

Waterlase**iPlus*™



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BIOLASE

The Essential Addition to Your Practice Today

Waterlase is the all-tissue laser trusted by the most dentists worldwide, with **over 27,300,000¹ patients treated**. Its unrivaled clinical versatility – with the ability to treat hard-tissue, soft-tissue and bone – gives you unmatched results in treatment outcomes and outstanding ROI making it the essential addition for your successful practice today.

What Waterlase Can Do for Your Patients and Your Practice

Waterlase is a commitment to better care and a foundation for practice growth. Waterlase uses patented technology to provide a minimally invasive, highly precise, and an exceptionally gentle dental experience for your patients.

Our Unwavering Commitment

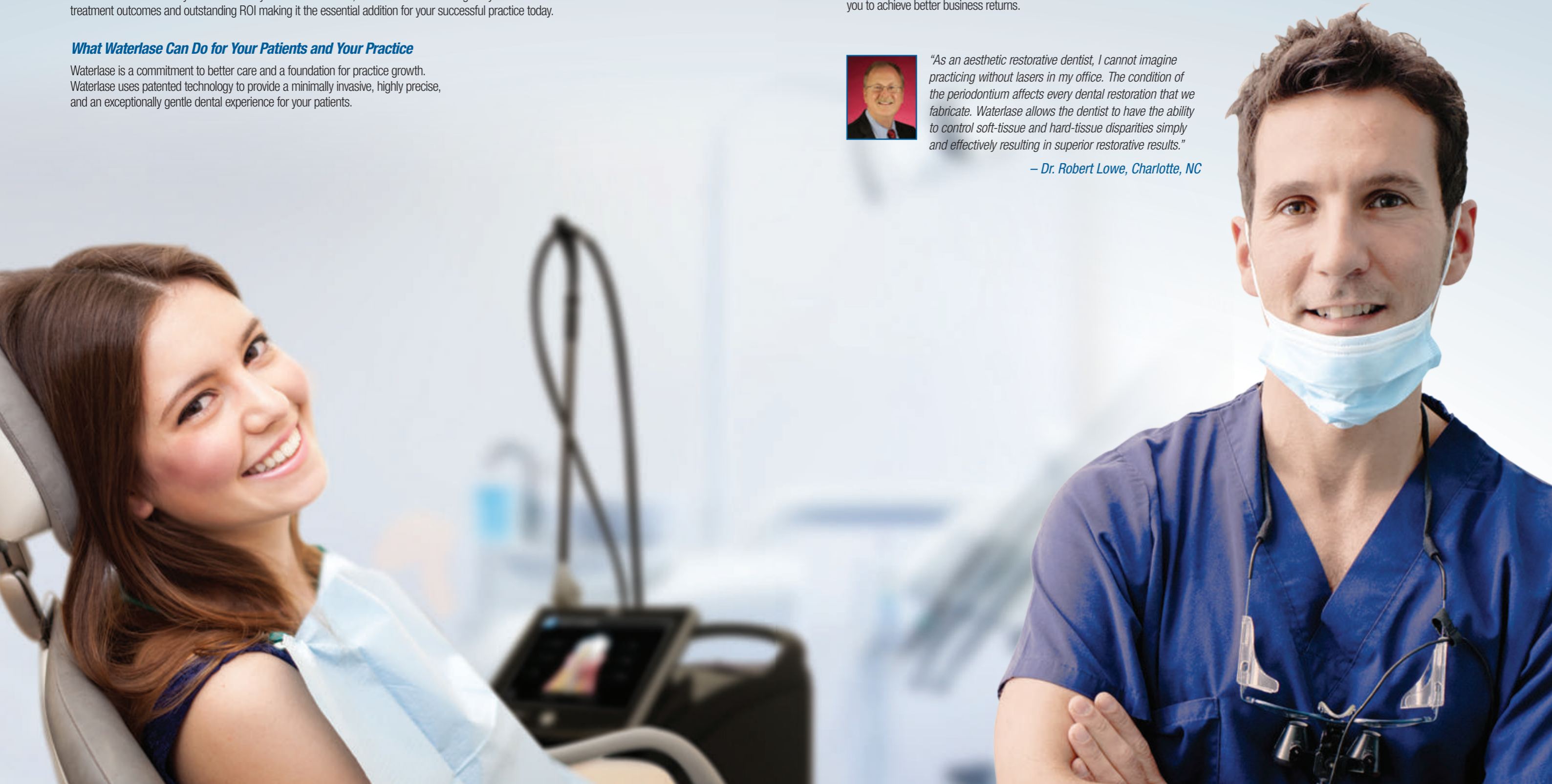
Here at BIOLASE, our purpose is to better enable you to repair and restore your patient's dental conditions while reducing the pain, fear and anxiety generally associated with dentistry through the use of our optimal laser technologies.

