



Advanced Dental Hygiene presents:

ROLE OF LASERS IN HYGIENE

Presented by:

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Get to know me!



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OBJECTIVES



Gain an understanding of new trends with lasers, how lasers have transitioned over the years and explore current research into lasers in hygiene



Identify ideal patients for laser treatment, what kind of results to expect and how to increase profits utilizing lasers



Examine how lasers work and what lasers are doing inside the body to help patients achieve their best oral health



Master tips to effectively implement lasers into every hygiene schedule and how to elevate your current laser therapy plan by introducing advanced laser modalities



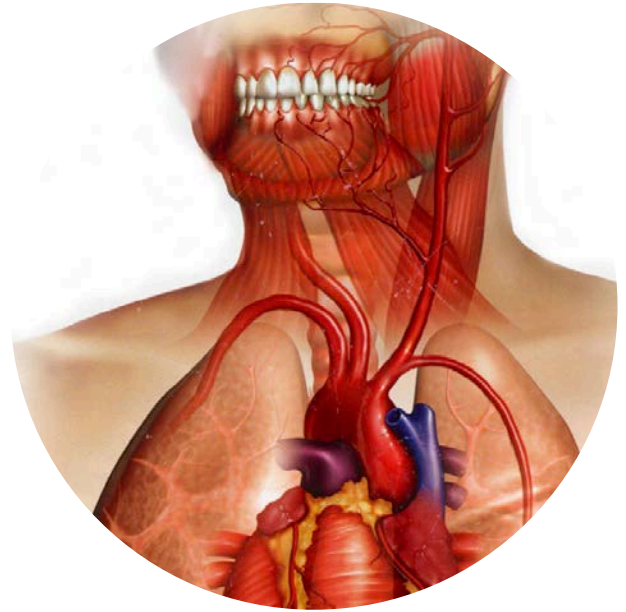
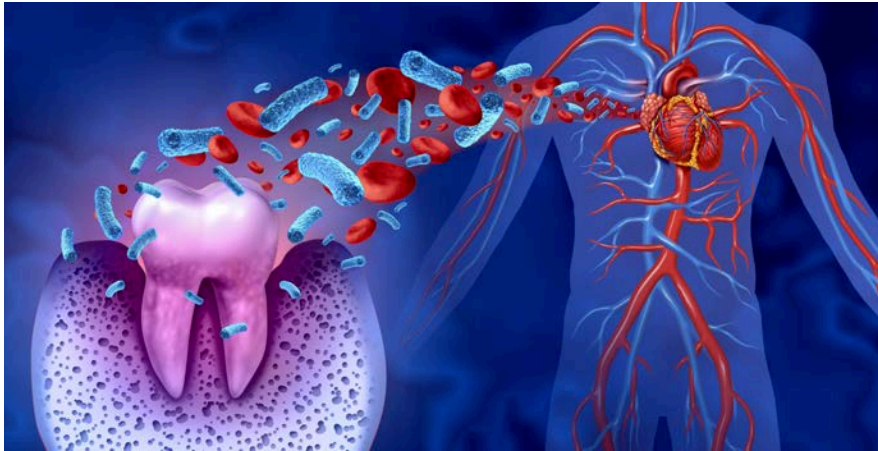
Gain an understanding of **NEW TRENDS WITH LASERS**



- **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!** – For all clinicians, Hygiene only lasers

MOUTH-BODY CONNECTION



- Hasturk, H., Kantarci, A. Activation and Resolution of Periodontal Inflammation and Its Systemic Impact. Periodontol 2000. 2015; 69(1): 255-273 doi:10.1111/prd.12105.
- University of Florida. (2005, March 31). Live Oral Bacteria Found in Arterial Plaque. ScienceDaily.
- Desvarieux, M., Demmer, R.T., Rundek, T., et al. Relationship between Periodontal Disease, Tooth Loss, and Carotid Artery Plaque: The Oral Infections and Vascular Disease Epidemiology Study (INVEST). Stroke. 2003; 34(9): 2120-2125. doi:10.1161/01.STR.0000085086.50957.22.
- Dhadse, P., Gattani, D., Mishra, R. The Link between Periodontal Disease and Cardiovascular Disease: How Far We Have Come in Last Two Decades? J Indian Soc Periodontol. 2010; 14(3): 148-154. doi:10.4103/0972-124X.75908.
- Fisher, M.A., Borgnakke, W.S., Taylor, G.W. Periodontal Disease as a Risk Marker in Coronary Heart Disease and Chronic Kidney Disease. Curr Opin Nephrol Hypertens. 2010; 19(6): 519-526. doi:10.1097/MNH.0b013e32833eda38.



