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NEW



Why Waterlase[®] & YSGG

Introducing Waterlase iPlus Premier Edition[™], the industry-leading all-tissue laser system designed to revolutionize dental procedures with its unparalleled precision and versatility. Waterlase is capable of rapid, precise, and clean removal of target tissues — without heat damage, fractures, and no smear layer.

- With over 80 FDA-cleared indications, Waterlase promises a versatile and patient-friendly solution tailored to every dentist's unique needs.
- Waterlase's proprietary Er,Cr:YSGG 2780
 nm wavelength has optimal absorption in both water and Hydroxyapatite for cool and efficient cutting in both hard and soft tissue. This is the therapeutic "Goldilocks" zone.
- Minimally invasive and kinder to the tissue, with little to no anesthesia necessary for many procedures



Waterlase vs. Traditional Methods





HARD TISSUE

- Reduced heat damage, and does not create a smear layer with fewer microfractures when compared to traditional handpieces¹⁻³
- Precise removal of tissue conserves more natural tooth structure, while maximizing site visibility
- Decreased post-operative sensitivity and reduces dentin hypersensitivity in most cases⁴⁻⁶

SOFT TISSUE

- Less post-op discomfort with accelerated healing,⁷ and excellent patient-reported outcomes.
- Reduced bleeding for improved site visibility.⁸
- Efficient cutting with better hemostasis, deeper coagulation and less bleeding.⁹



From Residency to Retirement

Upgrade your dental practice with the cutting-edge Waterlase iPlus Premier Edition. We listened to your feedback and made technological improvements that not only modernize your workflow with easier daily maintenance, but also enhance the overall dental experience for you, your staff, and your patients.

+ LARGER DISPLAY AND NEW USER INTERFACE

Immerse yourself in a visually stunning experience with a new larger touchscreen display and improved graphic user interface featuring modern aesthetics and intuitive controls that redefine sophistication.

★ STEP-BY-STEP TECHNIQUE ANIMATIONS FOR TURNKEY, PREDICTABLE RESULTS

Elevate your skills with high-definition animated technique videos guiding you through dozens of procedures. Enhance training, reduce learning curves for associates, and ensure predictable results with precision.





+ BUILT-IN WIFI AND REMOTE DIAGNOSTICS

WiFi connectivity enables remote diagnostics for efficient troubleshooting, ensuring your practice receives rapid assistance to run smoothly and minimize downtime.



+ START-UP AND SHUT DOWN WIZARD

On-board step-by-step wizards for start-up and shut-down processes make daily set-up and maintenance a breeze for your staff.



MODULAR SOFTWARE DESIGN
 Custom tailor your Waterlase iPlus
 capabilities cost-effectively, focusing on
 the procedures that matter most to your
 practice needs.

- Soft-Tissue
- Restorative
- > Perio
- Implant
- > Endo
- Skin Resurfacing

BRASS SMART PROCEDURE REPORTING SYSTEM

BIOLASE Remote Access Software System (BRASS) tracks your procedures, allowing us to offer personalized assistance and consumables recommendations. Benefit from tailored support based on your practice's unique needs.

+ SOFTWARE UPGRADES AND VIRTUAL PROTOCOL GUIDES

Wifi connection allows for automatic access to the latest protocol guides, keeping your practice up to date.



The Waterlase iPlus Premier Edition's revolutionary **modular design** allows you to focus on the procedures that matter most to you, with minimal investment. Each module provides a clear path for practice growth. As your skills and experience grow—Waterlase grows with you.

Soft-Tissue

Start performing **minimally invasive and predictable** gingivectomy, gingival recontouring, troughing, hemostasis, biopsy and lesion excision.

- Less post operative discomfort, accelerated healing, reduced bleeding & swelling.⁹⁻¹¹
- Stop packing cord and save time with precise and easy troughing for restorations.
- <u>NEW</u> minimally invasive and easy to perform esthetic procedure—
 Waterlase Gum Depigmentation.



