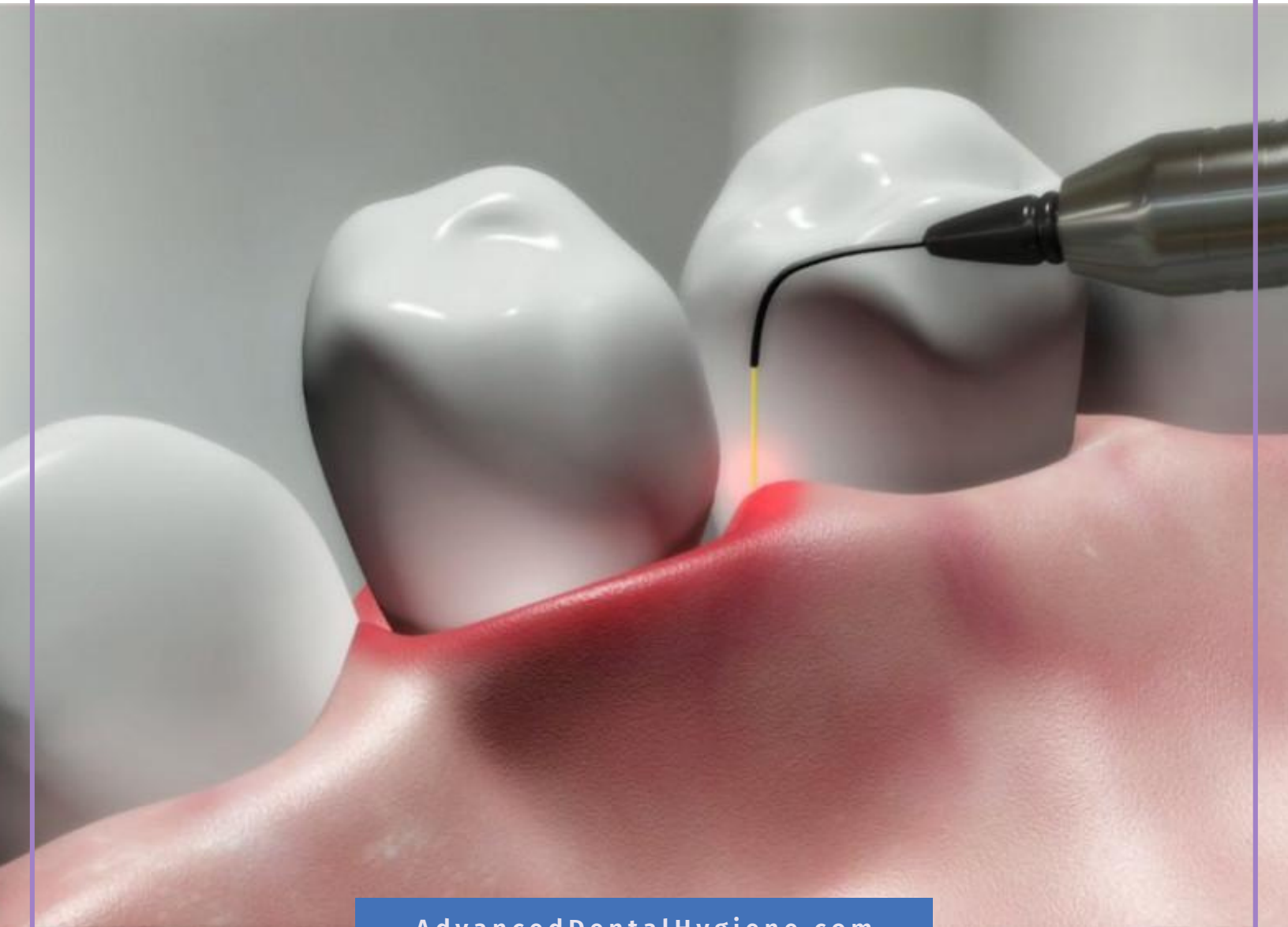




APPLICATIONS of the DIODE LASER



AdvancedDentalHygiene.com

Joy Raskie, RDH

AdvancedDentalHygiene.com



- Registered Dental Hygienist in Littleton, Colorado, since 2003
- CEO, Director of Education at Advanced Dental Hygiene
 - AdvancedDentalHygiene.com
 - Specialize and teach dental laser training courses worldwide
- Associate Fellowship and Fellowship from the World Clinical Laser Institute (WCLI) and Advanced Laser Training. Working towards my Mastership
- Advanced Proficiency from the Academy of Laser Dentistry (ALD)
 - Presented 5 laser case studies with a high degree of difficulty
 - One of 20 RDH's who hold this certification worldwide

Course Objectives



- Gain an understanding of NEW trends with lasers
- Acquire the knowledge on how doctors are utilizing super-pulsing and dual-wavelength technology for superior cutting power for many common everyday dental procedures
- Discover how dental hygienists are integrating lasers into the hygiene workflow as well as increasing profitability with lasers in the hygiene department
- Master tips to effectively implement laser into daily hygiene practice
- Discover new procedures that allow assistants, doctors, and hygienists to biostimulate tissue, reduce pain, reduce inflammation and accelerate healing with lasers

GAIN AN UNDERSTANDING OF NEW TRENDS WITH LASERS

Older Laser Devices



New Trends With Lasers

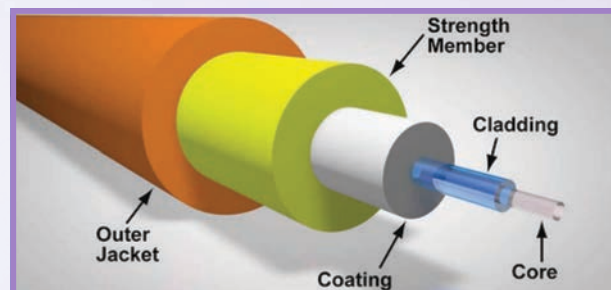
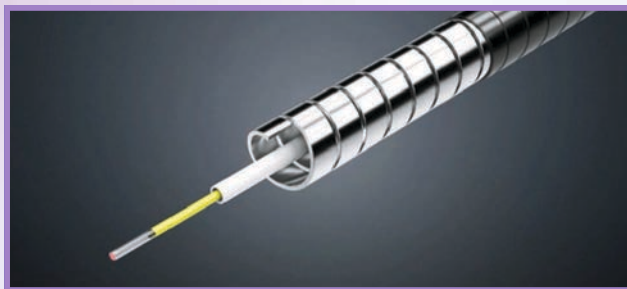
- Procedures pre-set for multiple clinicians
 - Doctors, hygienists, specialists
- Look of the laser
 - Futuristic, light-weight, portable
- Tips
 - Uninitiated, Pre-initiated, Stronger tips, PBM
- Multiple wavelengths in ONE LASER!
 - 810nm, 980nm
- Using two wavelengths at ONCE
 - Dual-wavelength
- Super-Pulsing Technology
- Procedures are all set-up
- For all clinicians
- No Guessing
- Plug and Play | Turn-key
- Everyone loves EASY
- Futuristic
- Light-weight | Portable



