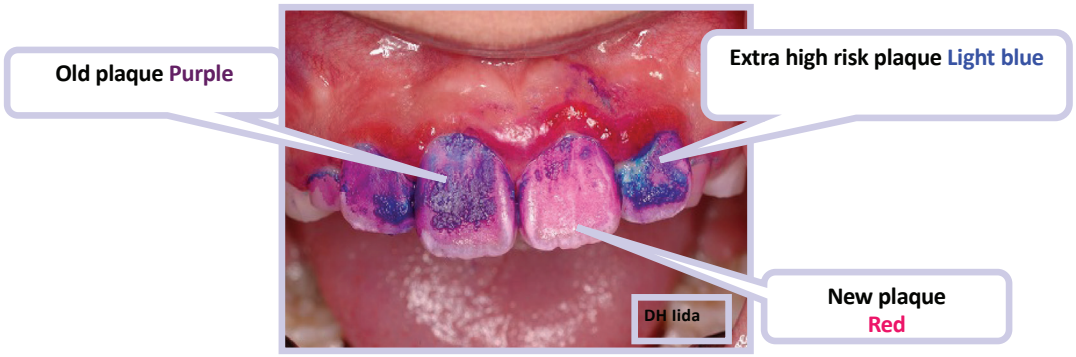
Purple: High risk plaque (mature plaque – over 48 hours)

Light Blue: Extra high risk plaque (mature & strong acid-producing plaque)

STORAGE
Store in a cool dry low humidity area away from direct sunlight (8-25°C).

SHELF LIFE
Shelf life: 3 years from date of manufacture.

3 color Plaque ID Gel



New Technology

BlueCheck

Caries Res. 2023 Feb; 56(5-6): 555–565.
Published online 2022 Nov 30. doi: 10.1159/000528413
PMCID: PMC9932840
PMID: 36450238

Ability of a Blue Hemoglobin-Based Liquid as a Novel Technology to Stain Initial Enamel Demineralization: A Proof-of-Concept in vitro Study

Anahita Jablonski-Momeni,[a,*] Mara Müller,[a] Heike Korbmacher-Steiner,[a] and Peter Bottenberg[b]

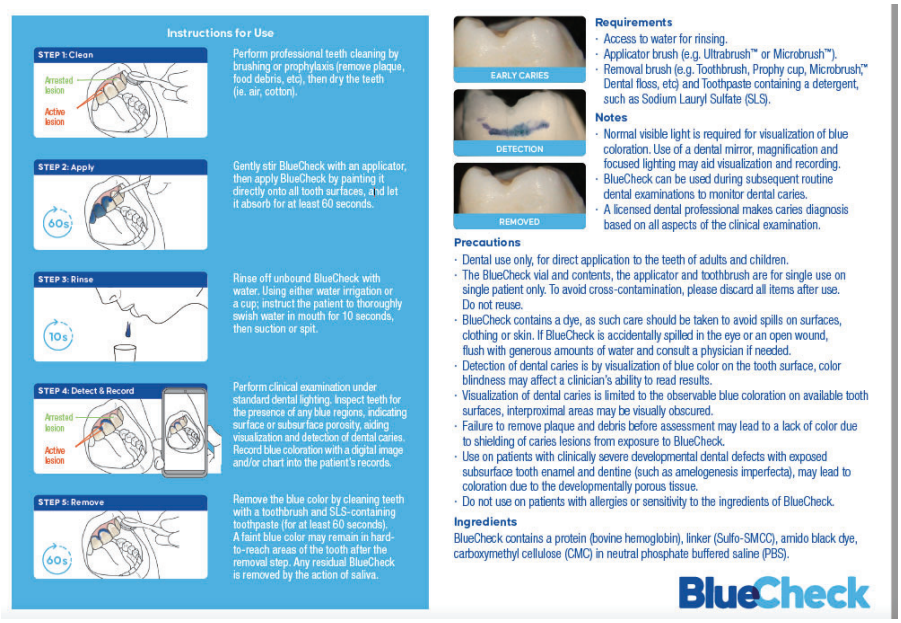
Author information ▸ Article notes ▸ Copyright and License information PMC Disclaimer

Associated Data

Data Availability Statement

Abstract Go to:

During orthodontic treatment, enamel demineralization can occur. Its early detection is the basis for efficient preventive measures to arrest or remineralize lesions. In the present study, the application of a novel blue hemoglobin-based liquid (BlueCheck) was evaluated as proof of concept for detection of artificially demineralized smooth surfaces. 60 samples from extracted human posterior teeth were randomly assigned to four groups (15 per group). In 30 of these samples (groups A and B), superficial enamel was removed to create a ground surface. On the surface of other 30 samples (group C and D), orthodontic metal brackets were bonded. On each surface, BC liquid was applied and rinsed with water after 3 min (baseline). All surfaces were checked by two independent observers for presence of blue areas. On each sample, one side was covered by nail varnish to protect this enamel part from demineralization. The samples were demineralized with lactic acid (pH 4.6) for 7 days (group A and C) and 14 days (group B and D), respectively. Mineral loss was determined using quantitative light-induced fluorescence after demineralization. BlueCheck dye was again applied on the samples and evaluated for presence of stained areas. Histological sections were prepared from randomly selected samples and lesion depth was measured. Kruskal-Wallis test was used for group comparison ($\alpha = 0.05$). After demineralization, median ΔF value for all samples was −8.25% indicating the presence of an initial demineralization. The difference of ΔF values was not statistically significant between samples at 7 or 14 days of demineralization, nor for samples with and without orthodontic brackets ($p = 0.13$). At baseline, none of the sample surfaces showed discoloration, whereas a distinctive blue color was visible after demineralization in all samples exposed to acid-exposed areas, corresponding to 100% sensitivity. The internal control surfaces (without demineralization) did not show any staining, corresponding to 100% specificity. Histologically measured lesion depths ranged between 200 and 254 µm. In this in vitro study, staining of demineralized enamel surface areas were shown to be reliable. Based on our results, this easily applicable product seems useful to be an adjuvant method to clinical examination to monitor oral health during an orthodontic treatment on tooth surfaces after removal of dental biofilm.



