

THE OFFICIAL NEWSLETTER OF ALD

LIGHTWAVES



May 2025 Volume 2

EDITOR'S LETTER

Dr. Ali Obeidi
Communication Committee Chair



Innovation, Expertise, and International Growth

As we welcome spring and move into the second quarter of 2025, I'm pleased to introduce another content-rich edition of Lightwave—one that reflects the Academy's growing commitment to clinical excellence, scientific inquiry, and global collaboration in laser dentistry. This issue continues to fulfill the vision shared by ALD President Dr. Altayeb: to make Lightwave a vital platform for education, connection, and professional growth among our diverse membership.


This edition is packed with meaningful contributions. We begin with Know Your Officer – Part One, an insightful interview with Dr. Altayeb, where he shares leadership reflections and his vision for the Academy. In our Research Corner, Dr. Harris presents a concise, compelling overview of the inhibitory effects of blue-wavelength lasers on bacteria and fungi—underscoring the intersection of photonic science and clinical relevance.

For those who were asking more clinical case presentations, this issue features several clinical highlights: Dr. Sun shares a compelling case on how photobiomodulation enhances healing post-oral surgery, while Dr. Altayeb presents a unique flapless approach to crown lengthening using the Er,Cr:YSGG laser. Dr. Romanos introduces an innovative method for treating hemangiomas—demonstrating how laser dentistry continues to push boundaries in patient care, and last but not least, our Hygienist champion, Lynn Atkinson, who delves into the diode laser management of oral lesions, paired with a clinical case. Her expertise and perspective continue to elevate the role of hygienists in laser-assisted care.

Dr. Graeber delivers the first installment of his two-part article, “The Secret Life of Diode Tips”—a practical guide to getting the most out of your diode lasers. Stay tuned for part two in our next issue—because when it comes to diode tips, apparently, there’s more than meets the eye!

Our international reach is also celebrated in this issue: Dr. Yap reports on the first-ever laser dentistry conference in the Philippines—an historic step in regional laser education—while Dr. Altayeb leads a spotlight on the ALD Fellowship Certification Course in Bahrain. These contributions reaffirm ALD’s mission as a global, bias-free, nonprofit leader in laser dentistry education, training, and certification.

Looking ahead, I encourage all members to register early for ALD’s 2025 Annual Conference, Certification & Exhibition, taking place September 4–6 at the Omni Shoreham in Washington, DC. This flagship event will feature hands-on training, educational lectures, industry exhibits, networking opportunities, and more.

We also invite all dental professionals—whether clinicians, researchers, or students—to participate in the 2025 ALD e-Poster Competition. Submit your abstract online by July 4, 2025, in one of two categories: Case Report or Research. Accepted submissions will be notified by July 24, 2025, and selected posters will be featured during the conference. This is a great opportunity to showcase your work to an international audience. For full details and the application portal, visit: 
<https://ald.memberclicks.net/2025callforabstracts#/>

A heartfelt thank you to all our contributors—and to Stephen and Michelle from the Goldman Group—for your creative talent, dedication, and attention to detail in designing and producing this issue for online publication.

As always, we encourage you—whether you're a member, enthusiast, student, or researcher—to share your work or thoughts with us. The submission deadline for the next issue is July 15, 2025.

Thank you for your support. Enjoy the issue—and we look forward to seeing many of you in Washington, DC!

Ali Obeidi, DDS, MSc, MS
Editor

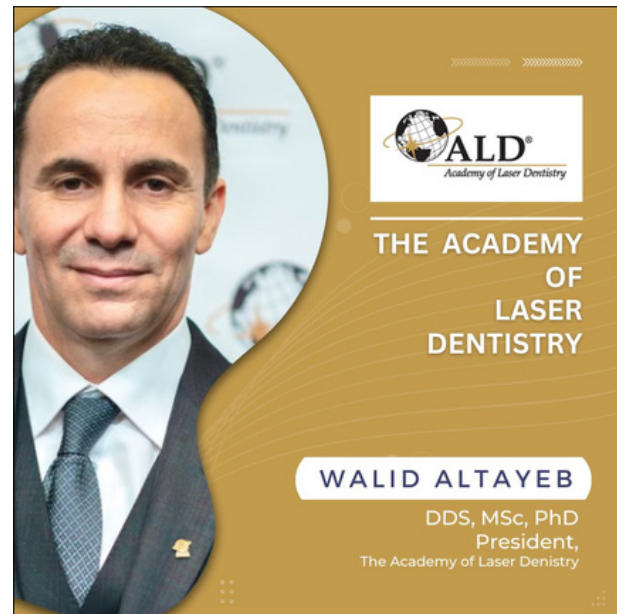
KNOW YOUR PRESIDENT

A Friendly Interview with the President of the Academy of Laser Dentistry, Dr. Walid Altayeb

PERSONAL & PROFESSIONAL BACKGROUND

Q3: Why do you believe laser dentistry is such a breakthrough in modern care?

Lasers are unique because they communicate with our biology. Unlike traditional tools, light interacts naturally with tissues—it's like speaking the same language. And with ongoing innovations, the possibilities keep growing. I truly believe laser dentistry is reshaping patient care by making procedures more precise, less invasive, and more effective.



YOUR ROLE AS PRESIDENT

Q1: What are your main responsibilities as ALD President, and how do you support the Academy's mission?

My role is all about teamwork—working with the board and committees to refine our strategy and stay ahead of the curve. I focus on trends in laser dentistry and anticipate what our members need to thrive. I also champion strong, evidence-based education and help set standards that push the field forward. My ultimate goal? Empower our members to grow professionally and stay inspired.

Q2: What initiatives are you most passionate about during your presidency?

Two things really drive me:

1. Elevating our educational programs with a strong emphasis on evidence-based clinical practice. So they're both practical and rooted in science. That means more hands-on training, promoting clinical research, and making sure what we teach truly applies to real-world dentistry.
2. Expanding ALD's global reach. I'm passionate about building international partnerships and launching regional chapters so we can share knowledge with a broader audience.

Q3: How do you keep collaboration strong among the board and members?

We foster open communication—regular board meetings, transparent agendas, and encouraging participation through committees and task forces. When people feel heard and valued, amazing ideas flourish.

