

Dentistry in Transition: Teeth to Oral Health with a Dynamic Periodontal Perspective

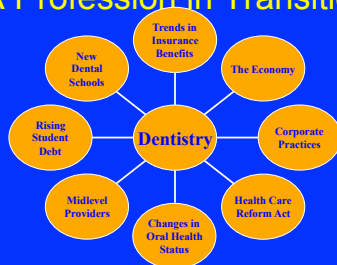
Sam Low
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Disclosures...

Florida Probe Incorporated (VoiceWorks)
PerioSciences
Biolase
Phillips

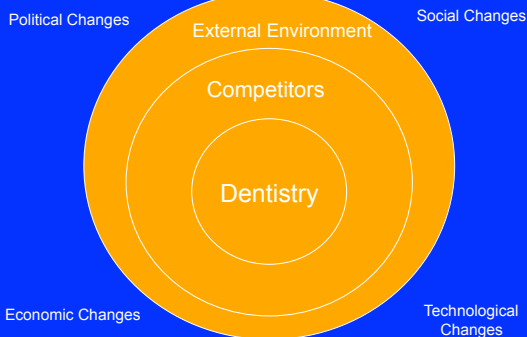
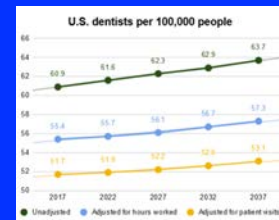
A Profession in Transition



ADA predicts more dentists through 2037

By [Thomas Bellon, DrBicuspid.com associate editor](#)

July 12, 2018 -- The number of full-time dentists in the U.S. is projected to increase through 2037, according to a new ADA Health Policy Institute (HPI) brief. The new estimates are the latest from the institute and an update to a similar report from 2016.



7-year trends for U.S. dental production: Part 1

By

[Alita Borschler, AuD, MBA,](#)
[DrBicuspid.com contributing](#)
[writer](#)

Hygiene net production per hour

2010 \$77.40
2011 \$70.14
2012 \$58.58
2013 \$62.14
2014 \$62.27
2015 \$61.32
2016 \$63.61
2017 \$61.99

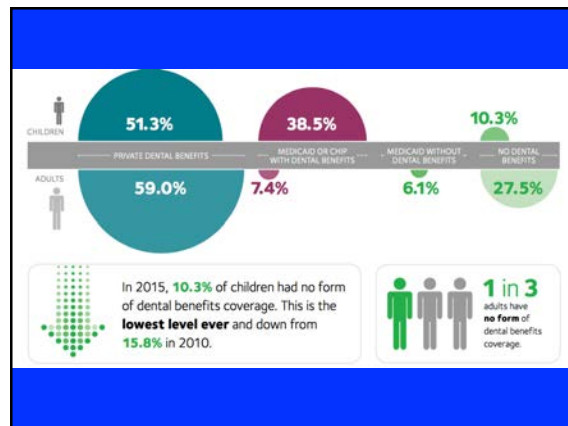
Doctor net production per hour

2010 \$251.31
 2011 \$233.43
 2012 \$191.35
 2013 \$191.66
 2014 \$195.04
 2015 \$205.57
 2016 \$216.24
 2017 \$222.69

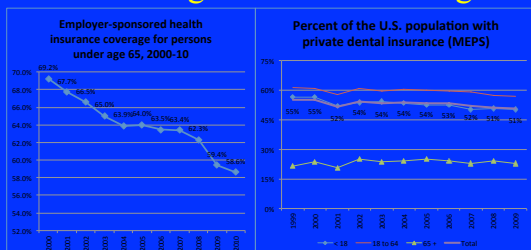
Adults aren't visiting the dentist — and no one knows why
 By Theresa Fisher, Dentistry.com associate editor

November 13, 2017 -- Riddle me this: More adults have dental benefit coverage, and fewer adults report cost as a barrier to dental care, yet dental visits stayed flat in 2015. Marko Vujicic, PhD, chief economist for the ADA Health Policy Institute, recently discussed what could be driving these trends in a November 1 webinar.

"[Adults] feel dental care is too expensive and unaffordable, and that's the top reason why adults report not going to the dentist."
 — Marko Vujicic, PhD



Declining Insurance Coverage



Educational Debt's Effect on Practice Options

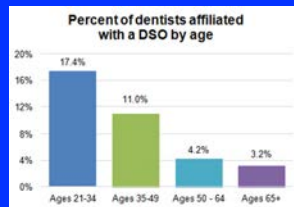


- 91.1% said they "could not afford to start own practice."
- 86.3% said they "could not afford to purchase a practice."

Source: ADA 2008 Survey of New Dentists.

[ADA forecasts more DSOs in dentistry's future](#)
By Theresa Fadden, [Dentonsend.com](#) associate editor

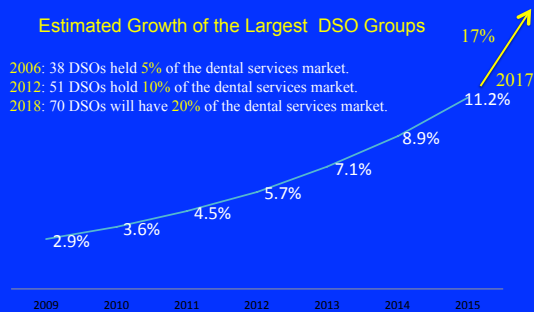
November 7, 2017 -- More dentists than ever were associated with dental service/support organizations (DSOs) in 2016, and that number is expected to rise, according to new data from the ADA Health Policy Institute. These organizations were also in more states in 2016 than the previous year.



Where will DSO's be in the future?

Estimated Growth of the Largest DSO Groups

- 2006: 38 DSOs held 5% of the dental services market.
- 2012: 51 DSOs hold 10% of the dental services market.
- 2018: 70 DSOs will have 20% of the dental services market.



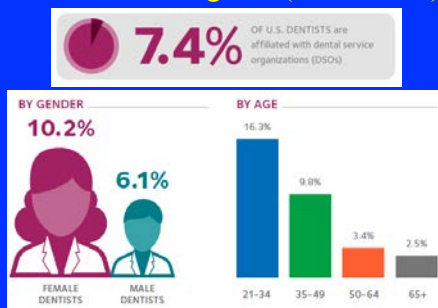
DSOs enable dentists to provide more care

- DSOs support affiliated dental practice by providing non-clinical functions such as accounting, HR, marketing, legal and practice management
- Younger dentists gravitating toward employed positions offered by DSOs
- In 1991, ADA reported that 67% of practicing dentists were "solo" practitioners; by 2010, that percentage has fallen to 59% (ADA Survey Center 2010)
- Currently, a dentist in solo practice spends about 40% of their work week being a small business owner, and 60% actually providing care
- By contrast, DSO dentists spend 90+% of their work week on providing care

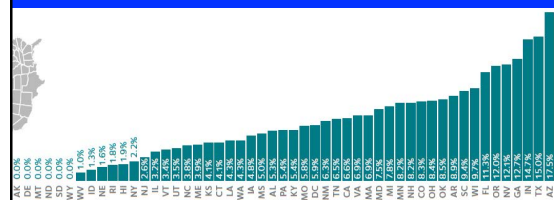
Number of dental practices and employees in U.S.

- The number of dental firms increased from 113,128 in 2002 to 125,151 in 2012 (+10.6%); the number of dental establishments (individual locations) increased from 117,812 in 2002 to 133,107 in 2012 (+13.0%); and the number of dental employees increased from 750,129 to 873,172 (+16.4%).
- These rates of growth were greater than the rate of growth of the U.S. population, which grew by 9.0% from 2002 to 2012.
- From 2002 to 2012, market share increased for dental firms with 20 employees or more, while dental firms with fewer than 5 employees experienced a decline in share
- During the same period, very large DSOs (those with 500 employees or more) saw increases in the number of establishments, employees and annual revenue

DSO Facts and Figures (ADA 2017)

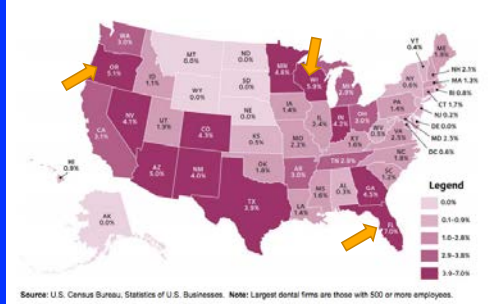


DSOs by State



Source: ADA HPI Webinar, March 2017

Percentage of Large Dental Firms



DSOs are growing faster than industry

- While the dental industry as a whole is growing around 5.5% annually, members of DSOs reported much greater growth
- Can be attributed to more aggressive marketing and consumer preference for perceived standardized and affordable care offered by the DSO

Source: Dental Group Practice Association 2015

DSO messages to potential members

Advantages of a DSO	Disadvantages of a Solo Practice
ADMINISTRATIVE SUPPORT	LONG LIST OF ADMINISTRATIVE DUTIES
HUMAN RESOURCES SYSTEMS	LACK OF COVERAGE DURING ILLNESS
QUALITY ASSURANCE PROGRAMS	INITIAL COST OF SETUP
BETTER BUYING POWER	BILLING LAG TIME
PROFESSIONAL MARKETING TOOLS	REIMBURSEMENT RATES
INCREASED ACCESS TO CAPITAL	NO SET SALARY

Source: Dental Group Practice Association 2015

The future growth of DSOs is very optimistic for a number of reasons

- Cost of investment for a graduating dentist
 - In 2008, only 9% of graduating dentists were debt-free at graduation
 - 79% of students owe \$100,000 or more, and 51% owe \$175,000 or more
 - Enormous pressure for new dentists to see high volume of patients to service their student loans
 - Rather than assume ownership or languish as an associate in a private practice, young dentists are happy to be paid well for their work and have other parties be responsible for operation and costs of the office
- Greater flexibility and mobility afforded by a DSO
 - Many young dentists interested in part time role
 - Female dentists prefer freedom to work on their own schedules
- Extremely tech/web savvy
- Family-oriented, desire for flexible schedules

The future growth of DSOs is very optimistic for a number of reasons (continued)

- Added complexity of tech and business ownership driving dentists to DSO
 - A private dentist is essentially the CEO AND the primary revenue generator for the business, which decreases the time they have to spend on providing care
- A DSO represents decreased risk for the dentist who might otherwise consider hanging their own shingle
 - DSOs enable a leaner expense profile for the dentist, and standardized central management.
 - DSO purchasing power is much larger, and technology can allow quality control and outcomes analysis to be optimized

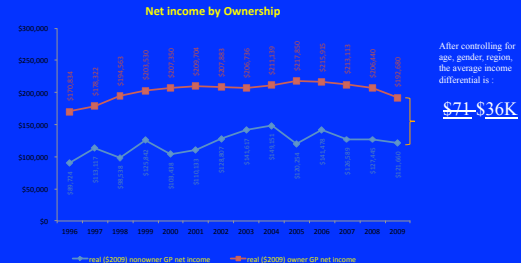
Recent demographic trends bode well for DSOs

- Gender distribution in the profession continues to become more balanced.
 - Women are becoming dentists in far larger numbers than in the 1970s and 1980s.
 - According to the ADA, 44.5% of 2008 dental school graduates were women, and by 2020 it is projected that 30% of the practicing dentists will be women.
 - Women entering the profession may be more attracted by the flexibility and production-based compensation offered by DSOs.

