
NEW
SELECT CATEGORY
RESTORATIVE
SOFT TISSUE
ENDO
PERIO
IMPLANT
EXPANDED
REPAIR PERIO
REPAIR IMPLANT
Waterlase iPlus
Waterlase iPlus®

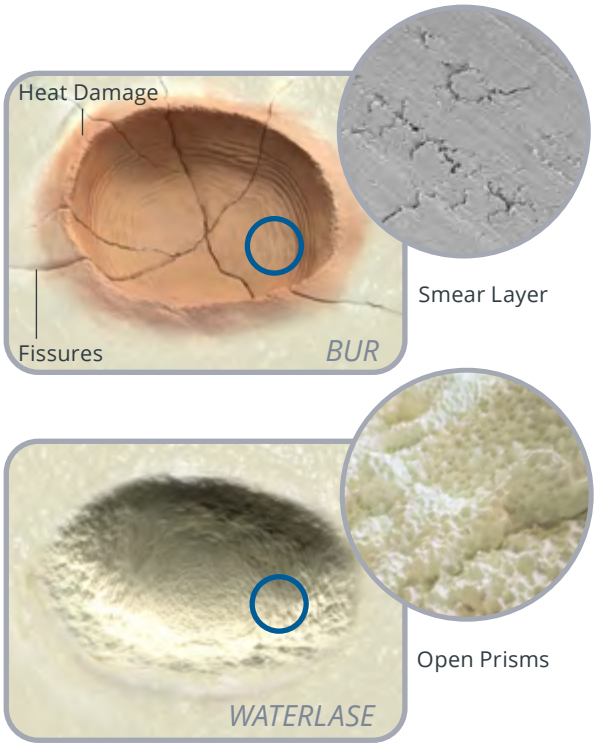
Waterlase iPlus

Why Waterlase® & YSGG

Introducing Waterlase iPlus®, 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 handpieces.[1-3]
- Precise removal of tissue **conserves more natural tooth structure**, while maximizing site visibility.
- **Decreased post-operative sensitivity** and reduces dentin hypersensitivity in most cases.[4-6]

SOFT TISSUE

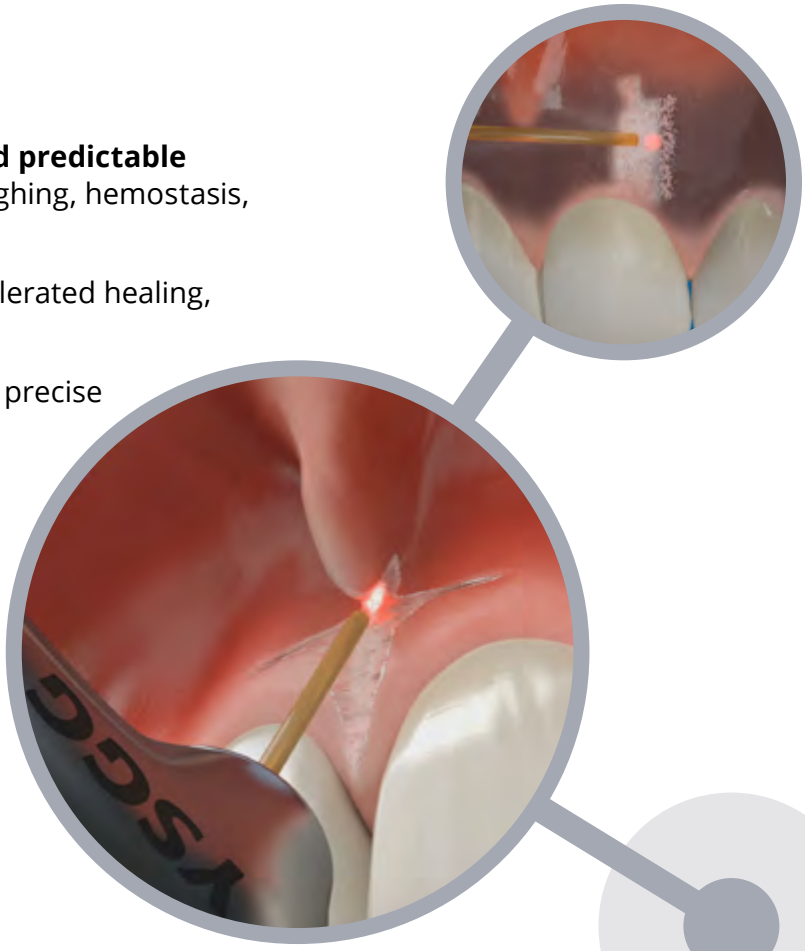
- Less post-op discomfort with **accelerated healing,**[7] and excellent patient-reported outcomes.
- **Reduced bleeding** for improved site visibility.[8]
- Efficient cutting with better hemostasis, deeper coagulation and less bleeding.[9]

