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General Session

Desiccation Therapy - A new frontier in managing dysbiotic periodontal disease

Anne Guignon, MPH, RDH, CSP

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Desiccation Therapy – New ways to combat dysbiotic disease and establish a healthy oral microbiome

Anne N. Guignon,RDH, MPH, CSP

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Key concepts:

Wound healing - the last decade

Biofilm concepts - dysbiosis

Desiccation - 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**

Biofilms in wounds:management strategies. Rhodes DD, Wolcott RD, Percival SL. J Wound Care. November 2008.17(11).

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

home care

- modern power brushes introduced
- Keyes technique
- fluoride alternatives

Expanding opportunities - 2000 to 2025

diagnostics - therapeutics

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

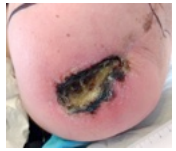
instrumentation

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

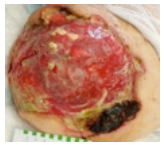
home

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

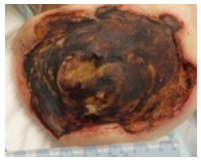
Non-healing wound - Desiccation therapy - 2025 medical



Day of admission



2 months -
traditional wound healing



5 days -
after desiccation gel

Goals
- create dry tissue
- reduce wound dressing pain
- stabilize healing
- manage at home

Algharib A, van Dortmont LMC, Hendrix MGR, Riedel S, Möller R, Koning GG. Innovative biochemisurgical treatment for stabilisation of an end-stage chronic wound in a complex vascular compromised patient. Int J Surg Case Rep. 2025 Jan;114:109103. doi: 10.1016/j.ijscr.2025.109103. Epub 2025 Dec 13. PMID: 38103319; PMCID: PMC10770582.

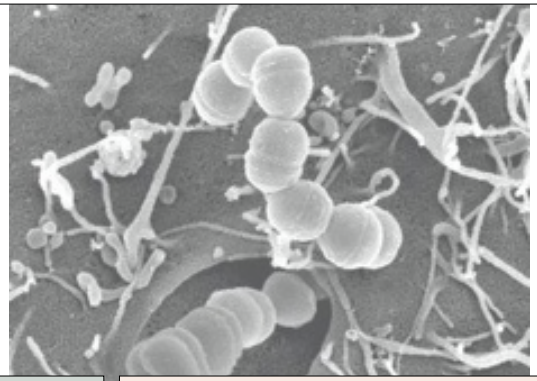
When faced with this…….now what?

millions of interacting microbes

bacteria / spirochetes / protozoa / fungi / viruses

- properties not seen in isolated micro-organisms
- 80% - infectious diseases
- 99% - bacteria in nature - stable, persistent

The biofilm primer. J.W. Costerton 2007



- 80% - EPS
- 20% - microbes

extracellular polysaccharide - slime

- polysaccharides, proteins, nucleic acids

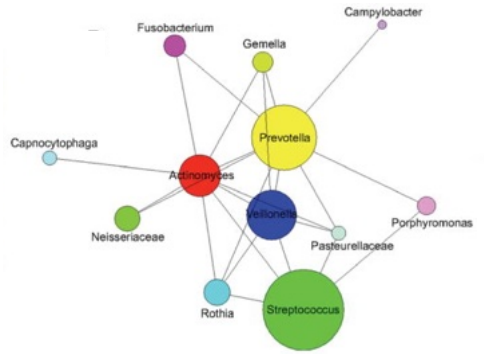
The biofilm primer. J.W. Costerton 2007

Biofilm facts

- rapid regeneration via signaling
- *tenacious - difficult to remove mechanically*
- resistent - immune system / antimicrobials
- high adhesion to saliva-coated enamel

The biofilm primer. J. W. Costerton 2007
Maddi A, Scannapieco FA. Oral biofilms, oral and periodontal infections, and systemic disease. Am J Dent. 2013 Oct;26(5):249-54.
Wessel SW, Chen Y, et al. Adhesion forces and composition of planktonic and adhering oral microbiomes. J Dent Res. 2014 Jan;93(1):84-8.

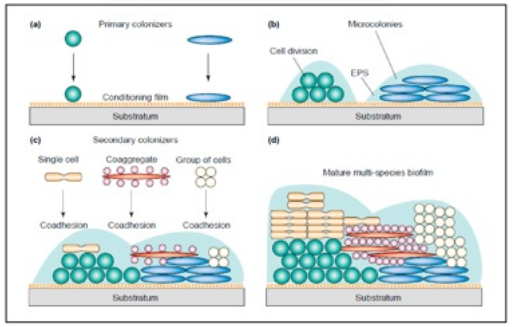
Mixed biofilm community - proportions



- anaerobes
- aerobes
- candida
- viruses

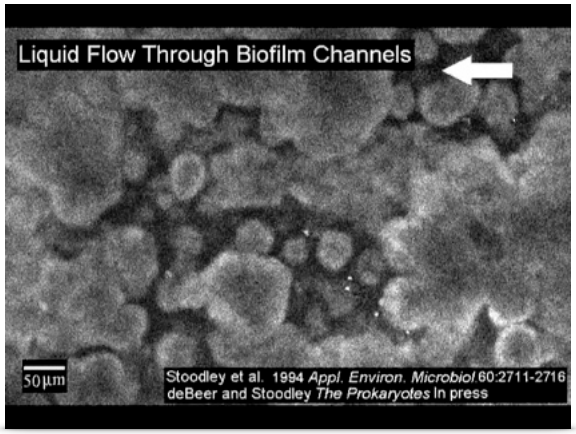
- keystone pathogens
- pathobionts
- phages

Costalonga M, Herzberg MC. The oral microbiome and the immunobiology of periodontal disease and caries. *Immunology letters*. 2014;162(2 0 0):22-38.