Instructions for Use

STEP 1: Clean
Arrested lesion
Active lesion
Perform professional teeth cleaning by brushing or prophylaxis (remove plaque, food debris, etc), then dry the teeth (ie. air, cotton).

STEP 2: Apply
60s
Gently stir BlueCheck with an applicator, then apply BlueCheck by painting it directly onto all tooth surfaces, and let it absorb for at least 60 seconds.

STEP 3: Rinse
10s
Rinse off unbound BlueCheck with water. Using either water irrigation or a cup; instruct the patient to thoroughly swish water in mouth for 10 seconds, then suction or spit.

STEP 4: Detect & Record
Arrested lesion
Active lesion
Perform clinical examination under standard dental lighting. Inspect teeth for the presence of any blue regions, indicating surface or subsurface porosity, aiding visualization and detection of dental caries. Record blue coloration with a digital image and/or chart into the patient's records.

STEP 5: Remove
60s
Remove the blue color by cleaning teeth with a toothbrush and SLS-containing toothpaste (for at least 60 seconds). A faint blue color may remain in hard-to-reach areas of the tooth after the removal step. Any residual BlueCheck is removed by the action of saliva.

EARLY CARIES
DETECTION
REMOVED

Requirements
- Access to water for rinsing.
- Applicator brush (e.g. Ultrabrush™ or Microbrush™).
- Removal brush (e.g. Toothbrush, Prophy cup, Microbrush,™ Dental floss, etc) and Toothpaste containing a detergent, such as Sodium Lauryl Sulfate (SLS).

Notes
- Normal visible light is required for visualization of blue coloration. Use of a dental mirror, magnification and focused lighting may aid visualization and recording.
- BlueCheck can be used during subsequent routine dental examinations to monitor dental caries.
- A licensed dental professional makes caries diagnosis based on all aspects of the clinical examination.

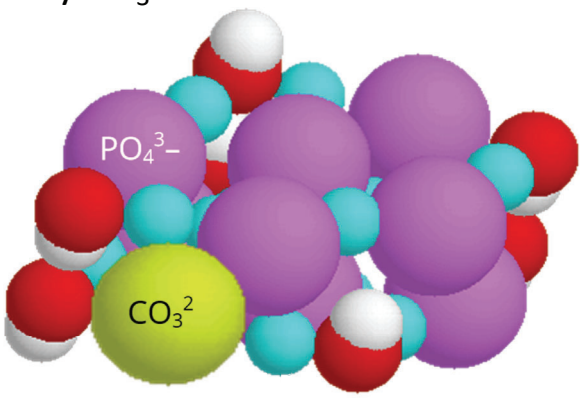
Precautions
- Dental use only, for direct application to the teeth of adults and children.
- The BlueCheck vial and contents, the applicator and toothbrush are for single use on single patient only. To avoid cross-contamination, please discard all items after use. Do not reuse.
- BlueCheck contains a dye, as such care should be taken to avoid spills on surfaces, clothing or skin. If BlueCheck is accidentally spilled in the eye or an open wound, flush with generous amounts of water and consult a physician if needed.
- Detection of dental caries is by visualization of blue color on the tooth surface, color blindness may affect a clinician's ability to read results.
- Visualization of dental caries is limited to the observable blue coloration on available tooth surfaces, interproximal areas may be visually obscured.
- Failure to remove plaque and debris before assessment may lead to a lack of color due to shielding of caries lesions from exposure to BlueCheck.
- Use on patients with clinically severe developmental dental defects with exposed subsurface tooth enamel and dentine (such as amelogenesis imperfecta), may lead to coloration due to the developmentally porous tissue.
- Do not use on patients with allergies or sensitivity to the ingredients of BlueCheck.

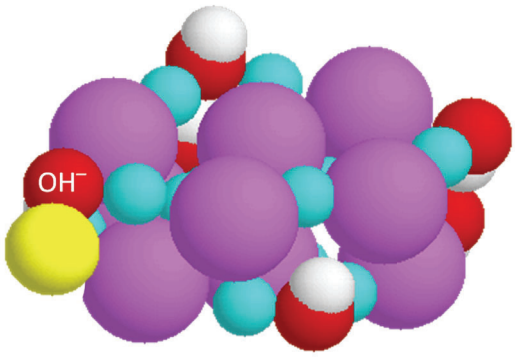
Ingredients
BlueCheck contains a protein (bovine hemoglobin), linker (Sulfo-SMCC), amido black dye, carboxymethyl cellulose (CMC) in neutral phosphate buffered saline (PBS).