We are committed to elevating the standard of care in dentistry, while enabling you to achieve better business returns.



"As an aesthetic restorative dentist, I cannot imagine practicing without lasers in my office. The condition of the periodontium affects every dental restoration that we fabricate. Waterlase allows the dentist to have the ability to control soft-tissue and hard-tissue disparities simply and effectively resulting in superior restorative results."

– Dr. Robert Lowe, Charlotte, NC



How will you spend your pay raise?

Increasing your cash flow is easy with

WaterlaseiPlus***[™]



"After we added the Waterlase iPlus, production went up 43% in the first six months and has never stopped growing. We now consistently do more in a day than the practice was doing in a month."

— Dr. Patrick Ruehle, Denton, TX



Unlock Your Potential for Increased Cash Flow.

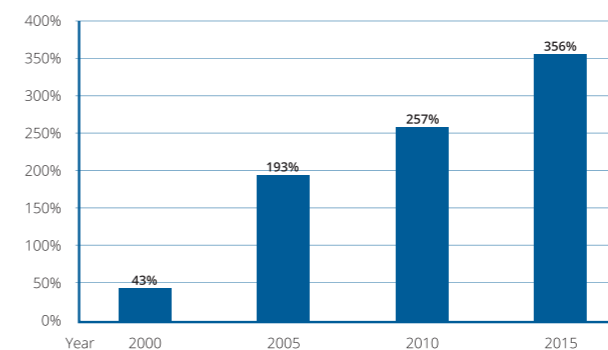
Increasing the cash flow in your practice is as easy as performing just three types of procedures a month with the Waterlase iPlus, the world's most preferred all-tissue laser.

- ◆ Simplify the dentistry in your practice
- ◆ Minimize chair time
- ◆ Increase case acceptance with a patient-preferred, minimally invasive treatment option

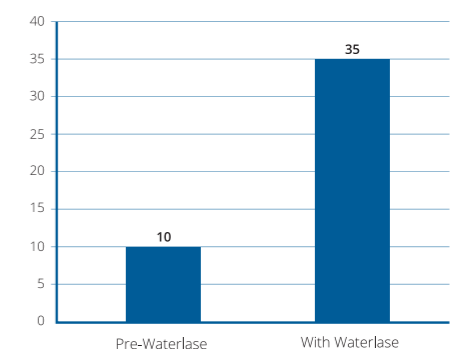
Open a new world of clinical capabilities with the most intuitive and most versatile all-tissue laser on the market. Discover your potential for increased cash flow and enjoy the benefits that the Waterlase iPlus will bring to your practice.

97% of Waterlase patients recommend it to their friends and family.²

PRODUCTION INCREASE



MONTHLY PATIENT REFERRALS



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

REPAIR™

PERIODONTITIS PROTOCOL

Effectively manage your periodontal and peri-implantitis patients with the REPAIR protocols and Waterlase iPlus!

REPAIR Perio™ and REPAIR Implant™ were developed to provide clinicians a scientifically advanced treatment options to assist in the management of periodontitis and peri-implantitis patients. Utilizing the Waterlase iPlus and patented Radial Firing Perio Tip™, REPAIR provides a safe, effective laser treatment protocol that patients accept.