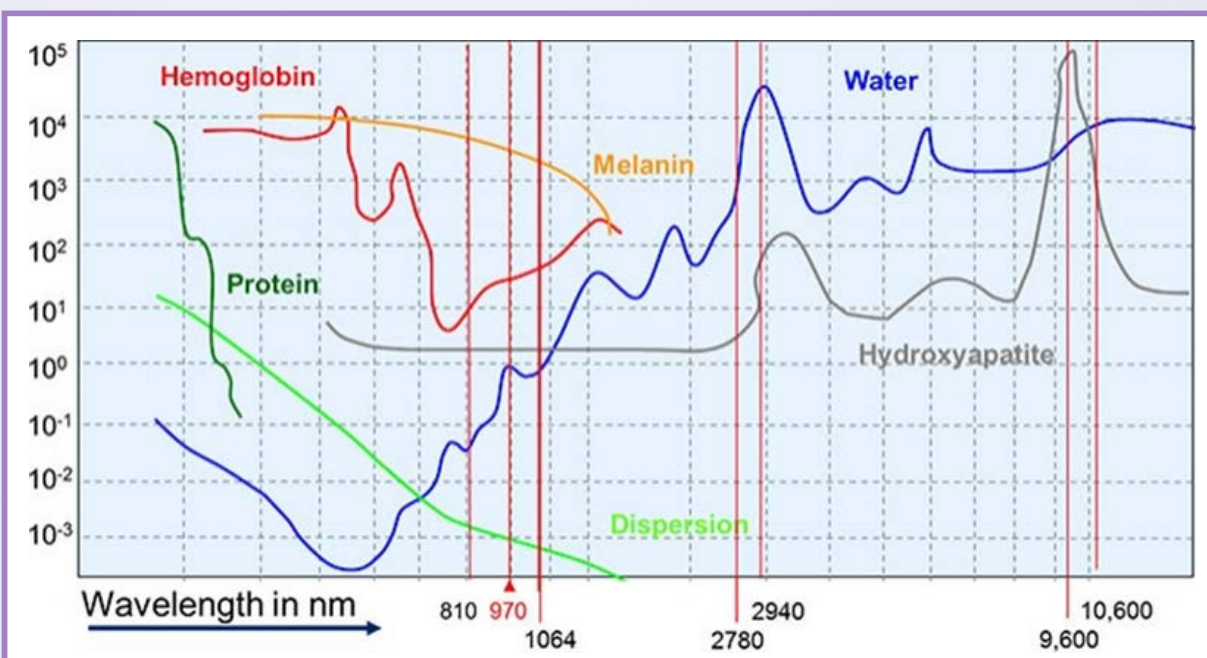
Laser Fibers / Laser Tips



Initiated vs Uninitiated



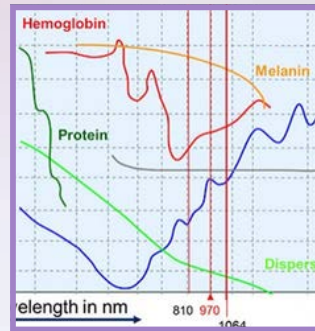
Laser Wavelengths & Various Tissue Components



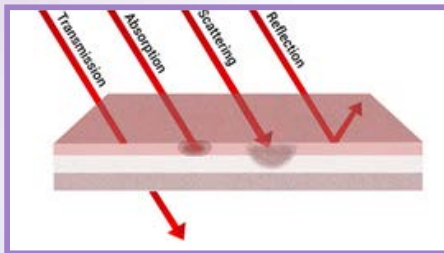
Multiple Wavelengths - Dual Wavelength

Two Wavelengths

- 810nm
 - More attracted to the melanin in tissue (*pigment-tissue color*)
 - *Superior coagulation*
- 980nm
 - More attracted to water
 - Better for tissue ablation (cutting)
- When used together it cuts **AMAZING!!**



Power of Lasers

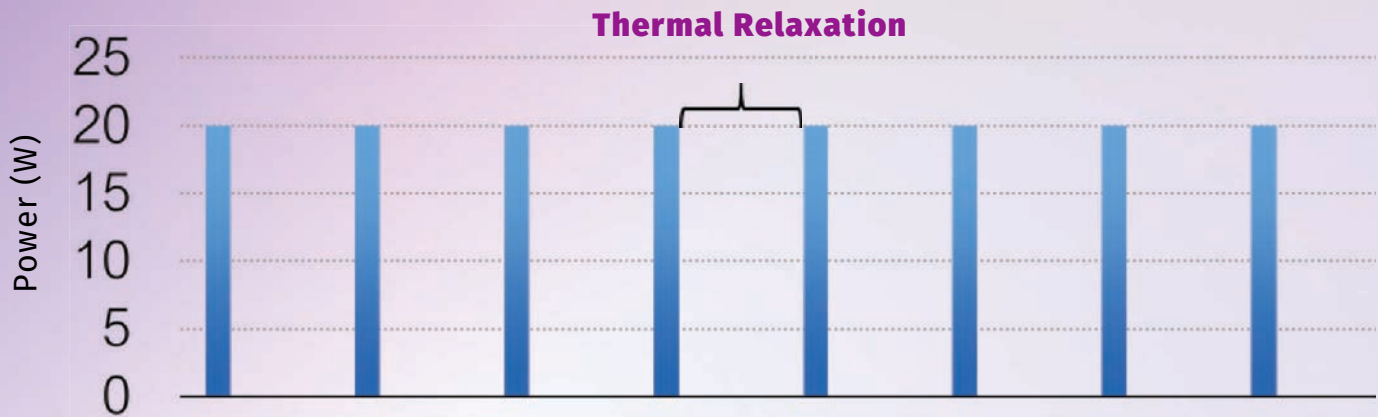


- Lasers cut by absorption in the tissue
 - Can produce a slow cutting effect
- Diode Lasers
 - Main complaint with diode lasers- SLOW cutting due to limits on power (watts) to minimize collateral thermal damage
 - Continuous wave was introduced to provide constant energy to cut faster¹
 - Can produce collateral damage to soft tissues¹.
 - Often causes carbonization leading to tissue necrosis and delayed wound healing²
 - Not good for esthetic cases (smile line contouring)
- Electrosurgery is very powerful/fast
 - Necrosis zone is 3-5x wider than that of a diode laser
 - Patients experience more pain post-op, longer healing time
 - Can't use around metal dental restorations or titanium implants



1. R. Borchers, *Comparison of diode lasers in soft-tissue surgery using CW-and superpulsed mode: an in vivo study*, RWTH Aachen University: Master thesis for Master of Science in Laser in Dentistry, 2008
 2. A. A. Al-Khatib and A. S. Al-Azzawi, "Comparative study of diode laser 940 nm in performing frenectomy in both: continuous and pulsed modes: an in vivo study," *Journal of Dental Lasers*, vol. 9, no. 2, p. 50, 2015

“Super-Pulsed” Diode Lasers



Average power is a fraction of peak power. These lasers behave similarly to gated-pulse diode lasers, but are able to pulse much faster at higher peak powers.

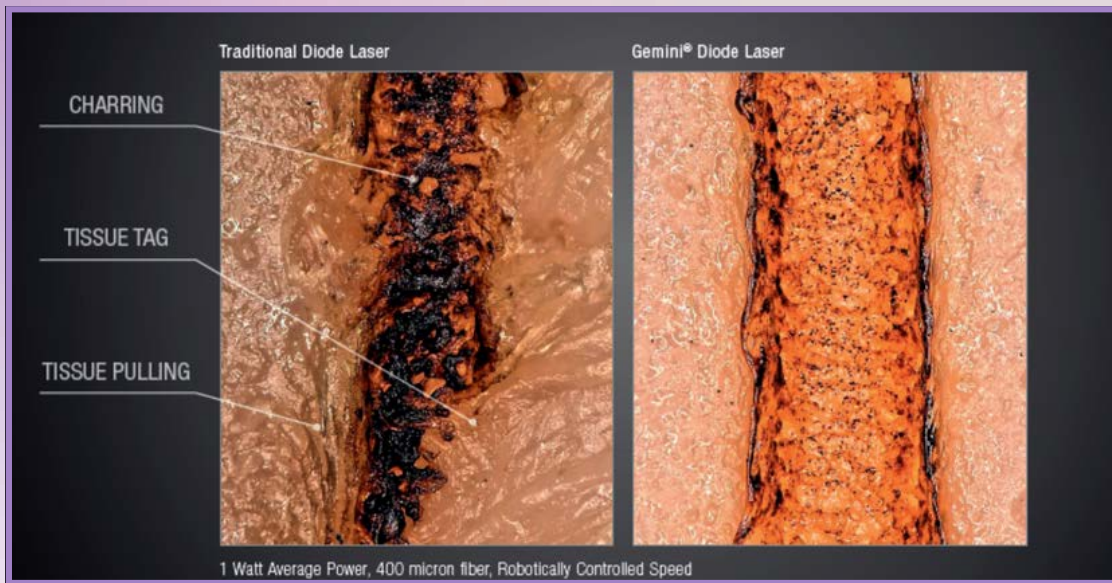
This example: 2 watts of average power, 20 watts of peak power, 1 millisecond pulse duration, 9 millisecond pulse interval, 10% duty cycle.



