

Desiccation Therapy - A new frontier in managing dysbiotic oral disease



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OUT OF THE BOX LEARNING ACADEMY LEARNING THAT WORKS FOR YOU

Desiccation Therapy - The new frontier in managing dysbiotic periodontal microbes

Speaker - Anne Guignon, RDH, MPH, CSP is receiving an honorarium from the Utah Dental Association for this presentation. Additional support provided by: Young Innovations, Parkell, and BioGaia.

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Key concepts:

Wound healing - the last decade

Biofilm concepts - dysbiosis

Desiccation - sulfonated phenolics

Dynamics - protocols - outcomes

Patient / clinician / practice benefits

Procedure codes - billing

Supplemental support



Chronic wound infections - medical - 2005

"Biofilms probably induce a chronic and/or 'quiet' inflammation in the chronic wound and so delay healing."

- immune system can't clear
- antimicrobial resistant
- systemic / topical
- frequent debridement critical**

The starting point - 1960 to 1979

diagnostics - therapeutics

- prophy - primary tx
- multiple scalings
- no desensitizing
- limited anesthesia options
- dental insurance started

instrumentation

- mostly hand scalers
- limited ultrasonics
- fat insert tips
- limited insert shapes
- polishing - coarse pumice

home care

- no power brushes
- hard and medium hand brushes
- string floss
- wooden picks / toothpicks
- oral irrigators invented
- some site-specific brushes

Shifting views - 1980 to 1999

diagnostics - therapeutics

- emphasis on quad SRP
- glassy smooth roots -sensitivity
- immune system impact
- air polishing introduced

pathogens - risk levels

- antibiotics - local / systemic
- sub gingival treatment
- PerioChip, Actisite tetracycline fibers, Atridox, Arestin, ChX
- Winging it with tetracycline mixes

- modern power brushes introduced
- Keyes technique
- fluoride alternatives

Expanding opportunities - 2000 to 2026

diagnostics - therapeutics

- perio endoscopy
- laser therapy
- enhanced magneto and piezo platforms
- advanced tip/insert designs
- GBT therapeutics
- SDF
- hydroxyapatite regeneration

instrumentation

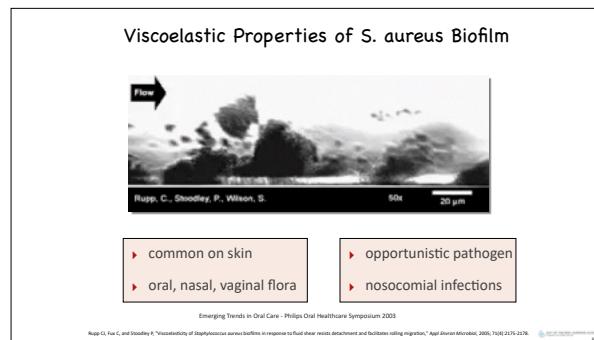
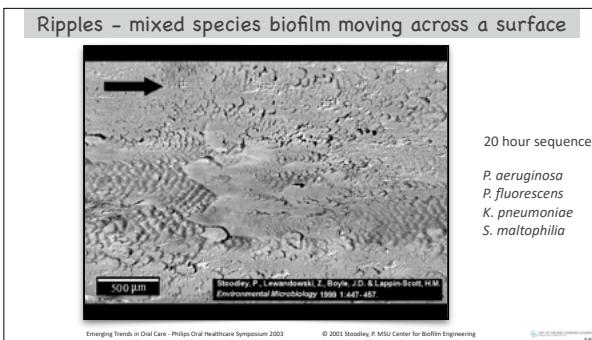
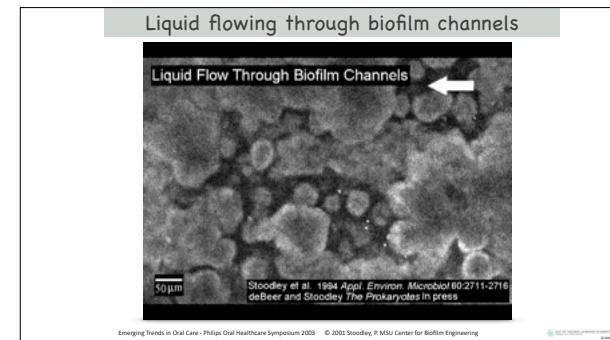
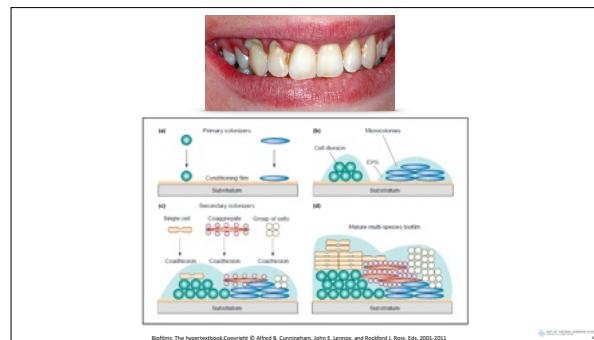
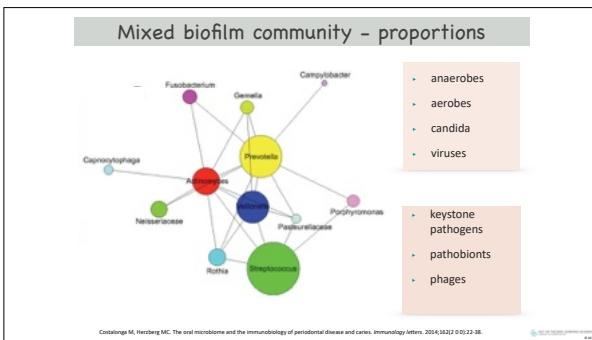
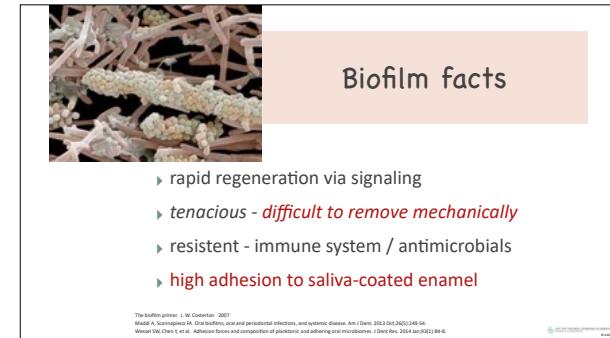
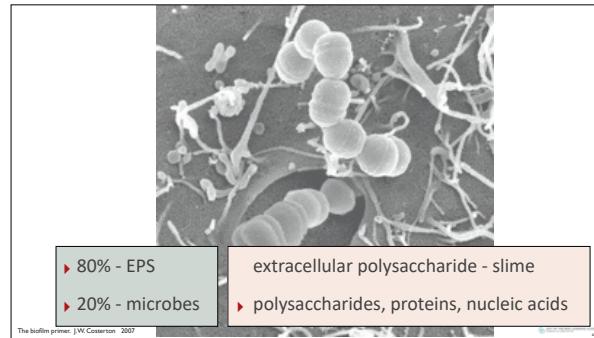
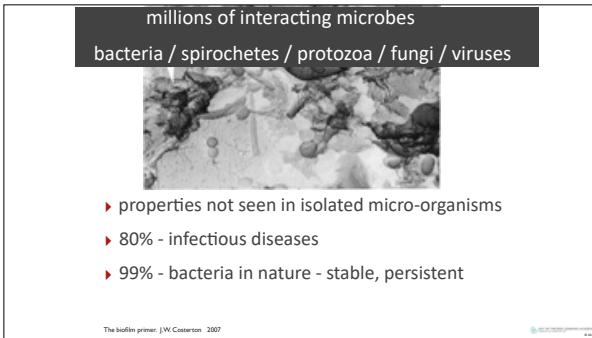
- perio staging/grading
- salivary microbial diagnostics
- salivary chemistry testing
- pain management options
- concierge dentistry
- biofilm desiccation gel