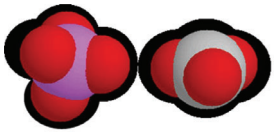
BlueCheck

HA: ion exchange

PO_4^{3-} replaced by CO_3^{2-}





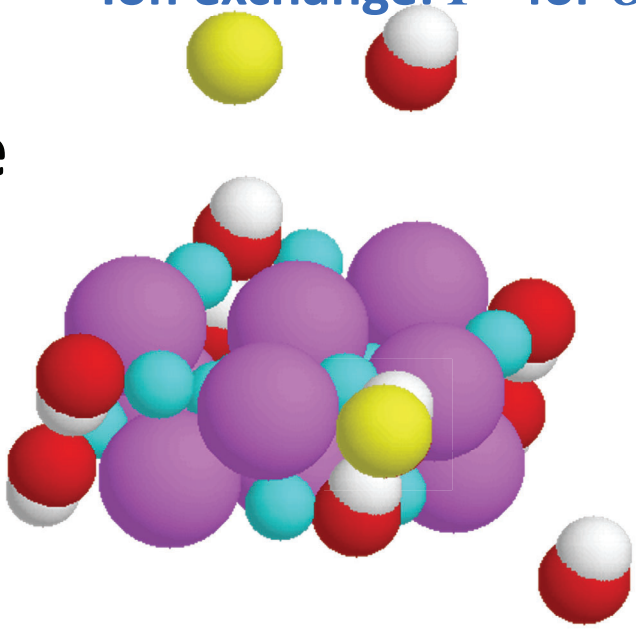


PO_4^{3-} molecule & CO_3^{2-} contaminant

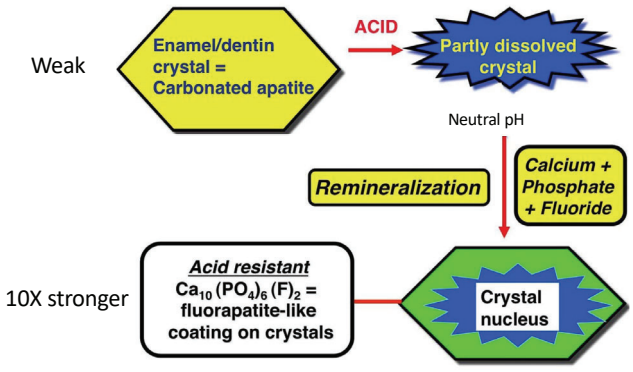
Ion exchange: F^- for OH^-

Fluorapatite

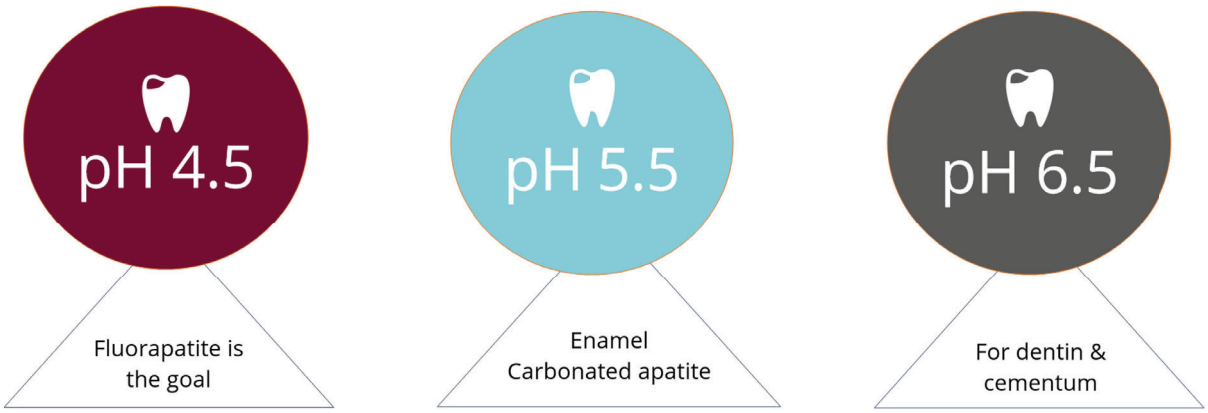
Critical pH is 4.5



Demin /Remin



Critical pH and Acid Solubility



Are you ready to learn the magic of remineralization?

Courtesy of Dr. Ken Han

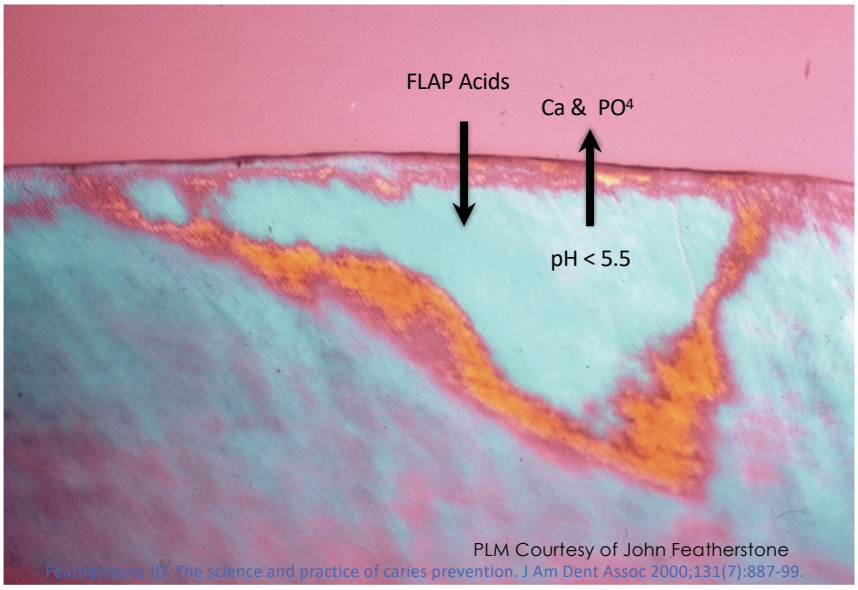
What's the recipe for chocolate chip cookies?

The Chemical and Biological Aspects

1.Calcium
2.Phosphate
3.Fluoride
4.pH 7
5.Biofilm modification

pH determines remin or demin
It's all about the pH!

Polarized Light Microscopy (PLM) shows early demin of subsurface



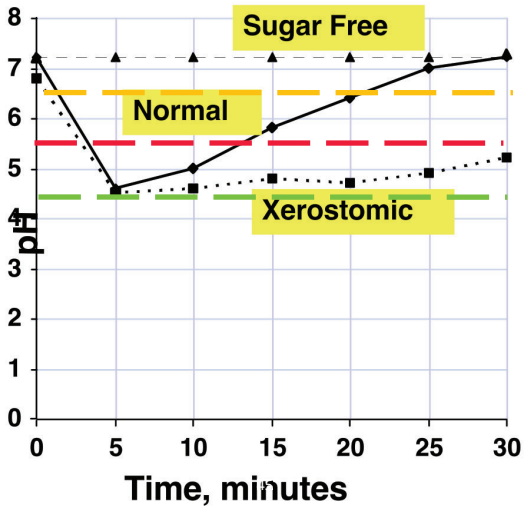
Featherstone JD. The science and practice of caries prevention. J Am Dent Assoc 2000;131(7):887-99.