Gemini's Power |Super-Pulsing



- Peak Power is fixed at either 10 watts or 20 watts
 - *Single wavelength (10-Watt)*
 - *Dual-wavelength (20-Watt)*
- Gemini will **always** fire 50 times a second
 - *Super-pulsing technology*
- Combining both 810 & 980 = *enhanced coagulation and ablation*
- PLUS 20 watts peak power + extremely short duty cycle = faster cut but not excessive heat



Super-Pulsed Lasers

“The *desired results* with the least risk of *unwanted thermal* damage can be achieved with very *short pulses* at the *highest power density* for the shortest time possible”

Source: K. Goharkhay, MD, DMD, A. Moritz, MD, DMD, P. Wilder-Smith, MD, DMD, U. Schoop, MD, DMD, W. Kluger, MD, S. Jakolitsch, MD, and W. Sperr, MD, DMD, Effects on Oral Soft Tissue Produced by a Diode Laser In Vitro, *Lasers in Surgery and Medicine* 25:401–406 (1999)

Combining Dual Wave + Super Pulsing of Gemini



- More POWER = Faster cutting
- More absorption into the tissue
- More thermal relaxation between pulses
- Less Collateral damage
- Faster Healing, Less post-op pain
- Optimal results for the *clinician*,
Optimal experience for the *patient*

HOW ARE DOCTORS UTILIZING SUPER-PULSING AND DUAL- WAVELENGTH TECHNOLOGY FOR SUPERIOR CUTTING POWER

Continuous vs Pulsed Power

Case Study – 26 patients

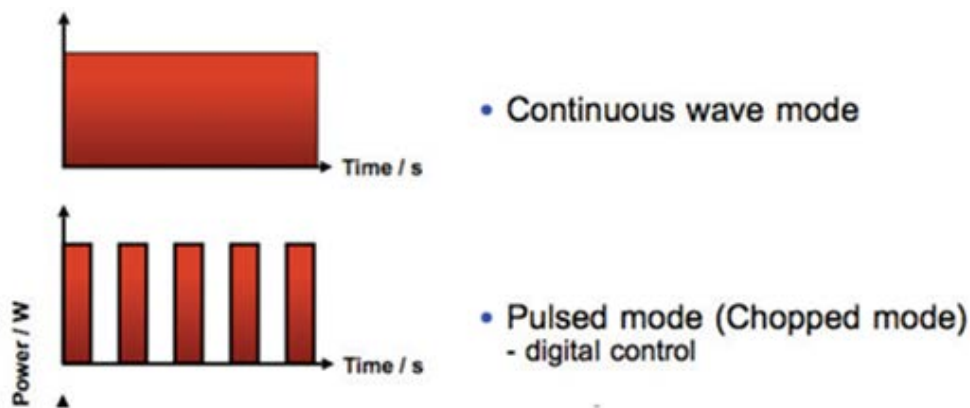
12 patients treated with super-pulsed diode laser | 14 patients with continuous wave

Super-pulsed group

- *Less carbonization*
- *Cutting speed was faster*
- *Cut itself more defined and deeper*
- *Shorter healing time*
- *Fibrine layer was built faster and also the removal of it was faster*
- *Duration of pain was shorter/amount of pain smaller*
- *Less analgesics needed*

Continuous Group

- *Coagulation was better*





Continuous Power

Before



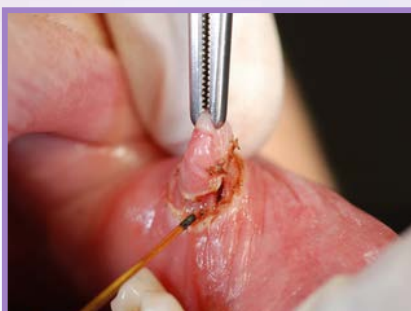
During Procedure



Directly After



Super-Pulsed Power



R. Borchers, Comparison of diode lasers in soft-tissue surgery using CW-and superpulsed mode: an in vivo study, RWTH Aachen University: Master thesis for Master of Science in Laser in Dentistry, 2008.



Continuous Power

1 Day After



2 Days After



1 Week After



Super-Pulsed



2 Weeks After

R. Borchers, Comparison of diode lasers in soft-tissue surgery using CW-and superpulsed mode: an in vivo study, RWTH Aachen University: Master thesis for Master of Science in Laser in Dentistry, 2008.

DENTIST PROCEDURES



- Crown-lengthening
- Exposing crown margins
- Gingivectomy – ortho/braces
- De-bulking gingival grafts
- Venous Lake
- Smile line correction - Gingivectomy
- Frenectomy
- Laser periodontal therapy – Flap
- Operculectomy
- Lesion (tumor) removal
- Biostimulation, TMJ Therapy
- Exposure of Implants
- Mucositis / Periimplantitis
- Extractions
- Biopsy
- Pulpotomy
- De-pigmentation
- Canal disinfection / Apicoectomy
- Pain Therapy – TMJ, Migranes

Why Lasers Over Conventional Methods?

Overall:

- Enhanced hemostasis reducing need for sutures
- Less post-op pain
- Better post-op healing
- Control moisture content of the field (heme and crevicular fluid)
- Bacterial decontamination of the field leading to gingival health at margins
- “Laser treatment causes no recession or repositioning of the gingival margin.”*

TROUGHING PROCEDURE

Gingival Troughing

The “trough” is the narrow space between the free margin of the gingival epithelium and the adjacent enamel of the tooth

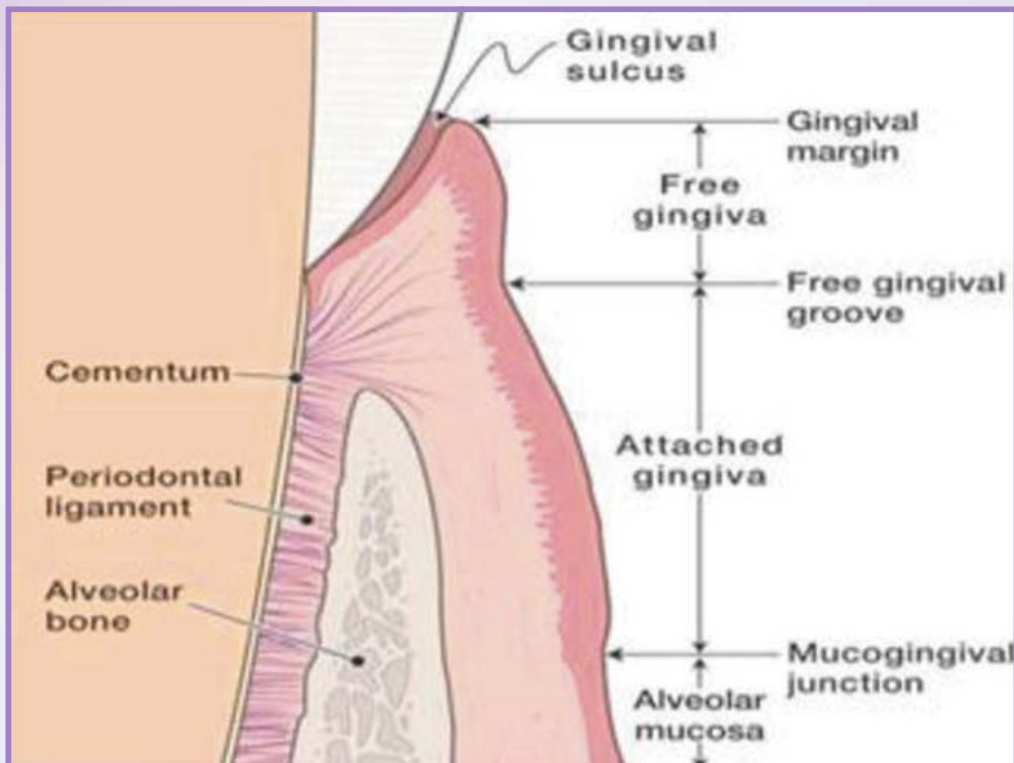


Photo from Alaa Eddin Omar Al Ostwani (April 4th 2019). Introductory Chapter: The Importance of Gingival Treatment and Prevention [Online First], IntechOpen, DOI: 10.5772/intechopen.85653. Available from: <https://www.intechopen.com/online-first/introductory-chapter-the-importance-of-gingival-treatment-and-prevention>

Most Popular Technique for Doctors with the Diode Laser

- Provides access and visualization of operative site and margins, especially when subgingival
 - Great impressions
- Controls moisture content of field (Heme and crevicular fluid)
- Bacterial decontamination of field, leading to gingival health at margins and while in temporary



[Dentalcompare.com](https://www.dentalcompare.com)

Packing a Cord vs Not Packing a Cord

- With Laser used to trough
 - Only takes 15-30 seconds
 - Patients notice LESS post-op pain
 - Less material needed
 - Healing time much quicker with laser
 - No hemodent needed, don't need assistant
 - Patient notice a lot less pain!
- Could get sub-optimal results afterward with the cord (especially in anterior areas) if you end up pushing that tissue too much, which will be causing a recession. The cord can hurt periodontal ligaments



GINGIVECTOMY \ GINGIVOPLASTY PROCEDURE

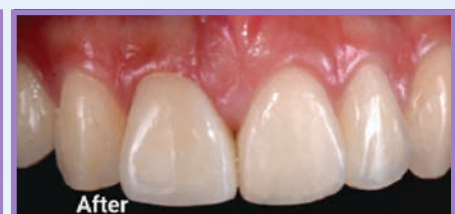
Gingivectomy | Gingivoplasty | Crown Lengthening

Procedures

- *These procedures are very similar in technique and goal. We want a pocket-depth reduction, remove excess gingival tissue and improve the gingival contour*
- Gingivoplasty will almost always be done in conjunction with LAPT/LD



Dual-Wave 810nm & 980nm & Super-Pulsed



Class III & IV Composite Restorations

- Gingival tissues often come into play - **more bleeding** with procedure
- Adhesive resins and composite materials are hydrophobic (don't like moisture -saliva and/or blood)
- Controlling moisture is crucial for bonding successfully in these areas requires
- Diode laser can substantially increase successful adhesion in these areas by making the margins supragingival and stopping bleeding prior to matrix and restorative material placement



Lowe, Robert A, "Tissue Management in Restorative Dentistry: The "Super Pulsed" Diode Laser, "Oral Health", July 2018.