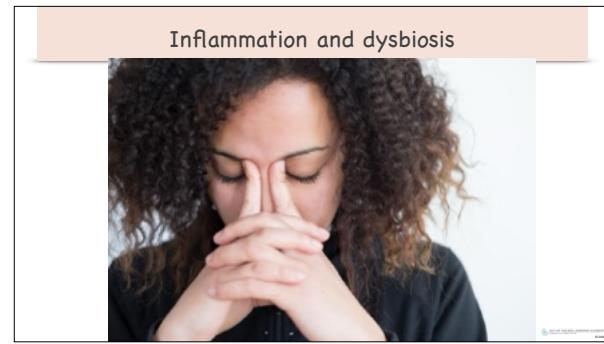
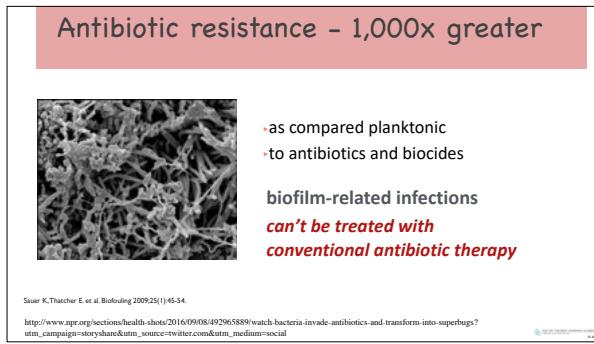
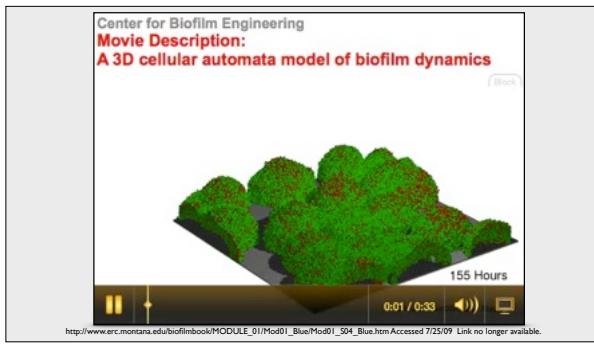
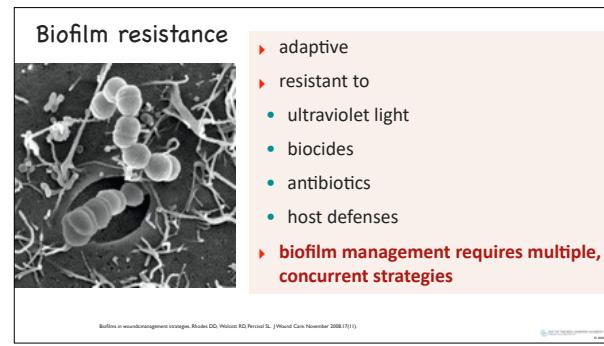
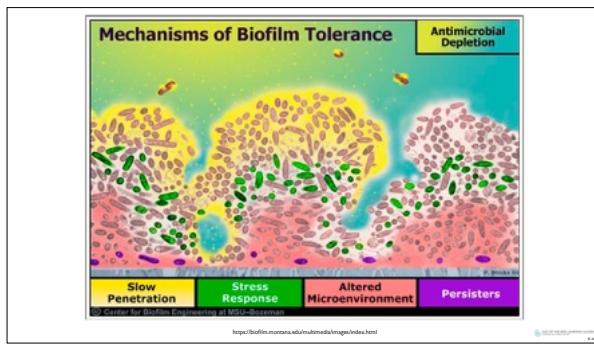
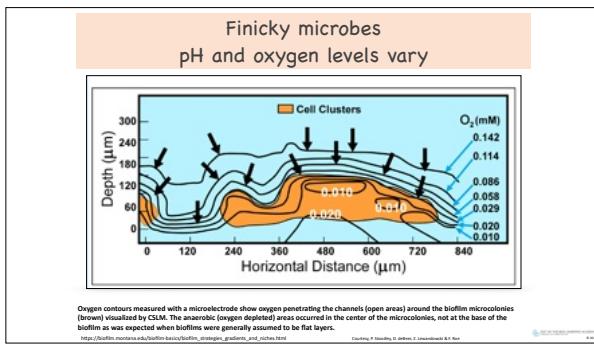
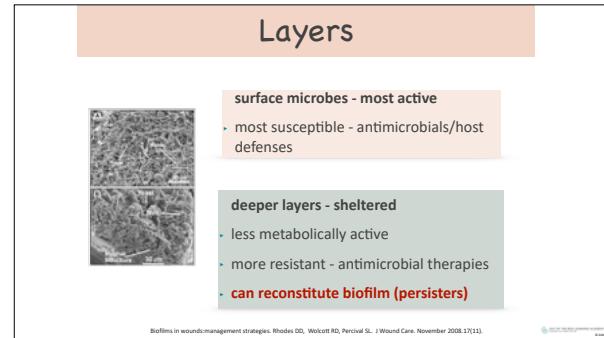
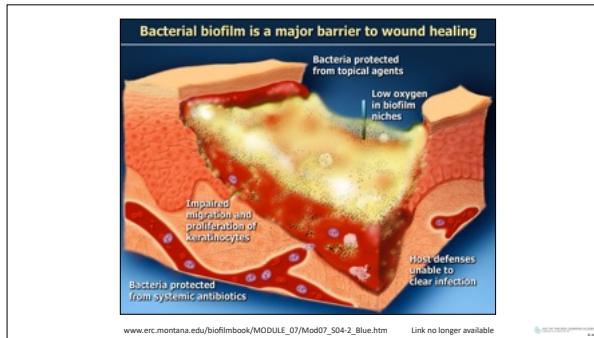
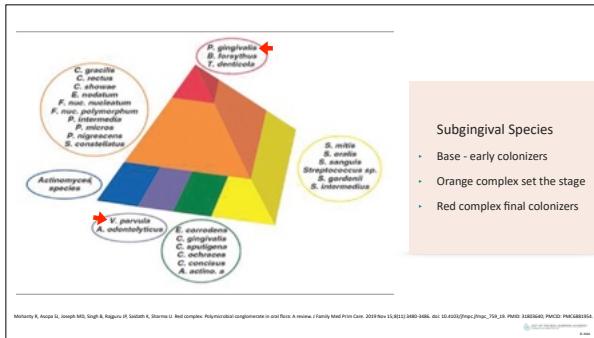
home

- airway management
- antibiotic awareness
- super bugs
- prebiotics
- probiotics
- anti-infective iodine