Neutralize Before Remineralize!

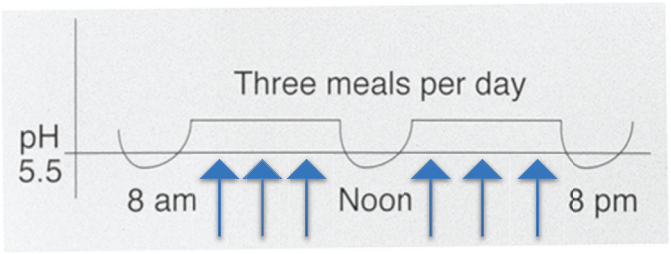
The Importance of Cavitation

Bacteria are too big to penetrate the enamel

Stephan Curve



Frequent eating is most harmful



Hourly remin strategies for extreme caries risk

Salivary Diagnostics

Saliva determines the chemistry

Salivary Assessment

Resting | Stimulated

Flow Rate

pH

pH & Buffer Test

pH & Buffer Test

Hydrion D/R Dispenser 4.0-9.0

SKU# F02-WIDRG-040090-DRD
Cat# 151
Your Price $10.20

Quantity 5

Unit Of Measure Each

Testing Quantity
Stimulated Salivary Flow

- Chew wax for five minutes collecting saliva at regular intervals
- Measure the quantity - ignore froth
- Very Low = <.7mL/min
- Low = .7-1 mL/min
- WNL = >1mL/min

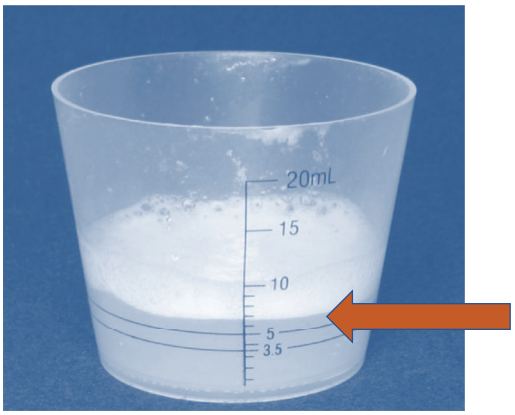
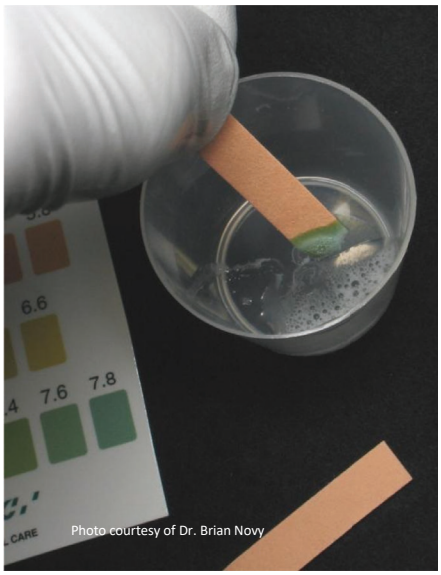
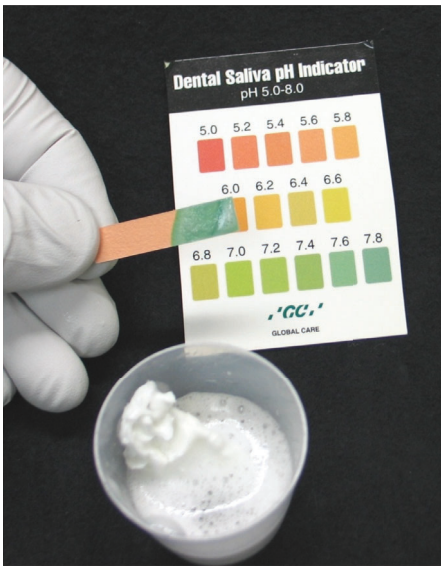


Photo courtesy of Dr. Brian Novy

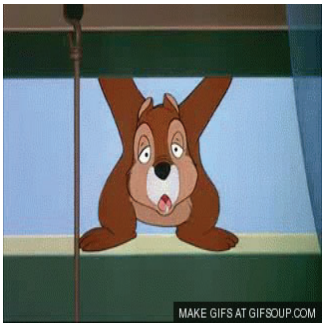
Stimulated pH





Resting Saliva Flow Rate

- ~~Drool test~~
- Surrogate test
  - consistency and hydration
  - invert the lip, assess minor salivary glands
- pH resting saliva



Measuring Resting Saliva pH

- Spit once in a cup when patient is at rest, before you open the mouth or touch the patient.
- Then simply dip the pH paper into the cup to get wet with saliva just like the stimulated a
- Compare to the color chart

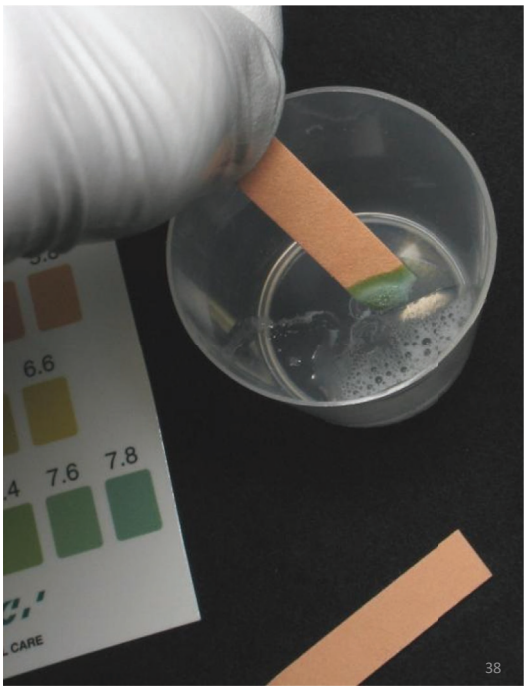
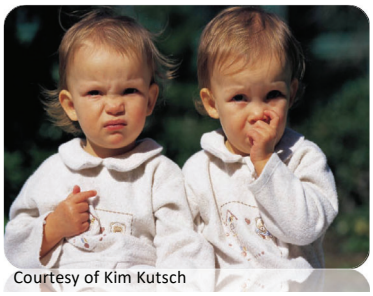


Photo courtesy of Dr. Brian Novy

Viscous saliva is associated with caries disease

"The differences are most essential for the tensiometric characteristics of saliva samples taken from caries-free children as compared with those taken from children with caries.."