LASER DENTISTRY TODAY

Q1: What advancements in laser dentistry excite you the most?

I'm really excited about Photobiomodulation (PBM)—how light can stimulate healing on a cellular level. But on a more clinical and personal level, I am enthusiastic about the advancements in laser protocols for the management of peri-implantitis. This “storm invading dentistry”, presents a significant challenge, and finding effective, minimally invasive solutions is crucial for the long-term success of dental implants.

Q2: What advice would you give to dentists thinking about incorporating lasers into their practice?

Start with knowledge before diving into the tools. Don't buy a laser just because it's trendy—learn the fundamentals first. Understand laser-tissue interaction, safety, and clinical applications. Once you're educated, use the laser regularly in your practice. Like any tool, mastery comes with consistent use. And remember, this field evolves fast—commit to lifelong learning.

Q3: How does ALD help its members stay updated?

We offer structured education at every level—Standard, Fellowship, and Mastership—free from commercial influence. Members can attend conferences, hands-on workshops, webinars, and even participate in research. Plus, our community is incredibly welcoming—it feels like family. There's always someone to learn from and lean on.



COMMUNITY & CONNECTION

Q1: How important is member engagement, and how can members get involved?

Member engagement is the heart of ALD. There are so many ways to get involved: attend conferences, join committees, mentor others, nominate peers for awards, or simply share your experiences. Every voice matters and helps shape the Academy's future.

Q2: Can you share a proud moment that highlights ALD's impact?

Absolutely—the graduation of over 150 advanced laser practitioners (Fellowship and Mastership) in just the last three years. That's a huge milestone! What's even more exciting is that many of these graduates have become educators themselves, spreading their knowledge within their communities and beyond.

Q3: What would you say to someone thinking about joining ALD?

Joining ALD means joining a community dedicated to excellence in laser dentistry. You'll get access to top-tier education, connect with passionate professionals, and gain tools that immediately benefit your patients and practice. It's truly a smart move for any dentist serious about growth.

PERSONAL REFLECTIONS

Q1: What personally motivates you in your work with ALD?

I'm driven by a deep belief in progress—and the power of education to change lives. Working with the Academy gives me the chance to uplift others, share knowledge, and help shape the future of this incredible field.

Q2: How do you juggle all your professional roles with your personal life?

It's definitely a balancing act. Between my clinic and the Academy's many activities—including a lot of travel—I rely on careful planning and a very supportive family. I do try to sneak in some football (soccer) when I can. Sometimes I joke that football is the real sacrifice this busy schedule! I try to give it some playing time whenever I can, though!



Q3: What would you say to someone thinking about joining ALD?

Joining ALD means joining a community dedicated to excellence in laser dentistry. You'll get access to top-tier education, connect with passionate professionals, and gain tools that immediately benefit your patients and practice. It's truly a smart move for any dentist serious about growth.

✨ FINAL WORDS FROM THE PRESIDENT

“As we move forward together, I hope to see our Academy grow stronger as a hub of innovation, collaboration, and support. My dream is for every member to feel empowered, inspired, and proud to be part of this vibrant community. Let's keep pushing boundaries—together.”

CALL TO ACTION



If you're not already involved, now is the time!

👉 Join the Academy of Laser Dentistry and be part of a global family committed to shaping the future of dental care.

- ✓ Connect with experts
- ✓ Stay ahead with continuing education
- ✓ Make your voice heard in shaping our profession

Visit www.laserdentistry.org and follow ALD on social media to get started.

Let's grow the future of laser dentistry—together.



CONFERENCE SPOTLIGHT

Todd Goldman, Executive Director



You Don't Want to Miss Our Annual Session!

The ALD Annual Meeting has made great strides over the past few years and our event in Washington, DC is just proof of that. If you are looking for education on a variety of laser topics and wavelengths, there is no better event to attend than the 32nd ALD Annual Conference and Exhibition.

The poster features a background with a stylized American flag motif. On the left, there is a silhouette of the Washington, D.C. skyline. The text is arranged as follows:

- Top Left:** ALD[®] Academy of Laser Dentistry logo, featuring a globe icon.
- Top Center:** Large "2025" with a star replacing the zero.
- Top Right:** "ALD 32 YEARS 1993-2025" logo.
- Center:** "Empowerment & Collaboration in DC" in large, bold, black letters.
- Below Center:** "Academy of Laser Dentistry Annual Conference, Certification & Exhibition" in smaller text.
- Bottom Left:** "SAVE THE DATE!" in bold, white letters on a dark blue background.
- Bottom Right:** "September 4-6, 2025" and "Omni Shoreham, Washington, DC" in white text, with a red wavy line graphic above the date.

This year the ALD will offer two different certification sessions, educators on CO2, Nd:Yag, Erbium and Diode lasers. We have not seen such a full breadth of laser CE in many years and the ALD leadership is charting a new path with ALD 32.

The speakers are second to none in the laser dentistry and whether you are a Restorative Dentist, Periodontist, Pedodontist, Orthodontist or Endodontist there is something for you. From lectures to hands-on this meeting offers the best and the brightest.

★★★★★
SPEAKERS

 GRACE SUN	 RICHARD MIRON	 ALI OBEIDI	 ISLAM KASSEM	 DAN MCNEFF	 SALEH ARIA
 MARINA POLONSKY	 JOHN GRAEBER	 ISAAC KABLY	 JUSTIN KOLNICK	 PAUL CHANG	 EDWARD KUSEK
 MEHRDAD FAVAGEHI	 TOSUN TOSUN	 NATALIA ELSON	 JULIA KOZLOVA	 SANTOSH PATIL	 RISHITA JAJU



And we are not leaving out our dental hygienists. There are two days of education for you and two different choices for certification that should fit your schedule.

And for those who want to see the sites we have some great events planned; from an embassy tour, to the Smithsonian to a tour of the capitol highlights.

We look forward to seeing you in DC for a very memorable event.