Gingivectomy/Gingivoplasty



8 days Post Surgery

Lawrence Kotlow DDS 2012

BIOPSY PROCEDURE



Lawrence Kotlow DDS 2012

FRENECTOMY PROCEDURE

This procedure is done for several reasons.

1. In Babies, for latching (breast feeding). Bonding Mom/Baby
2. In young children, it may not have receded as it should have and can prevent the permanent teeth from coming together creating a diastema.
3. In adults with or without gingival recession present could create a mucogingival defect creating the possible need for a graft
4. Possible breathing problems with age (night-time issues)

Before/After Frenectomy



Before



Immediate After



After Healing

970nm laser

OPERCULECTOMY PROCEDURE

Operculectomy

Indications for an Operculectomy

- Pericoronitis but when the extraction of the tooth is not indicated
 - Pericoronitis-inflammation of the soft tissues surrounding the crown of a partially erupted tooth, including the gingiva and the dental follicle, may cause patient discomfort



VENOUS LAKE PROCEDURE

Venous Lake on Lip

- Venous lake, or venous pool, lesion presents as a soft, bluish/purple, discrete, painless nodule beneath the epithelium
- Usually seen after age 40
- Often appears as the result of an injury to the lip
- Persists throughout life, usually uncomplicated



How does the laser work?

- The laser beam generates heat when absorbed by **hemoglobin** and thus **coagulates** tissue (down to a depth of approximately 7–10 mm) in a process characterized as **photocoagulation**

Azevedo LH, Galletta VC, Eduardo Cde P, Migliari DA. Venous lake of the lips treated using photocoagulation with high-intensity diode laser. Photomed Laser Surg. 2010;28(2):263–265.

EXPOSING AN IMPLANT PROCEDURE

Exposing an Implant



Ultradent Gemini Dual Wave

Lowe, Robert A, "Tissue Management in Restorative Dentistry: The "Super Pulsed" Diode Laser, "Oral Health", July 2018.

LASERS IN HYGIENE



Explanation of the Inflammatory Process



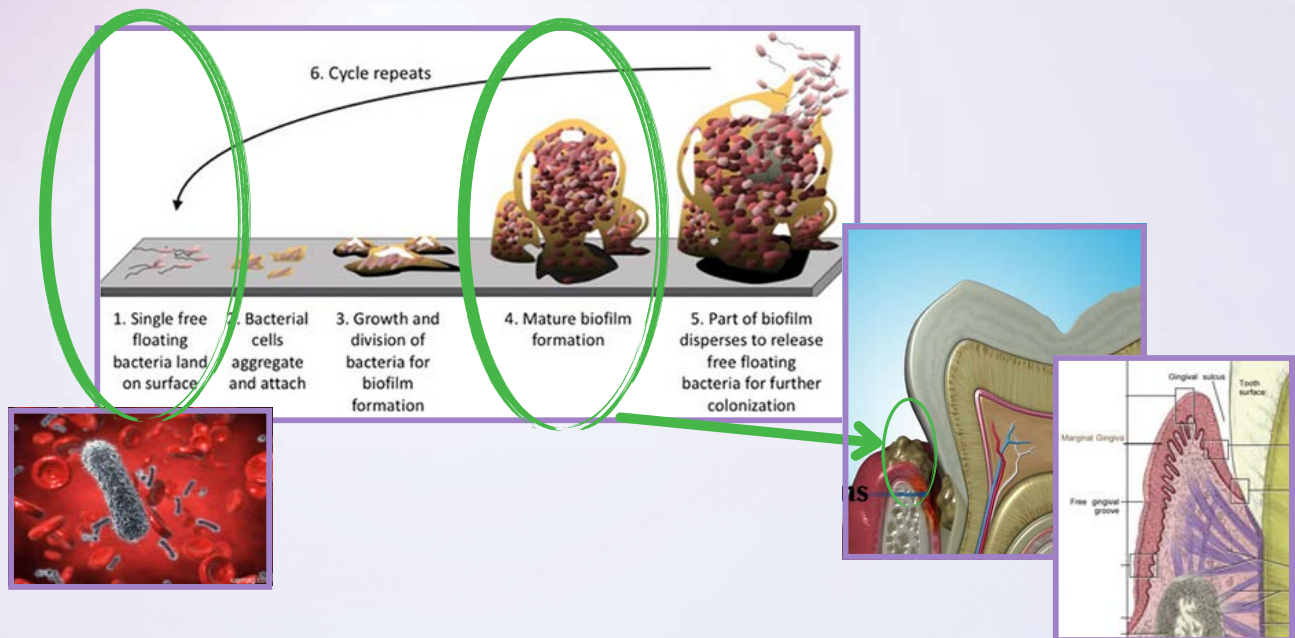
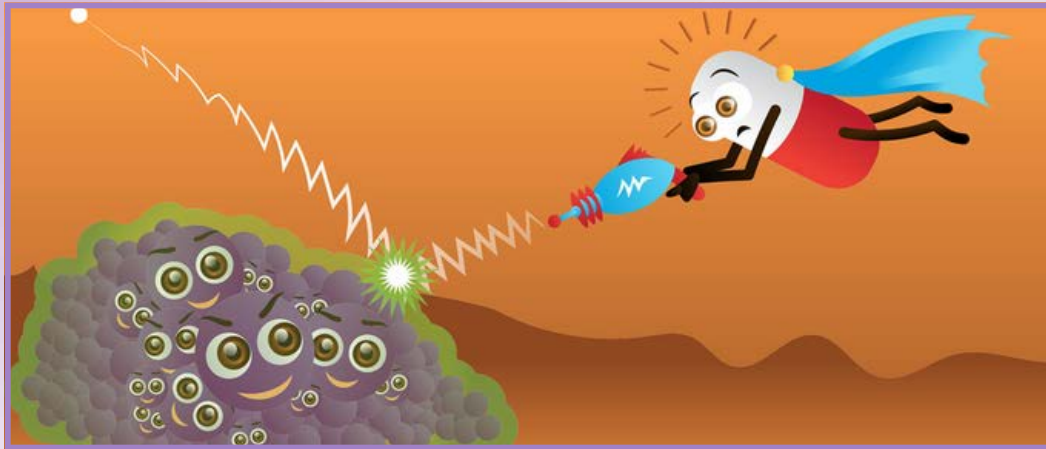
Manor A, Lebediger M, Shiffer A, Tovel H: Bacterial invasion of periodontal tissues in advanced periodontitis in humans, *J Periodontol* 55(10) 567-573, 1984.

Biofilm – The “bad guys”

- **First component of gingivitis/periodontal disease**
- Complex community of microorganisms protected by a secreted extracellular polymeric substance. As it becomes more mature, the microbes use molecular communication to create a highly organized and adaptable infrastructure and become living organisms. (Fux CA, Costerton JW, Stewart PS, Stoodley P: *Survival strategies of infection biofilms*, *Trends Microbiol* 13:34-40, 2005)
- Develops resistance to UV light, bacteriophages, biocides, antibiotics, immune system responses, and environmental stresses. (Donlan RM, Costerton JW: *Biofilms: survival mechanisms of clinically relevant microorganisms*, *Clin Microbiol Rev* 15: 167-193, 2002.)
- **Biofilm is what you are targeting with the laser!!**

Convissar, Robert. A. *Principles and Practice of Laser Dentistry*. New York: Mosby 3:27, 2015.

Lasers Role in the Infection Process



How do dental hygienists integrate lasers into the hygiene workflow



How can we increase profitability in the hygiene department

Breaking it Down into Easy Steps

01

What are we doing

02

When do we perform this treatment

03

Ideal patients for this treatment

04

Results and Increasing Profits

LASER BACTERIAL REDUCTION PROCEDURE

Step 1: What We Are Doing

Laser Bacterial Reduction

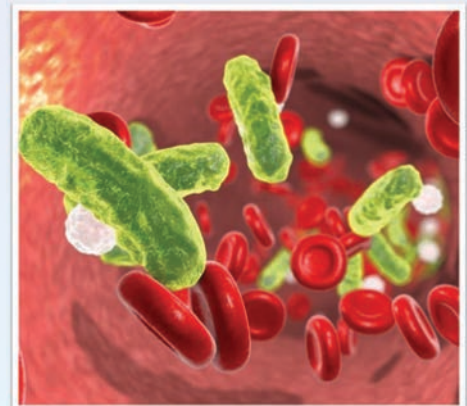
This is like a pre-procedural rinse but reduces bacteria UNDER the gums



Lasers and Bacteria Research

Lasers are bactericidal

- The diode laser group showed **100% reduction of long-term bacteria** (Periodontal specific), whereas 58.4% of the controls showed an improvement.
- The diode laser group **reduced their bleeding on probing (BOP) by 96.9%** compared to 66.7% in the control group.