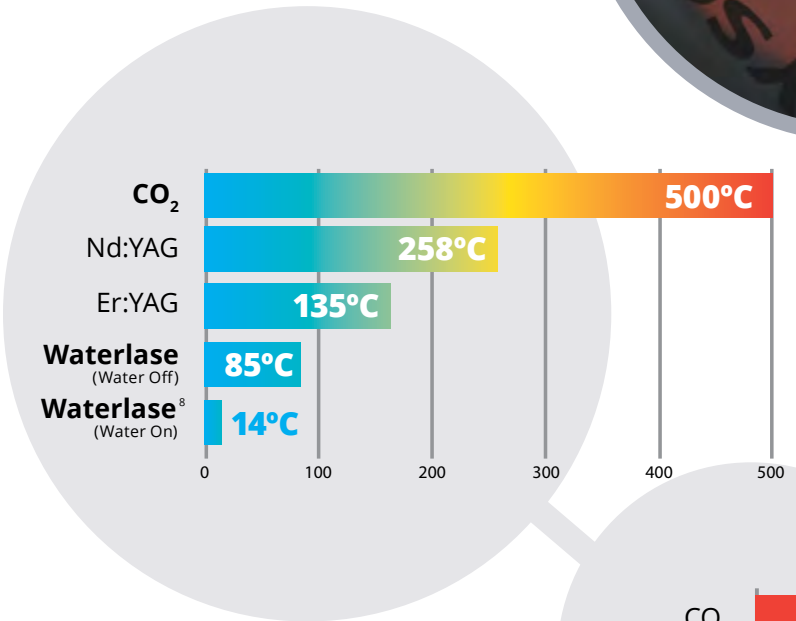
The Waterlase iPlus is the world's most trusted all-tissue dental laser. Waterlase has more than 80 FDA cleared indications. Perform revenue generating everyday procedures including restorative, frenectomy, gingivectomy, perio treatments, endodontics, crown lengthening and more!

Soft-Tissue

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

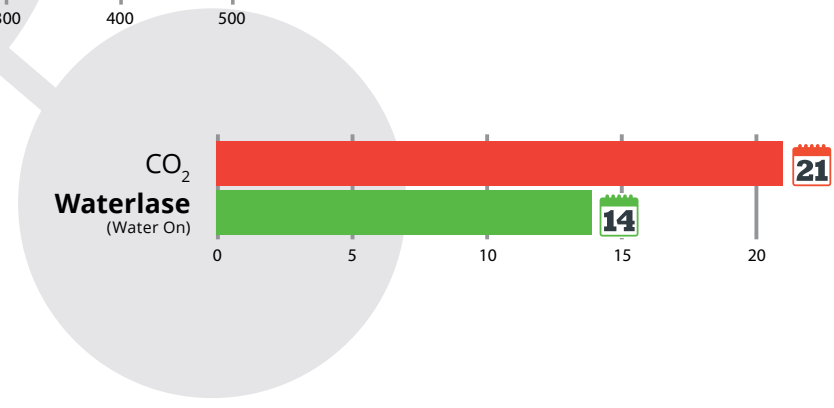
- **Less post operative discomfort**, accelerated healing, reduced bleeding & swelling.[9-11]
- **Stop packing cord** and save time with precise and easy troughing for restorations.
- NEW minimally invasive and easy to perform esthetic procedure— **Waterlase Gum Depigmentation**.