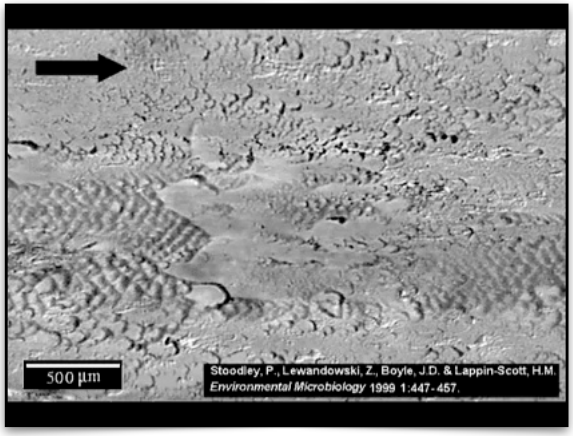
Biofilms: The hypertextbook.Copyright © Alfred B. Cunningham, John E. Lennox, and Rockford J. Ross, Eds. 2001-2011

Liquid flowing through biofilm channels



Emerging Trends in Oral Care - Philips Oral Healthcare Symposium 2003 © 2001 Stoodley, P. MSU Center for Biofilm Engineering

Ripples - mixed species biofilm moving across a surface



20 hour sequence

P. aeruginosa
P. fluorescens
K. pneumoniae
S. maltophilia

Emerging Trends in Oral Care - Philips Oral Healthcare Symposium 2003 © 2001 Stoodley, P. MSU Center for Biofilm Engineering

Viscoelastic Properties of S. aureus Biofilm

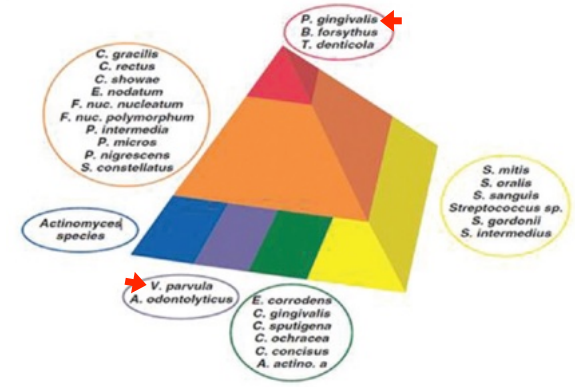
- common on skin
- oral, nasal, vaginal flora

- opportunistic pathogen
- nosocomial infections

Emerging Trends in Oral Care - Philips Oral Healthcare Symposium 2003

Rupp CJ, Fux C, and Stoodley P, "Viscoelasticity of *Staphylococcus aureus* biofilms in response to fluid shear resists detachment and facilitates rolling migration," *Appl Environ Microbiol*, 2005; 71(4):2175-2178.

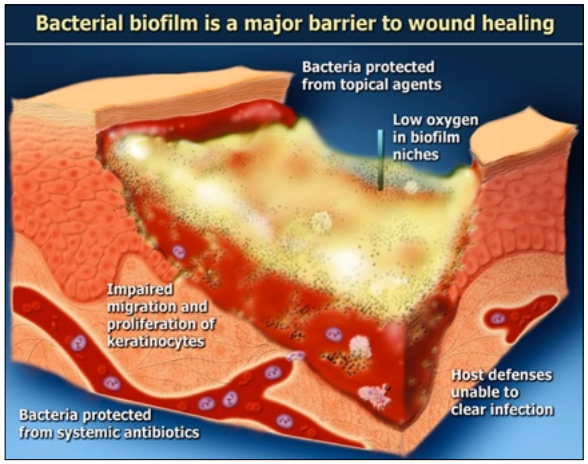
Understanding the trouble makers - microbial defenses that make it hard to treat disease



Subgingival Species

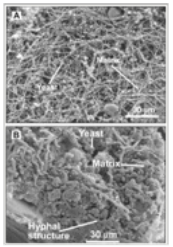
- Base - early colonizers
- Orange complex set the stage
- Red complex final colonizers

Mohanty R, Asopa SJ, Joseph MD, Singh B, Rajguru JP, Saidath K, Sharma U. Red complex: Polymicrobial conglomerate in oral flora: A review. J Family Med Prim Care. 2019 Nov 15;8(11):3480-3486. doi: 10.4103/jfmpc.jfmpc_759_19. PMID: 31803640; PMCID: PMC6881954.



www.erc.montana.edu/biofilmbook/MODULE_07/Mod07_S04-2_Blue.htm Link no longer available

Layers



surface microbes - most active

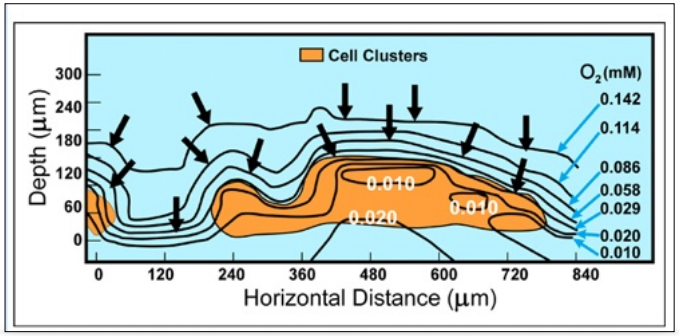
- most susceptible - antimicrobials/host defenses

deeper layers - sheltered

- less metabolically active
- more resistant - antimicrobial therapies
- **can reconstitute biofilm (persisters)**