POSTER COMPETITION

Academy of Laser Dentistry
Annual Conference, Certification, & Exhibiton

Invitation

INVITATION TO PRESENT AT THE 2025 ACADEMY OF LASER DENTISTRY ANNUAL CONFERENCE

The Academy of Laser Dentistry is excited to invite students and residents (all dental professionals and educators) to showcase their clinical knowledge and skills in laser dentistry by presenting an e-poster at the 2025 ALD Annual Conference, held from September 4-6, 2025, at the Omni Shoreham Hotel, Washington, DC.

This is a unique opportunity to share your research, innovative techniques, or compelling case studies with fellow students, faculty, and dental professionals from around the world.

TWO POSTER COMPETITION CATEGORIES

1. Case Reports
2. Original Research (Research can be or has been published)

DURING THE 2025 ALD CONFERENCE

A panel of judges will evaluate the e-poster presentations, and the top three will receive cash awards:



\$1,500



\$1,000



\$500

Participants will receive a special discount on ALD Annual Conference registration fee and hotel.

We encourage students, residents, researchers, educators, dentists, & dental hygienists to take advantage of this exciting opportunity to contribute to the future of dental laser education & research!

POSTER COMPETITION

Academy of Laser Dentistry
Annual Conference, Certification, & Exhibition

e-Poster Presentation

Date of Program: September 4-6, 2025

Location: Omni Shoreham, Washington, DC

2025 ACADEMY OF LASER DENTISTRY ANNUAL CONFERENCE, CERTIFICATION & EXHIBITION

How to Apply:

1. **Online Submission Only:** Complete the application and abstract form available at <https://acld.memberclicks.net/2025callforabstracts#!> by July 4, 2025. Incomplete applications will not be considered.
2. **Deadline:** Submissions must be received by 11:59pm EDT on July 4, 2025. Late submissions will not be accepted.
3. **Review Process:** Submissions will be reviewed by the ALD Conference Committee for relevance and quality. Applicants will receive an acceptance or rejection email by July 24, 2025. Please do not contact the ALD before this date regarding your status.
4. **One Submission per Participant:** Only one e-Poster application per main author will be accepted.
5. **Submission Categories:**
 - a. **Case Report:** Detailed report on an individual patient's symptoms, diagnosis, treatment, and follow-up.
 - b. **Research** (Basic Science or Clinical): Process of identifying a problem, collecting data, and testing a hypothesis.
6. **Abstract Requirements:**
 - a. **Research Abstract** should include:
 - i. Objectives
 - ii. Material and Methods
 - iii. Results, including data/statistics
 - iv. Conclusions (must be final and complete)
 - b. **Case Report Abstract** should include:
 - i. Rationale for the case and its significance
 - ii. Diagnosis and etiology
 - iii. Treatment options and outcomes
 - iv. Conclusions (must be final and complete)
7. **Acknowledgement of Financial Support:** If applicable, include details of financial support (source, amount, and grant number).
8. **Confidentiality:** By submitting an e-Poster, the applicant acknowledges that all information is free from confidentiality restrictions and may be discussed and disseminated without limitation.

Important Dates

Application Deadline: July 4, 2025

Acceptance Notification: July 24, 2025

ALD - SOUTH EAST ASIA CONFERENCE REPORT

Dr. Maria Judith Del Rosario-Yap
*ALD Board of Directors,
Director at Large
General Chairman,
1st ALD SEA Conference*



THE FIRST ALD SOUTH EAST ASIA CONFERENCE: LIGHTING ACROSS ORAL SPECIALTIES



The first-ever Academy of Laser Dentistry Southeast Asia Conference was a resounding success, uniting dental professionals & experts, from across the region to explore the transformative potential of laser technology in dentistry. Held on February 17-18, 2025 at Manila, Philippines the event offered a perfect blend of cutting-edge education, cultural showcases, and unforgettable experiences.

The conference kicked off with a spectacular & jaw-dropping opening ceremony that set the tone for an unforgettable event. Attendees were mesmerized by a stunning laser light display that illuminated the venue, accompanied by captivating songs, violin, and dance performances. The vibrant and artistic display was a perfect representation of the precision, elegance, and transformative power of laser dentistry.

The conference delivered mind-blowing lectures from 7 esteemed speakers starting with our ALD President Dr. Walid Altayeb, Dr. Arun Darbar, Dr. Grace Sun, Dr. Yue Weng Cheu, Dr. Saleh Aria, Dr. Julia Koslova & Dr. Iman Kusumadirja, who shared their extensive expertise and insights on the latest advancements in laser dentistry. Attendees were enlightened by sessions covering soft and hard tissue applications, pain management, minimally invasive treatments, and laser protocols—all designed to elevate clinical practice and enhance patient care.

The unforgettable Gala Dinner was a magnificent showcase of Philippine culture that left a lasting impression on all attendees. The evening featured breathtaking dance performances that brought the rich heritage of the Philippines to life, offering a perfect blend of cultural immersion and celebration. The vibrant performances, delicious cuisine, and lively atmosphere made it an unforgettable night of connection and celebration.

The inaugural Academy of Laser Dentistry Southeast Asia Conference was truly a milestone event, setting a high standard for future conferences. With inspiring presentations, hands-on learning, and cultural showcases, it underscored the importance of laser technology in modern dentistry and left participants eager for more.

A heartfelt thank you to the dedicated organizing committee of the ALD Philippines Study Club, our esteemed ALD speakers, dear sponsors, and all attendees who made this event a remarkable success. Your support, passion, and dedication have paved the way for the continued growth of laser dentistry in the region.

A huge shoutout to our hardworking and dedicated organizing team for making this event such a massive success. From seamless planning to engaging sessions, every detail was executed flawlessly, creating an unforgettable experience for all attendees.

My heartfelt thanks to all of those who made this conference happened especially to my excellent & St. Clare family who worked so hard behind the scene.

We are now looking ahead as plans are already underway for the next Academy of Laser Dentistry Southeast Asia Conference, promising even more exciting opportunities to learn, connect, and shape the future of dental care. Stay tuned for updates and prepare to be part of this transformative movement in dentistry!

Maria Judith Del Rosario-Yap, DDM, MSc
General Chairman, 1st ALD SEA Conference

Conference organizers in a glance:

Regcom- Dr. Madel Manalapas, Dr. Luz Dizon, ChinChin Del Rosario, Annabelle Geslani.