WATERLASE VS. CO_2

Waterlase produces lower thermal effects — even with the water turned off, CO_2 is over **five times hotter than Waterlase!**[12]



Faster recovery times — **Save a Week with Waterlase!**[13]

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.

NEW 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 diamond burs.
- Ability to **save the veneer or crown** for re-positioning 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]

POSTOPERATIVE ICE PACK USE

Waterlase
17%

MIST
62%

POSTOPERATIVE SWELLING

Waterlase
46% DAY 1 **4%** DAY 3

MIST
81% DAY 1 **47%** DAY 3

POSTOPERATIVE BRUISING

Waterlase
0%

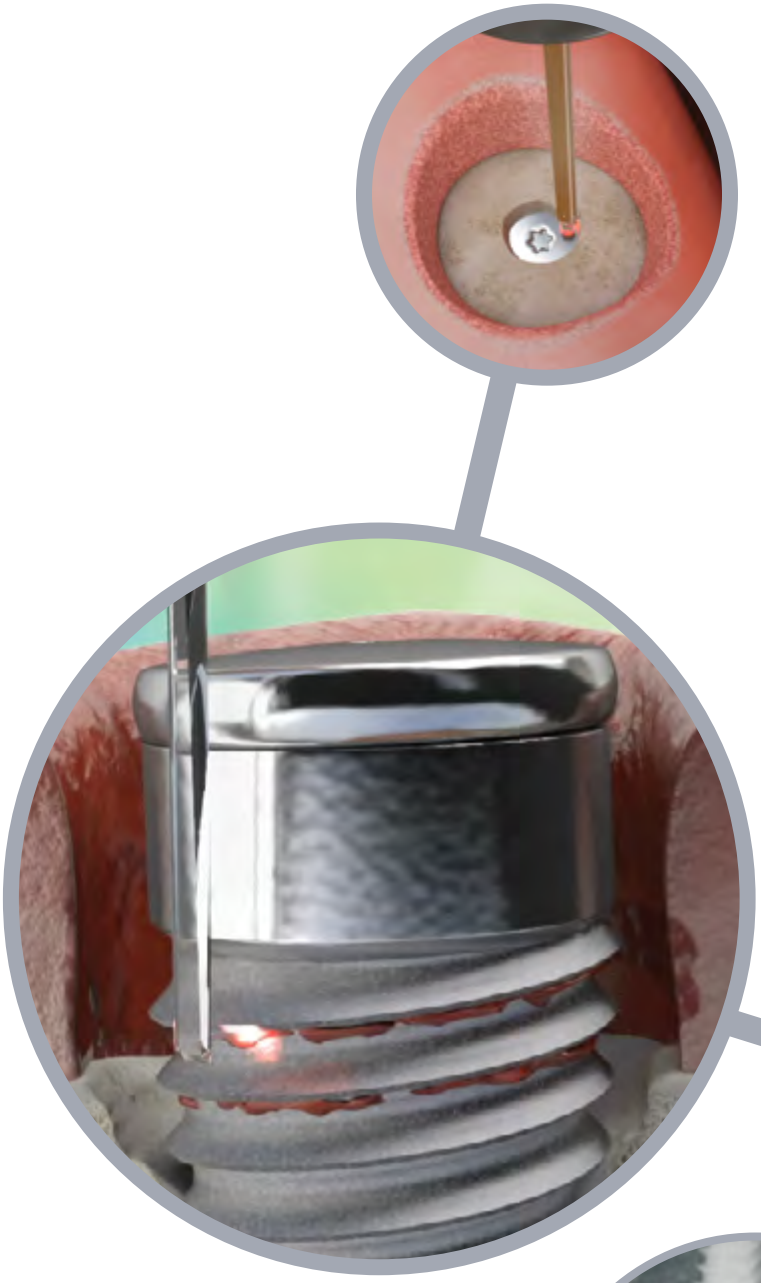
MIST
15%

PROCEDURE TIME SAVINGS

Clinicians save **up to 15 Minutes** per procedure using Waterlase compared to MIST.