30+ yrs = 47%
have Periodontitis



65+ yrs = 63%
has Moderate to Severe Periodontitis



ONE OUT OF EVERY TWO ADULTS HAS PERIODONTITIS

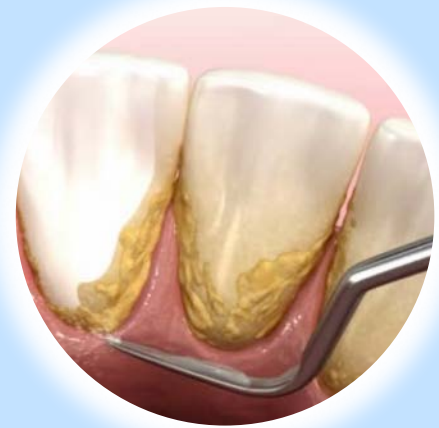


Eke PI, Dye BA, Wei L, Thornton-Evans GO, Genco RJ; CDC Periodontal Disease Surveillance workgroup: Prevalence of periodontitis in adults in the United States: 2009 and 2010. J Dent Res. 2012;91(10):914-920.

SCALING AND ROOT PLANING

- Conventional Gold Standard to treat periodontal disease
- Removes bacteria from the tooth
- Aim is to eliminate plaque/calc b/c they contain bacteria that release toxins that affect the gingiva and periodontal attachment

Coulibaly NT, Kone D, Kamagate A, Yao AI, Brou E. Etude de l'efficacité du curetage parodontal dans le traitement des poches [Efficacy of scaling and root planing in the treatment of periodontal pockets]. *Odontostomatol Trop*. 2002 Mar;25(97):17-21. French. PMID: 12061242.

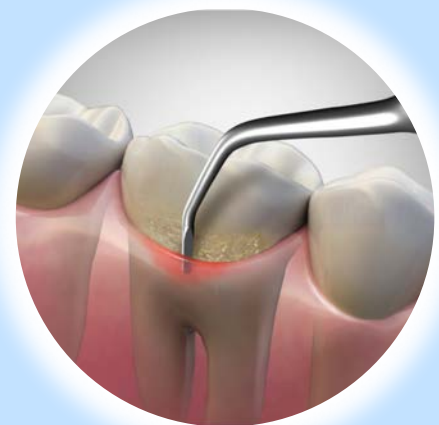


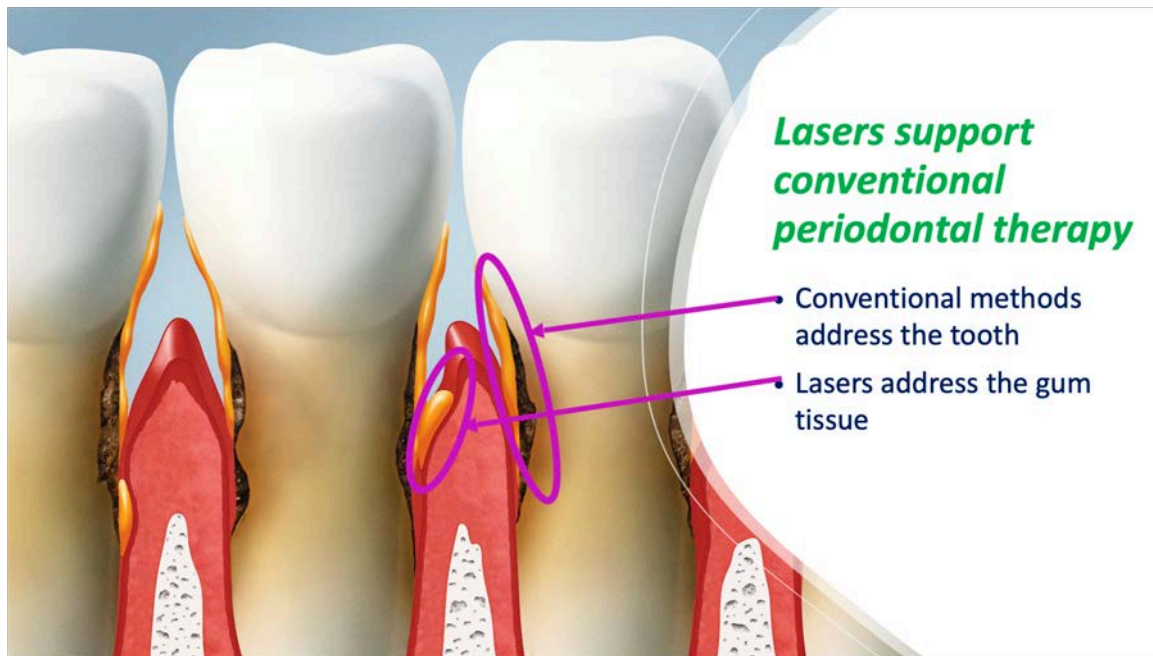
IS MECHANICAL INSTRUMENTATION ENOUGH?

- The combination of mechanized scaling and effective hand instrumentation in combination with adjunctive therapies affords optimal results
- "These results indicate that a single session of scaling and root planing is clearly insufficient to maintain a healthy subgingival microflora"

Torfason, T., Kiger, R., Selvig, K. A., & Egelberg, J. (1979). Clinical improvement of gingival conditions following ultrasonic versus hand instrumentation of periodontal pockets. *Journal of clinical periodontology*, 6(3), 165-176.

Sbordone, L., Ramaglia, L., Gulletta, E., & Iacono, V. (1990). Recolonization of the subgingival microflora after scaling and root planing in human periodontitis. *Journal of Periodontology*, 61(9), 579-584.