PromCom: Dr. Annette Delos Santos, Dr.Cecille Dancel

Opening Ceremonies:- Dr. Giselle Yumul

Gala Night: Dr. Carol Franco, Irish Ramirez

Scientific Comm: Dr. Debbie Sablada

Kits Com: Dr. Candy Rose Pangan, Dr. Evelyn Velasquez

Trade exhibits: Dr. Juna Velasco

Awards: Dr. Wilma Del Valle, Dr. Clare Escoto

Ways & Means: Dr. Karla Obligacion, Rose Pineda

Social Media Editor: Leoj Dominguez

Deputy Chairman: Dr. Noemi Pato

General Chairman: Dr. Maria Judith Del Rosario- Yap

BAHRAIN FELLOWSHIP PROGRAM

*Dr. Walid Altayeb
ALD Board of Directors, President*




The second batch of the Academy of Laser Dentistry fellowship program commenced in Bahrain on April 10, 2025. Twenty dentists practicing participating in this program. The opening module, covering standard Level Laser course and esthetic periodontology, was presented by Prof. Walid Altayeb.



APRIL 2025


The subsequent module will be led by Professor Giovanni Olivi in May 9, 2025. This educational initiative is organized by Learnovate in collaboration with the Gulf Laser Chapter and is sponsored by Pioon, Medency, and Elexxion.

In collaboration with the Gulf Laser Chapter



BAHRAIN FELLOWSHIP PROGRAM

Lecture & Hands-On



Giovanni Olivi, MD, DDS

2025
May 9
Bahrain

Sponsored by:
Pioon, Medency, & Elexxion
Organized by:
Learnovate Management Company W.L.L.



RESEARCH CORNER: BLUE LIGHT PHOTOINACTIVATION

Dr. David Harris, MS, PhD
Science and Research Committee

Advances in diode engineering have provided a new band of wavelengths for medical applications: violet-blue light in the range of 400nm to 460nm. Basic research on low-level photoinactivation has identified the molecular mechanism underlying bacterial reduction following blue light exposure. Briefly, blue photons are absorbed by the primary absorption band of endogenous porphyrins and other chromophores. A Type I or Type II biochemical reaction generates toxic singlet oxygen that attacks the external membrane of the host cell.

Bacteria and fungi contain a variety of these chromophores in various concentrations. Although it is good to know the molecular mechanism of action, the clinical target is actually the organism. We did spectroscopy of several pathogens to determine which species were

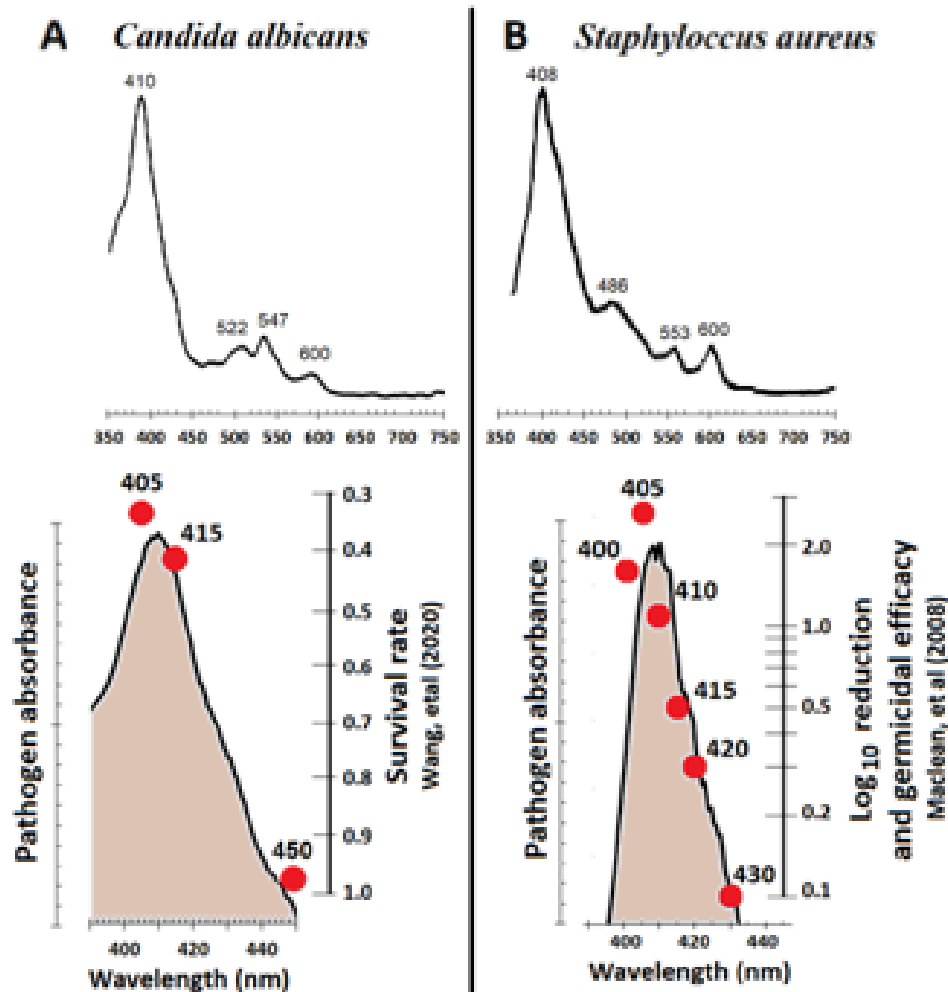
sensitive to this therapy, to identify the appropriate clinical dosimetry, and to bridge the gap from bench to bedside. These spectra indicate that pathogen absorbance is directly related to inverse survival rate, bacterial reduction and germicidal efficacy.

Cutibacterium acnes contains an abundance of porphyrins and acne vulgaris has been treated by dermatologists for decades using a Wood's Lamp; now, high power diodes provide a better and safer light source. In UK and Europe blue light is being added to overhead lighting to decrease the bacterial load in high occurrence locations like burn centers and culture workstations. High intensity blue light can also be used for selective photothermolysis of vascular and pigmented targets and for rapid curing of composites.