Aging population of dentists will drive DSO growth

- By 2020, 40% of dentists will be 55 years or older
- The median age of dentists will begin to decrease as Baby Boomer dentists begin retiring
- Over the next 3-10 years, we will see an accelerated retirement rate within dentistry
- In 1960s and 1970s, 8,000 to 10,000 dentists graduated each year; we are now graduating 5,000 dentists per year, far short of the needed number of potential buyers for private practices
- DSOs have more potential practices to buy, which is leading to greater need for staff and management.
- DSOs will be more focused than ever on hiring and retaining "high performers" with in-demand technology know-how (CAD/CAM, practice management, lasers)

Net income comparisons



A Baby Boomer turns 50 every 8.5 seconds

For the next 18 years, BB will turn 65 at a rate of 8,000 per day.....

Financial Characteristics

- Average income \$71,000
- Average personal net worth \$236,000....
- Can expect to live to 85...
- 74% are still in the workforce

Characterisites

- Only group that spent more \$\$ for dentistry between 2000 and 2010
- Highest level of per patient dental expenditures
- 41% have dental coverage

Baby Boomers

Values: optimism, team orientation, personal gratification, health and wellness, personal growth, youth, work, involvement

Seminal events: McCarthy hearings, Civil Rights Act, Kennedy elected, Cuban Missile Crisis, Kennedy assassination, Viet Nam, MKL assassination, first lunar landing, Woodstock, Kent State shootings

Baby Boomers: On the Job

Assets	Liabilities
Service Oriented	Not naturally "budget minded"
Driven	Uncomfortable with conflict
Willing to "go the extra mile"	Reluctant to go against peers
Good at relationships	May put process ahead of result
Good team players	Self-centered
Want to please	Overly sensitive to feedback

Messages that motivate Boomers:

- "You're important to our success."
- "You're valued here."
- "Your contribution is unique and important."
- "We need you."
- "I approve of you."
- "You're worthy."

What other generations say about them...

Builders	"They talk about things they ought to keep private." "They're self-absorbed."
Gen X	"They're self-righteous." "They're workaholics." "They're too political." "Lighten up, it's only a job."
Eco-Boomers	"They're cool." "They work too much."

Myths about Baby Boomers

- They're on their way out.
- They'll grow up.
- They've always had it easy; they're assured of a comfortable retirement.
- They've quit learning.
- Boomers are workaholics.

The New Economic Dynamo....

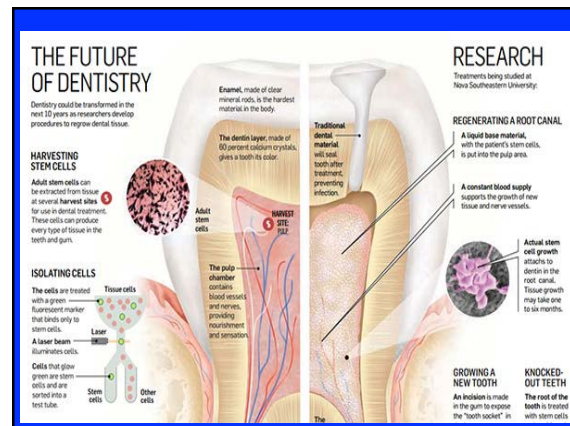
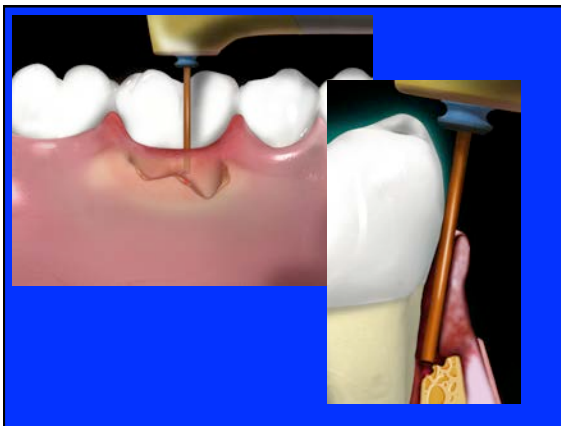
- The 50 plus population in the US is the third largest economy in the world
- Boomers have 80% of the US net worth..

BABY BOOMERS

- 77 million currently and growing rapidly
- 24.3% of population
- Control 70% of US disposable income
- 41% of those purchasing Apple computers
- 1/3 of all online us
- 65+ spend 205 hrs/ month watching TV
- 50+ spent \$7 billion online last year
- Over 50% of readership to most major newspapers
- Over 70% of listeners on talk radio



- Advanced surgical techniques (tunnel and pinhole esthetic surgery)
- Epigenetics
- Genome wide association studies
- Genomics and other "omics" technology (e.g., proteomics, degradomics, etc.)
- Halitosis/oral malodor
- Host modulation of inflammation and bacteria
- Host versus pathogens in pathogenesis of periodontitis
- *Inflammaging* (increased inflammation with age)
- Inflammasome
- Lasers
- Microbiome
- Nanotechnology, CAD/CAM, three-dimensional bioprinting
- Natural therapies (e.g., probiotics, fish oil, ayurvedic medicine, etc.)
- Periodontal endoscopy
- Periodontal medicine
- Periodontal regenerative medicine
- Personalized (precision) periodontics
- Polymicrobial synergy and microbial dysbiosis: keystone pathogen hypothesis
- Targeted antibiotic therapy



Trending....

- Diagnostic risk assessment
- Diagnostics (Imaging) seamless to management (CAD/ CAM)
- Technology for minimally Invasive management
- Odontology to Stomatology
- External environment will always be a game changer.....

Sam's Axioms for Successful Periodontal therapy

1. Move every 3 to 5 years!

2. Extract all molar teeth ASAP!

- Maxillary molars: 62%
- Mandibular molars: 24%
- Maxillary first premolars: 7%
- All other teeth: 7%

3. Extract every other tooth!

Dentist Hygienist interactions

What is going well ?

What are some of the challenges?

What is your vision for the hygiene area?

Describe your ideal hygiene dentist interaction?

How does your *practice* measure up??

1. Per cent of gross from dental hygiene ? _____
2. Per cent of dental hygiene are perio codes? _____
 1. 0180, 4355, 4341, 4342, 4910, 4381, 4921
3. Per cent new patient exams that are perio ? _____
4. Cancellation/no show rate _____ ?

A Periodontal Growth Center

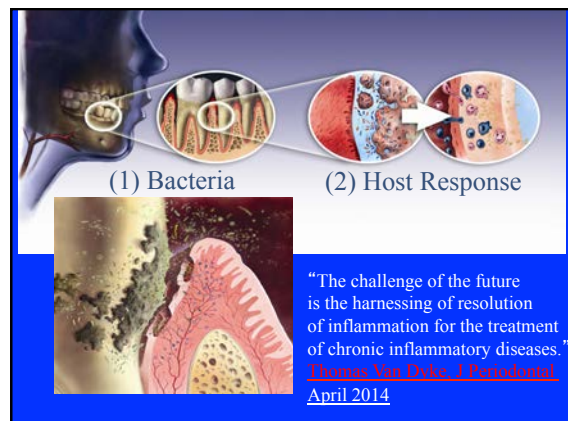
- Greatest potential is periodontics
- Assess fee for periodontal probing
- Diagnosis must be the forerunner
- Apply high technology tool
- Education = treatment acceptance

Roger Levin
Dental Economics

Enduring Myths and Periodontal Disease

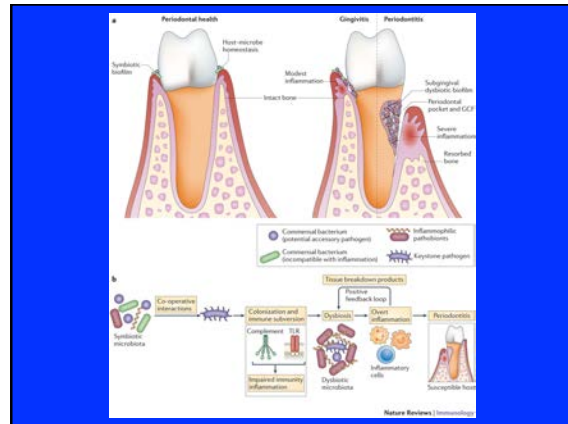
Myths?

- Perio disease is caused by bacteria?
- Periodontitis gets worse over time?
- Flossing is important?
- Root planing is critical?
- Biological width is self limiting?
- And, we can maintain 5 millimeter pockets?



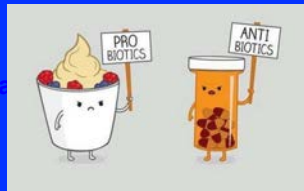
Routine, effective treatment for periodontal infection is needed

- Despite the prevalence of periodontal infection and the persistent nature of bacteria and biofilms, more than **70%** of dental practices **do not** perform regular full-mouth probing and charting
- Although 3 out of 4 American adults are affected by periodontal disease:
 - Prophylaxis procedures outnumber SRP procedures by a ratio of **20:1**
 - Less than 1/2** of periodontal pockets are treated with adjunctive therapy



Probiotics

Defined as the daily administration of certain live microorganisms in amounts adequate to confer a health benefit on the host.

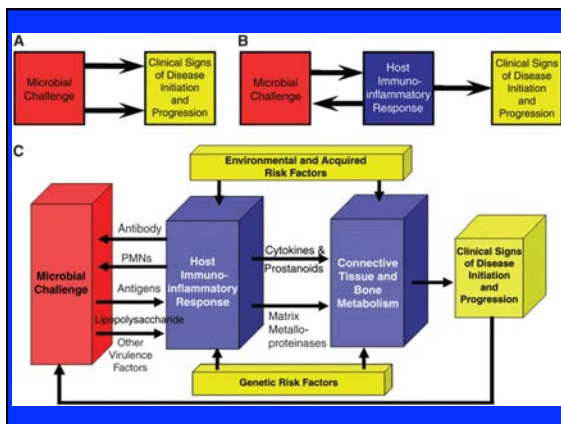


ProBioraPro Product Overview



- Distributed exclusively by dental professionals
- Extra-strength blend of ProBiora³® crowds out harmful bacteria around teeth and gums
- Use once daily for 90 days after a dental hygiene visit
- Extends the benefits of a dental hygiene visit

ProBioraPro



Nicotine ingestion as a risk factor for periodontal disease...