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

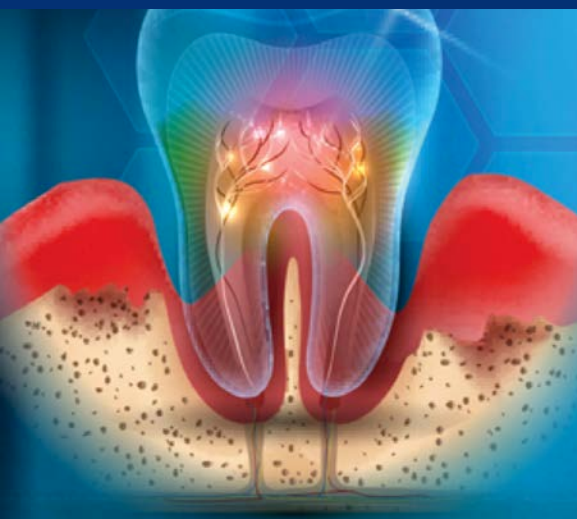
1. Fenol A, Boban NC, Jayachandran P, Shereef M, Balakrishnan B, Lakshmi P. A Qualitative Analysis of Periodontal Pathogens in Chronic Periodontitis Patients after Nonsurgical Periodontal Therapy with and without Diode Laser Disinfection Using Benzoyl-DL Arginine-2-Naphthylamide Test: A Randomized Clinical 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.

RESULTS WE SEE TYPICAL FEES

- Pocket reduction
- Gums heal quickly
- Bone regeneration
- Patients respond great



CAL ARTICLES AND LASERS



- 160 vertical bone loss defects randomly put into 2 groups – SRP | SRP+laser¹
- PI, BOP, GR, CAL, PD- all measured at 6 weeks, 12w, 18w, 6 months, 12 months¹
- Results – 76% of pockets in laser group had PD \leq 3mm after 1 yr compared to 56% in SRP only¹
- Total bacteria count significantly lower in laser groups at 12w and 6 mo follow up
- Specifically high decrease with *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Tannerella forsythia*, and *Prevotella intermedia*¹
- Conclusion – SRP + Laser has significantly reduced CAL and PD compared to SRP alone¹
- Diode laser group had significant improvement than non laser group²

1. Nammour S, El Mobadder M, Maalouf E, Namour M, Namour A, Rey G, Matamba P, Matys J, Zeinoun T, Grzech-Leśniak K. Clinical Evaluation of Diode (980 nm) Laser-Assisted Nonsurgical Periodontal Pocket Therapy: A Randomized Comparative Clinical Trial and Bacteriological Study. *Photobiomodul Photomed Laser Surg*. 2021 Jan;39(1):10-22. doi: 10.1089/photob.2020.4818. Epub 2020 Aug 31. PMID: 32865464.

2. Khan, Farheen; Chopra, Rahul; Sharma, Nikhil; Agrawal, Eiti; Achom, Maydina; Sharma, Preeti. Comparative evaluation of the efficacy of diode laser as an adjunct to modified Widman flap surgery for the treatment of chronic periodontitis: A randomized split-mouth clinical trial. *Journal of Indian Society of Periodontology* 25(3):p 213-219, May-Jun 2021. | DOI: 10.4103/jisp.jisp_252_20

LASER REGULATION IN THE USA

FDA (Food and Drug Administration) within them is the **CDRH (Center for Devices and Radiological Health)**

- Responsible for implementing and enforcing safety protocols for the various laser types and making sure all safety measures are being following
- Standardize the manufacture of laser products
- Owners manual instructs how to use the device for particular procedures and safety

OSHA (Occupational Safety and Health Administration)

- Federal gov agency. Primarily concerned with a safe workplace environment and worker safety



- 1.American National Standard (ANSI) for the Safe Use of Lasers Z136.1-2022; Laser Institute of America; Publisher
- 2.Barat, Ken. Laser Safety: Tools and Training. Boca Raton, Taylor & Francis Group LLC, 2014

WHO IS LASER SAFETY TRAINING FOR?

Detailed training in laser safety must be provided for all personnel using or working in the presence of class 3B & 4 lasers¹

Anyone that is associated with

- Operating the laser
- Prepping the laser
- Maintaining/servicing the laser
- Employers who are establishing proper laser safety policies and procedures and training programs

All training must be documented and documentation retained on file 1-2

REFRESHER TRAINING



- Retraining programs should be provided at minimum every 5 years (ANSI Z136.3 section 5.2.2)
- User that hasn't used laser in awhile might have forgotten
- User that uses laser daily may be more lax/complacent on safety duties and could use a refresher
- LSO determines intervals of retraining

LASER SAFETY OFFICER / LSO



- FDA mandates each organization has a Laser Safety Officer
- Make sure everyone is following safety guidelines
- Checks safety glasses/laser-in-use, environment of laser
- Does a safety audit at least 1x a year
- Keeps records of all employees training



Thank You!

I hope you had fun today and are now as excited about lasers as I am!!

Thank you for having me!

Let's create Excitement in your Dental Hygiene Practice with lasers?

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