WATERLASE VS. CO₂

Waterlase produces lower thermal effects — even with the water turned off, CO₂ is over **five times hotter than Waterlase!**¹²





Restorative

Waterlase creates less microfractures, removes smear layer to aid in bond strength, and reduces micro leakage resulting in longer lasting restorations.

- Precise and predictable Class I-V restorations, deciduous restorations.
- Conserve more natural tooth structure.
 Waterlase favors the ablation of caries due to its increased water content.¹⁴⁻¹⁵
- Less pain/discomfort with little-to-no anesthesia required for many procedures.¹⁶
- Better control near pulpal membrane to reduce exposure

<u>NEW</u> incredibly fast and easy to perform procedure—**Crown and Veneer Removal**.

- Get 30 mins of your life back! Remove veneers in <1 minute, crowns in <5 minutes
- + Eliminate excess heat from cutting with multiple, expensive diamonds
- Ability to save the veneer and crown for re-use in most cases





Perio

Minimally invasive Waterlase REPAIR Perio[™] protocol achieves superior patient reported outcomes (less swelling, bruising, and bleeding) and faster procedure times — with equivalent clinical results to the latest open flap techniques.

- Superior patient reported outcomes, with less bleeding, swelling & bruising. ¹⁷⁻¹⁸
- FDA Cleared for Cementum Mediated NEW Attachment.



- + Faster procedure times.¹⁷⁻¹⁸
- Results backed by landmark, first-of-its kind clinical study designed to meet the stringent AAP Best Evidence Consensus standard, published in the Journal of Periodontology.

Waterlase not only achieves superior patient-reported outcomes (PRO) to traditional techniques, but even **better** PRO's than Minimally Invasive Surgical Technique (MIST)!¹⁷⁻¹⁸





Implant

Waterlase REPAIR Implant[™] allows for minimally invasive implant surface decontamination and de-cortication to achieve re-osteointegration.

- Achieve definitive degranulation of inflammatory lesions with photoacoustic laser energy.
- Gain effective subgingival access for decontamination of implant surfaces and in-between threads with the Waterlase Side Firing Tip[™].
- Effectively debride implants, removing 98% of biofilm on infected titanium surfaces without damaging or affecting surface temperature.¹⁹

Directional Handle

BEFORE



Courtesy of Dr. Bret Dyer

Energy Output

THE WATERLASE SIDE FIRING TIP

The Waterlase Side Firing Tip (SFT) is ideal for safely and effectively debriding implant threads and allows for superior access compared to traditional implant debridement methods.



Endo

Waterlase effectively fights endodontic infection and can perform disinfection and cleaning, open dentinal tubules, decontamination prior to obturation, pulpotomy and pulp extirpation, and smear layer removal in the canal.

- + More productivity and less fatigue.
- + Less post-op patient discomfort.
- + Exceptional Fluid Dynamics.
- Remove smear layer and destroy biofilm with deep lateral cleaning
- YSGG with 2.5% NaOCI or 2% CHX achieves over 99.9% microbial reduction rates.²⁰⁻²³



The Galler penetration study²⁴ compared Er:Yag SWEEPS[®] vs manual needle irrigation. SWEEPS[®] performed worse than needle irrigation. The Al Mafrachi study compares manual irrigation to YSGG, and found that the effect of laser irrigation "was clear, especially in apical third. [...] laser activation of irrigants was the most effective protocol in removing smear layer and increasing dentin permeability."²⁵

BEFORE



AFTER



Courtesy of Dr. Gary Glassman

TUBULE PENETRATION



Skin Resurfacing

FDA-cleared for safe, effective, and in-demand dermatologic skin resurfacing therapy using the Waterlase Fractional Handpiece™.

- No local or topical anesthetic required for many procedures
- Reduced risk of complications compared to more invasive procedures
- Diffractive, micro-optics lens array delivers ten microbeams in a single line per laser pulse for ablative and non-ablative skin resurfacing
- Proven wavelength effective full-face treatment while reaching the dermis layer
- Rapid re-epithelialization in less than 24-48 hours, minimizing downtime compared to other hot, non-water-sprayed skin resurfacing lasers.