- Effects neutrophils and monocytes
- Increased oxidative burst
- Impaired phagocytosis and chemotaxis
- Prostaglandins, Tissue necrosis factor, collagenase, and elastase increase

Diabetes as a risk factor in periodontal diseases..

- Altered neutrophil and monocyte function
- Increased oxidative stress
- Impaired chemotactic and phagocytic function
- Neutrophils are primed
- Periodontal infections compromise glycemic control

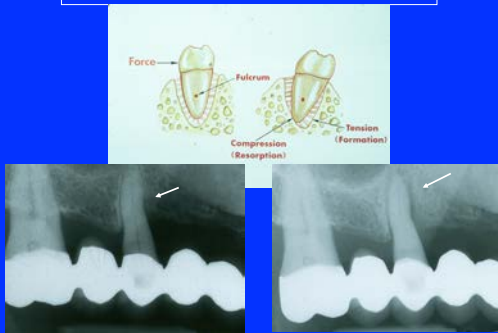
Long-Term Pot Use Tied to Gum Disease in Study



- Analysis of about 1,000 people who used pot and/or tobacco.
- Gum disease was the only notable health problems for those that smoked pot for 20 years.
- Dry mouth, which is common among marijuana smokers, likely caused the association between long-term marijuana use and gum disease.

SOURCES: Madeline Meier, Ph.D., assistant professor, psychology, Arizona State University, Tempe; Paul Armentano, deputy director, NORML; June 1, 2016, JAMA Psychiatry, online

Occlusion as a Contributing Factor



Susceptible			Resistant	
high	moderate	average	moderate	high



↑ Age
 + ↑ Local Factors
 (subgingival calculus, plaque)
 + ↓ Periodontitis
 (attachment loss, bone loss)

“Resistance”

↓ Age
 + ↓ Local Factors
 (subgingival calculus, plaque)
 + ↑ Periodontitis
 (attachment loss, radiographic bone loss)

“Susceptibility”

What is the **OUCH!**.....

Irreversible loss of your
jaw bone!!!



Host Modulation!

Chronic Inflammatory Diseases of Aging

- Periodontal diseases
- CVD
- Obesity
- Diabetes
- Alzheimer's
- Arthritis

Severity of gingivitis **NOT**
dependent upon the amount of
plaque

Progression of gingivitis to
periodontitis is **NOT**
universal

Activity of the Inflammatory System is at the Center of Major Human Diseases

Atherosclerotic Heart Disease
Asthma
Alzheimer's Disease
Diabetic Complications
Obesity
Osteoporosis
Gastric cancer
Osteoarthritis
Periodontal disease
Rheumatoid Arthritis

Workshop on Inflammation and Periodontal Disease

- Can inflammation be self perpetuating?
- Can inflammation changes alter susceptibility of the periodontium to re-infection
- Some inflammation is transient and only exists during active infection
- Individual inflammatory response is genetically programmed to be hyperactive.

• Genco J. Periodontol 2008

Periodontitis the “elevator speech”

- Periodontitis is the body’s reaction to a **Stimulus** resulting in an **overactive** response to produces **inflammatory** mediators that **destroy** its own healthy cells....
- Auto immune ??

Managing Inflammation..

- Decrease or change flora
- Utilize NSAIDs to target lipids and change the proinflammatory role
- Effect the destructive enzymes
- Modulate the host...

Lipid mediators

- Lipoxins
 - Aspirin
 - Promote phagocytosis
 - Decrease TNF- α
- Resolvins
 - Aspirin/omega-3 fatty acids
 - Down regulate production of superoxide by neutrophils

» Van Dyke...

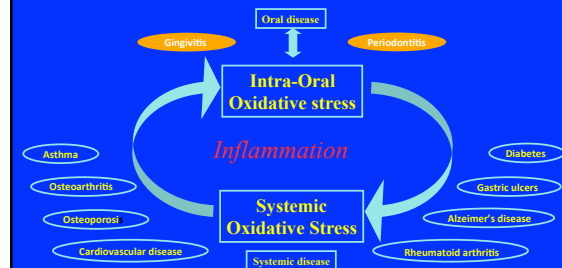
N-3 Fatty acids and periodontitis in US adults

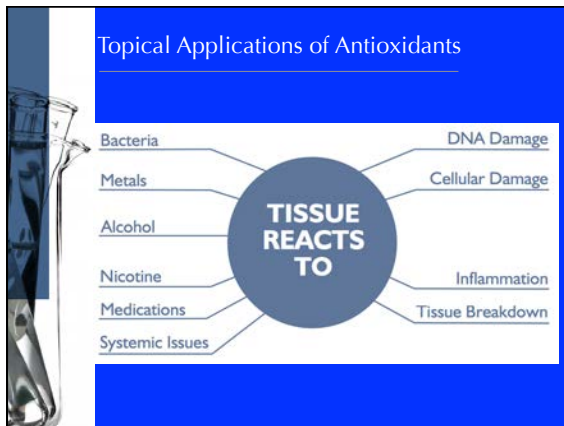
- 9000 adults in NHANES population 1999-2004
- higher dietary intakes of DHA and, to a lesser degree, EPA, were associated with lower prevalence of periodontitis.
- interventional studies are needed to confirm the potential protective effects of n-3 fatty acids on periodontitis.
- Naqvi AZ, Buettner C, Phillips RS, Davis RB, Mukamal KJ. *J Am Diet Assoc* 2010;110:1669-1675.

Adjunctive treatment of chronic periodontitis with daily dietary supplementation with omega-3 fatty acids and low-dose aspirin.

- 80 untreated advanced periodontal patients
- Placebo versus 900 mg Omega 3 plus 81mg aspirin
- Biomarkers Rankl and MMP8
- Decrease in PD and AL : 80% versus 55%
- El-Sharkawy H, Aboelsaad N, Eliwa M, Darweesh M, Alshahat M, Kantarci A, Hasturk H, Van Dyke TE. *J Periodontol* 2010;81:1635-1643

Periodontal Disease and Systemic Disease Links





Salivary Antioxidants and Xerostomia

An increase in ROS-induced oxidative DNA damage was found in minor salivary glands in xerostomia patients.

Antioxidant administered before and after irradiation, prevented and restored radiation-induced salivary gland dysfunction.



1. H. Akten et al. *Oral Therapeutics and Pharmacology*, 2010

2. Nagler, Salameh, Reznick, et al. *Rheumatology*, 2003

3. Tai,

Oral Therapeutics and Pharmacology, 2010

4. Wang, Grossi, Ogburne, Dickenson, et al. *IADR*, 2011



Antioxidant Technology

Key Ingredients

Antioxidants Ferulic acid and Phloretin

- Ferulic acid, found in front seeds and leaves of plants
- Phloretin, derived mainly from apples
- Polyphenolic antioxidants

Menthol, Thymol, and Essential Oils

- Has been shown to support antiseptic activity.
- Essential oils sage oil and clove flower oil support the effects of menthol and thymol

Xylitol

- Xylitol is specific in its inhibition of strep mutans

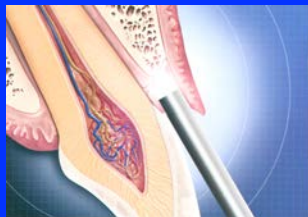
Daily Topical Application



Size 30 ml
Wholesale \$21.50
SRP \$43.00
Cost Per Application \$.66
Expected Days Of Use 65

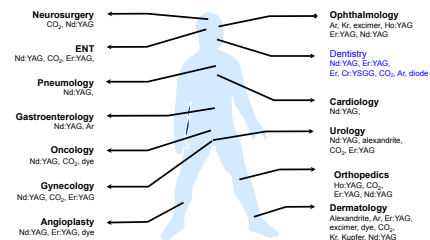


Potential laser applications for periodontal therapy.....

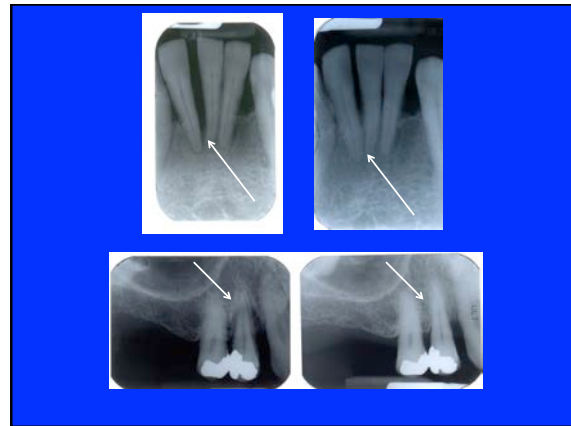


Lasers

Fields of application in medicine



Basics | Wavelengths | Product Infos | Indications



5 Commitments to Achieving Success in Periodontics

- Commit to the comprehensive perio exam
- Define staff skills and limitations -manuals
- Commit to the Phase I reevaluation
- Commit to a recare appointment
- **Maintain a quality dialogue with your periodontist**

.....there has been reluctance on the part of some general dentists to refer to periodontists. Some of those reasons include:

- Once a patient is referred to the periodontist, the patient is never released back to the care of the general practitioner, a form of stealing patients.
- There is no periodontist within easy driving distance.
- The local periodontist does not provide documentation and updates about the patient to the referring doctor as treatment progresses.
- The specialist makes disparaging remarks about care or quality of dentistry received in the referring doctor's office, and the referring doctor learns of these remarks from returning patients.

.....there has been reluctance on the part of some general dentists to refer to periodontists. Some of those reasons include:

Below are today's realistic reasons

- Some GPs do not understand periodontics, do not look for perio and refer all to the RDH who makes decisions
- Dental hygienists see new patients (50% of practices record perio charting)
- All perio is managed in the GP office and all is non surgical (4341/42 is the most abused controversial code in ADA CDT... 4381 is next)
- *They do not want any \$\$ to leave their office!*

Half of referrals to dental specialists go unfilled.... Kelton research 2008

- 46 % of referrals do not show
- 50% Age 18 to 49 disregard referrals
- 39% Age >49 disregard referral
- Fundamental disconnect between patients needing care and the specialist community..
- Lost revenue \$950 to \$5,150.