Courtesy of Kim Kutsch

Kazakov VN, Udod AA, Zinkovych II, Fainerman VB, Miller R. Dynamic surface tension of saliva: general relationships and application in medical diagnostics. Colloids Surf B Biointerfaces. December 2009. 74(2):457-61.

Surrogates Test for Resting Saliva Flow

Saliva appearance and viscosity

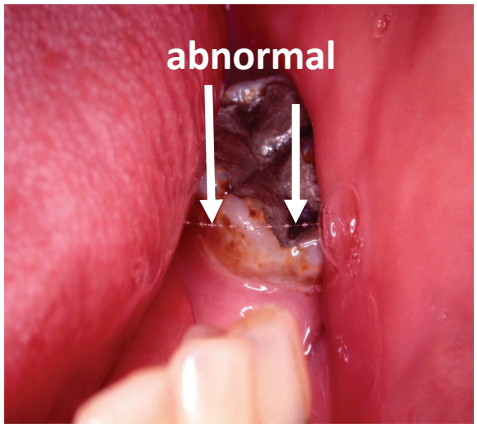
Saliva should look like water

Not stringy, ropey, bubbly

Saliva determines the chemistry

Saliva Assessment: don't just look at teeth!

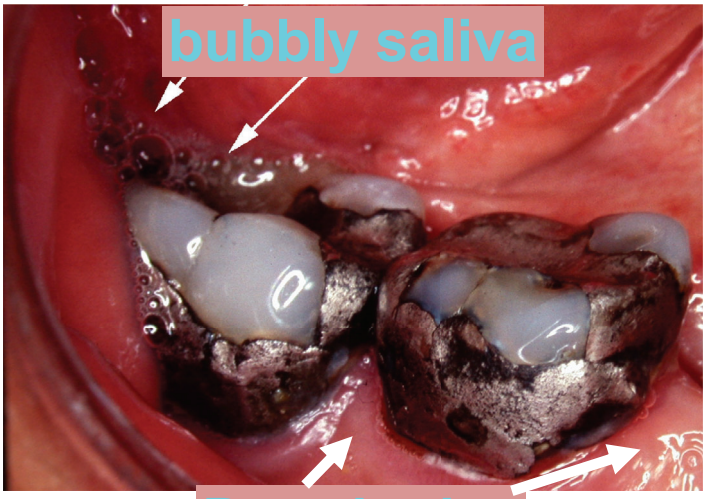
Assess the resting viscosity (saliva = 99% water)



Low flow is seen with patients with **thick stringy** saliva, or very **frothy saliva**.

normal

Assess the resting viscosity (saliva = 99% water)



Low resting flow is seen with patients with thick stringy saliva, or very frothy saliva.

Illicit Drugs

Patterns of flow

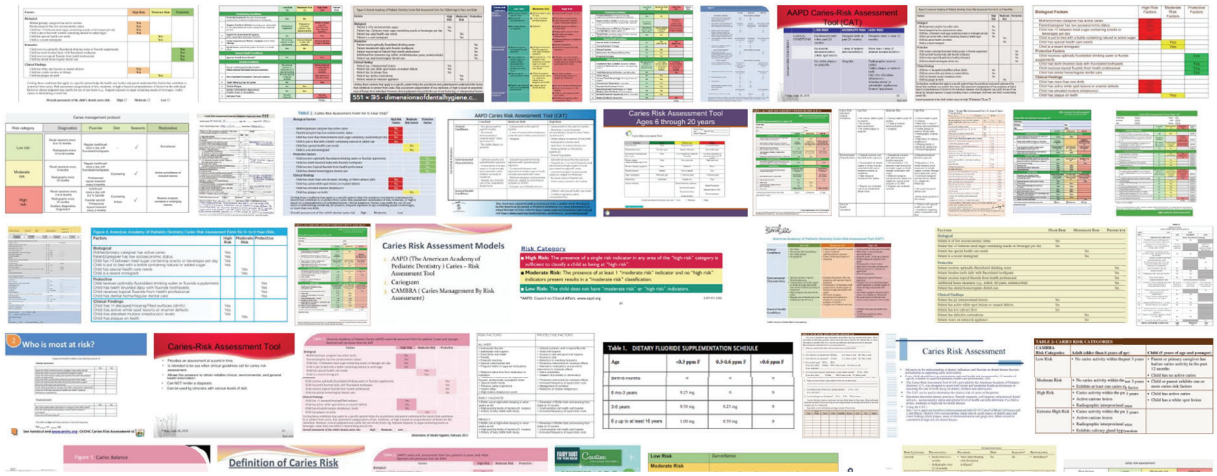
Putting it all together: Be a detective

Restoration Pattern

Patterns of Flow

Caries Risk Assessment (CRA)

Caries Risk Assessment Overload?