Courtesy of Dr. Mason Miner

AMERICAN ACADEMY OF FACIAL ESTHETICS

BIOLASE

Expert Training with the American Academy of Facial Esthetics



YSGG

BIOLASE is pleased to announce its partnership with The American Academy of Facial Esthetics (AAFE). Included with every purchase of the Waterlase Fractional Handpiece is a four-hour, in-person, skin resurfacing training session at no additional charge! This training will take place at The American Academy of Facial Esthetics (AAFE) facilities, and will be conducted by their team of highly skilled professionals.



Grow as You Go

If you're new to Waterlase Dentistry[™], the Waterlase iPlus Premier Edition allows you to expand your laser dentistry practice as your abilities increase.

- Beginning with the Soft-Tissue module, performing just 1-2 easy Waterlase procedures a week can pay for your Waterlase iPlus.
- As your abilities grow, expanding your capabilities and increasing your return on investment is an easy process, only adding modules as you're ready to grow your practice.
- + Increase case acceptance with minimally invasive procedures and improve patient referrals.



PRODUCTION INCREASE



MONTHLY PATIENT REFERRALS

Excerpt from A BIOLASE Waterlase Case Study: Dr. Patrick R. Ruehle, DDS, PA. Download the full case study at biolase.com/case-studies.

Your Education Pathway is Clear

BIOLASE is the world leader in laser dentistry education and training. Waterlase Academy is your home base for all things resources, content, and connections related to Waterlase education.



WATERLASE

FOUNDATIONS COURSE

Three days of in-depth **didactic and handson instruction** from laser physics to clinical procedures. Clinicians will gain a foundational understanding of Waterlase[®] in Soft-Tissue, Restorative, Perio, Implant, and Endo taught by multiple industry-leading laser specialists.

Soft-Tissue Procedures:

✦ Gingivectomy, frenectomy, troughing, oral lesions

Restorative:

- Cavity preparations, with a focus on technique and parameters
- Osseous crown lengthening
- Crown & veneer removal





Perio/Implant:

- Introduction to REPAIR Perio, minimally invasive protocol for management of moderate periodontitis
- Introduction to REPAIR Implant, a minimally invasive protocol to assist in the management of ailing or failing implants

Endodontics:

 Root canal cleaning, irrigation, and disinfection, using the Waterlase RapidEndo Protocol, with a focus on anterior, singlerooted teeth



Clinical Indications

SOFT TISSUE (Including Pulpal Tissue)*

Incision, excision, vaporization, ablation and coagulation of oral soft tissues, including:

- Excisional and incisional biopsies
- Exposure of unerupted teeth
- 🔸 Fibroma removal
- Flap preparation incision of soft tissue to prepare a flap and expose the bone
- Flap preparation incision of soft tissue to prepare a flap and expose unerupted teeth (hard and soft tissue impactions)
- Frenectomy and frenotomy
- Gingival troughing for crown impressions
- Gingivectomy
- ✦ Gingivoplasty
- ✤ Gingival incision and excision
- ✦ Hemostasis
- Implant recovery
- Incision and drainage of abscesses
- Laser soft tissue curettage of the post-extraction tooth sockets and the periapical area during apical surgery
- 🔶 Leukoplakia
- Operculectomy
- Oral papillectomies
- 🕈 Pulpotomy
- Pulp extirpation
- Pulpotomy as an adjunct to root canal therapy
- Root canal debridement and cleaning
- Reduction of gingival hypertrophy
- ✤ Soft tissue crown lengthening
- Treatment of canker sores, herpetic and aphthous ulcers of the oral mucosa
- Vestibuloplasty

HARD TISSUE

General Indications*

- Class I, II, III, IV and V cavity preparation
- ✦ Caries removal
- Hard tissue surface roughening or etching
- Enameloplasty, excavation of pits and fissures for placement of sealants