What patients look for in a specialist..

- Human touch ..
 - Want specialist to be familiar with details of case
- Going extra mile
 - Call patient beforehand establish relationship..radiographs received
- Right experience
 - Has the expertise for their problem

What conditions should I consider referring in referring my patient to a periodontist ?

- Probing depths ≥ 5 mm.
- Probing depths deepening
- Request dental implants
- Requires special periodontal surgery
- Atypical forms of periodontal disease

What information should I give the Periodontist ?

- Diagnostic quality radiographs
 - Intraoral conditions
- Tell periodontist by phone or by note
 - Area in mouth that need special attention
 - Your restorative treatment plan
 - Medical complications
 - Compliance to date

What should I expect from a periodontist ?

- Open, frank, and continuing communication
- Thanks for the referral
- Written report
 - Exam, prognosis treatment plan, suggestions for restorative care
 - Discussion of recare schedule

At what stage in the treatment plan should I make the referral ?

- Early before the restorative treatment plan is finalized
- Consider before Phase I

How should I make the referral ?

- Explain periodontal disease to the patient
- Describe future periodontal treatment in general terms
- Tell patient about the periodontist's training
- Make entry level in chart and every subsequent appointment if patient does not see periodontist

Who should I refer to ?

- Treatment philosophy similar to yours
- Provides superior level of care
- Maintains a good relationship with you
- Has good patient rapport
- Conveniently located to your patients
- Provide patient with only one referral name

Periodontal practice models Transitions:



The traveling Periodontist Model



Sarvenaz Angha, DDS

Career Options

- Perio practice
- Start-up practice
- Academia
- In-house:
 - Private
 - Corporations

General Atmosphere:

- Doctors are working longer due to lack of retirement assists, enjoyment of practice, etc
- Fewer associate jobs are available and more buyers are looking to buy
- There are fewer quality practices on the market (= higher prices for “good” practices)
- Financing is available, but more difficult
- Competition is increasing (amongst periodontist, other specialist, and general dentists)

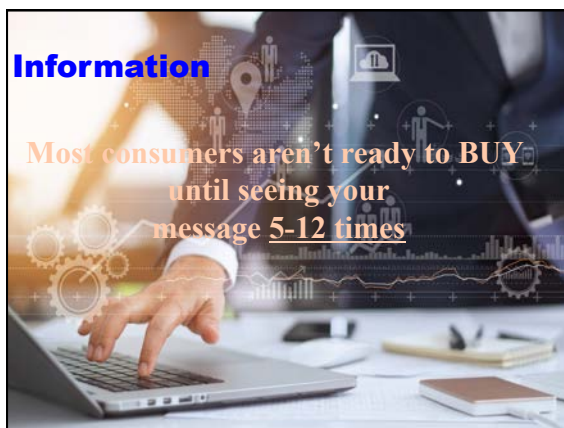
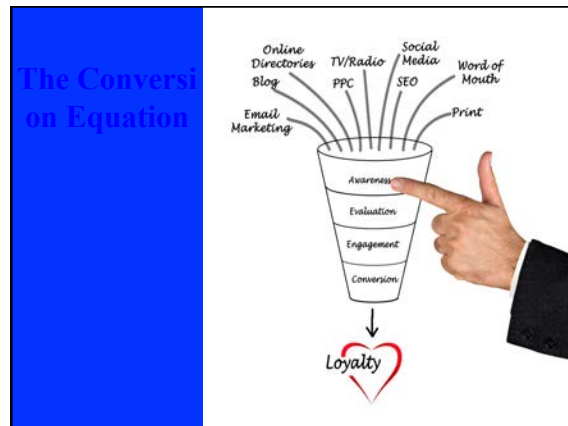
Products Log

Patient	Procedure	Material	Quantity	Price/unit
Patient 1				
Patient 2				
Patient 3				
Total				\$\$

THE PERIODONTIST IN TURBULENT TIMES

- HOW TO TAKE CONTROL & DIFFERENTIATE YOURSELF FROM DENTISTS BY BECOMING THE LOCAL EXPERT

- DR. JEFF ANZALONE
- THEAUTHORITYPRACTICE.COM



Dr. Lee Sheldon
Danyel Joyner

Cost-Effective Techniques to Grow Your Specialty Practice

aaipsheldon@gmail.com

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The Institute for
Dental Specialists
Advancing Your Specialty Practice
- Powered by the AAP -

**Marketing
Dental Implant Lectures**
IDS Webinar

321-259-9980
www.AAIPSheldon.com

How do you become the trusted source ?

1. Become the expert in diagnosis and treatment planning.
2. Market that expertise directly to the many patients who have abandoned the “dental system.”
3. Increase your Public Relations to become the “Go To” practice.
4. Improve yours and your staff’s communication and business skills.
5. Work with the best restorative dentists to create

IDS
THE INSTITUTE FOR
DENTAL SPECIALISTS
Advancing Your Specialty Practice
- Powered by the AAP -

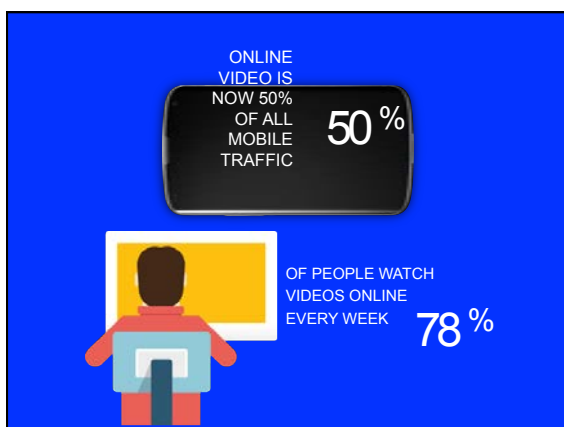
DirectorofDentistry.com

**For more information on how the
IDS may help you, please email us:
aaipsheldon@gmail.com**

Dr. Lee
Sheldon
Danyel
Jeyner

KEYS TO GROWTH & SUCCESS IN A MODERN PERIO PRACTICE

- Begin with the end in mind/ adopt a winning mindset to succeed.
- Leverage your direct to consumer efforts to strengthen and expand referral base by cross referring unattached patients.
- Implement budget creation strategies to reach goals predictably
- Diversify your marketing efforts
- Anticipate and Plan for the future - 50% Direct to Public and 50% Referral in 5 years



TRADITIONAL REFERRAL MODEL CHALLENGES WITH FULL ARCH CASES


- MANY REFERRING DOCTORS ARE NOT FULLY CONFIDENT WITH FULL ARCH CASES THEY STRUGGLE SELLING THESE CASES
- TYPICAL FULL ARCH STUDY CLUB MODELS HAVE SHOWN LIMITED RESULTS
- THEY DO NOT KNOW HOW TO MARKET FULL ARCH CASES

DR. LINDSAY EASTMAN
REFERRAL
SEMINAR STRATEGY

• MULTIPLE FEEDER COURSES STRATEGICALLY TARGETING 100 PRACTICES

• 5 PART CLINICAL AND BUSINESS FOCUSED FULL ARCH TRAINING PROGRAM OVER 8 MONTHS.

• PARTNERSHIP BETWEEN IMPLANT COMPANY, PROGRESSIVE DENTAL AND DENTAL LAB



The flyer for 'TeethWorship BOOT CAMP 5 MODULE SERIES' features a mountain landscape with a cabin. It lists 'OUR SPEAKERS' with three headshots. A central question 'WHAT IS IT? AND WHAT'S IN IT FOR ME?' is posed. The flyer details the program's focus on strategic referral production and lists five modules. It includes a call to action 'JOIN US AND RECEIVE: 80 CE CREDITS' and a contact number 'CALL NOW 941.351.3000 LATER MAILING'. Logos for 'JANUSSEN' and 'PROGRESSIVE' are at the bottom.

RESULTS

- 100 DOCTORS TARGETED
- 37 DOCTORS ENTERED PROGRAM
- OVER 8 MONTHS WE HAD A \$1.2 MILLION SURGICAL REFERRAL PRODUCTION INCREASE.
- CONSISTENTLY DOING 10-15 FULL ARCHES PER MONTH FROM REFERRAL BASE AND DIRECT TO CONSUMER
- MARKETING WORKING TOGETHER



If my son or daughter was considering being a periodontist.....

- Solo practice is marginal unless you have another income
- Become part of a comprehensive care fee for service multi disciplinary practice
- Become part of an established perio group practice
- Buy general practices that must refer to you
- 50% direct to public 50% referral that you mentor directly

If my son or daughter was considering being a periodontist.....

- Market, market , market: create a niche
- Consider being a comprehensive care practitioner especially in implant prosthodontics
- Last resort as a career:
 - Itinerant
 - Employee with minimal control

Periodontitis in US Adults
 National Health and Nutrition Examination Survey 2009-2014
[Patt J, et al](#)



This report presents weighted average estimates of the prevalence of periodontitis in the adult US population during the 6 years 2009-2014 and highlights key findings of a national periodontitis surveillance project.

An estimated 42% of dentate US adults 30 years or older had periodontitis, with 7.8% having severe periodontitis.

Severe periodontitis was most prevalent among adults 65 years or older, Mexican Americans, non-Hispanic blacks, and smokers.

Conclusions

This nationally representative study shows that periodontitis is a highly prevalent oral disease among US adults.

Practical Implications

Dental practitioners should be aware of the high prevalence of periodontitis in US adults and *may* provide preventive care and counselling for periodontitis. General dentists who encounter patients with periodontitis *may* refer these patients to see a periodontist for specialty care.