Moritz A, Schoop U, Goharkhay K, et al: Treatment of periodontal pockets with a diode laser. Department of Conservative Dentistry, Dental School of the University of Vienna, Austria, Lasers Sug Med 22 (5):302-311, 1998.

LBR – What Are We Doing?



Reduce or eliminate the risk of **bacteremia** caused by instrumentation

- Allows us to remove bacteria and reduce bacterial flow into your bloodstream

Prevent cross-contamination

- We inadvertently pick up a bacterial infection in one area of the mouth and move it to other areas



Lower microcount in aerosols created during ultrasonic instrumentation

Assaf M, Yilmaz S, Kuru B, Ipci SD, Noyun U, Kadir T. Effect of the diode laser on bacteremia associated with dental ultrasonic scaling: A clinical and microbiological study. Photomed Laser Surg. 2007;25:250–6.

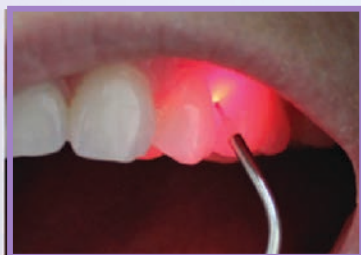
Step 2: When Do We Perform This Treatment

When is LBR incorporated?

- LBR is performed prior to:
 - Probing
 - Polishing
 - Ultrasonic
 - Scaling

LBR 1st

- Reduce microbes released during hygiene visit
- Microbes released in the body & aerosols



Step 3: Ideal Patients for This Treatment

Who is LBR for?

D4341, D4342 SRP 1-3 teeth & 4+ teeth

- Done FULL mouth each visit to reduce bacteria in the sulcus, these pts need extra help

D4346 Scaling in presence of generalized moderate or severe gingival inflammation

- Patients have severe inflammation, bleeding. Reduce bacteria

D4910 Periodontal Maintenance

- This is a MUST-have procedure! Patients have a biofilm problem, help clean deeper than current instrumentation, help them manage between visits, improve pockets over time

D1110 Prophylaxis-adult (maybe even D1120 child)

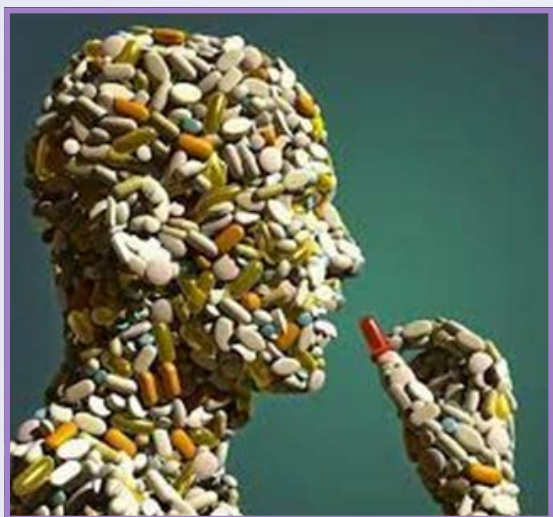
- Healthy patient & bleeding patient – knockdown bacteria to reduce risk bacteremia, aerosols, cross-contamination with instruments, help keep the mouth healthy between visits

D4355 Full mouth debridement

- Reduce bacteria, clean deeper than instruments, stimulate healing of tissue after



Medically Compromised Patients



Step 4: Results and Increasing Profits

Results We See

- Less bleeding with cleaning
- Less sensitivity
- Pockets reduce overtime with good home care
- Overall better feeling after cleaning (patient feedback)



How Are Offices Leveraging This?



- Mandatory LBR procedure with every cleaning
- Consent to NOT have LBR
- Incorporating into prophylaxis/maintenance fee
- Laser hardware fee
- Package deal (irrigation, FL, cancer screen)

ROI for LBR (Return on Investment)

LBR \$35 4 Day Work Week

\$44

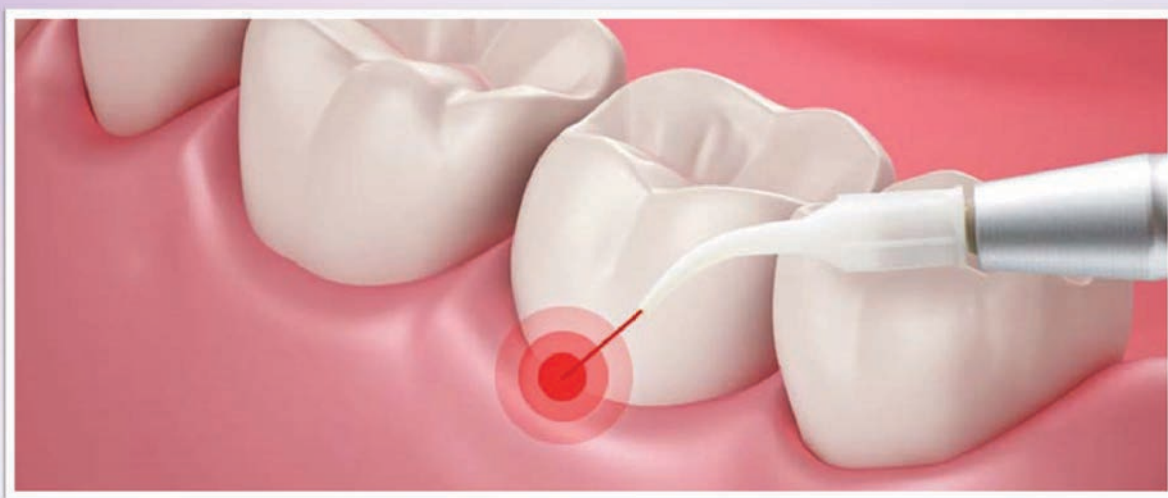
- 4 pts day=\$140, week=\$560, \$2240 month, 26,880 yr / \$36,608
- 5 pts day=\$175, week=\$700, \$2800 mo, 33,600 yr / \$45,760
- 6 pts day=\$210, week=\$840, \$3360 mo, \$40,320 yr / 54,912
- 8 pts day=\$280, week=\$1120, \$4480 mo, \$53,760 yr / \$73,216

Buy a laser \$7000

- *Paid off less than 3 months with ONLY doing 4 patients a day LBR*

LASER DECONTAMINATION PROCEDURE

Laser-Assisted Periodontal Therapy (LAPT) Laser Decontamination (LD)



Laser Decontamination – (LD)

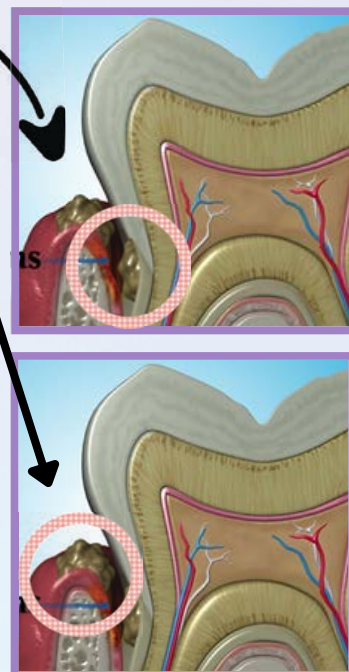
(Why I call it LD and why it is ok to initiate your tip in some states)

Just as conventional *root debridement* removes biofilm and accretions from the hard tooth surface, *laser decontamination* removes biofilm within the necrotic tissue of the pocket wall. The laser energy interacts strongly with inflamed tissue components (diseased tissue, red-orange complex bacteria) and less strongly with healthy tissue.

Convissar, RA: Principles and Practice of laser Dentistry, New York: Mosby, (3) 31. 2011. Print.

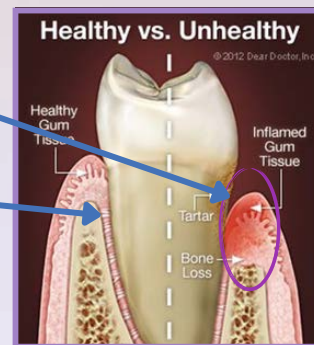
This *nonsurgical therapy* uses very low settings and decontaminates rather than cuts the tissue.

Coluzzi DJ, Convissar RA: Atlas of laser applications in dentistry, Chicago, 2007. Quintessence.