CHANGE IN CLINICAL ATTACHMENT LEVEL (CAL)

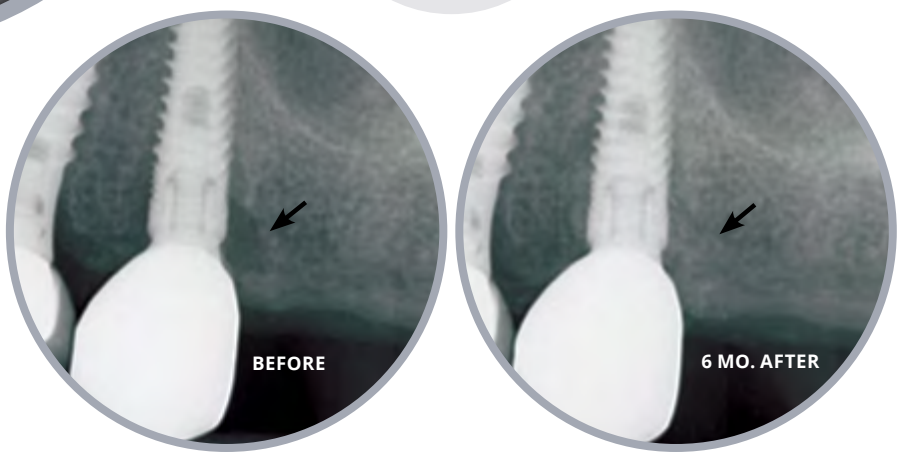
Waterlase	MIST
1.27 ± 1.16 mm	1.27 ± 1.57 mm



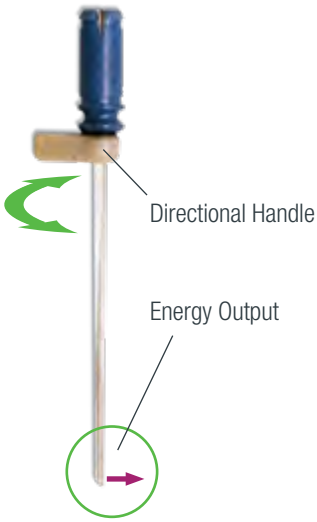
Implant

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

- Achieve definitive **degranulation of inflammatory lesions** with photo-acoustic 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]