2017 WORLD WORKSHOP

A new classification scheme for periodontal and peri-implant diseases and conditions – Introduction and key changes from the 1999 classification

Jack G. Caton¹ Gary Armitage² Tord Berglundh³ Iain L.C. Chapple⁴ Søren Jepsen⁵ Kenneth S. Kornman⁶ Brian L. Mealey⁷ Panos N. Papapanou⁸ Mariano Sanz⁹ Maurizio S. Tonetti¹⁰

Staging and grading of periodontitis: Framework and proposal of a new classification and case definition

Maurizio S. Tonetti¹ Henry Greenwell² Kenneth S. Kornman

Staging a Periodontitis Patient • Goals

- **Classify Severity and Extent** of an individual based on currently measurable extent of destroyed and damaged tissue attributable to periodontitis
- **Assess Complexity**. Assess specific factors that may determine complexity of controlling current disease and managing long-term function and esthetics of the patient's dentition

Grading a Periodontitis Patient • Goals

- **Estimate Future Risk** of periodontitis progression and responsiveness to standard therapeutic principles, to guide intensity of therapy and monitoring
- **Estimate Potential Health Impact of Periodontitis** on systemic disease and the reverse, to guide systemic monitoring and co-therapy with medical colleagues

TABLE 3 Periodontitis stage – Please see text and appendix A (in online *Journal of Periodontology*) for explanation

Periodontitis stage	Stage I	Stage II	Stage III	Stage IV
Interdental CAL at site of greatest loss	1 to 2 mm	3 to 4 mm	≥5 mm	≥5 mm
Severity	Cervical third (<15%)	Cervical third (15% to 33%)	Extending to mid third of root and beyond	Extending to mid third of root and beyond
Radiographic bone loss	No tooth loss due to periodontitis	No tooth loss due to periodontitis	Tooth loss due to periodontitis of ≥4 teeth	Tooth loss due to periodontitis of ≥5 teeth
Complexity	Local	Maximum probing depth ≥4 mm Mostly horizontal bone loss	Maximum probing depth ≥5 mm Mostly horizontal bone loss	Vertical bone loss ≥3 mm Masticatory dysfunction Secondary occlusal trauma (tooth mobility degree ≥2) Severe ridge defect Bite collapse, drifting, flaring Less than 20 remaining teeth (10 opposing pairs) Moderate ridge defect
Extent and distribution	Add to stage as descriptor	For each stage, describe extent as localized (<30% of teeth involved), generalized, or molar/incisor pattern		

TABLE 4 Periodontitis grade – Please see text and appendix A (in online *Journal of Periodontology*) for explanation

Periodontitis grade		Grade A: Slow rate of progression	Grade B: Moderate rate of progression	Grade C: Rapid rate of progression	
Primary criteria	Direct evidence of progression	Longitudinal data (radiographic bone loss or CAL)	Evidence of no loss over 5 years	<2 mm over 5 years	
		% bone loss/age	<0.25	0.25 to 1.0	
		Case phenotype	Heavy biofilm deposits with low levels of destruction	Destruction commensurate with biofilm deposits	Destruction exceeds expectation given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and/or early onset disease (e.g., molar/incisor pattern; lack of expected response to standard bacterial control therapies)
	Indirect evidence of progression				
		• • •			
Grade modifiers	Risk factors	Smoking	Non-smoker	Smoker <10 cigarettes/day	
		Diabetes	Normoglycemic/ no diagnosis of diabetes	HbA1c <7.0% in patients with diabetes	HbA1c ≥7.0% in patients with diabetes
Risk of systemic impact of periodontitis*	Inflammatory burden	High sensitivity CRP (hsCRP)	<1 mg/L	1 to 3 mg/L	
				>3 mg/L	
Biomarkers	Indicators of CAL/bone loss	Saliva, gingival crevicular fluid, serum	?	?	

Legal Cases: Failure to diagnose and treat periodontal disease

By William S. Spiegel and Marc R. Leffler, DDS, DrBicuspid.com contributing writers

December 21, 2015 – DrBicuspid.com is pleased to present the next column from two lawyers who spend every day defending dentists in litigation and before the licensing board. The purpose of this column is to offer our readers a fresh perspective on common practice and risk management issues from attorneys who litigate these issues in the real world.

RIGHT ALIGN



This patient, 55 years old when the suit was filed, had been treated by the same general dentist since age 30. The patient presented annually for what the dentist referred to as "recall exams." At those exams, the dental hygienist performed Cavitron scalings, root probing (which was not documented), and took bitewing and anterior periapical x-rays, at some, but not all of the appointments, as the office had no specific protocol in this regard. The dentist performed clinical examinations after each cleaning, although he never documented doing so in the chart. At no time did the patient ever complain about gingival discomfort, excessive bleeding, or discharge from the gums. Over the course of 25 years, the dental treatment performed, in addition to the recall cleanings and evaluations, included fillings, two extractions, one endodontic procedure followed by a post/core/crown, and tooth whitening.

What to do.....

- Take care of yourself and be smart
- It will not just happen as before... you will need to work differently than before
- If organized periodontal organizations are to survive as a member driven organization, they must take risks and take the gloves off.....

Enhance the Quality of Care and Practice Growth with Laser Dynamics

Dr. Sam Low

slow@dentat.ufl.edu

www.dr.samlow.com

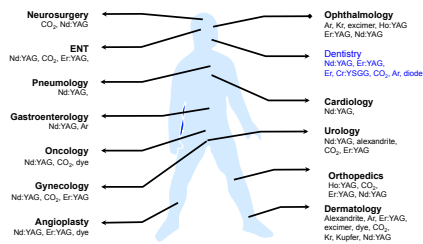


Disclosures...

Florida Probe Incorporated
PerioSciences
Biolase
Phillips

Lasers

Fields of application in medicine



Basics | Wavelengths | Product info | Indications

Ordinary Light

- Many Colors - Wavelengths
- Unorganized – Incoherent



L- Light
A- Amplification by
S- Stimulated
E- Emission of
R- Radiation

Terminology:

Joule- a unit of energy, ability to do work

Watt- unit of power, the rate of doing work

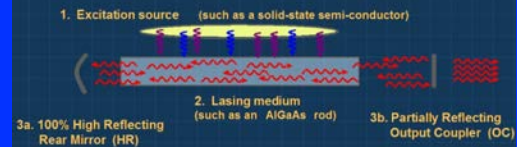
Frequency- the number of oscillations per unit time of a wave

One Watt = One Joule for one second

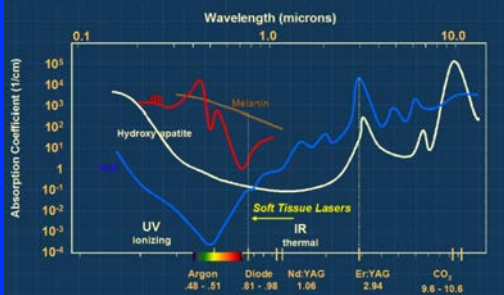
Laser Operating Parameters:

- Energy (Joules)
- Repetition Rate (Frequency)
- Power (Watts)
- Fiber size
- Energy Density
- Total Energy

Typical Laser Oscillator

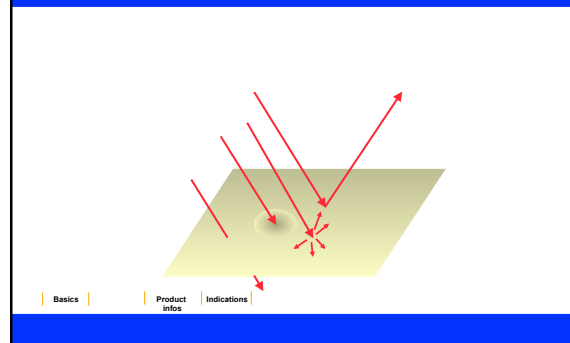


Approximate Net Absorption Curves of Various Tissue Components



Lasers

Laser-tissue interaction: Beam trajectory



Thermal Effect of Laser Energy on Tissue

Tissue Temperature (degrees C.)	Observed effect
37-50	Hyperthermia
> 60	Coagulation, Protein Denaturation
70-90	Welding
100-150	Vaporization
>200	Carbonization *****

Laser Safety

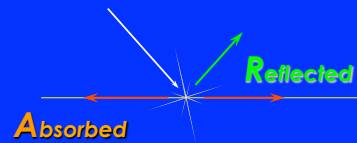
No Compromises

Protecting Target and Non Target Tissue

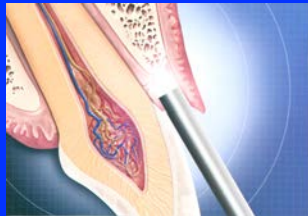
- The laser should never be directed at an area that is not to receive energy.
- Specular reflections, which are mirror like reflections, should be eliminated.
- The laser is not a drill, it has an effect even when not in contact.
- All accidental exposures should be avoided.

Laser Safety:

Cornea, Lens, and Retinal Damage from various wavelengths



Potential laser applications for periodontal therapy.....



Antibacterial...

- Bio-films
- Bacteriocidal

Soft Tissue

- Decontaminate
- De-epithelialize
- Degranulate
- Denature proteins
- Gingivectomy
- Inhibit epithelial migration...clot establishment

Hard tissue

- Tooth
 - Cementum
 - Calculus
 - Dentin
- Bone
 - Removes
 - Biostimulates

Access

- Hemostasis
- Visualize site



Soft Tissue

- Decontaminate
- De-epithelialize
- Degranulate
- Denature proteins
- Gingivectomy
- Inhibit epithelial migration...clot establishment

Diode Soft-Tissue Lasers

- Advantages:
 - Can cut and coagulate gingiva with virtually no bleeding or collateral damage to healthy tissue
 - Some cases - topical anesthetic is sufficient for a pain free procedure
 - Surgical precision
 - Little to no postoperative discomfort and a short healing time

Modes of Laser Operation:

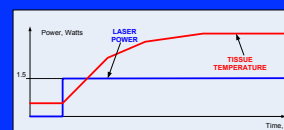
■ Continuous Wave

Maximizes coagulation and speed

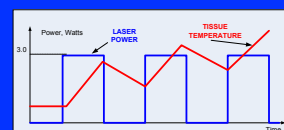
■ Pulsed Wave (Gated or Free-Running)

Minimizes thermal damage and pain

Pulsed Mode



CW mode



Regular
"pulsed"
50/50%

frenectomy

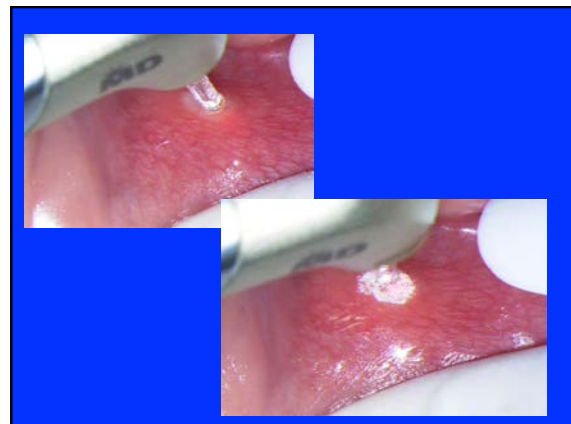
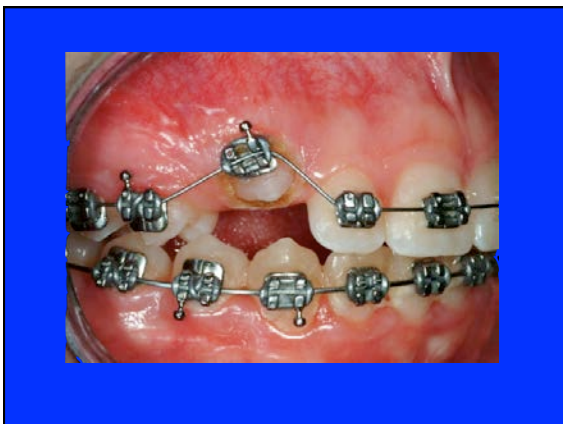