Courtesy of Kevin Thomas

How to do a Caries Risk Assessment

Jan 2019

Updated CAMBRA Caries Risk Assessment Form for Patients Aged 6 to Adult (January 2019) (Refer to Figure 2 for details and instructions for use; available in its orignal form as a patient download at cda.org/CAMBRA1)

Caries risk component	Column 1	Column 2	Column 3
Disease indicators	Check if yes		
1. New cavities or lesion(s) into dentin (radiographically)			
2. New white spot lesions on smooth surfaces			
3. New noncavitated lesion(s) in enamel (radiographically)			
4. Existing restorations in last three years (new patient) or the last year (patient of record)			
Biological or environmental risk factors		Check if yes	
1. Cariogenic bacteria quantity – **not currently available**			
2. Heavy plaque on the teeth			
3. Frequent snacking (> 3 times daily)			
4. Hyposalivatory medications			
5. **Reduced salivary function (measured low-flow rate)***			
6. Deep pits and fissures			
7. Recreational drug use			
8. Exposed tooth roots			
9. Orthodontic appliances			
Protective factors			Check if yes
1. Fluoridated water			
2. F toothpaste once a day			
3. F toothpaste 2X daily or more			
4. 5,000 ppm F toothpaste			
5. F varnish last six months			
6. 0.05% sodium fluoride mouthrinse daily			
7. 0.12% chlorhexidine gluconate mouthrinse daily seven days monthly			
8. Normal salivary function			
Final Score: Yes in column 1: Indicates high or extreme risk Yes in columns 2 and 3: Consider the caries balance Hyposalivation plus high-risk factors = extreme risk	Column 1 total	Column 2 total	Column 3 total
Final Overall Caries Risk Assessment Category High ☐ Moderate ☐ Low ☐	CAMBRA is a registered trademark of the University of California, San Francisco		

Caries Risk Assessment Form

Consistent Risk Level?

Journal of Dental Education
June 2017

The Effect of Calibration on Caries Risk Assessment Performance by Students and Clinical Faculty

Douglas A. Young, DDS, EdD, MBA, MS; Bernadette Alvear Fa, DDS; Nicholas Rogers; Peter Rechmann, DMD, PhD

Abstract: Caries management requires a complete oral examination and an accurate caries risk assessment (CRA). Performing Caries Management by Risk Assessment (CAMBRA) is inefficient when the caries risk level assignment is incorrect. The aim of this study was to evaluate the ability of faculty members and students at one U.S. dental school to correctly assign caries risk levels for 22 CRA cases, followed by calibration with guidelines on how to use the CRA form and a post-calibration test two months after calibration. Inter-examiner reliability to a gold standard (consensus of three experts) was assessed as poor, fair, moderate, good, and very good. Of the 162 students and 125 faculty members invited to participate, 13 students and 20 faculty members returned pre-calibration tests, for response rates of 8% and 16%, respectively. On the post-calibration test, eight students and 13 faculty members participated for response rates of 5% and 10%, respectively. Without guidelines and calibration, both faculty members and students when evaluated as one group performed only poor to fair in assigning correct caries risk levels. After calibration, levels improved to good and very good agreements with the gold standard. When faculty and students were evaluated separately, in the pre-calibration test they correctly assigned the caries risk level on average in only one-quarter of the cases (students 24.1%±13.3%; faculty 23.6%±17.5%). After calibration, both groups significantly improved their correct assignment rate. Faculty members (73.8% correct assignments) showed even significantly higher correct assignment rates than students (47.7% correct assignments). These findings suggest that calibration with a specific set of guidelines improved CRA outcomes for both the faculty members and students. Improved guidelines on how to use a CRA form should lead to improved caries risk assessment and proper treatment strategy for patients.

Dr. Young is Professor, Department of Dental Practice, Arthur A. Dugoni School of Dentistry, University of the Pacific; Dr. Fa is Assistant Professor, Department of Integrated Reconstructive Dental Sciences, Arthur A. Dugoni School of Dentistry, University of the Pacific; Mr. Rogers is Administrative Lead for Personalized Instructional Programs, Department of Academic Affairs, Arthur A. Dugoni School of Dentistry, University of the Pacific; and Dr. Rechmann is Professor and Director of Clinical Sciences Research Group, Department of Preventive and Restorative Dental Sciences, School of Dentistry, University of California, San Francisco. Direct correspondence and requests for reprints to Dr. Douglas A. Young, Department of Dental Practice, Arthur A. Dugoni School of Dentistry, University of the Pacific, 155 5th Street, San Francisco, CA 94103; dyoung@pacific.edu.

Keywords: dental education, caries, dental caries, calibration, caries risk assessment, CRA, CAMBRA

Submitted for publication 12/21/16; accepted 2/9/17

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Jan 2019

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Caries Risk Assessment Made Simple

Caries Risk Assessment Form

	Low Caries Risk	Moderate Caries Risk	High Caries Risk	Extreme Caries Risk
Determining caries risk The checked box furthest to the right determines overall caries risk	□ No active caries lesion/radiolucency (cavitated or non-cavitated) during past 24 months □ Healthy lifestyle habits including diet with little to no consumption of simple sugars, infrequent snacking, no drugs or alcohol abuse) □ No visible plaque	□ No active caries lesion/radiolucency (cavitated or non-cavitated) during past 12 months **1-2 of the following (check boxes):** □ Unhealthy lifestyle habits including occasional (≤ 2 times per day) between-meal snacks of simple sugars, drug or alcohol abuse) □ Inadequate oral hygiene or visible plaque □ Wearing dental or orthodontic appliances □ Susceptible pits & fissures □ Exposed root surfaces □ Saliva reducing factors (medications, radiation, systemic diseases)	□ Any active caries lesion/radiolucency (cavitated or non-cavitated) during the past 12 months □ High bacterial load by measurement or observation (heavy plaque) **3 or more of the following (check boxes):** □ Unhealthy lifestyle habits including frequent (≥ 3 times per day) between-meal snacks of simple sugars, drug or alcohol abuse) □ Inadequate oral hygiene □ Wearing dental or orthodontic appliances □ Susceptible pits & fissures □ Exposed root surfaces □ Saliva reducing factors (medications, radiation, systemic diseases)	□ High caries risk with hyposalivation by observation or measurement □ High dependency on others for care
Circle Overall Caries Risk	**Low Caries Risk**	**Moderate Caries Risk**	**High Caries Risk**	**Extreme Caries Risk**
Recall Interval	12 months	6 months	3 months	3 months
Radiographs	24-36 months	18-24 months	6-18 months	6 months until no new lesions