DMH 04/04/2025

A. The primary spectral component of *C. albicans* is compared to *C. albicans* survival rate following treatment with three different wavelengths. Greater relative absorbance relates to lower survival rates (red circles). (Survival data from Wang, et al 2020)

B. The primary spectral component of *S. aureus* is compared to the germicidal efficacy of a series of narrow band blue lights centered at the indicated wavelengths (other red circles). (Bacterial reduction data from Table 1, Maclean, et al 2008)



Harris, DM (2023). Spectra of Pathogens Predict Lethality of Blue Light Photo-inactivation. Laser Therapy, 30(1). <https://doi.org/10.4081/ljt.2023.314>.

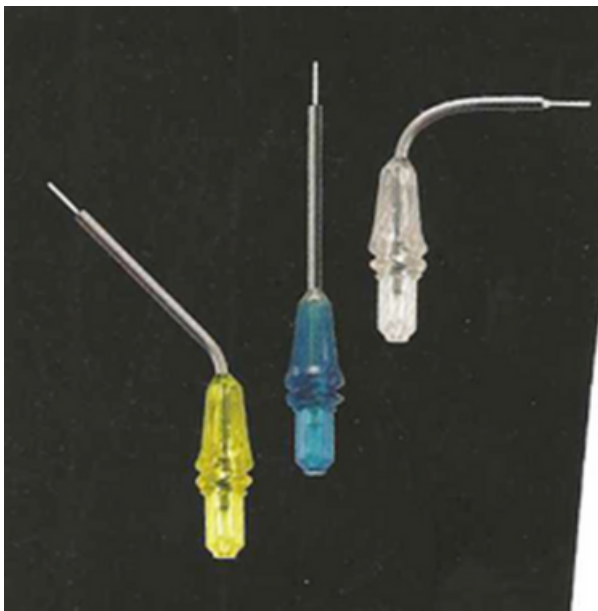
THE SECRET LIFE OF DIODE LASER TIPS

Dr. John J. Graeber

PART ONE Understanding Disposable Diode Laser Tips – Structure, Selection & Use



In the evolving landscape of diode laser technology, the introduction of disposable tips has greatly enhanced clinical convenience and consistency. While the core of all fiber optics remains quartz glass—flexible yet fragile—what truly sets modern systems apart is how these fibers are integrated into the handpiece and treatment protocol.



Most diode laser fibers are 100 microns in diameter and encased in a cladding layer designed to guide light energy efficiently. When activated, photons travel through these fibers at the speed of light—about 186,000 miles per second—and exit precisely at the fiber's tip.



Disposable Tips: Options & Advantages

These tips are designed to fit onto reusable, sterilizable handpieces. Typically, they come in diameters of 200, 300, or 400 microns and range in length from 5 mm to 9 mm. The choice of diameter and length has direct clinical implications:

- Shorter tips are stiffer, giving better surgical control.
- Longer tips offer more flexibility.
- Thinner fibers (e.g., 200 microns) are ideal for delicate tissue and make finer incisions.
- Thicker tips (e.g., 300–400 microns) provide better handling for periodontal procedures.

When switching tip sizes, it's crucial to adjust your power settings. A smaller fiber increases power density, while a larger one decreases it. This balance ensures both safety and effectiveness.

Why a Flat Tip Surface Matters

For optimal performance, the fiber tip should be flat, allowing collimated (parallel) light emission. This is especially important in low-powered diode lasers. Any debris or damage to the tip can scatter photons, reducing efficiency. The aiming beam, usually a red-orange light between 530–660 nm, helps visually confirm beam focus and density on a light-colored surface.

Cleaving vs. Disposable Tips

Traditional fiber systems require "cleaving" the fiber before each use—a process that isn't always consistent and can lead to sharp shards or uneven surfaces. Disposable tips eliminate this uncertainty. However, when using trunk fibers, proper cleaving technique involves a precise scratch followed by a clean snap for a flat cut.

Initiating the Tip

Diode lasers require tip initiation for surgical procedures. The best method? Using blue articulating paper laid flat on a light surface. Fire the laser at 1.0W continuous mode for about a second. Avoid mylar paper—it can catch fire—and don't apply ink to the side of the fiber, as this can damage the cladding.

Stay Tuned for Part Two!

In the next installment, we'll explore real-time clinical techniques, tissue responses to laser energy, maintenance tips for optimal performance, and why correct power calibration is essential to safe and effective outcomes. Don't miss it!

CLINICAL CASE REPORT



Er,Cr:YSGG Laser-Assisted Flapless Esthetic Crown Lengthening

Walid Altayeb, DDS, MScD, PhD

This report documents the use of Er,Cr:YSGG laser in flapless crown lengthening for the esthetic rehabilitation of a 42-year-old female. This minimally invasive procedure, followed by restorative work, achieved precise gingival recontouring, bone ablation, and enhanced smile aesthetics. The case demonstrates the technique's advantages, including predictable results, minimal trauma, and accelerated healing.

Patient Presentation

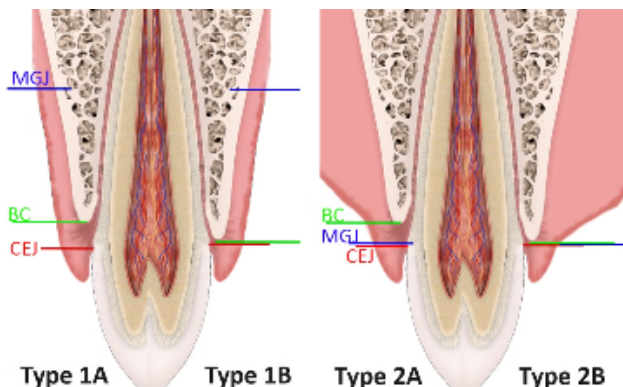


The patient exhibited a high smile line with excessive asymmetrical gingival display and short clinical crowns of maxillary teeth



The aesthetic harmony of the upper anterior teeth was compromised by a lack of adherence to the golden proportion, irregular size and length of the centrals, and asymmetrical gingival contours and zeniths.

Diagnosis



Altered Passive Eruption
Type 1B, An esthetic crown lengthening including bone resective surgery was indicated



Adequate attached gingiva and the bone crest was located less than 2 mm apical to the cemento-enamel junction.