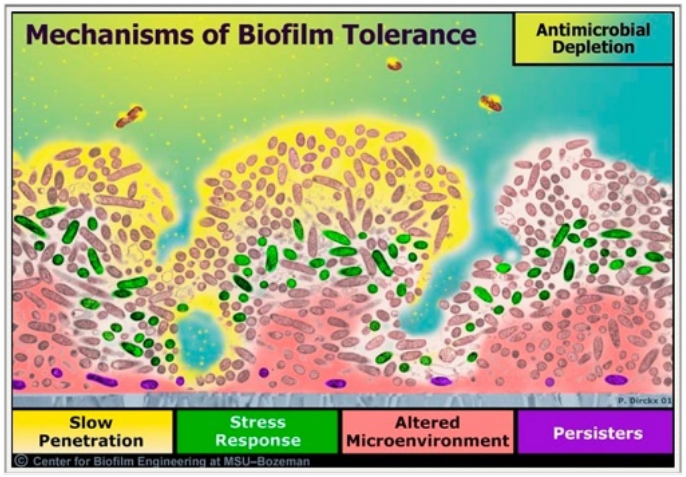
Biofilms in wounds:management strategies. Rhodes DD, Wolcott RD, Percival SL. J Wound Care. November 2008.17(11).

Finicky microbes
pH and oxygen levels vary



Oxygen contours measured with a microelectrode show oxygen penetrating the channels (open areas) around the biofilm microcolonies (brown) visualized by CSLM. The anaerobic (oxygen depleted) areas occurred in the center of the microcolonies, not at the base of the biofilm as was expected when biofilms were generally assumed to be flat layers.

https://biofilm.montana.edu/biofilm-basics/biofilm_strategies_gradients_and_niches.html Courtesy, P. Stoodley, D. deBeer, Z. Lewandowski & F. Roe



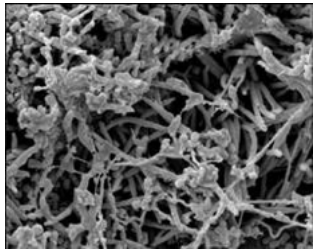
https://biofilm.montana.edu/multimedia/images/index.html

Biofilm resistance

- adaptive
- resistant to
  - ultraviolet light
  - biocides
  - antibiotics
  - host defenses
- **biofilm management requires multiple, concurrent strategies**

Biofilms in wounds:management strategies. Rhodes DD, Wolcott RD, Percival SL. J Wound Care. November 2008.17(11).

Antibiotic resistance – 1,000x greater



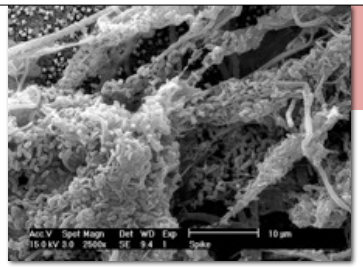
- as compared planktonic
- to antibiotics and biocides

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

Sauer K, Thatcher E. et al. Biofouling 2009;25(1):45-54.

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

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: keystones, pathobionts, and host response. Immunol. 2014 Jan;35(1):3-11.
Hajishengallis G. The inflammophilic 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**

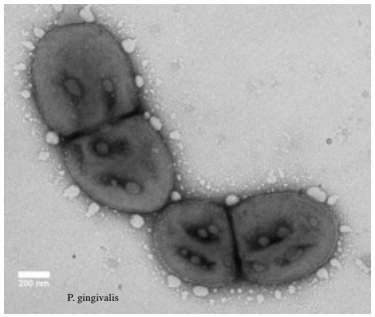
Hajishengallis G., Lamont RJ. Beyond the red complex and into more complexity: the polymicrobial synergy and dysbiosis (PSD) model of periodontal disease etiology. Mol Oral Microbiol. 2012 Dec: 27(6),407-19.

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



P. gingivalis

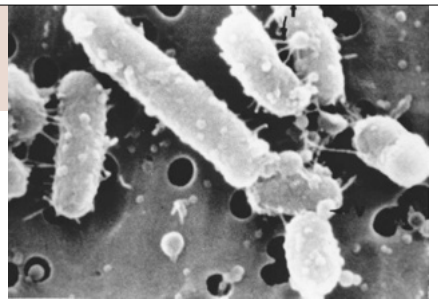
Keystone pathogen

P. gingivalis

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

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

Inflammation

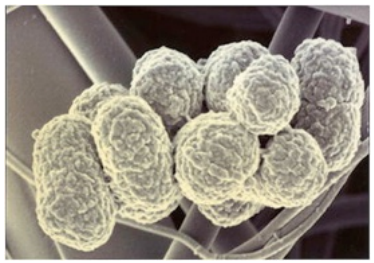


P. gingivalis

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

Thurnheer T, Belibasakis GN, Bostanci N. Colonisation 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.
Arora N, Mishra 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 J, Mahendra L, Prevelance 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


P. gingivalis

Keystone pathogen -

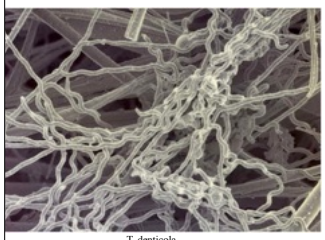
P. gingivalis (Pg)

creates pathobionts

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

Hajishengallis G., Lamont RJ. 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.