Risk Level	Home Care Recommendations	Recall Interval	Radiographs
Low	OHI, individualized diet modification: frequency and exposure, OTC fluoride toothpaste (CariFree Gel 1100)	12 months	24-36 months

Example Protocol University of the Pacific

Products for Caries Management

Example Products (not by endorsement)

Reducing Bacterial Load with Antimicrobials

- Chlorhexidine is not effective for caries
  - Dent Clin N Am 62 (2018) 207–234
  - https://doi.org/10.1016/j.cden.2017.11.003
- Iodine
- Sodium Hypochlorite Rinse

Suggested Iodine Frequency

- For Mild Caries Risk:
  None
- For Moderate Caries Risk:
  6 Times Per Year
- For High/Extreme Caries Risk:
  12 Times Per Year

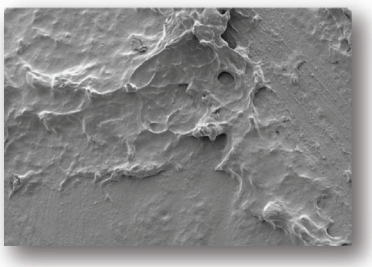
Iodine Contraindications

- Allergy or contact sensitivity to PVP-I
- Reactivity to iodine (usually during medical imaging)
- Beta-thalassemia major
- Intraoral wound deeper than an abrasion (e.g., post-extraction before primary closure; delay)
- Advanced thyroid disease with severe iodine intake sensitivity (rare, i.e.: cancer patients)
- **Myth**: Connection to seafood allergy

Sodium Hypochlorite Rinse Studies

NaOCl Dissolves Biofilm and Kills Bacteria

"Overall, 2.5% NaOCl dissolved and killed bacteria significantly more efficiently when used against polymicrobial mature biofilm on human dentine.."



Ruiz-Linares M, Aguado-Pérez B, Baca P, Arias-Moliz MT, Ferrer-Luque CM. Efficacy of antimicrobial solutions against polymicrobial root canal biofilm. Int Endod J. 2015 Dec 13. doi: 10.1111/iej.12598

0.25% Sodium Hypochlorite

"For over a century, bleach has been used to control or overcome infection in homes, hospitals, and even on battlefields, and in endodontics for disinfection of root canals."

Rich SK, Slots J. Sodium hypochlorite (dilute chlorine bleach) oral rinse in patient self-care. J West Soc Periodontol Periodontal Abstr. 2015;63(4):99-104.

0.25% Sodium Hypochlorite

"A twice-weekly oral rinse with 0.25% sodium hypochlorite produced marked decreases in dental plaque level and bleeding on probing and may constitute a promising new approach to the management of periodontal disease.."

Galván M, Gonzalez S, Cohen CL, Alonaizan FA, Chen CT, Rich SK, Slots J. Periodontal effects of 0.25% sodium hypochlorite twice-weekly oral rinse. A pilot study. J Periodontal Res. 2013 Dec 14. 30PDD, 15/15,0,2wk, 3 mos, Subging irrig.

Broader Spectrum of Antimicrobial Action

"0.1- 0.5% sodium hypochlorite for patient self care. These antiseptics have significantly broader spectra of antimicrobial action,."

Jorgensen MG, Aalam A, Slots J. Periodontal antimicrobials—finding the right solutions. Int Dent J February 2005. 55(1):3-12.

The Temporal Aspects of Caries Disease

If the Demineralization/Remineralization balance is 24/7…

…when and how do we deliver the chemistry?

The CariFree System

- pH Neutralization
- Antibacterial (.2% sodium
- hypochlorite)
- Fluoride (0.05%)
- Xylitol (Greater than 10%)

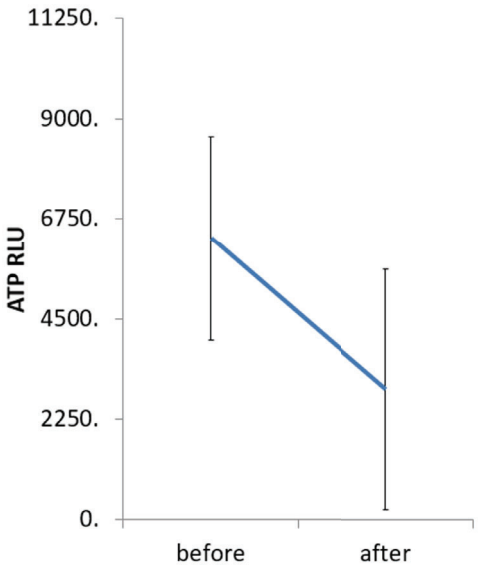
Now available in less intense mint and a new apple flavor!

The placebo fluoride rinse reduced the mean caries index by 29%, and the 0.2% sodium hypochlorite rinse reduced the caries index by 73% over a 3-year period. There was no additional benefit after 2 years of use.

73% reduction

Hallett KB, O'Rourke PK. Oral biofilm activity, culture testing and caries experience in school 3-year double-blind randomized clinical trial. Queensland, Australia 2007-2010.

T-test p-value 0.00000000487



Xylitol Gum

4 boxes (60 pieces/box)
Each piece is 1 gram of xylitol
Need 5-10 grams per day
8 pieces each day = one month supply

Xylitol Mints

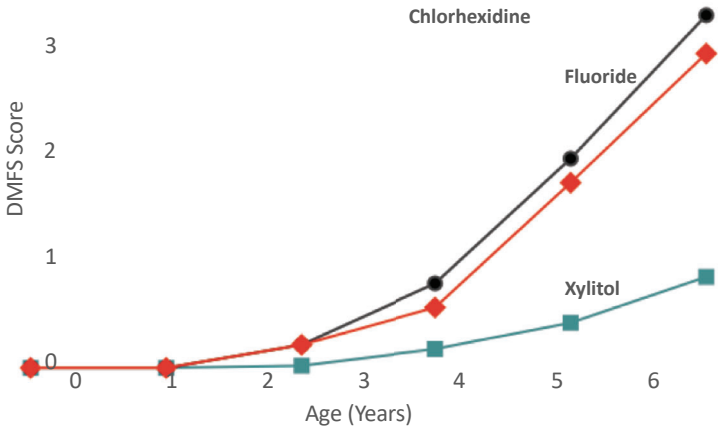
5 tins (60 mints/box) = 300 mints
Each piece is .5 grams of xylitol
Need at least 5 grams per day
10 mints each day = one month supply

CariFree Lollies Xylitol and Nano Hydroxyapatite

Xylitol is not "cool" for dogs!