Non-healing wound - Desiccation therapy - 2026 medical

Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28	Day 29	Day 30	Day 31	Day 32	Day 33	Day 34	Day 35	Day 36	Day 37	Day 38	Day 39	Day 40	Day 41	Day 42	Day 43	Day 44	Day 45	Day 46	Day 47	Day 48	Day 49	Day 50	Day 51	Day 52	Day 53	Day 54	Day 55	Day 56	Day 57	Day 58	Day 59	Day 60	Day 61	Day 62	Day 63	Day 64	Day 65	Day 66	Day 67	Day 68	Day 69	Day 70	Day 71	Day 72	Day 73	Day 74	Day 75	Day 76	Day 77	Day 78	Day 79	Day 80	Day 81	Day 82	Day 83	Day 84	Day 85	Day 86	Day 87	Day 88	Day 89	Day 90	Day 91	Day 92	Day 93	Day 94	Day 95	Day 96	Day 97	Day 98	Day 99	Day 100	Day 101	Day 102	Day 103	Day 104	Day 105	Day 106	Day 107	Day 108	Day 109	Day 110	Day 111	Day 112	Day 113	Day 114	Day 115	Day 116	Day 117	Day 118	Day 119	Day 120	Day 121	Day 122	Day 123	Day 124	Day 125	Day 126	Day 127	Day 128	Day 129	Day 130	Day 131	Day 132	Day 133	Day 134	Day 135	Day 136	Day 137	Day 138	Day 139	Day 140	Day 141	Day 142	Day 143	Day 144	Day 145	Day 146	Day 147	Day 148	Day 149	Day 150	Day 151	Day 152	Day 153	Day 154	Day 155	Day 156	Day 157	Day 158	Day 159	Day 160	Day 161	Day 162	Day 163	Day 164	Day 165	Day 166	Day 167	Day 168	Day 169	Day 170	Day 171	Day 172	Day 173	Day 174	Day 175	Day 176	Day 177	Day 178	Day 179	Day 180	Day 181	Day 182	Day 183	Day 184	Day 185	Day 186	Day 187	Day 188	Day 189	Day 190	Day 191	Day 192	Day 193	Day 194	Day 195	Day 196	Day 197	Day 198	Day 199	Day 200	Day 201	Day 202	Day 203	Day 204	Day 205	Day 206	Day 207	Day 208	Day 209	Day 210	Day 211	Day 212	Day 213	Day 214	Day 215	Day 216	Day 217	Day 218	Day 219	Day 220	Day 221	Day 222	Day 223	Day 224	Day 225	Day 226	Day 227	Day 228	Day 229	Day 230	Day 231	Day 232	Day 233	Day 234	Day 235	Day 236	Day 237	Day 238	Day 239	Day 240	Day 241	Day 242	Day 243	Day 244	Day 245	Day 246	Day 247	Day 248	Day 249	Day 250	Day 251	Day 252	Day 253	Day 254	Day 255	Day 256	Day 257	Day 258	Day 259	Day 260	Day 261	Day 262	Day 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888	Day 889	Day 890	Day 891	Day 892	Day 893	Day 894	Day 895	Day 896	Day 897	Day 898	Day 899	Day 900	Day 901	Day 902	Day 903	Day 904	Day 905	Day 906	Day 907	Day 908	Day 909	Day 910	Day 911	Day 912	Day 913	Day 914	Day 915	Day 916	Day





Chronic wounds

- anaerobes - chronic wounds
- molecular techniques
- diverse populations

- barrier to healing
- susceptible to contamination
- available substrate
- surface for attachment

Inflammation

- fosters dysbiotic growth
- selects for certain pathogens

dysbiosis and inflammation support each other

control of inflammation - critical

Hajishengallis G. Immunomicrobial pathogenesis of periodontitis: keystone, pathogens, and host response. *Immunol. 2014 Jan;35(1):3-11.*
Hajishengallis G. The inflammatory character of the periodontitis-associated microbiota. *Mol Oral Microbiol. 2014 Jun 26.*

Polymicrobial synergy - dysbiosis (PSD) - model of periodontal disease etiology

Keystone pathogens

- tip the balance to dysbiosis
- pro-inflammatory microbial community
- elicit non-resolving, tissue-destructive host response**

Hajishengallis G, Lerner AI. Beyond the red complex and into more complexity: the polymicrobial synergy and dysbiosis (PSD) model of periodontal disease etiology. *Mol Oral Microbiol. 2012 Dec; 27(6):407-19.*

Think dysbiosis!.....human climate change

- unbalanced microbial community
- microbes compete for resources
- pathogen dense

- impaired ecological environment
- weakened immune system
- keystone pathogens

Polymicrobial synergy - dysbiosis (PSD) - model of periodontal disease etiology

Keystone pathogen

P. gingivalis

- low abundance microbe
- modulates host response
- impairs host immune system

Hajishengallis G, Lerner AI. Beyond the red complex and into more complexity: the polymicrobial synergy and dysbiosis (PSD) model of periodontal disease etiology. *Mol Oral Microbiol. 2012 Dec; 27(6):407-19.*

Inflammation

P. gingivalis

- 4 hours** after scaling
- early, middle and late stage biofilm**

Thurnher T, Beilharz GH, Bontan N. Colonization of gingival epithelia by subgingival biofilms in vitro: Role of "red complex" bacteria. *Arch Oral Biol. 2014 Sep;59(9):977-86.* *Oral Biol. 2014 Sep;59(9):977-86.*
Anura N, Misra A, Chugh S. Microbial role in periodontitis: Have we reached the top? Some unsung bacteria other than red complex. *J Indian Soc Periodontol. 2014 Jan;18(1):9-13.*
Mahendra L, Mahendra L. Prevalence of periodontopathogenic bacteria in subgingival biofilm and atherosclerotic plaques of patients undergoing coronary revascularization surgery. *J Indian Soc Periodontol. 2013 Nov;17(6):719-24.*

Polymicrobial synergy - dysbiosis (PSD) - model of periodontal disease etiology

Keystone pathogen - *P. gingivalis* (Pg)

P. gingivalis creates pathobionts

- elevates community virulence
- sugar capsule
- hides proteins from immune system

Hajishengallis G, Lerner AI. Beyond the red complex and into more complexity: the polymicrobial synergy and dysbiosis (PSD) model of periodontal disease etiology. *Mol Oral Microbiol. 2012 Dec; 27(6):407-19.*

Polymicrobial synergy

P. gingivalis and *T. denticola*

- superficial layers - subgingival plaque
- chronic periodontitis lesions
- increase biomass and thickness

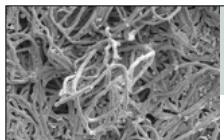
Zhu Y, Dahlgren SG, et al. Porphyromonas gingivalis and Treponema denticola synergistic polymicrobial biofilm development. *PLoS One. 2013 Aug 26;8(8).*

The con artist - *P. gingivalis*

P. gingivalis - needs growth molecules initially

- "borrows" from *Veillonella parvula*
- V. parvula* produces heme - iron source for PG
- removing *V. parvula* stopped Pg growth
- target the accessory pathogen?

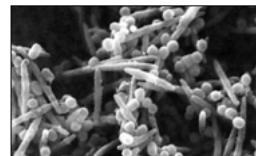
Frey AM, Sato ML, Pacheco C, Horwitz C, Urbanowski PA, Spencer DR, Prutton J, Bradshaw D, Sharma A, Stafford C. Characterization of Porphyromonas gingivalis isolates and description of its role in host-pathogen interactions. *Microbiology (Reading). 2013 Nov;151(11):1108-1107. doi: 10.1099/mic.0.000511.*



Synergy
T. denticola (Td)

- motile
- creates pores - biofilm matrix
- moves through highly viscous environment
- pores enhance nutrient flow

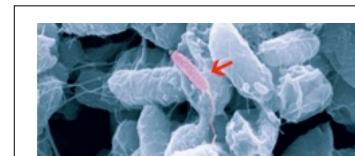
Zhu Y, Dhalpar SG, et al. *Porphyromonas gingivalis* and *Tannerella denticola* synergistic polymicrobial biofilm development. *PLoS One*. 2013 Aug 29;8(8):e71227.