Treatment Planning

Phase 1:

Flapless Esthetic Crown

Lengthening with Er,Cr:YSGG 2780 nm Laser: This minimally invasive procedure will allow the surgical repositioning of the gingival margin in order to obtain an esthetic smile and create a symmetrical and harmonious relationship between the gingival architecture and the positions of the maxillary teeth.

Phase 2:

Esthetic Restorative Procedures:

3 months following healing from the crown lengthening, we will perform restorative procedures (crowns, veneers) to enhance the shape, size, and color of the teeth.

Laser Parameters

Gingivectomy

MZ6-9 mm tip (average power 3 W, frequency 50 Hz, pulse duration 60 μ s, W20/A20).

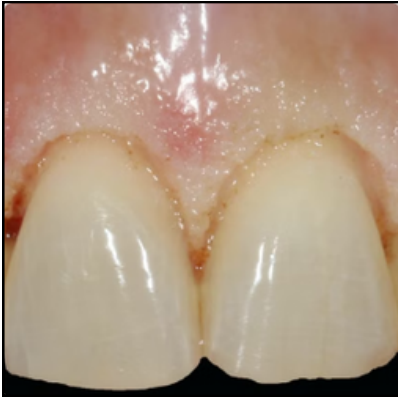
Flapless osteotomy

MC3 sapphire chisel tip (average power 4 W, frequency 20 Hz, pulse duration 60 μ s, W80/A20).

Bone Smoothing

MZ6-14mm tip (average power 3W, frequency 30 Hz, pulse duration 60 μ s, W80/A20).

Surgical Procedure Details



Gingivectomy

The soft tissue was ablated in a sweeping motion from mesial to distal level to the desired points with the cylindrical laser tip almost parallel to the tooth axis.



Bone Sounding

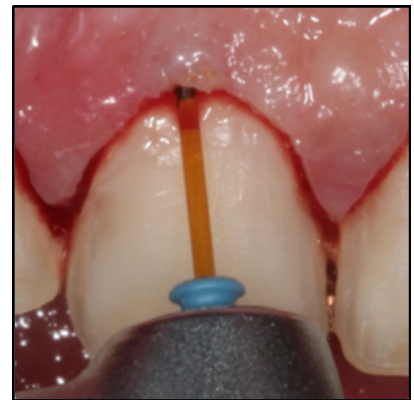
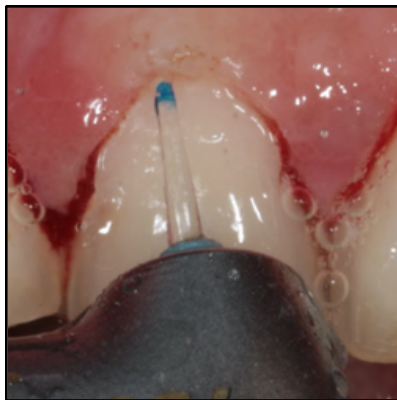
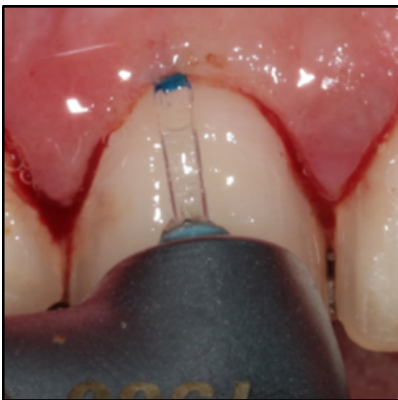
The level of the alveolar crest was estimated by transgingival sounding.



Flapless Osteotomy

Calibrating the sapphire chisel tip at 3 mm to satisfy dentogingival complex dimension.

Flapless Osteotomy Steps

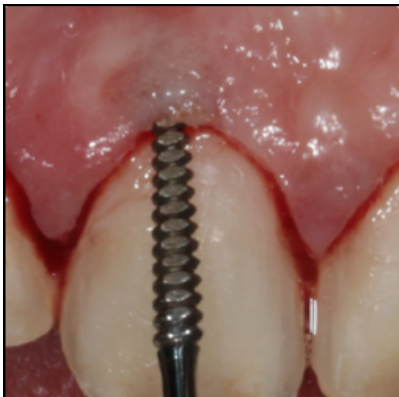


The intrasulcular soft tissue was ablated down to the bone crest form a pouch using a sapphire chisel tip that was applied parallel to the long axis of the tooth and the long exit surface of the tip in a mesio-distal direction. the tip was advanced apically to its full 3-mm marked length.

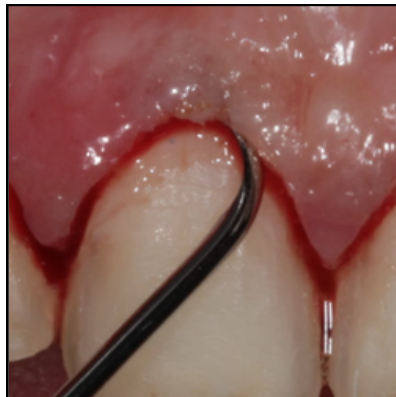
The laser tip was applied with its long exit in a bucco-palatal direction “walking” over the bone crest; this direction of the tip will ensure removing the trough if it forms, especially in thick bone.

The crestal portion of the labial cortical plate was recontoured and smoothed with a sweeping motion, with the cylindrical tip moving laterally from mesial to distal, following the CEJ contours through the sulcus to a depth of 3 mm from the new free gingival margin..

Flapless Ostectomy Steps



The possible bone roughing and irregularities were smoothed by using a manual bone file.



Root planning was done with Gracey's curettes.



After ostectomy, establishing a 3-mm a healthy biological dimension of the dentogingival complex.

Postoperative Care and Follow-up

Medication

Antibiotic prophylaxis (Amoxicillin/clavulanic acid 1g every 12 hours for 7 days), pain management (Ibuprofen 400 mg, as needed). Chlorhexidine rinses twice daily for 10 days.

Follow-up Appointments

Scheduled at 7 days, 1 month, and 3 months post-surgery.

Final Restoration

Esthetic restoration was planned after 3 months of the periodontal surgery.



Healing

The clinical appearance of the gingiva at 1-month postoperative follow-up. Uneventful healing with minimal postoperative complications.