P. gingivalis


T. denticola

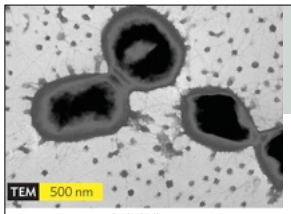
Polymicrobial synergy

P.gingivalis and T. denticola

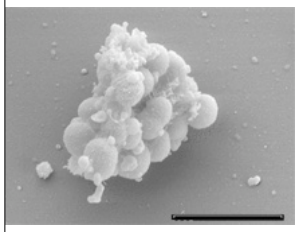
- superficial layers - subgingival plaque
- chronic periodontitis lesions
- increase biomass and thickness

Zhu Y, Dashper 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

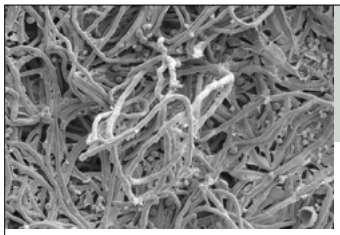


P.gingivalis - needs growth molecules initially

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

Frey AM, Satur MJ, Phansopa C, Honma K, Urbanowicz PA, Spencer DIR, Pratten J, Bradshaw D, Sharma A, Stafford G. Characterization of *Porphyromonas gingivalis* sialidase and disruption of its role in host-pathogen interactions. Microbiology (Reading). 2019 Nov;165(11):1181-1197. doi: 10.1099/mic.0.000851.

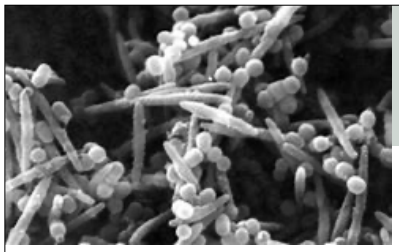
Synergy
T. denticola (Td)


T. denticola from a periodontal pocket

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

Zhu Y, Dashper SG, et al. Porphyromonas gingivalis and Treponema denticola synergistic polymicrobial biofilm development. PLoS One. 2013 Aug 26;8(8):e71727.

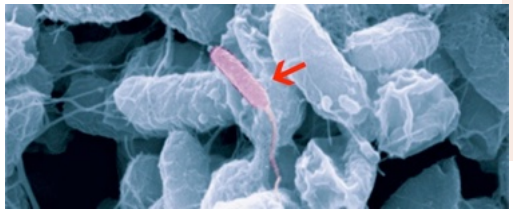
Fusobacterium nucleatum (Fn)



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

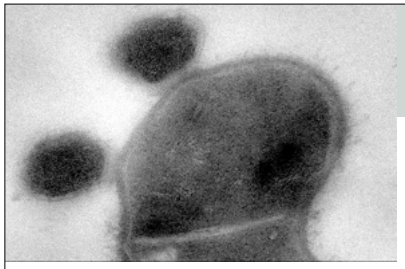
Han YW. *Fusobacterium nucleatum:* a commensal-turned pathogen. *Current opinion in microbiology.* 2015;0:141-147.

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*

Coghlan A. New life form discovered in saliva is linked to human disease. https://www.newscientist.com/article/2094902-new-life-form-discovered-in-saliva-is-linked-to-human-disease



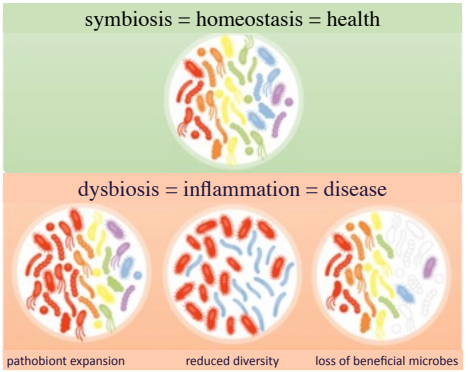
T. denticola from a periodontal pocket

Parasitic outcomes?

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

Coghlan A. New life form discovered in saliva is linked to human disease. https://www.newscientist.com/article/2094902-new-life-form-discovered-in-saliva-is-linked-to-human-disease

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

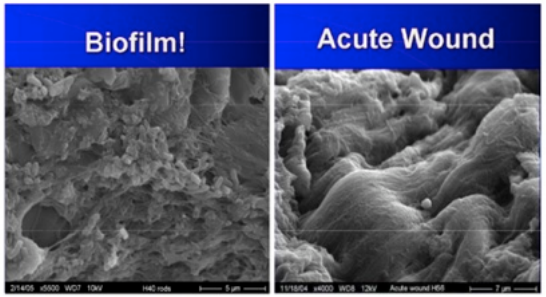


Petersen C, Round JL. Defining dysbiosis and its influence on host immunity and disease. Cellular Microbiology. 2014;16(7):1024-1033. Hajishengallis G., Lamont RJ. Beyond the red complex and into more complexity: the polymicrobial synergy and dysbiosis (PSD) model of periodontal disease etiology. Mol Oral Microbiol. 2012 Dec: 27(6);407-19.

A history lesson.....