LASER PERIODONTAL PROCEDURES

- REPAIR Protocol: Waterlase Er,Cr:YSGG assisted new attachment procedure (cementum-mediated periodontal ligament new attachment to the root surface in the absence of long junctional epithelium)
- Removal of subgingival calculi in periodontal pockets with periodontitis by closed or open curettage
- Removal of highly inflamed edematous tissue affected by bacteria penetration of the pocket lining and junctional epithelium
- ✦ Full thickness flap
- Partial thickness flap
- Split thickness flap
- ✤ Laser soft tissue curettage
- Laser removal of diseased, infected, inflamed and necrosed soft tissue within the periodontal pocket
- Removal of granulation tissue from bony defects
- Sulcular debridement (removal of diseased, infected, inflamed or necrosed soft tissue in the periodontal pocket to improve clinical indices including gingival index, gingival bleeding index, probe depth, attachment loss and tooth mobility)
- Osteoplasty and osseous recontouring (removal of bone to correct osseous defects and create physiologic osseous contours)

- Ostectomy (resection of bone to restore bony architecture, resection of bone for grafting, etc.)
- Osseous crown lengthening

ENDODONTIC SURGERY (AMPUTATION)

- Flap preparation incision of soft tissue to prepare a flap and expose the bone
- Cutting bone to prepare a window access to the apex (apices) of the root(s)
- Apicoectomy amputation of the root end
- Root end preparation for retrofill
- Removal of pathological tissues (i.e. cysts, neoplasm or abscess) and hyperplastic tissues (i.e., granulation tissue) from around the apex

ROOT CANAL HARD TISSUE

- Tooth preparation to obtain access to root canal
- Root canal preparation including enlargement
- Root canal debridement and cleaning
- Laser root canal disinfection after endodontic instrumentation

BONE/SURGICAL

- Cutting, shaving, contouring and resection of oral osseous tissues (bone)
- Osteotomy

CROWN & VENEER

 Removal of ceramic and porcelain crowns and veneers**

DERMATOLOGIC

Skin resurfacing***

*For use on adult and pediatric patients. **For all ceramic and porcelain crowns and veneers. *** Waterlase iPlus software version 2.3.11 or later and firmware version 2.1.2 or later. IMPORTANT: Review all Contraindications, Warnings and Precautions presented in the User Manual before proceeding with using a laser device on patients. NOTE: Any tissue growth (i.e., cyst, neoplasm or other lesions) must be submitted to a qualified laboratory for histopathological evaluation.

Technical

DIMENSIONS

Unit (W x L x H): With Fiber (W x L x H): Weight:

ELECTRICAL

Class I Medical Electrical (ME) Equipment Operating voltage: Frequency: Current rating: Main control: On / Off control: Remote interruption:

WATER SPRAY

Water type: External air source: Water: Air: Interaction zone:

OPTICAL

Laser classification: Medium:

Wavelength: Frequency: Average power: Power accuracy: Pulse energy: Pulse duration "H" mode: Pulse duration "S" mode: Handpiece head angles: Gold HP Tip diameter range: Turbo Tip focal diameter range: Output divergence: Mode: Aiming beam:

Water level sensor beam:

Nominal Ocular Hazard Distance (NOHD): Maximum Permissible Exposure (MPE): 11.0 x 18.9 x 35.5 in (27.9 x 48.0 x 85.1 cm) 11.0 x 18.9 x 53.3 in (27.9 x 48.0 x 135.4 cm) 75 lbs. (34 kg)

100 VAC ± 10% / 230 VAC ± 10% 50 / 60 Hz 5 A / 8 A Circuit breaker Keyswitch Remote interlock connector

Distilled or De-ionized only 80 – 120 psi. (5.5 - 8.2 bar) 0 – 100% 0 – 100% 0.5 – 5.0 mm from handpiece tip to target

IV (4) Er,Cr:YSGG (Erbium, Chromium: Yttrium, Scandium, Gallium, Garnet) 2.78 µm (2780 nm) 5 – 100 Hz 0.1 - 10.0 W ± 20% 0 – 600 mJ 60 µs 700 µs 70° contra-angle 200 – 1200 µm 500 - 1100 µm \geq 8° per side Multimode 635 nm (red) laser. 1 mW max (safety classification 1) 635 nm laser, 1 mW max (safety classification 1)