Step 1: What We Are Doing

- **Decontaminating** the gingival lining of the pocket wall
- **Reducing bacteria** in the pocket
- Reducing biofilm that has migrated into gingival wall
- Inducing biostimulation--Promoting **healing** of the tissues
- The laser will help us clean deeper into the tissue where we can't get with our instruments

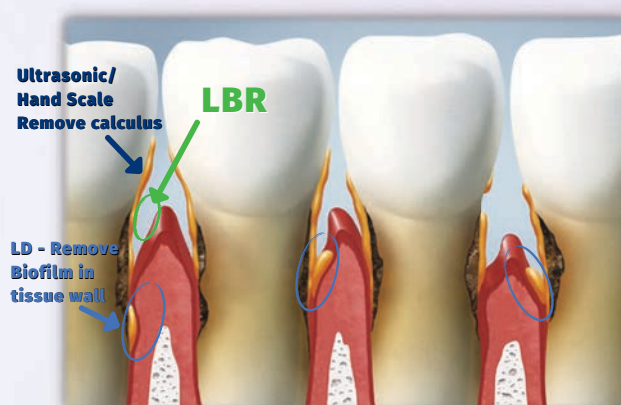


Step 2: When Do We Perform This Treatment

When is LD incorporated?

LD is performed after

- Ultrasonic and scaling
- At the end of the cleaning appt



Step 3: Ideal Patients for This Treatment

Who is LD for?

D4341, D4342 SRP 1-3 teeth & 4+ teeth – These are the ideal patients

- Performed on any pocket 4+mm to help gum infection, stimulate pockets to heal, guide tissue to adhere to the tooth so pocket disappears. The charge fee includes LBR/LD

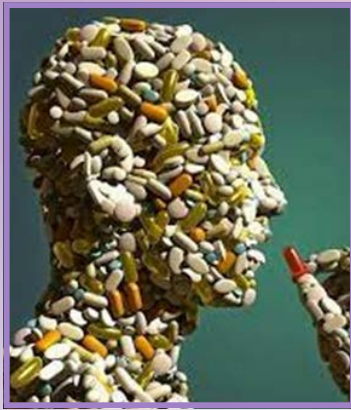
D4910 Periodontal Maintenance

- If a patient had one or two infected pockets BUT didn't need SRP. Can do at end of the appt

D4346 Scaling in presence of generalized moderate or severe gingival inflammation

- These patients need LBR BUT if tons of deep 3mm/4mm could do light LD meaning treat each area with 1-2 passes with the laser to stimulate healing and decontaminate





Medically Compromised Patients

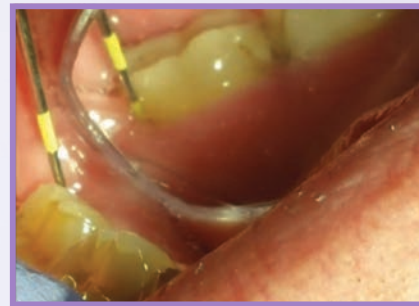


Step 4: Results and Increasing Profits

LD on a single tooth



#31 DL 10mm



#31 DL 4.5mm 3-week post op



#31 DL post laser

LD on 8mm pocket



8mm initial therapy



Immediate post op with coagulation



4mm at 4mo periomaint

Results We See | Typical Fees

- Pocket reduction
- Gums heal quickly
- Bone regeneration
- Patients respond great
- \$50-500
 - Quadrant fee \$75-225



Research SRP + Laser | SRP Alone

In ALL articles ~ SRP + Laser = more bacterial reduction than SRP alone

- Significantly higher reduction in **periodontal pathogens** after 2 months compared to SRP alone¹
- Considerable **bacterial elimination**, especially of *Actinobacillus actinomycetemcomitans*, from periodontal pockets²

1. Fenol A, Boban NC, Jayachandran P, Shereef M, Balakrishnan B, Lakshmi P. A Qualitative Analysis of Periodontal Pathogens in Chronic Periodontitis Patients after Nonsurgical Periodontal Therapy with and without Diode Laser Disinfection Using Benzoyl-DL Arginine-2-Naphthylamide Test: A Randomized Clinical Trial. *Contemp Clin Dent*. 2018 Jul-Sep;9(3):382-387.

2. Moritz A, Gutknecht N, Doertbudak O, et al. Bacterial reduction in periodontal pockets through irradiation with a diode laser: a pilot study. *J Clin Laser Med Surg*. 1997;15(1):33-37.

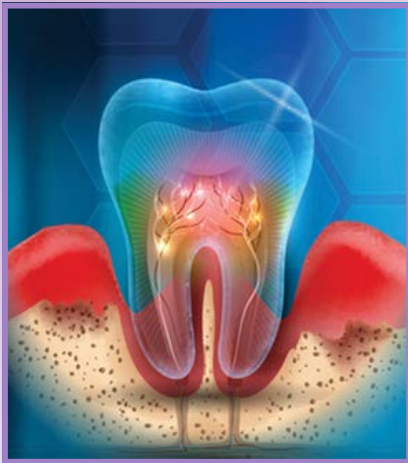
3. Crispino A, Figliuzzi MM, Iovane C, Del Giudice T, Lomanno S, Pacifico D, et al. Effectiveness of a diode laser in addition to non-surgical periodontal therapy: Study of intervention. *Ann Stomatol (Roma)* 2015;6:15-20.

4. Elavarasu S, Suthanthiran T, Thangavelu A, Mohandas L, Selvaraj S, Saravanan J. LASER curettage as adjunct to SRP, compared to SRP alone, in patients with periodontitis and controlled type 2 diabetes mellitus: A comparative clinical study. *J Pharm Bioallied Sci*. 2015;7(Suppl 2): S636-S642.

5. Gupta, Sunil Kumar et al. "An evaluation of diode laser as an adjunct to scaling and root planning in the nonsurgical treatment of chronic periodontitis: A clinico-microbiological study." *Dentistry & Medical Research*. 2016; 4(2): 44-49.



What About Bone Regeneration?



Bone Regeneration – 6 months



Janessa Bock RDH, Houston, TX

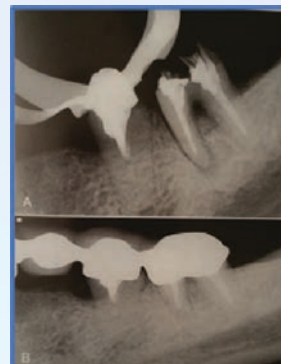
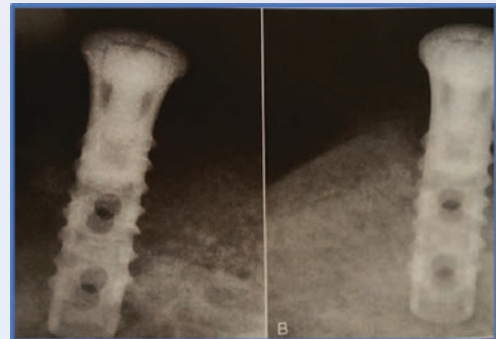
Research Articles on Regeneration

- Findings showed a positive effect on the proliferation of both **gingival fibroblasts** and **periodontal ligament fibroblasts**, as well as their responses to inflammation

Ren, C., McGrath, C., Jin, L. et al. Effect of diode low-level lasers on fibroblasts derived from human periodontal tissue: a systematic review of in vitro studies. *Lasers Med Sci* 31, 1493–1510 (2016)

- Diode lasers have a biostimulatory effect on bone tissue as well as enhanced **osteoblastic** (bone-forming cells) proliferation

Amid R, Kadkhodazadeh M, Ahsaie MG, Hakakzadeh A. Effect of low level laser therapy on proliferation and differentiation of the cells contributing in bone regeneration. *J Lasers Med Sci*. 2014;5(4):163–170.



Pires Oliveria DA, de Oliveria RF, et al: Evaluation of low-level laser therapy of osteoblastic cells, *Photomed laser surg* 26(4):401-404, 2008

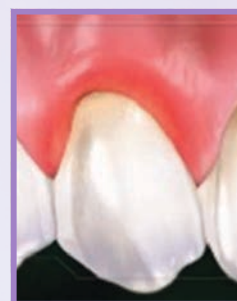
Dortbudak O, Haas R, Mallath-Pokorny G: Biostimulation of bone marrow cells with a diode soft laser, *Clin Oral Implants Res* 11(6):540-545, 2000

What About Treating Implants with a Laser?



Peri-Implant Mucositis

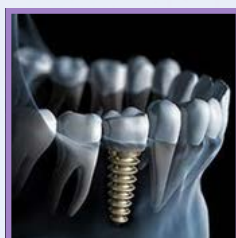
- Gum infection/infection in the tissue
- Disinfect gum pocket
- Clean deeper than we can get with our instruments¹
- Stimulate healing²



1.Malmqvist, Sebastian et al. "Using 445 nm and 970 nm Lasers on Dental Implants-An In Vitro Study on Change in Temperature and Surface Alterations." *Materials (Basel, Switzerland)* vol. 12,23 3934. 27 Nov. 2019

2.Pires Oliveria DA, de Oliveria RF, et al: Evaluation of low-level laser therapy of osteoblastic cells, *Photomed laser surg* 26(4):401-404, 2008

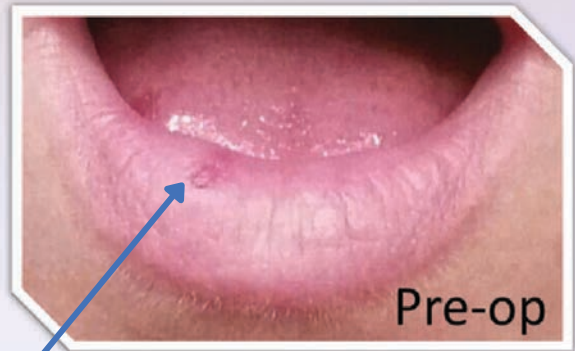
Technique Is Very Important!