Courtesy of Dr. Bret Dyer



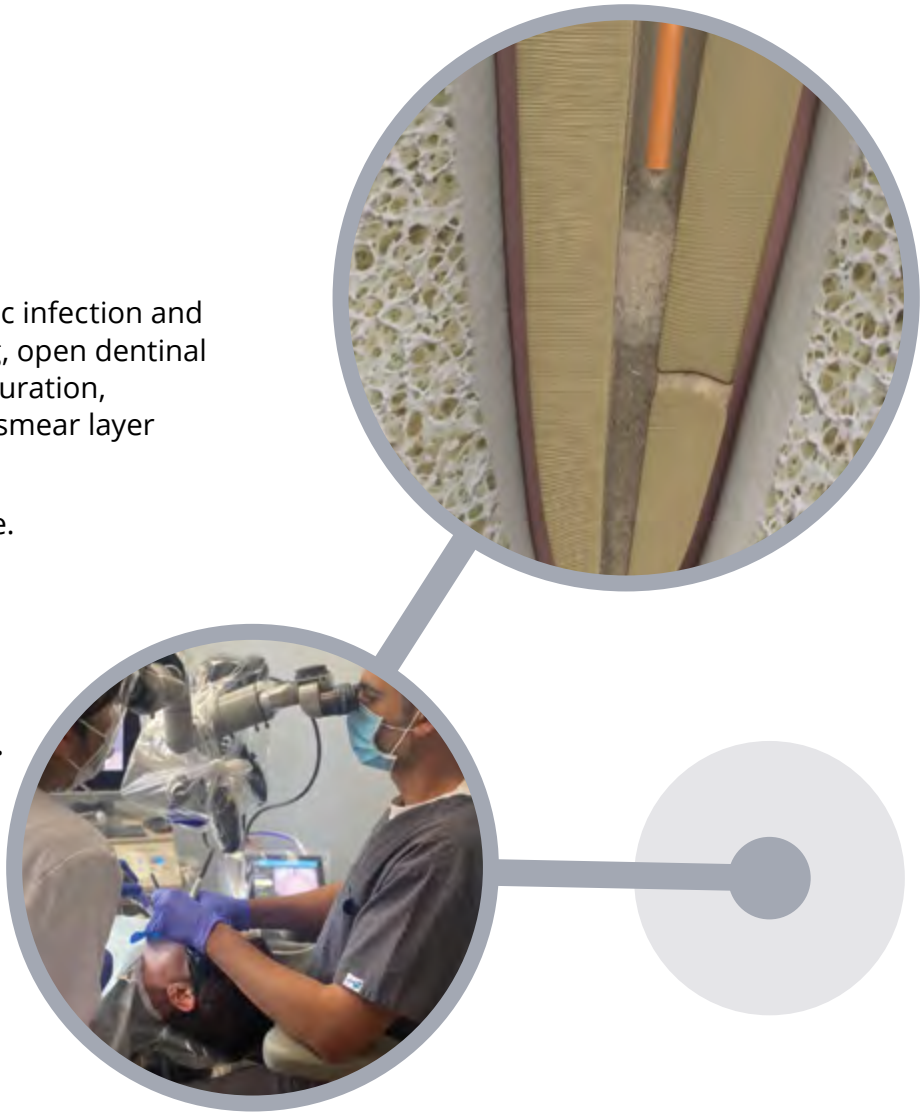
THE WATERLASE SIDE FIRING TIP

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.

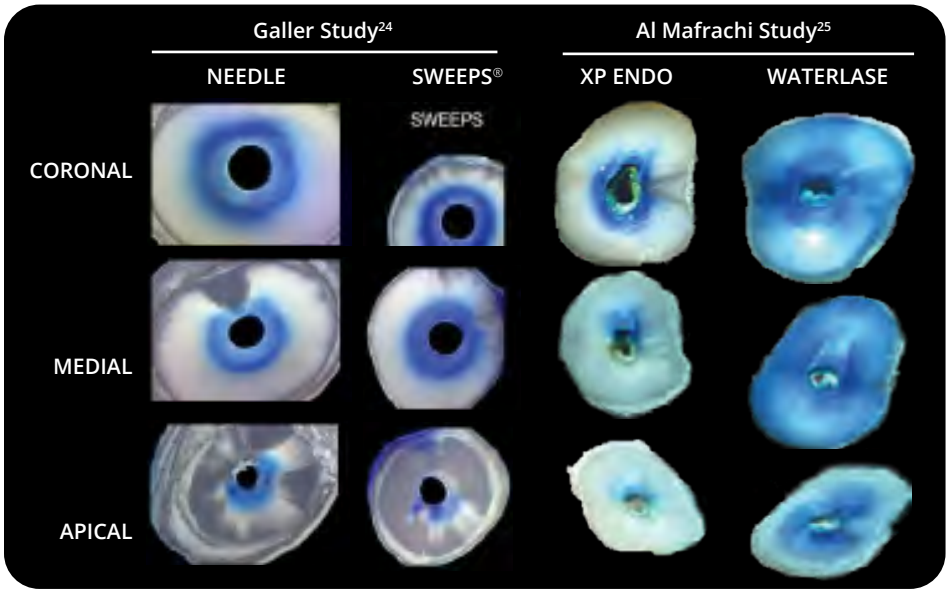
Endo

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.