Treatment Outcomes



Following three months of complete, complication-free healing with well-attached and stable gingival margins, the final restorations were placed, achieving satisfactory functional and esthetic outcomes.

Dr. Mohamad Hayati Aliet performed the esthetic restorations utilizing ceramic veneers.

Advantages of Er,Cr:YSGG Laser in Crown Lengthening Surgery:

- Minimally invasive and precise tissue management
- Reduced intraoperative patient anxiety, pain, and discomfort
- Laser homeostasis that improves visibility
- Reduced collateral damage to surrounding tissues
- Bactericidal effects create a disinfected surgical field
- Reduced post-operative complications
- Faster and improved periodontal healing compared to traditional methods
- Positive and immediate patient esthetic outcomes
- Predictable and stable periodontal tissue positioning following crown lengthening surgery

Conclusion & Future Implications

This case report demonstrates that Er,Cr:YSGG laser technology offers a reliable and minimally invasive method for flapless crown lengthening. These advantages highlight the clinical value of laser technology in periodontal surgery, offering dentists a less invasive and potentially more comfortable treatment option for their patients.

CLINICAL CASE REPORT

Diode Lasers in the Treatment of Lip Hemangiomas: A Minimally Invasive Approach

Georgios Romanos, DDS, PhD, Prof Dr med dent



Hemangiomas are benign vascular tumors caused by an abnormal buildup of blood vessels.

Commonly appearing in infancy or early childhood, they often manifest as reddish or purplish lesions on the skin or mucosa. In the oral cavity—particularly on the lips—hemangiomas and other vascular malformations can be not only aesthetically concerning but also prone to bleeding, ulceration, or discomfort during routine functions like eating or speaking.

Traditionally, treatment options for hemangiomas have included corticosteroid injections, surgical excision, cryotherapy, or sclerotherapy. While effective in some cases, these methods can be invasive, carry risks of scarring, require multiple sessions, or lead to recurrence. Surgery, in particular, poses a bleeding risk due to the highly vascular nature of the lesions and may not always yield satisfactory cosmetic outcomes.

In recent years, high-power diode lasers have emerged as a valuable therapeutic alternative. These lasers offer precision, control, and most importantly, coagulative capabilities that reduce intraoperative bleeding. This is especially advantageous for vascular lesions on the lips, where bleeding control and cosmetic healing are critical.

One technique showing promising results is the Ice-cube laser method. This method uses a diode laser to photocoagulate the hemangioma, essentially dehydrating the lesion from within and collapsing the abnormal vessels. Multiple

case studies have demonstrated complete resolution of lip hemangiomas using the Ice-cube laser method, with minimal discomfort, no recurrence, and excellent healing—often without the need for sutures or anesthesia.

Patients tolerate laser therapy well, and postoperative recovery tends to be smooth, with a reduced risk of infection and virtually no scarring. Moreover, diode lasers allow for selective targeting of vascular tissue while sparing surrounding healthy structures, preserving both function and appearance.

In summary, diode laser therapy—particularly with the Ice-cube laser method—offers a safe, effective, and patient-friendly solution for managing hemangiomas in the oral cavity. As clinical experience and case data continue to grow, laser treatment is becoming a preferred choice for clinicians aiming for minimally invasive and aesthetically favorable outcomes.

CASE REPORT:

The treatment occurred using a 980nm diode laser with pulsed 4 W power setting and non-initiated tip utilizing the ice-cube technique.

The method and specific protocol was described in various publications (Romanos, 1999; Romanos, 2021). A topical anesthesia was used with benzocaine over the soft tissue tumor for 1-2 min. before laser irradiation.

a



b



The ice was placed over the hemangioma under compression to create a flat surface and the laser fiber was in contact with the ice during irradiation (b). The laser light was able to coagulate and shrink the vascular lesion within a 20–60 sec.(c)

Postoperatively, no additional therapy was required. The follow up clinical photograph after one year shows no clinical evidence of the vascular lesion (d).

c



d



CLINICAL CASE REPORT



PBM on Wound Care

Grace Sun, DDS

This article presents improvement of post-operative cancer surgery healing using Photobiomodulation (PBM).

According to Traditional Chinese Medicine (TCM) principles, patients with depleted energy, indicated by delayed healing and prolonged. According to the author's personal experience, PBM can improve healing and reduce and relieve discomfort by compensating the lost energy in the tissue. The PBM protocol was introduced as part of a home care protocol, and may vary depending on the patient's physical condition. Clinical symptoms, will benefit from more frequent PBMT, preferably daily, under professional supervision.

Case 1 is about a prolonged wound healing after surgical biopsy, PBM was incorporated to improve healing and reduce discomfort.

69-year-old, Caucasian male, former smoker and social drinker, presented with a 5.5 mm raised, well-defined, rounded growth on the palate during a regular visit.

Excisional biopsy was prescribed for final diagnosis, patient consented for the treatment. After local anesthesia, biopsy was performed using a #15 scalpel, including a margin around the lesion, ER: YAG laser, 30 Hz at 50 mJ, no water used to create bandage effect, and Photobiomodulation (PBM) with 6 J/cm² using 810 nm Diode.

Topical application of Vitamin E and Canker Sore Be Gone; cream. Healing is expected within one week.

Although the clinical manifestation was more toward a benign lesion, but the pathology report revealed a more concerning diagnosis as “Adenocarcinoma” , intermediate grade.

This clearly shows how it is crucial to have an oral pathology report for any oral lesion biopsy.

Patient was referred to to head and neck surgeon for further evaluation.

Patient underwent more extensive secondary biopsy surgery and graft harvest from the cheek and retromolar pad. (Figure 3) Graft protected with palatal obturator for first intention wound healing.(Figure 4) Patient came back for two weeks post-op, graft tissue began to slough off, and wound exposure indicated secondary healing (Figure 5).

Follow up visits twice a week were done and in each visit PBM treatment provided with 6 J/cm² using 810 nm Diode. (Figure 5-Figure 6). Then after one month the follow ups were done on weekly basis. Pictures were taken 1 month and 3 months apart. (Figure 7) After 3 months, patient was back on routine every 6 months visits.