Angulation of laser tip & time in pocket

Malmqvist S, Liljeberg A, Qadri T, Johannsen G, Johannsen A. Using 445 nm and 970 nm Lasers on Dental Implants-An In Vitro Study on Change in Temperature and Surface Alterations. *Materials (Basel)*. 2019;12(23):3934. Published 2019 Nov 27. doi:10.3390/ma12233934

LESION TREATMENT PROCEDURE



**Canker Sores
OR
Cold Sores**



Step 1: What We Are Doing?

- Killing viral particles
- Inactivating lesion
- Begin the healing and dormant process
- Cauterizes nerve endings
- Biostimulating the area



Step 2: When Do We Perform This Treatment

Herpes Labialis (Cold Sores)

- Ideally performed ASAP
- Right when the patient feels it coming on
- First day of lesion
- Can perform at any stage of virus – promotes healing



Step 3: Ideal Patients for This Treatment

Ideal Patients for Lesion Treatment

- Anyone with a lesion
- Anyone experiencing pain
- Patient leaves pain free
- Helps reduce the reoccurrence¹
- Added benefit for your office

1.Schindl A1, Neumann R. Low-intensity laser therapy is an effective treatment for recurrent herpes simplex infection. Results from a randomized double-blind placebo-controlled study. J Invest Dermatol. 1999 Aug;113(2):221-3



Step 4: Results and Increasing Profits

Results | Typical Fees



- It immediately will feel “numb”
- Patient leaves pain-free!
- Immediately start the healing process
- Shrink throughout the day/crust over the next day
- Offices are charging \$50-200

DESENSITIZATION PROCEDURE

Step 1: What We Are Doing?



- Changing the viscosity of the fluid in the dental tubules
- Can use varnish afterwards

Step 2: When Do We Perform This Treatment

When To Perform Laser Desensitization

- When the patient is experiencing sensitivity
- Beginning of hygiene appointment
 - Patient has better experience



Step 3: Ideal Patients for This Treatment

Desensitization Treatment

- Anyone experiencing sensitivity¹
 - Dentin Hypersensitivity²
- This is for exposed dentin

1. Gojkov-Vukelic M, Hadzic S, Zukanovic A, Pasic E, Pavlic V. Application of Diode Laser in the Treatment of Dentine Hypersensitivity. Med Arch. 2016;70(6):466-469. doi:10.5455/medarh.2016.70.466-469

2. Asnaashari M, Moeini M. Effectiveness of lasers in the treatment of dentin hypersensitivity. J Lasers Med Sci. 2013;4(1):1-7.



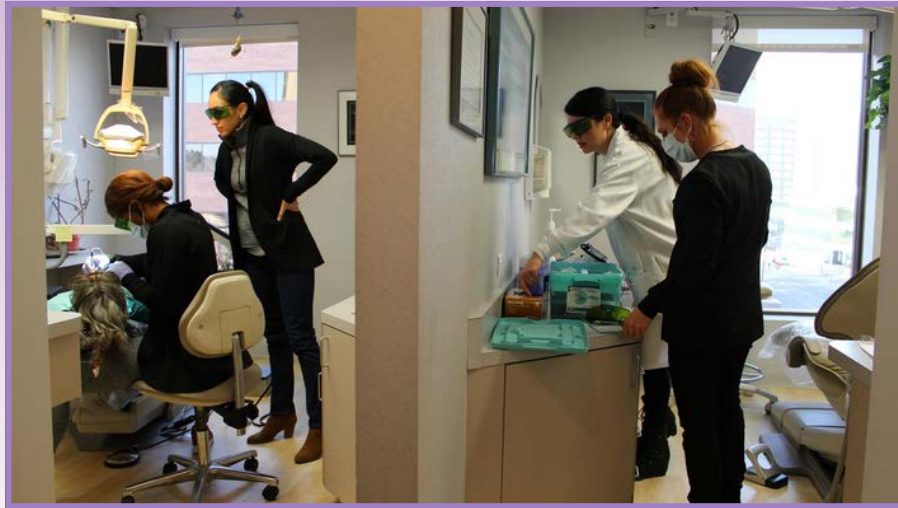
Step 4: Results and Increasing Profits

How Long Does it Last?

- Can last forever
- If it comes back check -
What is causing the sensitivity?
 - Abrasive toothpaste -
No tarter control
toothpaste
 - Check bite if it comes
back
- **Most times it is occlusal forces**
- Make sure they are in the correct bite appliance
- Typical fees \$25-\$225

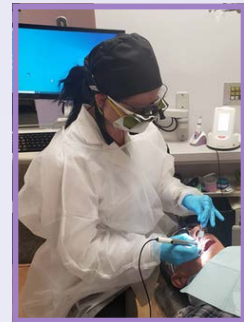


Tips to Effectively Implement Laser Into Your Periodontal Program



Start Out Small

- Start with a couple cases a day
- Good place to start is incorporating it as part of ALL SRP appointments
- If you try every case, you can get discouraged and then the laser will just “collect dust”



Incorporating Laser into Hygiene

- First, start with every SRP appointment
- Gingivitis appointments
- Medically compromised patients
- Then incorporate it for every 4910/shorter-recall maintenance appt
 - LBR is important to help reduce the bacteria
 - These patients build up more bacteria and need extra help
 - Helps keep the bacteria levels down between visits
- Every hygiene appointment
 - Aerosol management
 - Reduce microbes released in the cleaning
 - Whole-body health focus
- Team meeting to keep everyone saying the same things, focused on laser



Training



- Seek out a perio course
 - All team members attend (RDH/DDS)
- Proper hands-on laser training
 - Makes everyone feel comfortable and confident delivering laser therapy



- Verbalization training
 - Practice working on your “script” or verbiage
 - Team meetings to discuss what is working/not working
 - Get ALL staff on board/same messaging from front to back
- Practice on co-workers or loved ones

Tips to On-Board Patients

- Get **excited**, the more you stay positive the better your patients will feel about accepting treatment
- Be **confident**, you know what you are talking about and your patients trust you
- Think about your **delivery**
 - **Direct Eye Contact** is important
- Making it a **part of their out of pocket investment** will help them understand this is the standard of care in your office
- During the hygiene & restorative appts, talk about the laser
 - Create the Hype, be excited

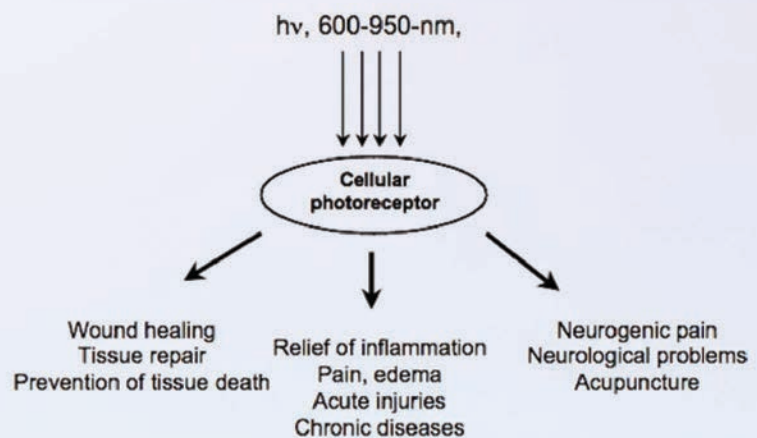


Discover new procedures that allow assistants, doctors and hygienists to biostimulate tissue, reduce pain, reduce inflammation and accelerate healing

PHOTOBIOIMODULATION PROCEDURES

What is Photobiomodulation

- Photo (light), bio (life & cells), modulation (modify or influence change)
- Also known as:
 - Low-level laser therapy
 - Cold Laser therapy



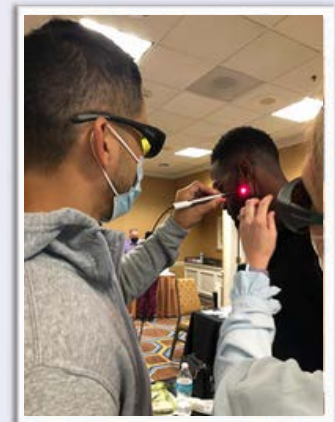
Hamblin MR, Demidove TN. Mechanisms of low level light therapy. In: Hamblin MR, Waynant RW, Anders J, editors. Mechanisms for Low-Light Therapy, January 22 and 24, 2006, San Jose, Calif. Proc. SPIE 6140. Bellingham, Wash.: SPIE – The International Society for Optical Engineering, 2006:614001-1 614001-12.