Fusobacterium nucleatum
(Fn)

- anaerobic oral commensal
- perio and endo pathogen
- increases - disease severity, inflammation, pocket depth
- higher in smokers, diabetics

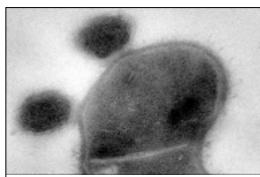
Han YW. *Fusobacterium nucleatum*: a commensal-turned pathogen. *Current opinion in microbiology*. 2015;0:141-147.



First parasitic relationship discovered

- Bdellovibrio - RNA fragment
- 700 genes - can't make amino acids
- lives on *Actinomyces odontolyticus* (2,200 genes)
- nutrients from host, kills host, holes in *A.odontolyticus*

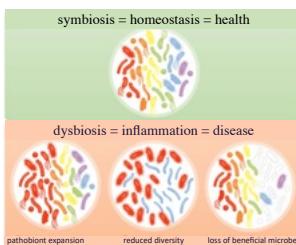
Coglian A. New life form discovered in saliva is linked to human disease. <https://www.newscientist.com/article/204902-new-life-form-discovered-in-saliva-is-linked-to-human-disease>



Parasitic outcomes?

- A. odontolyticus* evades macrophages
- resistant to streptomycin
- high concentration - periodontitis and cystic fibrosis**

Coglian A. New life form discovered in saliva is linked to human disease. <https://www.newscientist.com/article/204902-new-life-form-discovered-in-saliva-is-linked-to-human-disease>



Dysbiosis - elicits non-resolving, tissue-destructive host response

symbiosis = homeostasis = health

dysbiosis = inflammation = disease

pathobiont expansion **reduced diversity** **loss of beneficial microbes**

Pereira L, Siqueira A. Defining dysbiosis and its influence on host immunity and disease. *Cytobios Microbiology*. 2014;164(7):3326-3332. *https://doi.org/10.1007/s10606-014-0332-6*

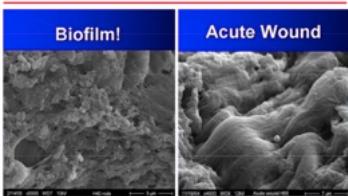
A history lesson.....



Or a lesson in current events



Biofilms Identified in 60% of Biopsies of Chronic Wounds but in Only 6% of Acute Wounds

Biofilm!	Acute Wound
	

Garth James et al, *Wound Repair Regen*, 2008

Photographs by Randy Wokort

<http://www.npuap.org/NPUAP%20Biofilms%202009%20schultz%20mod%20%20compressed-1.pdf> Link no longer available



Dr. Bill Costerton - The "Father" of Biofilms

<http://www.youtube.com/watch?v=lbLFOUhvA1g>

Periodontal Staging and Grading

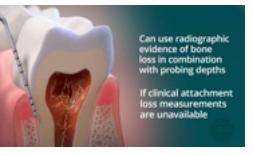


STEP 1 Assess level of disease

- Full-mouth probing depths and clinical attachment loss
- Full-mouth radiographs
- Missing teeth

STEP 1 - STEP 2 combine

Stage assigned based on severity and complexity at most affected site



Can use radiographic evidence of bone loss in combination with probing depths

If clinical attachment loss measurements are unavailable

[youtube.com/watch?v=v4u-M9IUbcA](https://www.youtube.com/watch?v=v4u-M9IUbcA)

Periodontal Staging and Grading



Microbes.....Do we need to test The players?

Periodontal Diagnosis - Staging and Grading

Measure and Record

- ▶ bone loss
- ▶ inflammation
- ▶ **bleeding**
- ▶ **suppuration**
- ▶ **mobility**
- ▶ **probing depth**
- ▶ attachment loss



Submit -
Include data

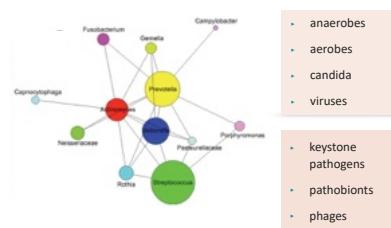
- percentage of total teeth
- identify worst site
- diagnosis
- detailed description
- pictures
- narratives
- medical necessity

For more information

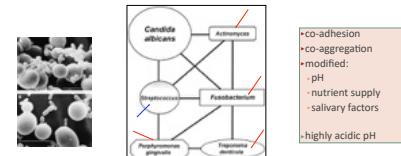


Microbes.....Do we need to test The players?

Mixed biofilm community - proportions



Mixed biofilm community - *Candida albicans* (opportunistic fungal pathogen)



Can testing create a false sense of security?

- ▶ only specific microbes
- ▶ protocol varies
- ▶ thousands DNA fragments
- ▶ false positives / false negatives

Misusing and overusing **ANTIBIOTICS** puts us all at risk



ANTIBIOTIC RESISTANCE THE GLOBAL THREAT



Antibiotic resistance - 1,000x



- as compared planktonic
- to antibiotics and biocides

**biofilm-related infections
can't be treated with
conventional antibiotic therapy**

Harvard Study
<http://www.npr.org/sections/health-shots/2016/09/08/492965889/watch-bacteria-invade-antibiotics-and-transform-into-superbugs> utm_campaign=storyshare&utm_source=twitter.com&utm_medium=social

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<http://www.npr.org/sections/health-shots/2016/09/08/492965889/watch-bacteria-invade-antibiotics-and-transform-into-superbugs> utm_campaign=storyshare&utm_source=twitter.com&utm_medium=social

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Microbial modification - clinical limitations



- dull hand instruments
- power scaling generator
- worn insert tips
- limited insert designs
- clinician skill
- time frame
- access to area
- patient cooperation

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Patient limitations



- perception of value
- poor restorations
- residual deposits
- microbial persisters**
- immune system
- home care
- habits / commitment
- tools / costs and time

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- red sulfonated phenolic gel with sulfuric acid
- hydroscopic** - absorbs water from organic matrix
- not an antibiotic**
- desiccation (dehydration) denatures biofilm structure
- FDA approved adjunct

McKee, M., Martinez, A., Hohen, A., Micali, S., Paliogi, E., Cunha, A., Isidor, A., Nejadkia, M., Barbo-Tudoran, L., Otranto, A.D. A Local Desiccant Antimicrobial Agent as an Alternative to Adjunctive Antibiotics in the Treatment of Periodontitis. A Narrative Review. *Antibiotics (Basel)* 2016; 5:4. doi:10.3390/antibiotics5010004

Debacterol - in the same family



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Diagnosis drives patient care




- Perio
- Non-perio - deposit removal
- Endodontics
- Restorative
- Human wound healing
- Veterinary

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Clinical indications - desiccation therapy



- perio debridement
- NSPT
- heavy bleeding
- complex anatomy
- furcations
- limited access
- edematous tissue
- tenacious deposits
- heavy stain
- failing implants
- chronic lesions
- exudate

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Ethics require



- disclose all potential procedures
- all risks and benefits
- no treatment — an option
- allergies

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Prepping for success




- ▶ syringe - attach tip securely
- ▶ baggie barrier
- ▶ set on 2 x 2
- ▶ barrier supplies - cotton rolls, dry aids, mouth prop