REPAIR Perio Benefits:

- ✦ Patient-preferred, minimally invasive, periodontal laser protocol
- ✦ Treat site specific or full mouth cases for greater flexibility in treatment planning
- ✦ Capable of gentle removal of subgingival calculus
- ✦ Supported by clinical evidence and scientific research
- ✦ Promotes cementum-mediated periodontal ligament new-attachment to the root surface in the absence of long junctional epithelium

Case #1 – courtesy of Dr. Bret Dyer



“REPAIR is the effective protocol for managing periodontitis for it reverses the inflammatory process. The natural partner for REPAIR is the iPlus due to its ability to create a positive healing environment for soft- and hard-tissue including bone and tooth surface.”

— Dr. Samuel Low, Gainesville, FL

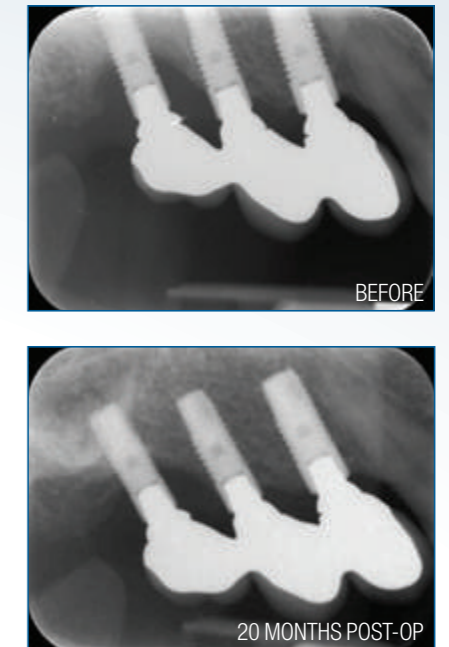
REPAIR™

PERI-IMPLANTITIS PROTOCOL

REPAIR Implant Benefits:

- ✦ Patient-preferred, minimally invasive, peri-implantitis laser protocol
- ✦ Easy access to implant surface
- ✦ Closed flap protocol can be used to manage early peri-implantitis
- ✦ Treat site-specific or full-mouth therapy for flexibility in treatment planning
- ✦ Supported by clinical evidence and scientific research
- ✦ Laser photoacoustic properties effectively debride the implant surface³

Case #2 – courtesy of Dr. Rana Al-Falaki



“Waterlase iPlus is an integral part of every procedure I do. The results we achieve are outstanding, with so much less stress, so much more fun and so much more comfort for patients.”

— Dr. Rana Al-Falaki, London, UK

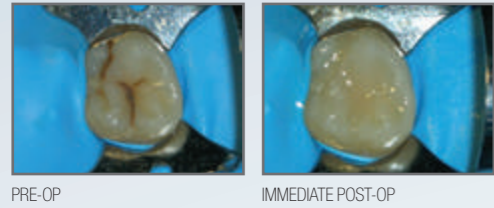


Unrivaled Clinical Versatility

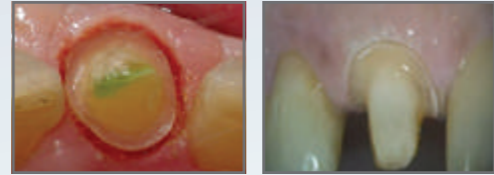
Waterlase iPlus has over 80 different indications for soft-tissue, hard-tissue and bone — more than any other laser. As your clinical skills grow, the number and type of procedures you perform grows with you.