PBM Uses In Dentistry

- Post extraction
- Dry Socket
- Endodontics – root canal/post-op pain
- Implants
- Restorative Procedures, Fillings, Cementing Crowns
- Analgesic & Acupuncture affects
- Dental Infections
- Nausea & Gagging
- Mucositis
- Nerve Regeneration
- Facial Pain Relief After Long Dental Appointments
- TMJ/TMD
- Sinusitis
- Orthodontics (movement of teeth-stimulation)
- Dry Mouth- Stimulation mode
- Paresthesia
- Gingival Grafts

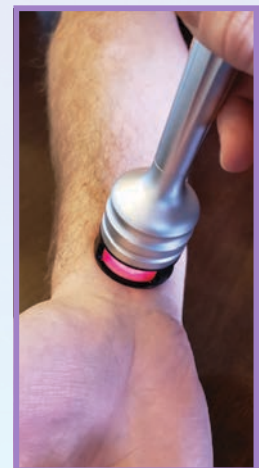
TMJ & Treatment of Facial Pain

- Find out where they are experiencing pain and/or soreness
- Treat that area
- Clinical forms for patient to complete evaluating pain areas
- Clinical Interview (Let the patients tell you their story)
 - A good clinical interview is key to a good diagnosis

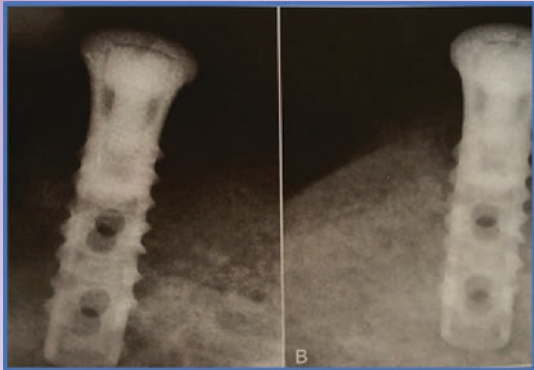


Nausea & Gagging

- Apply laser to P6 acupuncture point
- Reduces nausea & gagging
- Bioinhibition
- High anxiety or very strong gagger- apply laser to all 3 points



Implants



**Failing implant
2 months old**

**4 weeks after
applying 4 J 2x week**

Pires Oliveria DA, de Oliveria RF, et al: Evaluation of low-level laser therapy of osteoblastic cells, Photomed laser surg 26(4):401-404, 2008

- Reduce PAIN after placement
- Stimulate osteoblasts (bone healing)



Courtesy of Dr. Gerry Ross



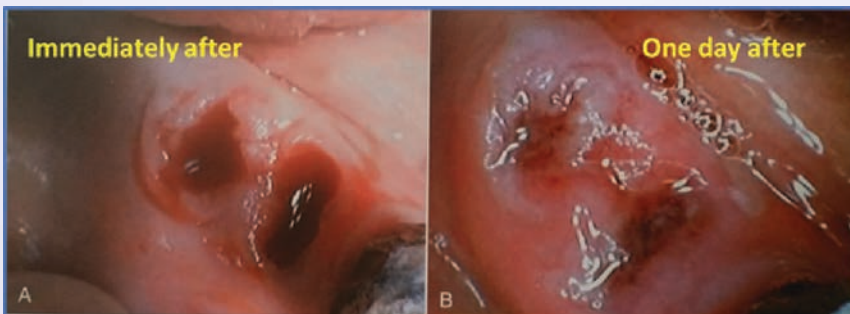
(Courtesy Talat Qadri)

3 year Post-op

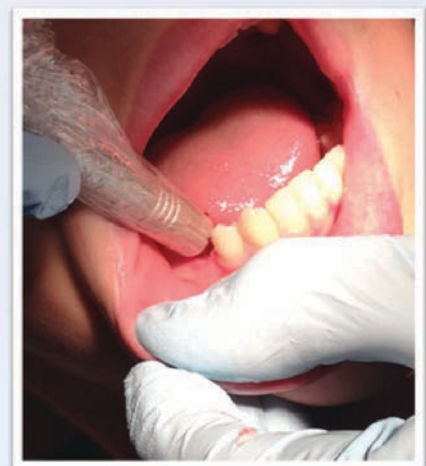
Dortbudak O, Haas R, Mallath-Pokorny G: Biostimulation of bone marrow cells with a diode soft laser, Clin Oral Implants Res 11(6):540-545, 2000

Post Extraction

- Stimulate Tissue to heal



(Principles and
Practice of Laser
Dentistry –
Courtesy Talat
Qadri)



Endodontics

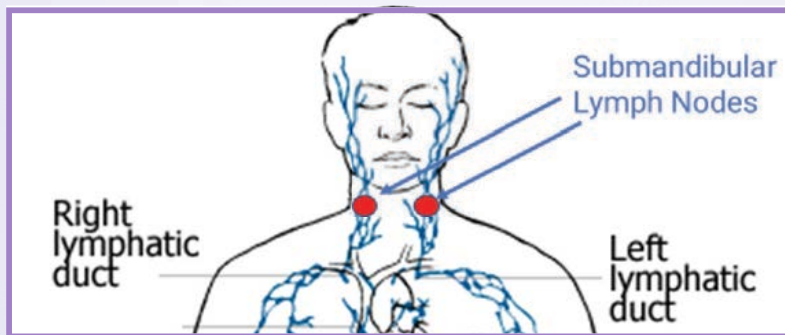
- Reduce post-op pain
- Get rid of infection at the apex of the tooth
- Patient has less pain after the procedure



Courtesy Dr. Gerry Ross, ddsross@rogers.com

Application for Lymphatic Drainage (ANY Dental Infections)

- Get rid of infection from body



Courtesy of Dr. Gerry Ross, ddsross@rogers.com

Cementing Crowns

- Apply laser at apex, buccal, lingual, occlusal
- Gives an analgesic (numb) feeling
- No Anesthetic needed. Pt feels more comfortable
- Does wear off after 15 min



Webinar on PBM, Dr. Gerry Ross, ddsross@rogers.com

Lasers Can Help With

- Reduce post-op pain
- Happier patient
- Stimulate Healing
- Faster healing
- Happier patient
- This is what sets your office apart



You can't get different results
by doing things the same way.

Richard Moran

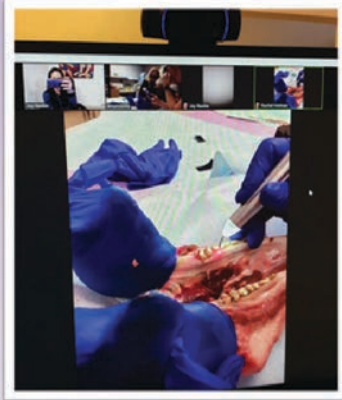
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Diode Laser Training and Certification

Live and Online Laser Training Courses Advanced Dental Hygiene



[AdvancedDentalHygiene.com](https://www.AdvancedDentalHygiene.com)



***WE ALSO OFFER
PRIVATE IN-OFFICE CONSULTING**

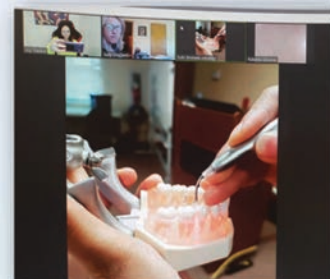
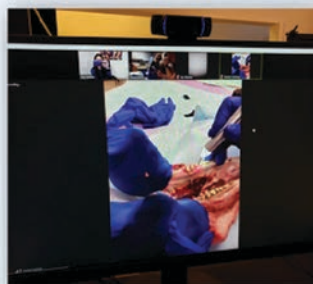
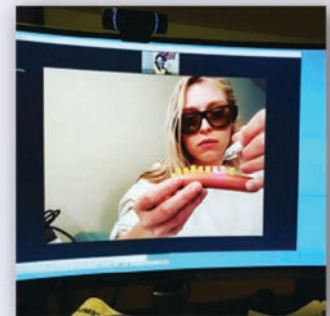
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12CE Online Laser Certification

**2 HOUR LIVE, HANDS-ON
WITH YOUR LASER
AT YOUR OFFICE/HOME**

**AFTER THIS COURSE, YOU WILL
IMMEDIATELY BE ABLE TO
IMPLEMENT LASER TREATMENT THE
VERY NEXT DAY**

CONFIDENCE



Research Articles

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