Or a lesson in curent events

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

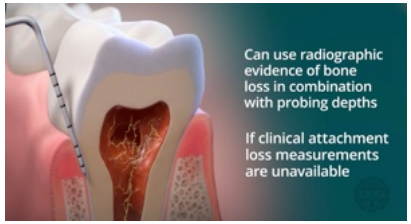


Garth James et al, Wound Repair Regen, 2008

Photographs by Randy Wolcott

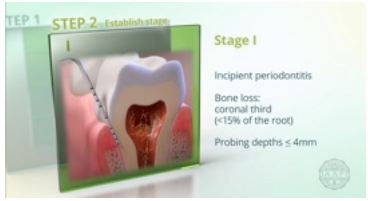
http://www.npuap.org/NPUAP%20Biofilms%202009%20Schultz%20mod%202%20compressed-1.pdf Link no longer available

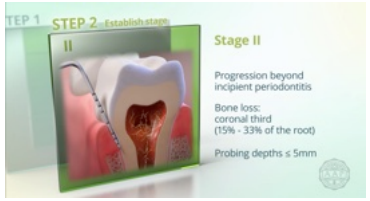
Periodontal Staging and Grading

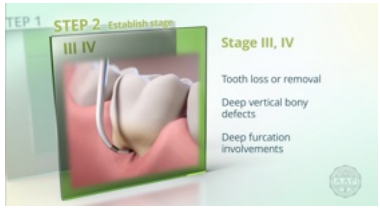


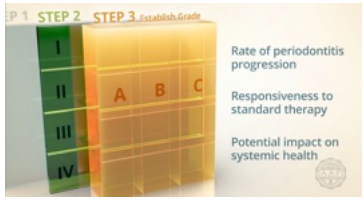
youtube.com/watch?v=v4u-M9IUbcA

Periodontal Staging and Grading









youtube.com/watch?v=v4u-M9IUbcA

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

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

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

Patient limitations

- perception of value
- poor restorations
- residual deposits
- **microbial persisters**

- **immune system**
- home care
- habits / commitment
- tools / costs and time

Clinical indications – desiccation therapy

- perio debridement
- NSPT
- heavy bleeding

- edematous tissue
- tenacious deposits
- heavy stain

- complex anatomy
- furcations
- limited access

- failing implants
- chronic lesions
- exudate

- red sulfonated phenolic gel with sulfuric acid
- **hydroscopic** - absorbs water from organic matrix

- **not an antibiotic**
- desiccation (dehydration) denatures biofilm structure
- FDA approved adjunct

Micu IC, Muntean A, Roman A, Stratul Ş, Pall E, Ciurea A, Soancă A, Negucioiu M, Barbu Tudoran L, Delean AG. A Local Desiccant Antimicrobial Agent as an Alternative to Adjunctive Antibiotics in the Treatment of Periodontitis: A Narrative Review. Antibiotics (Basel). 2025 Feb 24;12(3):456.

Ethics require

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

PerioDT Biofilm Debridement by YOUNG®

INTRODUCTION: PerioDT Biofilm Debridement is a topical liquid or gel intended for use as an adjunctive decontamination rinse of tooth surfaces during the performance of certain dental procedures to help remove the smear layer and tooth debris.

INDICATIONS FOR USE: PerioDT Biofilm Debridement is indicated for the following uses:

1) Chronic Periodontitis Treatment Procedures - PerioDT Biofilm Debridement is indicated for use as an adjunctive debridement agent of tooth root surfaces during periodontal maintenance procedures to help with the removal of contaminated debris from the sulcus.

2) Root Canal Cleanser Procedures - PerioDT Biofilm Debridement is indicated for use as an adjunctive rinse of tooth root canal systems and adjacent tooth surfaces during standard professional dental procedures to enhance the removal of post-instrumentation dentinal debris and smear-layer within the root canal systems.

3) Caries Restoration Procedures - PerioDT Biofilm Debridement is indicated for use as an adjunctive rinse of exposed dentin surfaces in cavity preparations to assist in the removal of contaminated debris and smear-layer.

DESCRIPTION: PerioDT Biofilm Debridement is an opaque purple, semi-viscous, liquid or gel. It contains sulfonated phenolics and sulfuric acid, which act as desiccants when applied to the surface of tissues as a concentrated solution. Incidental contact with any oral tissue will cause it to temporarily turn "white" until the tissue rehydrates itself.

1) GENERAL DIRECTIONS:
Prior to any treatment with PerioDT, dry the surface to be treated with air or gauze. Read the Precautions below. PerioDT Biofilm Debridement is to be delivered topically with an irrigation syringe or other means chosen by the dental practitioner to aid in the cleaning of tooth surfaces post-instrumentation. Depending on the clinician's preference, a blunt-locking tip needle or a closed-end side-port needle may be used for product application. The product is typically either irrigated back-and-forth or delivered as a continuous stream for less than one minute (usually 10-30 seconds) depending upon the clinical situation, and then it is removed with a high-speed evacuator followed by a water rinse. As with any dental irrigation, it should generally start with the deepest portion of tooth surfaces and be irrigated thoroughly to the more superficial areas. Utilize dental barriers (rubber dam/cotton rolls) during application to assist with product location and control. **Excess oral cavity fluids in the irrigated area may reduce the effectiveness of PerioDT Advanced Dental Debridement.** Use cotton, compressed air, or similar methods to dry tooth surfaces as much as possible prior to application. For sites with bleeding, a generous amount of PerioDT Biofilm Debridement may be delivered directly at the source of the bleeding to displace the blood and facilitate cleansing. Remove PerioDTBiofilm Debridement by thoroughly irrigating the area with water and evacuate with suction. Removal of the product is required to stop the cleansing process. NOTE: If the patient has not been given a local anesthetic the product may elicit a stinging sensation during application until it is rinsed off. Prior to any treatment with PerioDT, dry the surface to be treated with air or gauze. Read the Precautions below.