In summary:

Laser technology can assist in performing the procedure with greater ease, but the surgical principles should still be respected and followed. During wound healing, patients experience less discomfort when photobiomodulation therapy is applied. After post-surgical recovery, it is important to continue PBM therapy, as it is known to enhance wound healing, promote angiogenesis, boost cellular regeneration, and reduce inflammation.

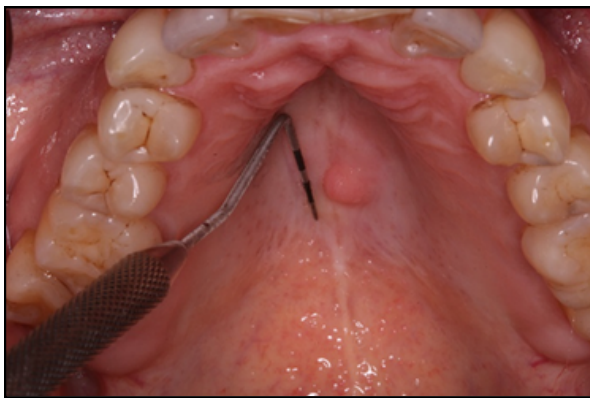


FIGURE 1

During a routine dental checkup, a 5.5 mm raised, well-defined, rounded growth was noted on the palate. The initial impression was a giant cell fibroma.



FIGURE 2

Excisional Biopsy was performed with a #15 scalpel, including a margin around the lesion. Laser treatment was an ER: YAG laser, 30 Hz at 50 mJ, no water used to create bandage effect. Oral pathology report confirmed adenocarcinoma. Patient was referred to a Head and Neck Surgeon.



FIGURE 3

More extensive second surgery done with Head and Neck Surgeon and tissue graft performed and harvested from retromolar pad. At the same time, patient were instructed to wear an obturator as first intention wound healing.



FIGURE 4

At the first 2 weeks PO visit after the 2nd surgery, the graft tissue was sloughing off.



FIGURE 5

At the first 2 weeks PO visit, the tissue graft was cleaned and present as secondary intention wound healing. Patient was experiencing discomfort and PBM treatment provided with 6 J/cm² using 810 nm Diode. Patient was instructed to visit my office weekly for post-operative wound care with PBM. Twice weekly follow-up in office visits for ongoing monitoring and care until 1 month then changed to weekly follow-ups.



FIGURE 6

After 6 weeks post-op, patient continued with the wound care in office for PBM and used Vitamin E and sockit gel in home for further healing. Patient's experience with discomfort became minimal since provided PBM treatment.

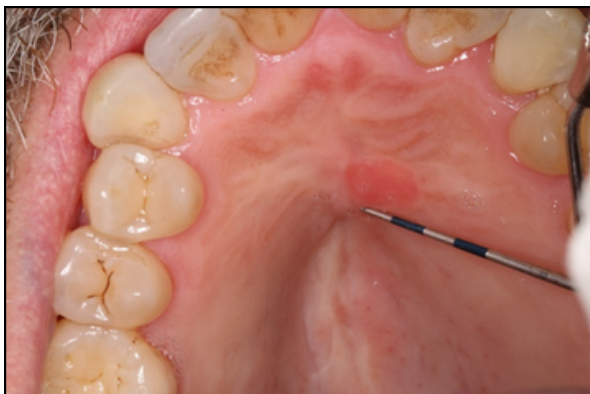


FIGURE 7

1 year post op.



FIGURE 8

3 years post-op. .

HYGIENE CASE REPORT

Photobiomodulation Using Diode Laser in the Management of Oral Lesions: A Case-Based Approach

Lynn Atkinson, RDH



Recurrent oral lesions, such as aphthous ulcers and herpes simplex virus (HSV) infections, are common yet challenging conditions in dental practice. Traditional pharmacological management may provide symptomatic relief but often fails to significantly accelerate healing or prevent recurrence. Laser therapy, particularly photobiomodulation (PBM) with diode lasers, offers an evidence-based adjunct or alternative approach, promoting faster healing, pain reduction, and improved patient comfort.

Mechanism of Action:

Photobiomodulation with Diode Lasers

PBM is a process in which low-level light (typically in the range of 600–1000 nm) is absorbed by chromophores within the cells, leading to photophysical and photochemical events that enhance

cellular function. Key effects include:

- Stimulation of mitochondrial activity (cytochrome c oxidase)
- Increased ATP production
- Modulation of inflammatory mediators
- Enhanced collagen synthesis and angiogenesis
- Reduction in pain through inhibition of nociceptors (nerve endings)

For oral lesions, these effects translate into faster epithelial regeneration, reduced discomfort, and diminished lesion size.

Clinical Applications in Oral Lesions

1. Aphthous Ulcers:

- PBM reduces pain significantly within minutes
- Promotes epithelialization and wound healing
- Reduces recurrence of the lesion

2. Herpetic Lesions (HSV):

- Shortens the duration of outbreaks
- Reduces frequency of recurrences
- Offers viral inactivation potential

CASE REPORT

Patient: 37-year-old female, complained of painful large ulcer on the maxillary left labialis and a smaller but significant lesion on the mandibular right labialis presented for 2 days, diagnosed as herpetic lesions.

Treatment Protocol:

Laser: Diode laser (940 nm), Mode: Non-contact, continuous wave, Power: 0.3 W, 0.5 W, 0.7W, Duration: 60 seconds (3 cycles), Frequency: Single session



Clinical Outcome:

- Day 1 (Post-laser): Immediate pain relief reported; mild erythema present.
- Day 3: Marked reduction in lesion size; no pain on palpation.
- Day 5: healing with slight residual crusting over and no discomfort.



This case highlights the effectiveness of diode laser PBM in accelerating healing and improving comfort in patients with oral mucosal lesions. The rapid clinical response is consistent with PBM's proposed mechanisms of anti-inflammatory and biostimulatory action. It is a promising modality, especially for patients seeking drug-free or adjunctive treatment strategies.

CONCLUSION

Diode laser-mediated PBM represents a safe, non-invasive, and efficient option for the management of aphthous ulcers and herpetic lesions. Further clinical studies and randomized controlled trials are recommended to standardize treatment protocols and establish long-term efficacy.

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