- ▶ 23 gauge syringe needle
- ▶ 7mm marking
- ▶ bent canula
- ▶ rounded tip end

Jesi Adams, RDH - Scottsbluff, NE

Photos courtesy of Susan Furkin, RDH - St. Louis, MO

Specific technique – work in segments



- ▶ natural teeth
- ▶ restorations
- ▶ failing implants
- ▶ mouth prop / cheek retractors
- ▶ isolate area
- ▶ gauze, dry angles, cotton rolls
- ▶ **dry thoroughly BEFORE APPLYING**



Method of action

Sucks water out of biofilm and organic matter

- disregulates protein chains
- denatures organic matter
- creates a coagulant mess
- deposits - crumble, peel off, detach

Specific technique - work in segments



- ▶ apply gel
- ▶ supra or subgingivally
- ▶ start timer
- ▶ limit time - 30 seconds

- ▶ wipe off gel
- ▶ high speed suction
- ▶ rinse - water stream
- ▶ initiate scaling
- ▶ reapply if needed



Desiccation therapy - outcomes

Promote wound healing

Reduce red complex / persisters

- disrupt biofilm EPS
- disaggregate biofilm
- hemostatic - reduces bleeding

- desiccates necrotic tissue
- reduce edema
- stop localized inflammation

USC Oral Microbial Biofilm Disruption Assays
Oral Tissue Decontaminant

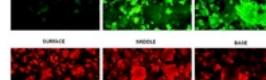
SALIVA PLAQUE BIOFILM PROCEDURE

Biofilm - untreated



Biofilm - treated

Complete kill



Chalk vs flint



Chalk is a soft, white, porous, sedimentary carbonate rock. A soft form of limestone that is not well cemented and thus is often powdery and brittle.



Flint is a microcrystalline rock made of silica and is considered to have begun forming soon after the deposition of chalk. The silica replaces the original chalk carbonate grain by grain.

<https://www.geolsoc.org.uk/Education-and-Careers/Ask-a-Geologist/Earth-Materials/Flint-Formed-in-Chalk>

Pro tips



- burnished deposits - roughen up with a file
- implants....use liquid - flow into threads
- temporary tissue blanching
- fluid release - will rehydrate
- reapply as needed



Anticipated outcomes



- reduce bacteremia risk
- deposits detach
- eliminate red complex / persisters
- create a hostile environment for pathogens
- inhibits pathogen regrowth

<https://www.geolsoc.org.uk/Education-and-Careers/Ask-a-Geologist/Earth-Materials/Flint-Formed-in-Chalk>

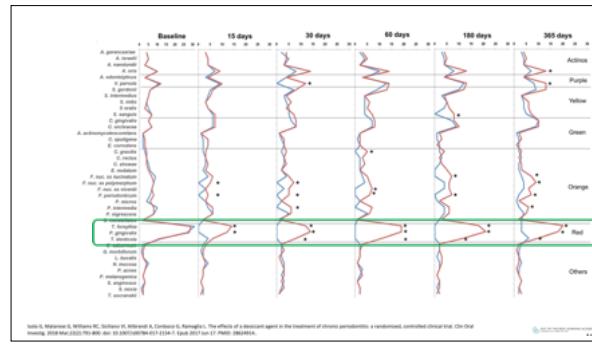
Based on the evidence gathered with this systematic and meta-analysis review, it can be concluded that.....

- the application of the gel with phenolic sulfonate and sulfuric acid ingredients
- adjunctive therapy to non-surgical periodontal therapy
- shown to improve clinical and microbiological parameters
- compared to non-surgical periodontal therapy alone

Four Biofilm Desiccation Studies

- 2015 - UD or UD plus desiccant gel
- 2018 / 2026 / 2026 - SRP or SRP plus desiccant gel
- randomized
- split mouth
- 3, 6, or 12 mo
- decrease probing depths
- less BOP
- improved CAL
- reduce inflammatory markers

Perio A. Pazzaglia A, D'Amico A, Avioli V, Agius G, Lanza M, Lanza G. Topical Agents in Biofilm Disaggregation: A Systematic Review and Meta-Analysis. *J Clin Med*. 2016; 5(12):2176. doi: 10.3390/jcm5122176 PMID: 2763174 PMCID: PMC5122176



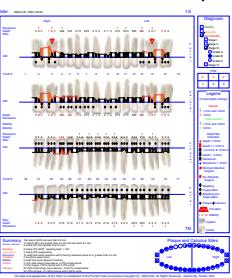
Desiccation gel - chemistry in action



- hydrophilic
- strong affinity to hydrogen molecules in water
- precise patented chemistry
- rapid action
- builds up layers
- self limiting action

Photo courtesy of Julie Campbell, RDH

Derek's patient experience



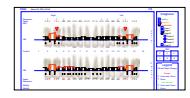
- interprox stain
- sub ging calculus
- 6 mm - 2/3 and 14/15
- minimal bleeding
- stain layers peeled off
- calculus chunks popped off
- no anesthesia / then topical
- scaling more comfortable

Derek's follow up experience - revelations



- interprox 2/3 - vertical defect
- 8-9 mm - some horizontal loss
- New plan
- 3 mo PMT
- desiccation and laser therapy
- re-eval after 6 months
- surgical intervention ?
- using multiple home modalities

Derek update - worth celebrating!

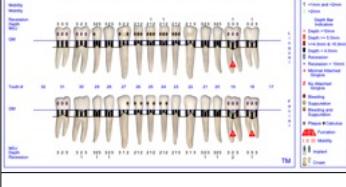


Hx - mild HBP / AFib Wolf MiniMaze
mild OSA / CPAP - daily: Water Pik, Hydrosonic Pro, Closys, BioGala probiotics, Perio Protect therapeutic trays, night guard

- September 2022 - Began water flossing twice daily
- Spring 2023 - Switched from the Sonicare to the Curaprox Hydrosonic Pro
- January 2024 - acute episode - saw GP - probed a 9mm between #2-3 - young GP Rx 4 quads SRP and Chx rinse
- Late February 2024 - discontinued Chx rinse - now using Closys
- March 2024 - began PerioProtect trays twice daily
- Early April 2024 - added in BioGala probiotics daily
- May 30, 2024 - 1st SRP with PerioDT desiccation therapy - very few bleeding points
- June 19, 2024 - 2nd SRP with PerioDT
- October 3, 2024 - PMT with PerioDT
- January 28, 2025 - PMT with PerioDT and Laser bacterial reduction. Zero bleeding point! The LR probing depth is barely a 5 now!
- Yes, there is still 9mm attachment loss. Leslie, RDH said she has never seen healing like this in 23+ years of practice.
- May 20, 2026 PMT with PerioDT and Laser bacterial reduction.
- July 2026 - #2-3 coronets, slight bleeding. Reduced WaterPik setting. Resolved.
- August 29, 2026 PMT with PerioDT and Laser bacterial reduction
- Mid October - UR soreness. Added more PerioGel for several days. Resolved.
- December 3, 2026 PMT. Evaluate for bone graft?

Photo courtesy of Julie Campbell, RDH

Anne's patient experience



- rock hard sub cal
- 1-3 mm probe
- 3 areas required retreat
- deposit crumbled
- calculus felt gummy
- no scraping sound
- no soft tissue discomfort
- slight sour taste

No way, no how to clean these crowded lower anteriors!



- skinniest scaler was too fat
- could see calculus - feel it with floss
- even my 11/12 explorer was too thick
- placed PerioDT - waited 30 seconds
- rinsed and flossed - BAM!

I couldn't believe that after the PerioDT, I could not feel anything when I flossed!