- Stimulates insulin
- Hypoglycemia
- Seizures
- Hepatic failure

Mother & Child - Part Two
JDR November 2000



Isokangas, P. *et al* (2000) *Journal of Dental Research* 79(11): 1885 - 1889

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http://dx.doi.org/10.1155/2016/9868421

Review Article

Erythritol Is More Effective Than Xylitol and Sorbitol in Managing Oral Health Endpoints

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Objective. To provide a comprehensive overview of published evidence on the impact of erythritol, a noncaloric polyol bulk sweetener, on oral health. *Methods.* A literature review was conducted regarding the potential effects of erythritol on dental plaque (biofilm), dental caries, and periodontal therapy. The efficacy of erythritol on oral health was compared with xylitol and sorbitol. *Results.* Erythritol effectively decreased weight of dental plaque and adherence of common streptococcal oral bacteria to tooth surfaces, inhibited growth and activity of associated bacteria like *S. mutans*, decreased expression of bacterial genes involved in sucrose metabolism, reduced the overall number of dental caries, and served as a suitable matrix for subgingival air-polishing to replace traditional root scaling. *Conclusions.* Important differences were reported in the effect of individual polyols on oral health. The current review provides evidence demonstrating better efficacy of erythritol compared to sorbitol and xylitol to maintain and improve oral health.

Healthy Caregivers = Healthy Babies

Topical Fluorides

Which Fluoride Product? (NaF, SnF2, APF)

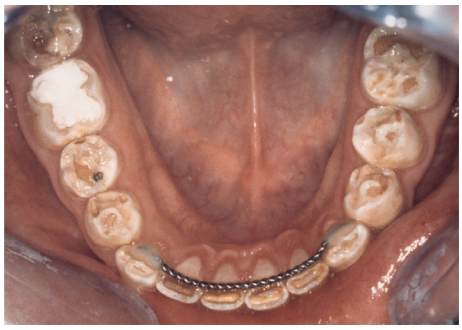
young female college student wore nightguard 24/7

then instructed to put gel kam in her nightguard to stop demin

Acidic Fluoride is contraindicated when saliva is restricted

SnF2 and APF is about pH3

NaF = neutral pH 7



FluoriMax 2.5% NaF Varnish Bottle Delivery and unit dose

- **Shellac resin**; hypoallergenic
- Shake to mix
- Dispense as little or as much as you'd like; less waste.
- 500 drops per bottle!
- Contains Xylitol and Hydroxyapatite.
- Placed on wet teeth

No need for a second swipe

High Fluoride Toothpaste

1.1% Na Fluoride = 5000 ppm

Pea sized twice a day

Not for young children

Thomas G, Badrock T. In Vitro Test to Compare the Ability of a Toothpaste Formulation Versus a Negative Control to Buffer the pH of Dental Plaque During a Sucrose Challenge. Interteck CRS. May 2023. S/N50-LAB-PLQ-23-001.

"During the in vitro sucrose challenge, the **Carifree** PRO GEL 5000 toothpaste formulation was able to buffer pH of dental plaque and prevent pH drops to pH levels associated with enamel damage."

20 minutes dropped 7.73 to 7.22 pH control dropped 6.89 to 5.26

Just Right 5000™ from Elevate Oral Care
1.1% NaF Prescription Dentifrice

- First meter-dosed Pediatric Paste
  - Always delivers a pea sized dose (0.25g)
  - Rice grain ½ depression of pump
- Pediatric friendly Bubble Mint flavor
  - More flavors in development
- 6-month supply when used 2x/daily
- For moderate and high risk patients
- Enhanced F uptake additive
- Low SLS

.05% Fluoride Rinse

Daily use to prevent the Dental Caries infection from returning

Rinse 1/2 oz of 1 minute prn
Normally bid

For xerostomia: more often especially after snacking

Single component oral rinse pH 8.0

Active ingredient: fluoride 0.05%

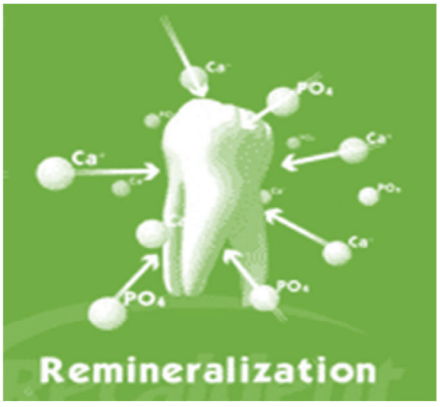
Other ingredients: xylitol

Dry Mouth Spray
By CariFree

- Sodium bicarbonate with a pH 9
- Also contains Xylitol and glycerin

- Used as a spray, several times a day to
- raise pH and dispense Xylitol

- Convenient size to fit in pocket



Calcium Phosphate Systems

Calcium Phosphate Systems

- Amorphous Calcium Phosphate: ACP
- Casein Phosphopeptide Amorphous Calcium Phosphate: CPP – ACP
  - Recaldent®
- Calcium Sodium Phosphosilicate: CSP
  - NovaMin®
- Tri-Calcium Phosphate – TCP
- Nano hydroxyapatite

DR. DOUG YOUNG

www.drdougyoung.com

Questions?
&
Discussion