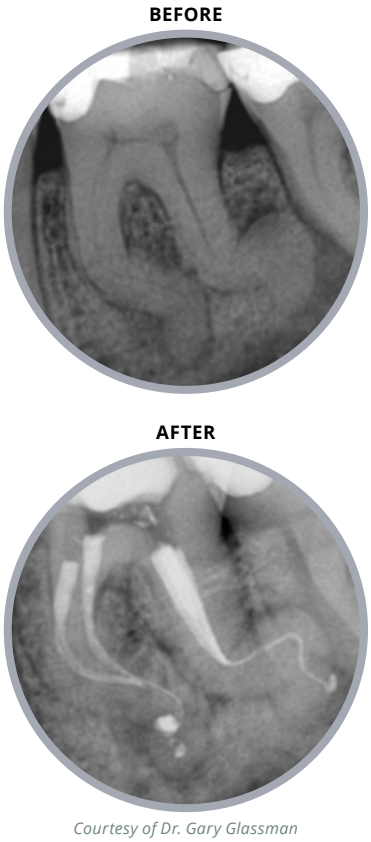
- **More productivity** and less fatigue.
- **Less post-op patient discomfort**.
- Exceptional **Fluid Dynamics**.
- Remove smear layer and destroy biofilm with **deep lateral cleaning.**
- YSGG with 2.5% NaOCl or 2% CHX achieves over **99.9% microbial reduction** rates.[20-23]



TUBULE PENETRATION



The Galler penetration study[24] 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]



Courtesy of Dr. Gary Glassman

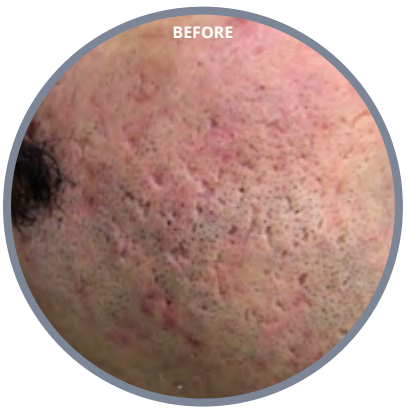
NEW

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



Courtesy of Dr. Pilar Martin Santiago

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. **Only with the Waterlase Fractional Handpiece.
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):	11.0 x 18.9 x 35.5 in (27.9 x 48.0 x 85.1 cm)
With Fiber (W x L x H):	11.0 x 18.9 x 53.3 in (27.9 x 48.0 x 135.4 cm)
Weight:	75 lbs. (34 kg)

ELECTRICAL

Class I Medical Electrical (ME) Equipment	
Operating voltage:	100 VAC ± 10% / 230 VAC ± 10%
Frequency:	50 / 60 Hz
Current rating:	5 A / 8 A
Main control:	Circuit breaker
On / Off control:	Keyswitch
Remote interruption:	Remote interlock connector

WATER SPRAY

Water type:	Distilled or De-ionized only
External air source:	80 – 120 psi. (5.5 - 8.2 bar)
Water:	0 – 100%
Air:	0 – 100%
Interaction zone:	0.5 – 5.0 mm from handpiece tip to target

OPTICAL

Laser classification:	IV (4)
Medium:	Er,Cr:YSGG (Erbium, Chromium: Yttrium, Scandium, Gallium, Garnet)
Wavelength:	2.78 µm (2780 nm)
Frequency:	5 – 100 Hz
Average power:	0.1 – 10.0 W
Power accuracy:	± 20%
Pulse energy:	0 – 600 mJ
Pulse duration “H” mode:	60 µs
Pulse duration “S” mode:	700 µs
Handpiece head angles:	70° contra-angle
Gold HP Tip diameter range:	200 – 1200 µm
Turbo Tip focal diameter range:	500 – 1100 µm
Output divergence:	≥ 8° per side
Mode:	Multimode
Aiming beam:	635 nm (red) laser, 1 mW max (safety classification 1)
Nominal Ocular Hazard Distance (NOHD):	5 cm
Maximum Permissible Exposure (MPE):	3.5 x 105 W/m^2

REFERENCES

1. Internal data
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
12. 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.
13. 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
14. 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.
15. Ito, Shuichi, 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.
17. Clem D, Heard R, McGuire M, Scheyer ET, Richardson C, Toback 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 study. J Periodontol. 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”
19. 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
20. 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
21. 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
22. 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
23. 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.
24. 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.
25. 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**.

*Visit **biolase.co.uk/Waterlase***

"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

“We use it for skin resurfacing, pigmentation, acne scar revision and treating uneven skin tones. Additionally, it provides a new revenue stream to the practice and we have many happy patients...”

—Dr. Suki Shakthi
Essex, UK

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