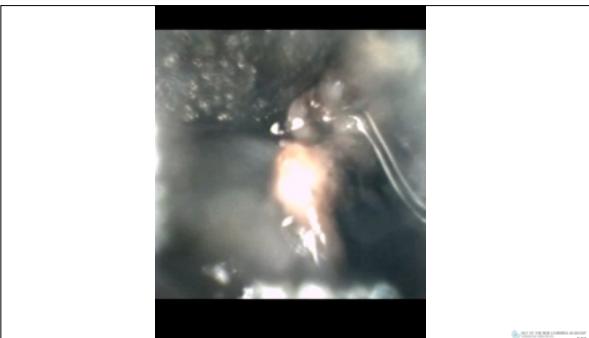
Dana Patterson, RDH, BS
Dabaca Family Practice Dental Clinic
Fort Sumner, New Mexico

Lightbulb Moment!



- 50 year old female
- severely rotated teeth - impossible access
- rock hard deposit
- liquid flowed interproximally better than gel
- gained interprox access

Photo courtesy of Julie Campbell, RDH
Augusta, SC



Is there any limit to how often to use desiccation?

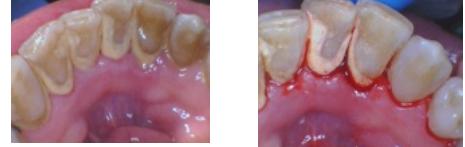
Apply as often as needed.



- 3 sequential applications
- same day - 30-60 seconds
- applied to deposit only
- no tissue blanching

Julie Campbell, RDH
Augusta, SC

Do we need to rethink the plan?



- last hyg - 3 years
- non-smoker
- 2 applications
- one min each
- airflow only
- erythritol power

Jesi Adams, RDH, BSDH
Scottsbluff, Nebraska



- 35 year old female
- last visit 15 years ago
- 20 year smoker - 1 pack a day
- DT liquid applied / removed
- at the end of the SRP
- air blast allowed direct vision
- ultrasonic - rinsed / flushed
- scooped out coagulated necrotic tissue mass with curet

Susan Furkin, RDH
St. Louis, MO

Fixed lingual retainer



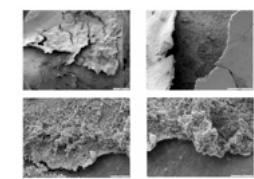
- 25 y.o. male
- last recare - 5 years ago

Susan Furkin, BA, RDH
St. Louis, MO
March 1, 2006

Is the mechanism of action similar to phosphoric acid etchant?

Desiccation dries out biofilm, causing it to crumble and detach from tooth surfaces.

Etchant demineralizes a tooth surface to improve the attachment of a resin restoration or sealant.



Biofilm - treated with desiccant

After: Dried and lifted away from root

JW Costerton - USC Biofilm Center - 2004 - 2007

Calcium channel blocker blues - Best Case Ever!



- 5 years - calcium channel blocker
- changed meds prior to to Tx
- stage 3, Grade B exudate everywhere
- palpation - exudate seeped everywhere

- multiple PerioDT applications during SRP
- 3 mo follow up photo
- pt diligent - home care - super compliant

Julie Campbell, RDH
Augusta, SC

Pristine - Best Case Ever! 3 mo PMT - Zero BOP



Julie Campbell, RDH
Augusta, SC

Inflammation - always between #5-M and #12-M
root surface felt pretty good to the explorer
but tissue was always 'cranky'



Used PerioDT
I only thought the roots were smooth before! Now they really felt great!
"Having PerioDT is like having a periodontist in your pocket!"

Dana Patterson, RDH, BS
Debaca Family Family Practice Dental Clinic
Fort Sumner, New Mexico

Nicole's Peri-implantitis Treatment



- Case presentation - #8 implant
- placed 5 yrs prior
- likely outside bony envelope

- Surgical intervention
- bone grafting completed - minimal benefit
- unpredictable

Nicole Fortune, MBA, RDH

Nicole's non-surgical approach to halt inflammatory response

Nicole Fortune MBA RDH

Clinical treatment

- endoscopy evaluation
- surface debridement - glycine powder air polishing
- applied desiccant
- Nd:YAG laser therapy

Tissue response

- immediate shrinking / tightening

Outcome over next year

- appeared to halt inflammatory breakdown
- patient prepared financially
- remove/reconstruct area / replace implant

Should have been a slam dunk....still homecare issues



young male
no health issues
improved homecare - initial post visit
Julie Campbell, RDH
Augusta, SC

- 8 wk re-eval
- hvy plaque / visible inflam / new calculus
- disappointing case / seemed motivated

Julie's perio experience



- multiple offices / dental school
- dx inflammatory fibrous hyperplasia

- desiccation gel
- piezo ultrasonic debridement
- one week later

Photos courtesy of Julie Campbell, RDH




#22 fenestration with exudate
desiccation gel
airflow
piezo instrumentation

Desiccation / blanching
during scalingcalculus
came out of fenestration

Jesi Adams, RDH, BSDH
Scottsbluff, Nebraska

Following instincts



Bobbie Ballard, RDH
Arizona

- routine 3/4 mo recare
- well maintained
- excellent home care
- daily PikPocket WaterPik tip

stage 3, grade C
#15 Class 3 facial furca
covered by soft tissue
no direct access

- 6mm, active bleeding pocket
- DT, R&L ultrasonic, O'Hehir furca inst
- 2nd application
- soft denatured biofilm **AND** small, black grainy residue

Special situations Clinical challenge



Strain A, Meier AH, Williams T. Dental anxiety in 38 year-old Norwegian in 1998 and 2006. Acta Odontologica Scandinavica. 2006 Jan;64(1):19-25. Epub 2006 Jan 10.

- anxious patients
- sensory disorders
- touch/noise/odors
- medically complex

- med/surg prep
- mission trips
- perio surgery

What Does the patient have to be numb to use PerioDT?

No

Does PerioDT eliminate the need for locally delivered anesthetic?

In many cases, yes the patient will be comfortable with out anesthetic.

Use desiccation first. Remove all desiccant completely before using another product.

Another option is topical or the new hand-held tens unit.



When to use desiccation therapy?

Evaluate the clinical presentation -
soft tissue - bleeding, edema, suppuration
hard deposits - radiographic deposits, visible calculus, burnished deposits

Hygiene - Initial debridement, SRP, prophylaxis with deposit, perio maintenance

Dental/restorative - emergency evaluation, restorative/ impressions, pre-surgical extraction, perio surgery, endodontics to clean out canals.

Top benefits



- antibiotic free
- reduced systemic microbial overload
- long-term pathogen suppression
- fewer ergonomic issues
- beneficial billable service
- patient comfort - reduced anesthesia

Patient benefits



- comfort
- thorough debridement
- reduce office visits
- patient dollars
- eliminate antibiotics - local and systemic



Practice benefits

- improves trust
- positive reputation
- case acceptance
- referrals
- efficient appt time
- reduced anesthesia
- reduced cancellations
- easier scheduling
- improved bottom line
- increased revenue

Coding - CDT procedure coding vs billing

Procedure codes - diagnosis based

- procedure based on diagnosis
- record all clinical treatment
- some procedures - no codes
- procedure, not products

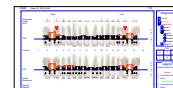
Billing - Contract driven

- not based on diagnostics
- 3rd party contracts
- business arrangement
- reimbursement varies

ADA Code Maintenance Committee
create/review/delete CDT procedure codes
review codes annually

https://www.ada.org/-/media/projects/ada-expansion/ada-100/100-publications/cdt/cdt_0425standardreportingofmouthdebridement_2023jan.pdf?rev=d2c0eb159744956de7139708c31d51&hash=279FA78C9124B41A13C083842C5051