5 cm

3.5 x 105 W/m²



REFERENCES

- 1. Internal data
- Kilinc, Evren, et al. "Thermal safety of Er: YAG and Er,Cr: YSGG lasers in hard tissue removal." Photomedicine and laser surgery 27.4 (2009):565-570.
- Sun, Xiang, et al. "Effect of Er,Cr: YSGG laser at different output powers on the micromorphology and the bond property of non-carious sclerotic dentin to resin composites." PLoS One 10.11 (2015): e0142311.
- Marto, Carlos Miguel, et al. "Evaluation of the efficacy of dentin hypersensitivity treatments—A systematic review and follow-up analysis." Journal of oral rehabilitation 46.10 (2019): 952-990.
- Fatma Dilsad, O. Z., et al. "Comparison of laser-and bur-prepared class I cavities restored with two different low-shrinkage composite resins: a randomized, controlled 60-month clinical trial." Clinical oral investigations 24 (2020): 357-368.
- Yazici, A. Rüya, Meserret Baseren, and J. A. L. E. Gorucu. "Clinical comparison of bur-and laser-prepared minimally invasive occlusal resin composite restorations: two-year follow-up." Operative dentistry 35.5 (2010): 500-507.
- Marotti, Juliana, et al. "Influence of etching with erbium, chromium: yttrium-scandium-gallium-garnet laser on microleakage of class V restoration." Lasers in medical science 25 (2010): 325-329.
- Cercadillo-Ibarguren, I., et al. "Histologic Evaluation of Thermal Damage Produced on Soft Tissues by CO2, Er,Cr:YSGG and Diode Lasers." Medicina Oral Patología Oral y Cirugia Bucal 15, no. 6 (2010): e912–18.
- Fekrazad R, Moharrami M, Chiniforush N. The Esthetic Crown Lengthening by Er;Cr:YSGG laser: A Case Series. J Lasers Med Sci. 2018 Fall;9(4):283-287. doi: 10.15171/jlms.2018.50. Epub 2018 Sep 17. PMID: 31119024; PMCID: PMC6499554.
- 10 Türkün, Murat, et al. "Bactericidal effect of Er,Cr: YSGG laser on Streptococcus mutans." Dental materials journal 25.1 (2006): 81-86. [3] Marotti, Juliana, et al. "Influence of etching with erbium, chromium: yttrium-scandium-gallium-garnet laser on microleakage of class V restoration." Lasers in medical science 25 (2010): 325-329.
- 11. Jetter C. Soft-tissue management using an Er,Cr:YSGG laser during restorative procedures. Compend Contin Educ Dent. 2008 Jan-Feb;29(1):46-9. PMID: 18361340.
- Kawamura R, Mizutani K, Lin T, et al. Ex Vivo Evaluation of Gingival Ablation with Various Laser Systems and Electroscalpel. Photobiomodulation, Photomedicine, and Laser Surgery. 2020;38(6):364-373. doi:10.1089/photob.2019.47131.
- Pié-Sánchez J, España-Tost a J, Arnabat-Domínguez J, Gay-Escoda C. Comparative study of upper lip frenectomy with the CO2 laser versus the Er, Cr:YSGG laser. Medicina oral, patologia oral y cirugia bucal. 2011;17(2):e228-32. doi:10.4317/medoral.17373
- Kang, H. W., I. Rizoiu, and A. J. Welch. "Hard tissue ablation with a spray-assisted mid-IR laser." Physics in Medicine & Biology 52.24 (2007): 7243.