D7960 frenulectomy

Surgical removal or release of mucosal and muscle elements of a buccal, labial or lingual frenum that is associated with ~~\$494~~ ~~\$510~~ ~~\$525~~ ~~\$540~~ ~~\$550~~ ~~\$560~~ ~~\$570~~ ~~\$580~~ ~~\$590~~ ~~\$600~~ ~~\$610~~ ~~\$620~~ ~~\$630~~ ~~\$640~~ ~~\$650~~ ~~\$660~~ ~~\$670~~ ~~\$680~~ ~~\$690~~ ~~\$700~~ ~~\$710~~ ~~\$720~~ ~~\$730~~ ~~\$740~~ ~~\$750~~ ~~\$760~~ ~~\$770~~ ~~\$780~~ ~~\$790~~ ~~\$800~~ ~~\$810~~ ~~\$820~~ ~~\$830~~ ~~\$840~~ ~~\$850~~ ~~\$860~~ ~~\$870~~ ~~\$880~~ ~~\$890~~ ~~\$900~~ ~~\$910~~ ~~\$920~~ ~~\$930~~ ~~\$940~~ ~~\$950~~ ~~\$960~~ ~~\$970~~ ~~\$980~~ ~~\$990~~ ~~\$1000~~ ~~\$1010~~ ~~\$1020~~ ~~\$1030~~ ~~\$1040~~ ~~\$1050~~ ~~\$1060~~ ~~\$1070~~ ~~\$1080~~ ~~\$1090~~ ~~\$1100~~ ~~\$1110~~ ~~\$1120~~ ~~\$1130~~ ~~\$1140~~ ~~\$1150~~ ~~\$1160~~ ~~\$1170~~ ~~\$1180~~ ~~\$1190~~ ~~\$1200~~ ~~\$1210~~ ~~\$1220~~ ~~\$1230~~ ~~\$1240~~ ~~\$1250~~ ~~\$1260~~ ~~\$1270~~ ~~\$1280~~ ~~\$1290~~ ~~\$1300~~ ~~\$1310~~ ~~\$1320~~ ~~\$1330~~ ~~\$1340~~ 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cosmetic gingival depigmentation
(gum bleaching)





Biostimulation...

- Enhance angiogenesis
- Collagen formation
- Osteoblastic
- Fibroblastic

Low Level Laser Therapy (LLLT)

- ATP increase in mitochondria
- ROS decrease
- Growth factors increase
- Stressed cells react to light

Effects of LLLT

- Reduction of bad inflammation
- Regeneration of connective tissue
- Factor of energy power and time over a spot size
- Frequency can be a factor

Whitening & Temporary Pain Relief



20-Minute Whitening

Achieve up to 10 shades of whitening with available handpiece and gel kit



Cost for DTHP?

Temporary Pain Relief

Treat TMJ and other myofascial disorders with available Deep Tissue Handpiece

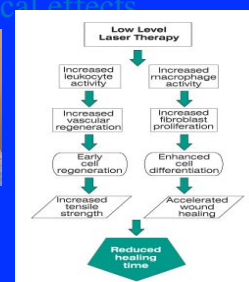


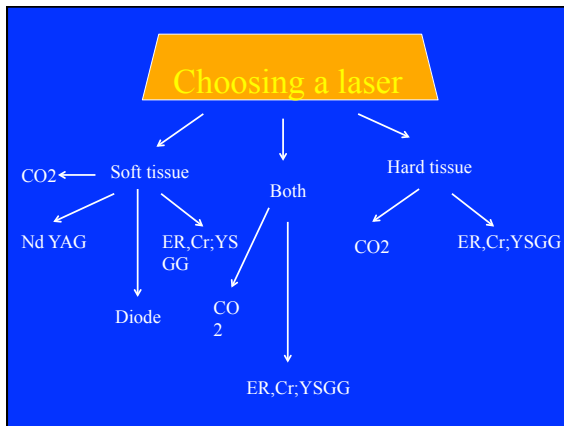
physiological effects



18 Months of no healing & hyperbaric chamber

After 6 Months of Diode Laser





MD Contra-angle Handpiece

System design

- Great access in oral cavity and visibility

- Contra-angle handpiece

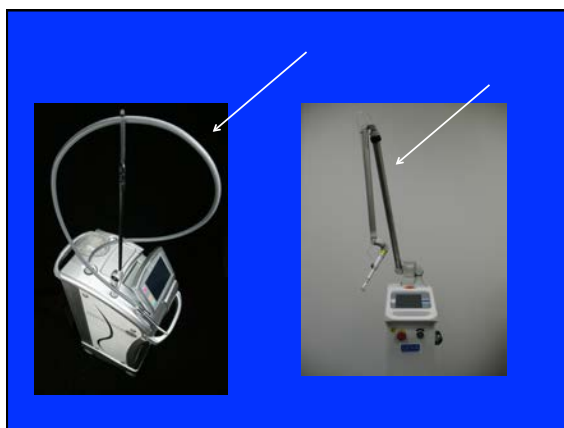
- Illumination

- Ultra-fine spray

- Small head (1/2 of Waterlase)



BIOLASE

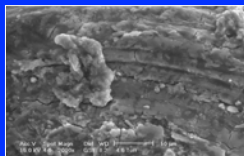


Benefits of Lasers in Hard Tissues

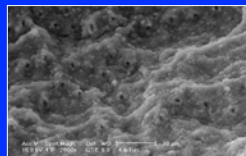
- Local anesthetic may not be necessary in limited conditions
- Precision and control
- No vibration - preserve tooth structure (no microfractures)
- Conservative preparations
- Surface preparation (absence of smear layer)



SEM Comparison Of Rotary Instrument vs. Laser



Drill, no acid-etch at the bottom of cut; x2000 mag. Smear layer and debris typical of drill cuts without acid-etch are present.



YSGG, no acid-etch at the bottom of cut; x2000 mag. Clean surface with smooth peaks and valleys; open tubules and lack of smear layer or debris.

Acute Gingival Inflammation

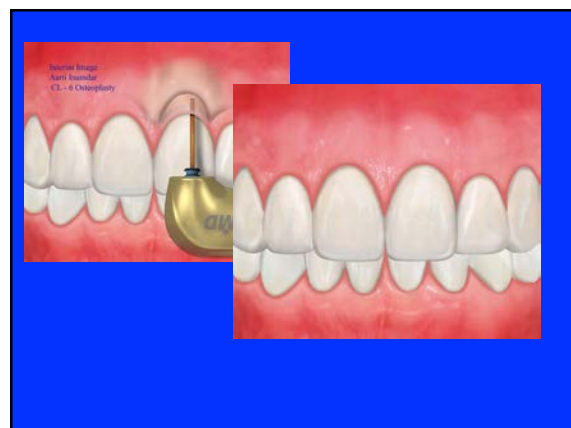


Baseline



3 Months

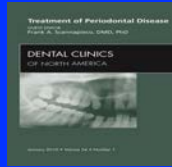
Courtesy: Dr. Matoska



Schwarz F, et al. Laser application in non-surgical periodontal therapy: A systematic review. *J Clin Periodontol* 2008; 35 (Suppl 8): 29-44.

- Among all lasers currently used in dentistry, the Erbium laser seems to possess characteristics most suitable for the non-surgical treatment of chronic periodontitis.
- CO₂, Nd:YAG, or the diode laser with different wavelengths have not demonstrated efficacy when compared with conventional SRP and when used as adjuncts they have not shown a significant clinical added value.

The 6th European Workshop in Periodontology:
Contemporary Periodontics



Comparative summary of results from clinical trials using Nd:YAG, Er:YAG, or diode lasers for treatment of periodontitis(4-6mmPDs)

Laser	#of Trials	PPD	CAL	BOP (%)	Microbes
Nd:YAG (10)		1.23	1.04	41	2/10
Er:YAG (11)		2.30	1.68	47	0/11

Rationale for pocket reduction surgery....

- Access to the sulcus by both the clinician and the patient
- Modify habitat for periodontal pathogens
- Decrease quantity/quality of host inflammatory cells

Perio Phase II Decisions

Periodontal Debridement/ Curettage

1. Pocket Depth: 4-5 mm
2. Local factors as calculus
3. Edematous
4. Single rooted
5. Horizontal Bone loss
6. Less Compliant

**Perio Phase II Decisions
Surgical indications**

1. Pocket depths 5mm greater
2. Minimal local factors as calculus
3. Fibrotic gingivae
4. Multi rooted
5. Angular bone loss
6. More compliant

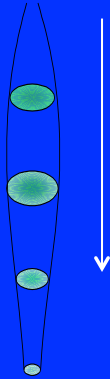
Primary tasks of a periodontal laser protocol....

1. Have a bacterial effect
2. Remove diseased sulcular lining
3. Remove calculus
4. Create root detoxification
5. Promote repair via selective wound healing

Primary tasks of a periodontal laser protocol....

1. **Have a bactericidal effect**
2. Remove diseased sulcular lining
3. Remove calculus
4. Create root detoxification
5. Promote repair via selective wound healing

Photo-acoustic Streaming....



Bacterial effect on root canal wall dentin

Gutknecht	Er,Cr:YSGG / Diode	99.9%
Klinke	Nd:YAG	84.8%
Gutknecht	Diode	63.9%
Gutknecht	ER,Cr:YSGG	38.6%

**Laser Supported Reduction of Specific Microorganisms in the Periodontal Pocket with the Aid of an Er,Cr:YSGG Laser
A Pilot Study**

N. Gutknecht

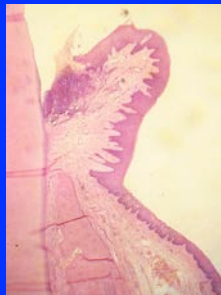
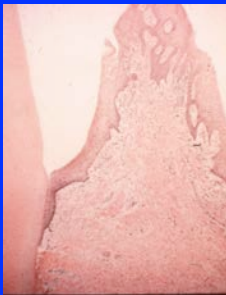
Prevotella intermedia, *Tannerella forsythia*, *Treponema denticola* and *Fusobacterium nucleatum* were reduced significantly three months and six months after treatment

Porphyromonas gingivalis was significantly reduced three months after treatment and after 6 months still reduced.