Procedural Codes - Derek vs Anne



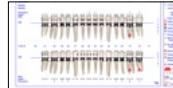
interprox stain
sub ging calculus
6 mm - 2/3 and 14/15
isolated SRP - Derek

D4999

Desiccation therapy

Hx - mild HBP / Afib Wolf MiniMaze

mild OSA / CPAP - daily: Water Pik, HydroSonic Pro, Closys, BioGaia probiotics, Perio Protect therapeutic trays

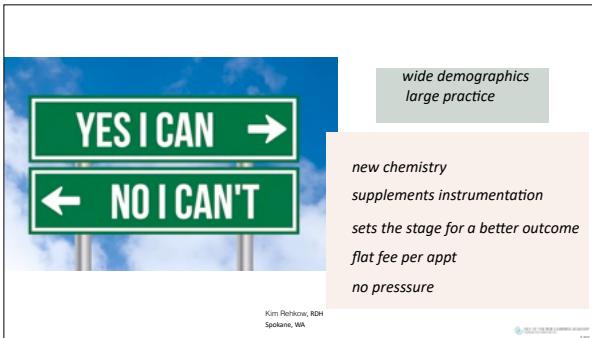


rock hard sub cal
1-3 mm probe
3 areas required retreat
prophy - Anne

D1999

Desiccation therapy
Hx - mild OSA / CPAP

HydroSonic Pro, Water Pik, Perio Protect therapeutic trays



YES I CAN →
← NO I CAN'T

wide demographics
large practice

new chemistry
supplements instrumentation
sets the stage for a better outcome
flat fee per appt
no pressure

Kim Rehkop, RDH
 Spokane, WA

Strategies for getting the team on board



Document and compile findings

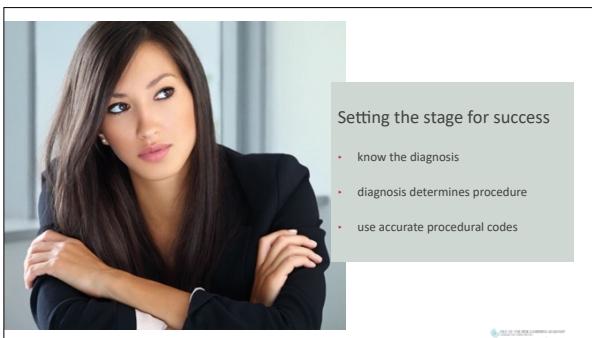
- appointment time
- ease of scaling
- patient comfort
- scaling effectiveness
- soft tissue response

Determine an office policy and protocol



Cost per quadrant / per tooth / whole mouth?

cost of PerioDT
chair time - with or without an assistant
associated supplies / isolation/drying



Setting the stage for success

- know the diagnosis
- diagnosis determines procedure
- use accurate procedural codes

Details, details.....

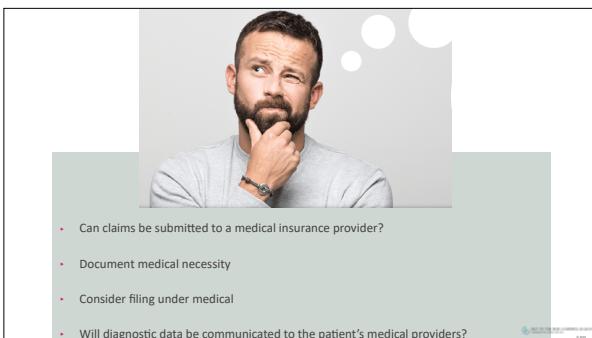


- Is the documentation complete?
- More than just probing and x-rays
- Leave no stone unturned - medical necessity
- Advise patient of all risks and benefits



Details, details.....

- When will the patient be reevaluated?
- What additional measures will be considered?
- When will other therapies or recommendations be implemented?
- Discuss fees openly / don't guarantee reimbursement



- Can claims be submitted to a medical insurance provider?
- Document medical necessity
- Consider filing under medical
- Will diagnostic data be communicated to the patient's medical providers?

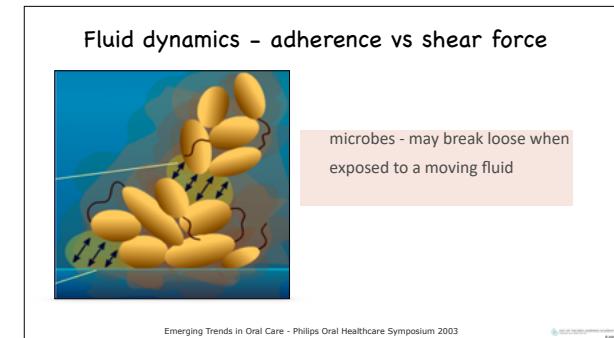
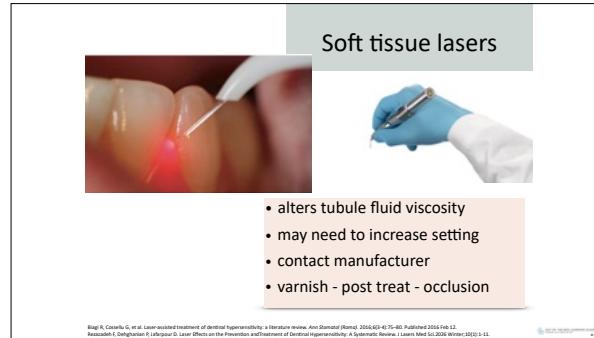
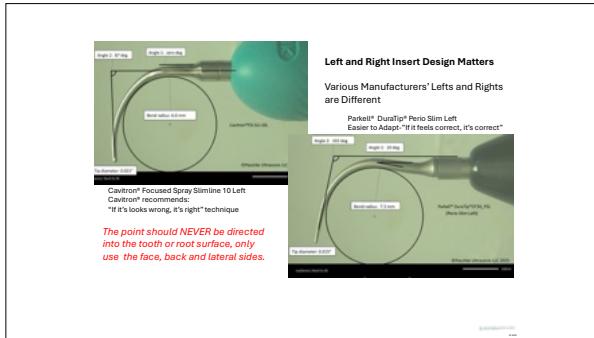
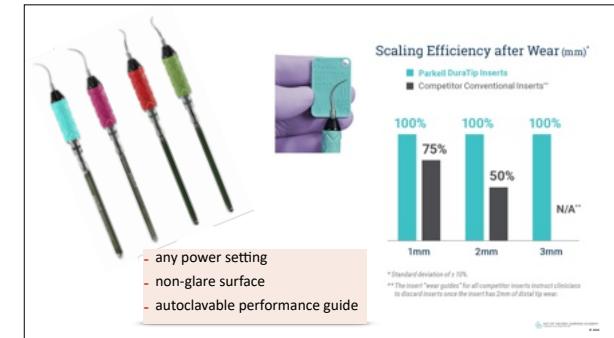