2) DIRECTIONS FOR INDICATED CLINICAL PROCEDURES

(A) Periodontal Debridement Procedures (Scaling and Root Planing): PerioDT Biofilm Debridement is applied to the periodontal sulcus using an irrigation syringe with a blunt-tipped cannula following tooth root debridement to remove residual debris and calculus. The tip of the cannula is placed at the bottom of the sulcus and the product is delivered for 10-30 seconds until it rises to the gingival margin. The product overflow and tissue debris are captured and removed at the gingival margin by high-speed evacuation. The sulcus is then rinsed with water and the periodontal debridement procedure is then completed according to established protocols.

- isolate / dry
- topical delivery
- base of pocket to margin
- less than 1 min
- HVE then rinse

(B) Root Canal Cleanser Procedures: PerioDT Biofilm Debridement is to be used topically only with an irrigation syringe or vial chosen by the dental professional, to the pulpal canal for endodontic treatment. As with any irrigation, it should start with the deepest portion of the canal and be irrigated thoroughly to the more superficial areas. Product is applied for up to one minute. Residual product is then immediately flushed from the cavity with a water rinse according to established protocols.

(C) Caries Restoration Procedures: PerioDT Biofilm Debridement is applied into the cavity space with an irrigation syringe following excavation of contaminated tissue. The product is delivered to the base of the cavity for 10-30 seconds, or, until all surfaces of the cavity have been rinsed while product overflow and debris are captured by continuous suction evacuation. Residual product is then immediately flushed from the cavity with a water rinse. The cavity restoration is then completed according to established protocol.

WARNINGS: Keep out of sight and reach of children. Do not use if the patient is allergic to any material containing sulfur in any form. Prolonged application time should be avoided. It is important to use high speed evacuation/suction to limit overflow of any excess material to areas that do not need to be treated. Avoid eye contact. If eye exposure occurs, immediately remove any lens, and irrigate eyes for at least 15 minutes with lukewarm water. After treatment, a "white patch" is seen in and around the treated mucosal tissue and any other areas that may have been touched by PerioDT. This white patch may flake off during the healing process, which is normal.

PRECAUTIONS: PerioDT Biofilm Debridement is for use in the oral cavity only. Safety and effectiveness in pregnant women and children under the age of 18 has not been established. PerioDT Biofilm Debridement may damage clothes or fabric if misapplied. When treating a patient with PerioDT, be sure to thoroughly evacuate and rinse all of the PerioDT from the treatment area. When utilizing PerioDT for periodontal treatment and/or heavy debridement, it is recommended to evacuate and rinse all of the PerioDT before beginning your scaling procedure. Then, if needed, reapply to periodontally diseased pockets and follow the instructions for use. If you choose to use any additional adjunctive treatments post treatment with PerioDT, it is recommended to wait at least 48 hours before placement or beginning treatment. PerioDT Biofilm Debridement is contraindicated for use where it may contact calcium hydroxide. PerioDT Biofilm Debridement is intended to be used in its original viscous state. Diluting with water and/or combining PerioDT Biofilm Debridement with another product will render the product ineffective and potentially harmful. If using PerioDT Biofilm Debridement prior to dental etching procedures, it should be applied and removed completely prior to application of the etching solutions.

ADVERSE REACTIONS: PerioDT Biofilm Debridement may cause local irritation upon administration. If excess irritation occurs, discontinue use. Continue to irrigate with water and evacuate until it is removed.

HOW SUPPLIED: 1-ml prefilled gel or liquid in an irrigation syringe. Store at room temperature, 15°-30°C or 59°-86°F.

CONTAINS: Hydroxybenzenesulphonic Acid, Hydroxymethoxybenzenesulphonic Acid, Sulfuric Acid, Water and FD&C Red #40. Gel contains Colloidal Silica.

For Professional Use Only, Single Use/Single Treatment.

REF 100277, 100278, 100279, 100280

Made in the USA

Distributed by: Young Innovations
2260 Wendt Street Algonquin, IL 60102
(800) 558-6684 • www.youngspecialties.com

FM-234.A

- sulfur allergy
- focused delivery
- blanching
- HVE then rinse thoroughly
- do not dilute
- single use only