- ◆ Give your patients the best possible dental experience
- ◆ Be one of the first to offer your patients single-visit, multiple-quadrant, minimally invasive dentistry
- ◆ Add incremental procedures to your practice to retain patients and attract new ones
- ◆ Guaranteed to grow your practice

Class I Cavity Preparation



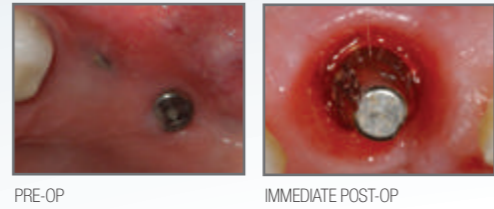
Troughing



Subgingival Class V Cavity Preparation



Implant Recovery



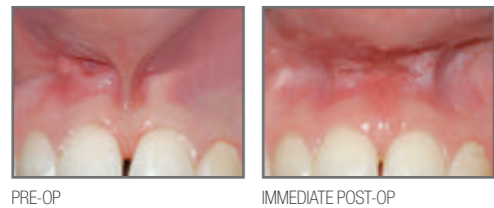
Gingival Recontouring



Posterior Osseous Crown Lengthening



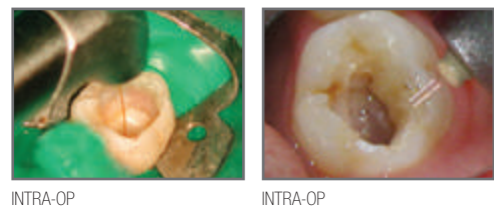
Frenectomy



REPAIR Perio



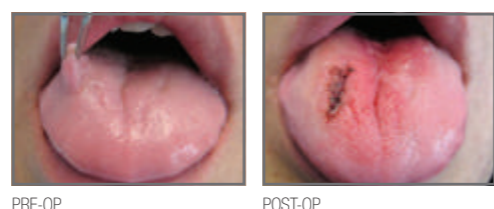
Root Canal Therapy



Pulpotomy



Biopsy

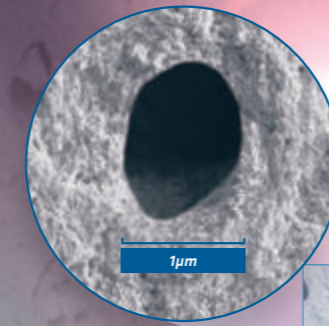


For a complete library of Waterlase iPlus clinical videos, visit biolase.com

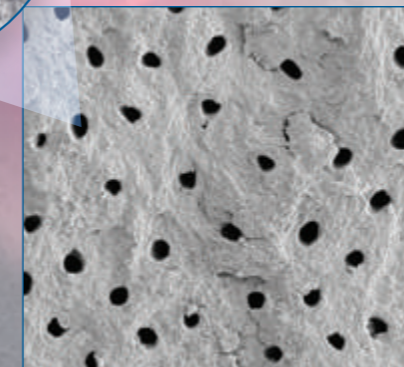
Innovative Endodontics

Simple, efficient and effective root canal therapy. Minimally invasive technique conserves remaining tooth structures for increased stability in restorations.

- ◆ 99.7% Reduction in bacterial counts in the root canal approaches sterilization⁴
- ◆ Bacteria CFUs 2.86x lower than the most effective NaOCl solution⁵
- ◆ Reduces risk of reinfection⁶
- ◆ Effective on most resistant bacteria – e.faecalis⁴
- ◆ Only 2-3 minutes for disinfection vs. 20-30 minutes with NaOCl⁵



Canal wall after instrumentation – only dentinal tubules covered and blocked by smear layer