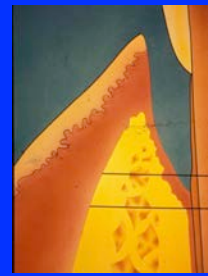
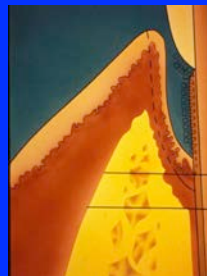
Primary tasks of a periodontal laser protocol...

1. Have a bactericidal effect
2. Remove diseased sulcular lining
3. Remove calculus
4. Create root detoxification
5. Promote repair via selective wound healing

Periodontal Tissues



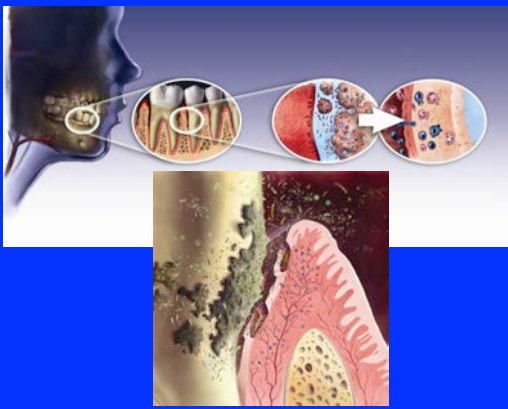
Surgical Curettage



Primary tasks of a periodontal laser protocol....

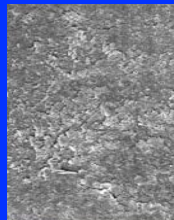
1. Have a bactericidal effect
2. Remove diseased sulcular lining
3. Remove calculus
4. Create root detoxification
5. Promote repair via selective wound healing

Periodontal Inflammation



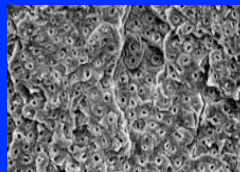
Primary tasks of a periodontal laser protocol....

1. Have a bactericidal effect
2. Remove diseased sulcular lining
3. Remove calculus
4. Create root detoxification
5. Promote repair via selective wound healing



Pre laser conditioning

After Er,Cr:YSGG



Primary tasks of a periodontal laser protocol....

1. Have a bactericidal effect
2. Remove diseased sulcular lining
3. Remove calculus
4. Create root detoxification
5. Promote repair via selective wound healing

083927

Indications for Use Statement

510(k) Number: K _____

Device (Trade) Name: *Waterlase[®] MD*

Indications for Use:

Waterlase MD D,Cr YSGG assisted new attachment procedure (conservatively mediated periodontal ligament new-attachment to the root surface in the absence of long junctional epithelium).

Prescription Use ☒ AND/OR Over-the-Counter Use _____
(Part 21 CFR 801 Subpart D) (21 CFR 801 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRE, Office of Device Evaluation (ODE)

CDRE *Harley Sen* *4/5/08*
(Division Sign-Off)
Division of Anesthesiology, General Hospital

Comparison of Er,Cr:YSGG Laser and Hand Instrumentation on the Attachment of Periodontal Ligament Fibroblasts to Periodontally Diseased Root Surfaces: An In Vitro Study

Hakki, et al J Perio August 2010

laser-treated specimens showed a significantly higher pdl cell density, the Gracey-treated group showed a lower cell density compared to the positive control group

Effects of Er:YAG Laser and Ultrasonic Treatment on Fibroblast Attachment to Root Surfaces: An In Vitro Study

Roberto Crespi, George E. Romanos, Clara Cassinelli, and Enrico Gherlone
Journal of Periodontology
July 2006, Vol. 77, No. 7, Pages 1217-1222

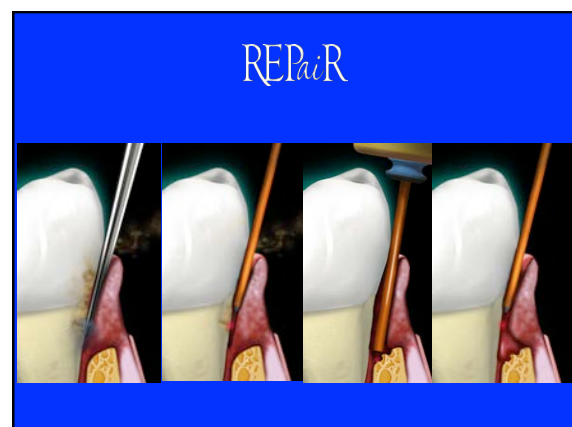
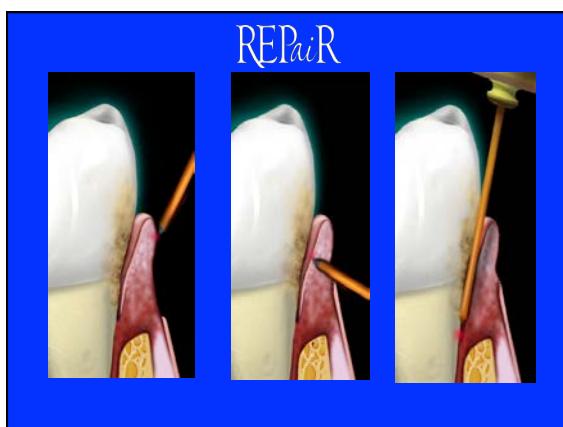
Results: Laser-treated specimens showed a significantly higher cell density number, with a **316 cells/mm²**. The ultrasonically treated group showed a lower cell density number, with **140 cells/mm²**. The untreated control group showed the lowest cell density number, **80 cells/mm²**. Differences between all groups were significant ($P < 0.0001$).

Conclusion: The results of the study indicate that untreated control surfaces and ultrasonically treated surfaces exhibited a significantly lower number of attached cells compared to laser

Periodontal and peri-implant wound healing following laser therapy

AKIRA AOKI, et al

Periodontology 2000, Vol. 68, 2015, 217–269



Comparison of periodontal open flap debridement versus closed debridement with Er,Cr:YSGG laser

M Gupta, et al. Australian Dental Journal 2013; 58: 41–49

- Open Flap Debridement vs Er,Cr:YSGG
- Results similar in CAL gains and significant reductions in PD, GI
- Results favor Laser in gingival recession decrease

One-year clinical results of Er,Cr:YSGG laser application in addition to scaling and root planing in patients with early to moderate periodontitis.

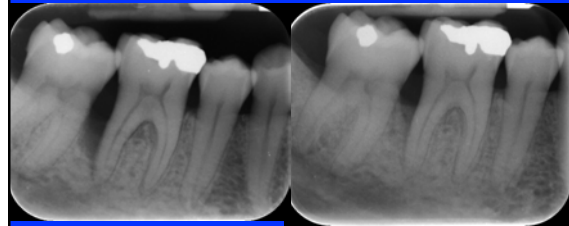
Kelbauskiene, S. et al. Lasers in Medical Science, 2011;26(4), 445–52.

- Greater CAL gain (1mm) in laser groups; stable over one year
- Greater reduction in bleeding index in laser group – remained stable after one year

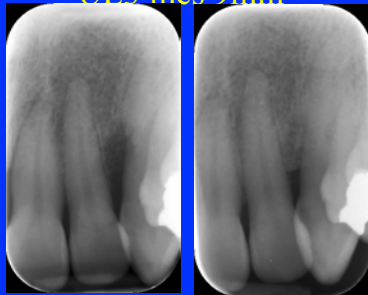
The Effect of an Er,Cr:YSGG Laser in the Management of Infrabony Defects Associated with Chronic Periodontitis: A Retrospective Study
Al-Falaki, Rana ¹, Wadia, Reena ², Hughes, Francis ², Eastman, Christie ³, Kontogiorgos, Elias, ⁴ Low, Samuel ³

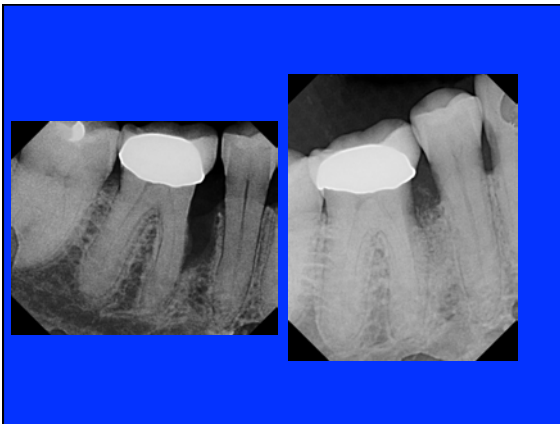
- A retrospective evaluative analysis was performed with 48 patients with 79 angular infrabony defects
- The mean probing depth before treatment was 8.1 ± 1.9 mm and following surgical laser therapy 2.4 ± 0.9 demonstrating significant reduction ($p < 0.001$).
- Radiographic analysis demonstrated a gain in bone height by $19\% \pm 28\%$ ($p < 0.001$)

LR6 distal 10mm



UL3 mes 9mm





LASER TECHNOLOGY TO MANAGE PERIODONTAL DISEASE: A VALID CONCEPT?

Samuel B. Low, DDS, MS, MEd, and Angie Mott, RDH

J Evid Base Dent Pract 2014;14S: [154-159]

Conclusions

Studies utilizing laser technology may demonstrate positive effects on 1) selectively decreasing the biofilm environment, 2) removing calculus deposits and neutralizing endotoxin, 3) removing sulcular epithelium to assist in reattachment and decreased pocket depth, and 4) biostimulation for enhanced wound healing.

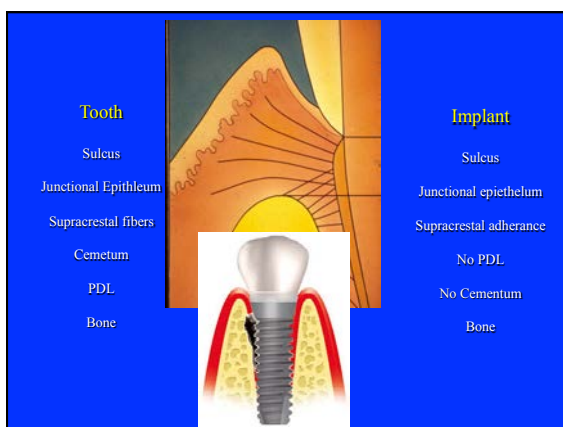
Comparisons of studies to determine the difference between lasers and their respective effects on the periodontium are difficult to assess due to a wide variation of laser protocols.