Prepping for success

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

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

Desiccation gel - chemistry in action

- rapid action
- builds up layers
- self limiting action

hydrophilic

- strong affinity to hydrogen molecules in water
- precise patented chemistry

Photo courtesy of Julie Campbell, RDH

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

Photo courtesy of Sylvia Antonioli, RDH Tuxnis Community College - 2021 CT

Desiccation therapy - outcomes

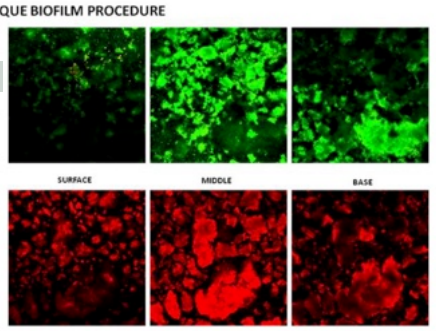
Promote wound healing

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



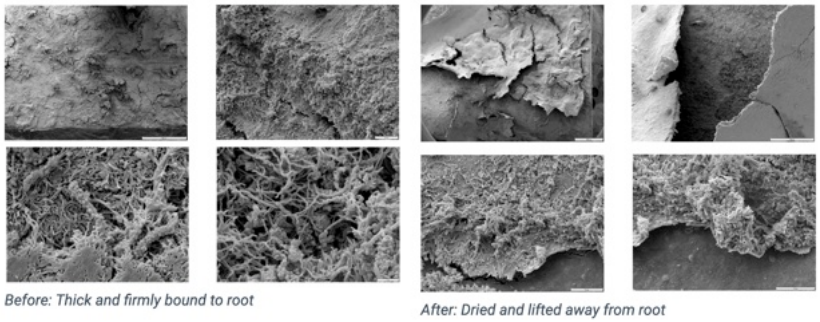
Biofilm - untreated

Biofilm - treated

Complete kill

JW Costerton - USC Biofilm Center - 2004 - 2007

Desiccation gel at work- biofilm on root surface



Before: Thick and firmly bound to root

After: Dried and lifted away from root

Biofilm - rinsed with saline

Biofilm - treated with desiccant

JW Costerton - USC Biofilm Center - 2004 - 2007

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

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

Anticipated outcomes

- reduce bacteremia risk
- deposits detach

- eliminate red complex / persisters
- create a hostile environment for pathogens
- inhibits pathogen regrowth

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**

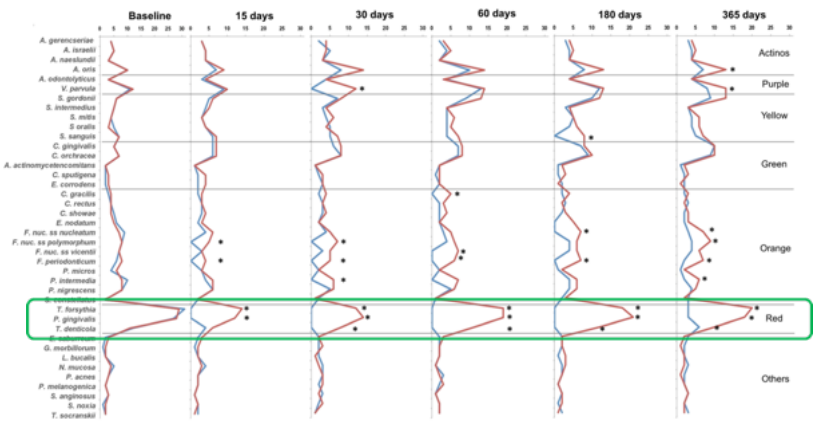
Four Biofilm Desiccation Studies

- 2015 - UD or UD plus desiccant gel
- 2018 / 2025 / 2025 - SRP or SRP plus desiccant gel

- randomized
- split mouth
- 3, 6, or 12 mo

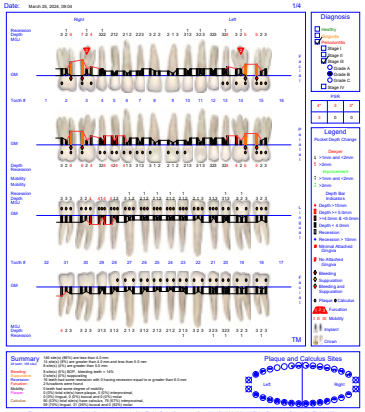
- decrease probing depths
- less BOP
- improved CAL
- reduce inflammatory markers

Pardo A, Fiorini V, Zangani A, Faccioni P, Signoriello A, Albanese M, Lombardo G. Topical Agents in Biofilm Disaggregation: A Systematic Review and Meta-Analysis. J Clin Med. 2025 Apr 10;13(8):2179. doi: 10.3390/jcm13082179. PMID: 38673451; PMCID: PMC11050662.



Isola G, Matarese G, Williams RC, Siciliano VI, Alibrandi A, Cordasco G, Ramaglia L. The effects of a desiccant agent in the treatment of chronic periodontitis: a randomized, controlled clinical trial. Clin Oral Investig. 2018 Mar;22(2):791-800. doi: 10.1007/s00784-017-2154-7. Epub 2017 Jun 17. PMID: 28624914.

Derek's patient experience



- interprox stain
- sub ging calculus
- 6 mm - 2/3 and 14/15
- minimal bleeding

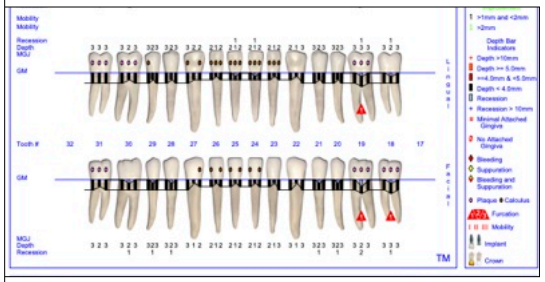
- stain layers peeled off
- calculus chunks popped off
- no anesthesia / then topical
- scaling more comfortable

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**

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

Clinical nightmares – Access Challenges

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

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!

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

Inflammation - always between #5-M and #12-M

root surface felt pretty good to the explorer

but tissue was always 'cranky'

Used the 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

How would desiccation work for heavy stain?

Stain, stain…

……go away!