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- Ito, Shuidhi, et al. "Water content and apparent stiffness of non-caries versus caries-affected human dentin." Journal of Biomedical Materials Research Part B: Applied Biomaterials. 72.1 (2005): 109-116.
- 16. Based on clinician-reported outcomes.
- Clem D, Heard R, McGuire M, Scheyer ET, Richardson C, Tobačk G, Gwaltney C, Gunsolley JC. Comparison of Er,Cr:YSGG laser to minimally invasive surgical technique in the treatment of intrabony defects: Six-month results of a multicenter, randomized, controlled & dudy. J Periodotol. 2021 Apr;92(4):496-506. doi: 10.1002/JPER.20-0028. Epub 2020 Jul 30. PMID: 32613664.
- 18 Clem, D, Heard, R, McGuire, M, et al. A comparison of Er,Cr:YSGG laser to minimally invasive surgical technique in the treatment of intrabony defects: Twelve-month results of a multicenter, randomized, controlled study. J Periodontol. 2023; 1-11. https://doi.org/10.1002/JPER.23-0286"
- Human Histologic Evaluations of the Use of Er,Cr:YSGG Laser to Decontaminate an Infected Dental Implant Surface in Preparation for Implant Reosseointegration; Myron Nevins, Stefano Parma Benfenati, Primo Galletti, et. al.; International Journal of Periodontics and Restorative Dentistry, November/December 2020, Volume 40, Issue 6
- Blakimé A, Henriques B, Silva FS, Teughels W, Özcan M, Souza JCM. Smear layer removal and bacteria eradication from tooth root canals by Erbium lasers irradiation. Laser Dent Sci. Published online July 21, 2023. doi:10.1007/s41547-023-00194-1
- Aydin SA, Taşdemir T, Buruk CK, Çelik D. Efficacy of Erbium, Chromium doped Yttrium, Scandium, Gallium and Garnet Laser-activated Irrigation Compared with Passive Ultrasonic Irrigation, Conventional Irrigation, and Photodynamic Therapy against Enterococcus faecalis. The Journal of Contemporary Dental Practice. 2020;21(1):11-16.doi:10.5005/jp-journals-10024-2727
- Wang X, Cheng X, Liu X, et al. Bactericidal Effect of Various Laser Irradiation Systems on Enterococcus faecalis Biofilms in Dentinal Tubules: A Confocal Laser Scanning Microscopy Study.Photomedicine and Laser Surgery. 2018;36(9):472-479. doi:10.1089/pho.2017.4430
- Cheng X, Xiang D, He W, Qiu J, Han B, Yu Q, Tian Y. Bactericidal Effect of Er:YAG Laser-Activated Sodium Hypochlorite Irrigation Against Biofilms of Enterococcus faecalis Isolate from Canal of Root-Filled Teeth with Periapical Lesions. Photomed Laser Surg. 2017 Jul;35(7):386-392. doi: 10.1089/ pho.2017.4293. Epub 2017 Jun16. PMID: 28622484.
- Galler KM, Grubmüller V, Schlichting R, Widbiller M, Eidt A, Schuller C, Wölflick M, Hiller KA, Buchalla W. Penetration depth of irrigants into root dentine after sonic, ultrasonic and photoacoustic activation. Int Endod J. 2019 Aug;52(8):1210-1217. doi: 10.1111/iej.13108. Epub 2019 Mar 27. PMID: 30828819.
- Al-mafrachi RM, Awazli LG, Al-maliky MA. Investigation of the Effect of Er:Cr:Ysgg Laser 2780 nm in Comparison with xp-Endo Finisher on Root Canal Dentin Permeability and Smear Layer Removal: An In Vitro Study. Dental Health: Current Research. 2018;4(1):1-5.doi:10.4172/2470-0886.1000134
- SWEEPS® (Shock Wave Enhanced Emission Photo-acoustic Streaming) is a registered trademark of Fotona.

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Take the next step in elevating your practice and enhancing patient care. Contact us to learn more about the **NEW Waterlase iPlus Premier Edition**.

Visit **biolase.com/Waterlase-iPlus**

"Restorative with Waterlase is a practice game changer! Not only am I getting great patient and clinical results, my business is thriving. You can pay for your laser monthly by billing out 4 anterior incisor restorations, which takes only 15 min."

—Brad Labrecque, DMD, MSc

Laguna Beach, CA



"Performing frenectomies on infants is one of the most rewarding procedures I do as a Pediatric Dentist. It is a quick, minimally invasive procedure for both infants and children. The Waterlase laser provides me with a safe, precise incision...It has revolutionized how I care for my patients."

> —Ben Curtis, DDS Canton, TX





For more information, visit **biolase.com**



MD

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