The effect of the thermal diode laser (wavelength 808–980 nm) in non-surgical periodontal therapy: a systematic review and meta-analysis
Slot DE, Jorritsma KH, Cobb CM, Van der Weijden FA.

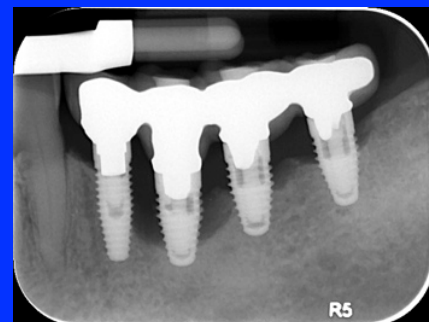
J Clin Periodontol 2014; 41: 681–692.

- The collective evidence regarding adjunctive use of the DL with SRP indicates that the combined treatment provides an effect **comparable** to that of SRP alone.
- The body of evidence considering the adjunctive use of the DL is judged to be **"moderate"** for changes in PPD and CAL.
- This systematic review **questions** the adjunctive use of DL with traditional mechanical modalities of periodontal therapy in patients with periodontitis.

Managing the implant patient from placement to peri- implantitis



Titanium Excess Disorder (TED) ?



Outcomes of implants and restorations placed in general dental practices
A retrospective study by the Practitioners Engaged in Applied Research and Learning (PEARL) Network
 DaSilva, et al.

The Journal of the American Dental Association (July 1, 2014) 145, 704-713

- When excessive bone loss was included, **18.7** percent were classified as failures.
- A **history of severe periodontitis**, sites with preexisting inflammation or type IV bone, cases of immediate implant placement and placement in the incisor or canine region were associated with implant failure.
- Implant survival and success rates in general dental practices may be **lower** than those reported in studies conducted in academic or specialty settings.

2017 WORLD WORKSHOP

Peri-implant health, peri-implant mucositis, and peri-implantitis: Case definitions and diagnostic considerations

Stefan Renvert^{1,2,3} G. Rutger Persson^{1,4} Flavia Q. Pirih⁵ Paulo M. Camargo⁵

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Managing Implant Mucositis

Versus

Peri-Implantitis

Samuel B Low



Diagnostic Criteria

- Probe all implants?? - Plastic or Metal
- Look for Bleeding and or Suppuration
- Radiographs should be taken yearly first two years and compared to base line placement
- Evaluate Occlusion, Prosthetic Stability
- Soft tissue evaluation - Attached Gingiva?



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PH1



PH2L



PH2R



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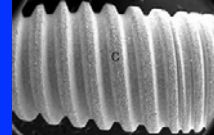
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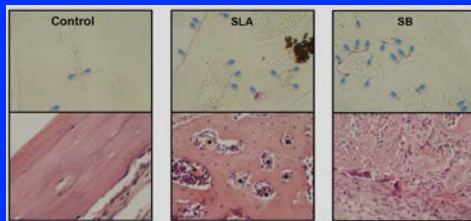
Scaling Titanium Implants may worsen peri-implantitis

Ultrasonic scaling of titanium (Ti) implants releases particles that not only vary by surface type but aggravate peri-implantitis, according to a new study. Michal Eger, DMD [Scientific Reports](#) (January 6, 2017).



Inflammation-induced osteolysis

[Scientific Reports 56 7 39612 January 2017](#) Eger et al



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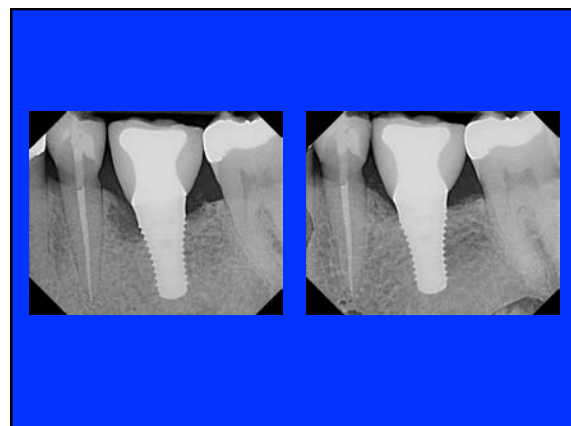
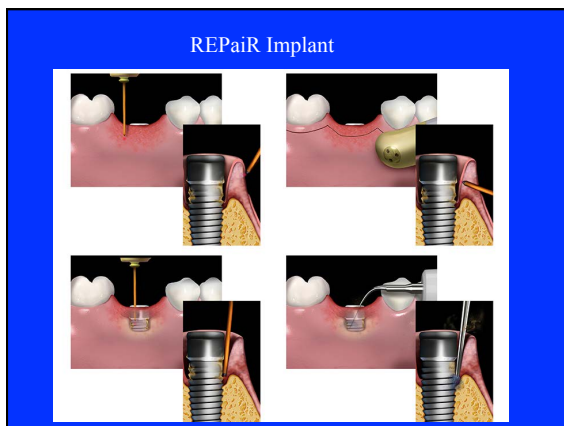
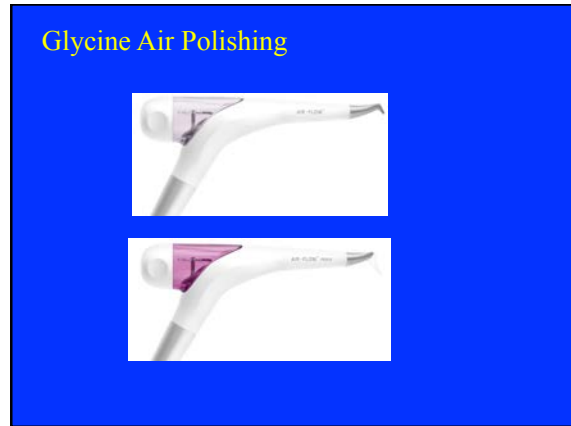
1 + 1 = 3 !

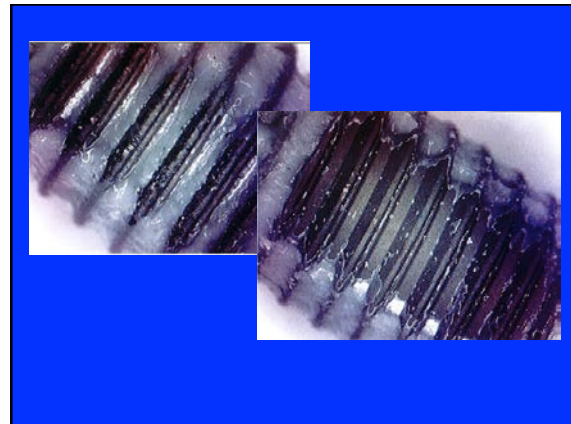
BIOFILM MANAGEMENT With Glycine / Erythritol Powder for Shallow Pockets



Lasers in managing implantitis..



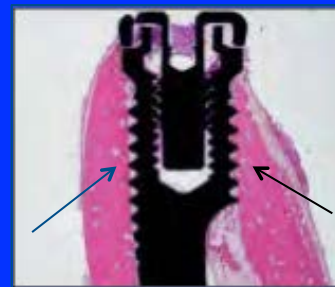




(Er,Cr:YSGG Laser Effectively Ablates Single-Species Biofilms on Titanium Disks Without Detectable Surface Damage)
Jason M. Strever, et al [Journal of Periodontology](#)
 November 2016.

The Er,Cr:YSGG laser with radial firing tip and water spray was able to effectively ablate $\geq 95\%$ of biofilm on all types of tested titanium surfaces, using clinically relevant power settings, without causing measurable physical changes to the surfaces.

Treatment of Peri-implantitis Around TiUnit-Surface Implants Using Er:YAG Laser Microexplosions
 Atsuhiko Yamamoto, DDS, PhD Toshihiro Tanabe, DDS, PhD
 Int J Periodontics Restorative Dent 2013;33:21–29.



Foreign Bodies Associated With Peri-Implantitis Human Biopsies
 Wilson, et al J Periodontol • January 2015

The microscopic analysis of soft tissue biopsies taken from around implants with cemented restorations suffering from peri-implantitis revealed a **mixture of subacute and chronic inflammation dominated by plasma cells.**

Foreign bodies primarily consisting of **titanium and dental cement** were found to be associated with an inflammatory infiltrate.

These initial findings argue for further research into the nature of peri-implantitis and the role of **foreign bodies** in this process.

Increased Levels of Dissolved Titanium Are Associated With Peri-Implantitis – A Cross-Sectional Study
Safioti, et al [Journal of Periodontology](#)
 May 2017, Vol. 88, No. 5, Pages 436–442 2016.160524

Greater levels of dissolved titanium were detected in submucosal plaque around implants with peri-implantitis compared with healthy implants, indicating an association between titanium dissolution and peri-implantitis.

Corrosion in Titanium Dental Implants/Prostheses - A Review
 Rahul Bhola*, Shailly M. Bhola, Brajendra Mishra and David L. Olson
 Dept of Metallurgical & Materials Engineering, Trends Biomater. Artif. Organs, 25(1), 34-46 (2011)

Thermal effects of $\lambda = 808$ nm GaAlAs diode laser irradiation on different titanium surfaces.
Granata et al Lasers Med Sci. 2015 Dec

The results show that the surface characteristics have a marked influence on temperature changes in response to irradiation.

Effects of diode laser irradiation on implant surfaces depend on physical features of the titanium coating

To avoid thermal or physical damage to implant surface the irradiation treatment has to be carefully selected.

Commentary: Incorporating Patient-Reported Outcomes in Periodontal Clinical Trials

Michael K. McGuire, E. Todd Scheyer, and Chad Gwaltney

Journal of Periodontology
 October 2014, Vol. 85, No. 10, Pages 1313-1319

PRO's : Patient Related Outcomes



- Risk Factors are more critical than any therapy for management
- Anti inflammatory must be balanced with anti microbial
- Lasers are effective in managing periodontitis
- There is not a difference in clinical parameters
- Except: recession
- Patient related outcomes (PRO's) are the key for present and future assessment.

Why would a periodontist want a laser for periodontal therapy

1. Implant market is shrinking
2. Today's Periodontist must add technology
3. Ability to manage periodontal disease with minimally invasive procedures
4. Success is creating a practice niche and marketing such to the patients.
5. ONE MUST HAVE A STRATEGY TO COMPETE!

- "The goal of my practice is simply to help my patients retain their teeth all of their lives if possible.....
In maximum comfort, function, health, and esthetics"

Dr. L. D. Pankey



**For additional contact
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