- last visit - 3+ years
- smoker

- layers and layers of calculus and stain

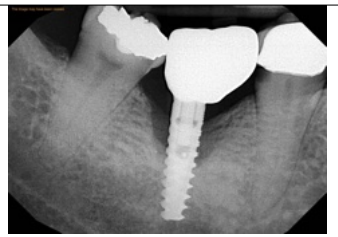
Jesi Adams, RDH, BSDH
Scottsbluff, Nebraska

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

- young male
- no health issues
- improved homecare - initial post visit

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

Julie Campbell, RDH
Augusta, SC



- 78 year old male
- last visit 4+ years ago
- no tobacco use
- diabetic - A1C 6.4

- bleeding - no exudate
- 7mm max probe
- daily WaterPik

- DT liquid applied after scaling
- 30 sec application
- ultrasonic - rinsed / flushed
- photos taken minutes apart

Susan Furkin, RDH
September 4, 2025
St. Louis, MO

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

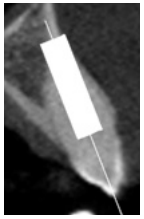
Julie Campbell, RDH
Augusta, SC

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

Julie Campbell, RDH
Augusta, SC

Nicole's Peri-implantitis Treatment

https://glidewelldental.com/education



https://www.mdpi.com/2077-0383/10/24/5853

Case presentation - #8 implant

- placed 5 yrs prior
- likely outside boney envelope

Surgical intervention

- bone grafting completed - minimal benefit
- unpredictable

Goal

- reduce biofilm burden
- reduce inflammation

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

Unexpected outcomes

Fixed lingual retainer

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

Susan Furkin, BA, RDH
St. Louis, MO
March 1. 2025

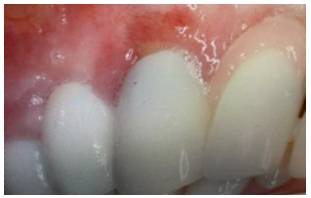
I work at a clinic in a nursing home with mod to severe biofilm especially with dementia patients- would be this be beneficial?

- complex patient hx
- 3mo recall
- exam took longer than expected
- applied PerioDT - one quad

- ran out of time to scale
- reappointed - one weeks later
- deposit was nearly gone in quad

Jesi Adams, RDH, BSDH
Scottsbluff, Nebraska

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

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

After first application - Done?

Second application - Wow!

Final result

Susan Furkin, RDH
St. Louis, MO

Desiccation gel - chemistry in action

- rapid action
- builds up layers
- self limiting action

hygroscopic

- strong affinity to hydrogen molecules in water
- precise patented chemistry

Photo courtesy of Julie Campbell, RDH

Special situations
Clinical challenge

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

- med/surg prep
- mission trips
- perio surgery

Strøm K, Skaare AB, Willumsen T. Dental anxiety in 18-year-old Norwegians in 1996 and 2016. Acta Odontol Scand. 2020 Jan;78(1):13-19. 31287346.

Uziel N, Bronner G, Elran E, Eli I. Sexual correlates of gagging and dental anxiety. Community Dent Health. 2012 Sep;29(3):243-7.

Top benefits

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

44 years full time

owned her equipment

two hand surgeries

8 mo recovery time/hand

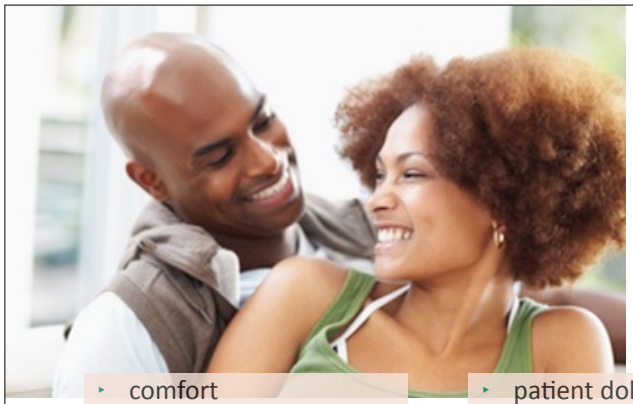
Renee Marchant, RDHAP
Santa Rosa, CA

Renee Marchant, RDHAP
Santa Rosa, CA

- 1st 20 yrs - hand scaling
- sharpened during every appt
- 4 days a week

- next 24 yrs - 90% power scaling
- super light grasp
- had own equipment

- surgery at year 40 - painful
- two hand surgeries
- 8 mo recovery time each hand



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

CDT procedure coding vs billing

ADA Code Maintenance Committee

- create/revise/delete CDT procedure codes
- review codes annually

Procedure codes - diagnosis based

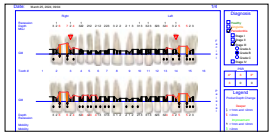
- procedure based on diagnosis
- record all clinical treatment
- some procedures - no codes
- procedure, not products

Billing - Contract driven

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

https://www.ada.org/-/media/project/ada-organization/ada/ada-org/files/publications/cdt/v2_d4355adaguidetoreportingfullmouthdebridement_2023jan.pdf?rev=d3c4eb1b97e449568e7139708c32dc51&hash=279FA78C35124B41A18DD8B1842C5551

Procedural Codes - Derek vs Anne



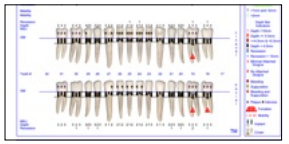
- interprox stain
- sub ging calculus
- 6 mm - 2/3 and 14/15
- isolated SRP - Derek

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, PerioProtect therapeutic trays

Making it hard on the bad bugs…… encouraging healthier microflora

Professional adjuncts









Daily biofilm destruction






Now what are you going to do?

anne@anneguignon.com

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