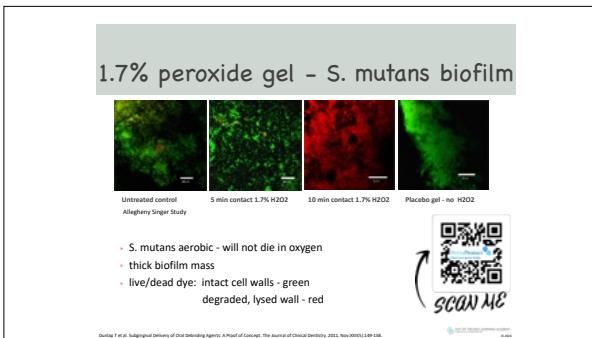
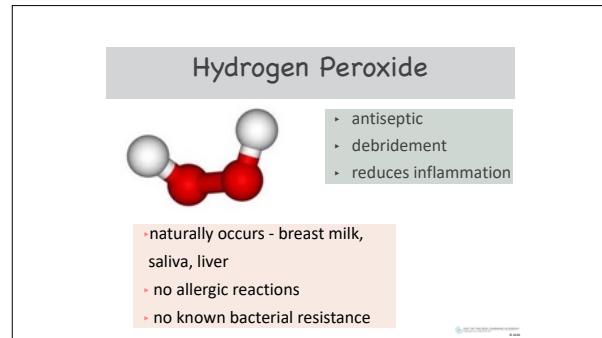
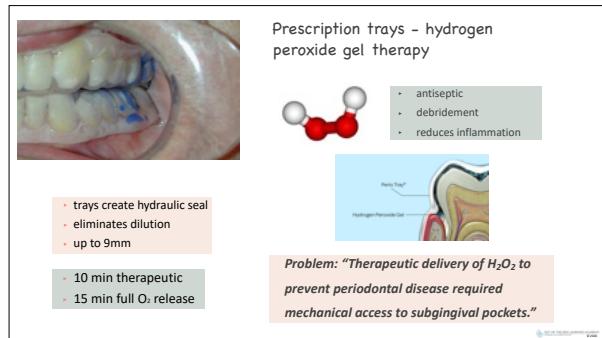
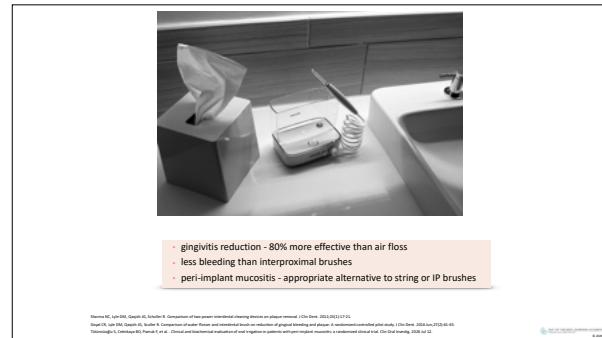
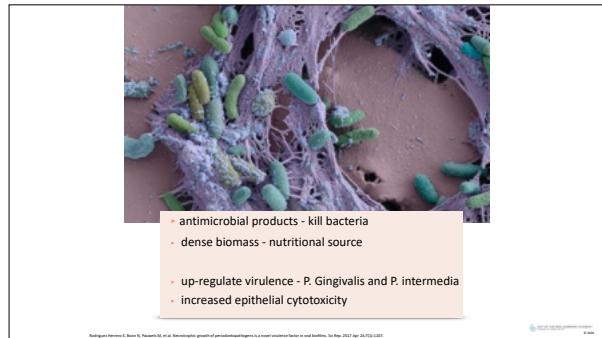
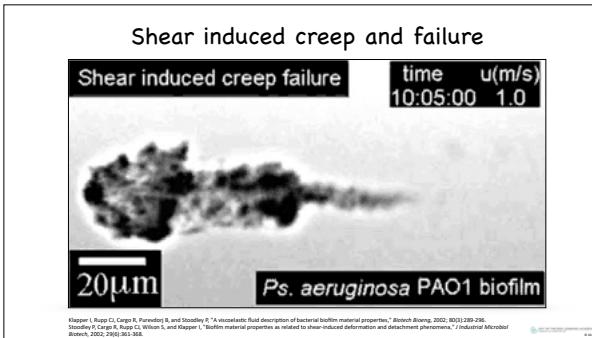
More details.....

- ordering supplies
- location / storage
- dispensing supplies

For more information







Prescription tray therapy

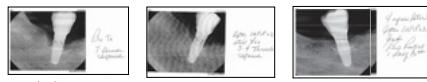


June 8, 2016 July 7, 2016

- 3 times a day
- 15 min per session
- PerioGel only
- 101 bleeding points to 7
- 1-2mm probing reduction

Photos courtesy of Perfect Teeth - Denver, Colorado

Prescription trays - implant



3/13/2018 10/14/2020 1/20/2022

- 77 year old male - suppuration / 7 threads
- Hx - OSA, CPAP, Simvastatin, Symbicort, Picoair HFA, Aspirin 81 mg, Zoloft, and Omeprazole
- prescription tray - started June 2019
- PerioGel plus doxycycline

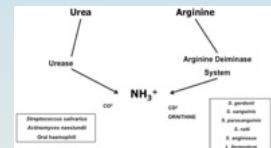
Photos courtesy of Lynn Harary, DMD - Rutland, VT

NEWS FLASH

Prebiotics.....
stimulate growth or activity
of certain healthy bacteria

Kroppen JE, Hoogendoorn MA, Buijs MJ, Brandt BH, Krijnen PJ, Crijns W, ten Cate JM, ten Cate L. Changes in the oral ecosystem induced by the use of 8% xylidine toothpaste. *Arch Oral Biol*. 2017 Jan;75:79-87. doi: 10.1016/j.archoralbio.2016.10.010. PMID: 27762302.

Salivary arginine - mode of action



Urea - few bacteria

- * saliva & crevicular fluid
- * broken down by urea
- * byproduct-ammonia
- * action produces ATP

Arginine - many bacteria

- * low in saliva/abundant in peptides
- * ADS - 3 enzyme system
- * byproduct - ammonia
- * action produces ATP

Kurnia HA, Jiang L, Akin SI, et al. Progress Detecting the Oral Microbiome in Caries and Health. *Advances in Dental Research*. 2012;24(5):77-85.

Arginine bicarbonate calcium carbonate



EPS Impact

- interferes - EPS formation
- reduces biofilm thickness
- reduces EPS matrix density

P gingivitis Impact

- disrupts attachment apparatus
- reduce biomass



Probiotics are live
microorganisms that, when
administered in adequate
amounts, confer a health
benefit on the host.....

Importance of strain specificity

Indication	<i>L. reuteri</i> ATCC PTA 5289	<i>L. reuteri</i> DSM 17938	<i>Biogemmeces album</i> KJ2	<i>Biogemmeces album</i> KJ2	<i>Biogemmeces rectus</i> JH145
Gingivitis*	HIGH EFFECT	Not studied			
Periodontitis*	HIGH EFFECT	NO EFFECT			
Implantitis*	HIGH EFFECT	Not studied			
Caries*	MODERATE	MODERATE			
Hallitus*	LOW	Not studied			



L. reuteri Prodentis – human-derived probiotic strains

Isolated from the breast milk of a lactating woman from a rural, non-industrialized area of the Andes mountains



Isolated from the saliva of a Japanese woman with excellent oral health despite poor oral hygiene

Photos courtesy of Perfect Teeth - Denver, Colorado

246 Clinical Trials
20,345 Individuals
11 International Clinical Guidelines

54 studies in 6,854 subjects
24 studies in 2,710 subjects
42 studies in 4,512 subjects
126 studies in 22,067 subjects

INFANTS (0-12 mos)
TODDLERS (13-36 mos)
CHILDREN (4-18 yrs)
ADULTS (>18 yrs)

- Gingivitis, peri-implant mucositis, caries
- Non-surgical perio - adjunct
- 1 lozenge - twice daily - 1 to 3 months



Maintenance
1 lozenge daily

Photos courtesy of Perfect Teeth - Denver, Colorado



- current scientific information
- patients must make the final choice

How would you treat your family?