Canal wall after EndoLase™ RFT with clean, open tubules



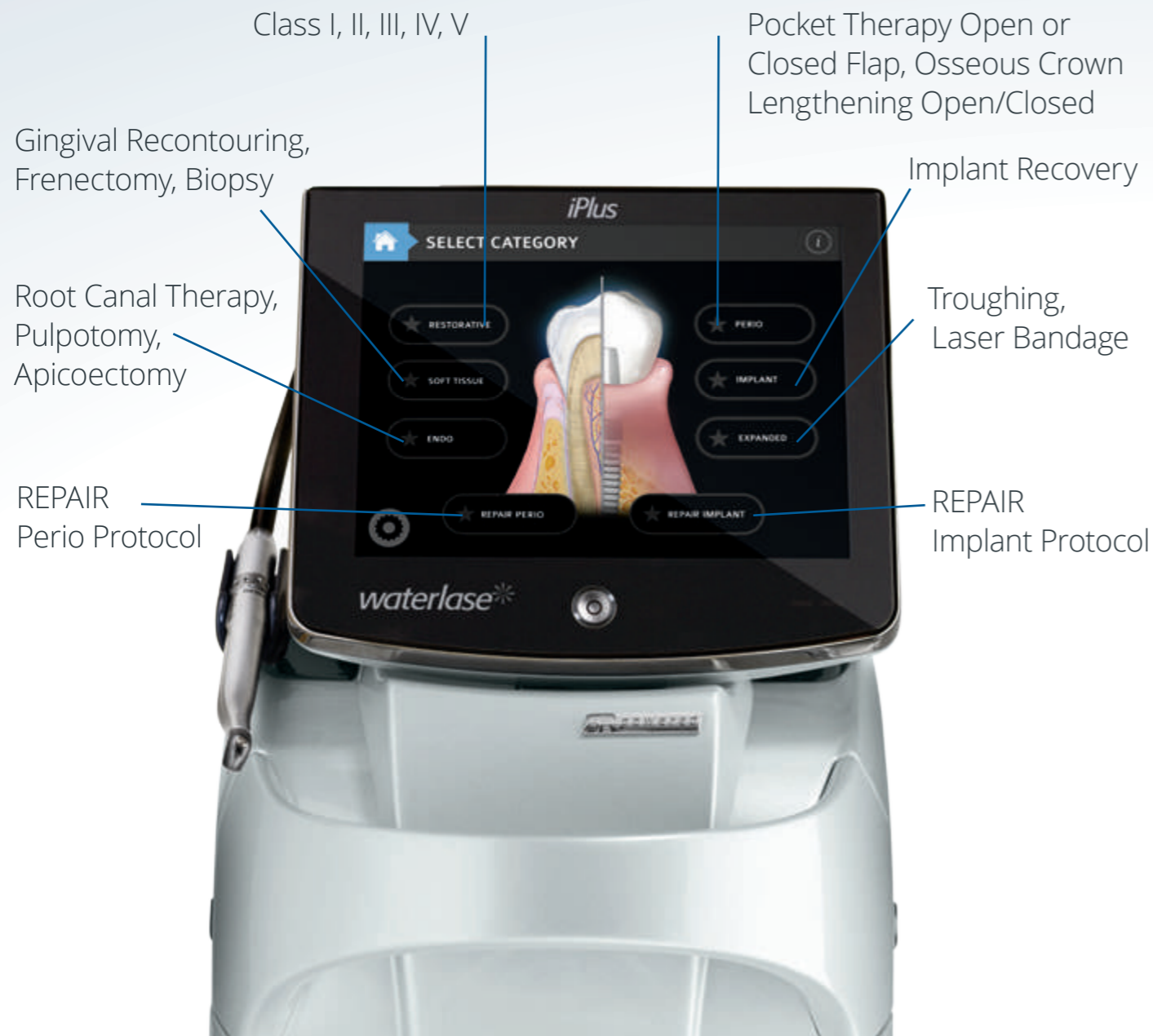
“Waterlase may be the missing link that enables us to kill bacteria deep within the dentinal tubules. In our practice, we no longer aim to “entomb” bacteria but rather to eliminate bacteria.”

— Dr. Justin Kolnick, White Plains, NY

Intuitive Graphic User Interface

Waterlase iPlus has more clearances and indications than any other dental laser. As your clinical skills grow, the number and type of procedures you will perform grows with you.

- ◆ Increase productivity and add incremental revenue with 56 pre-set procedures for select and go treatment
- ◆ Expand your practice capabilities with the **NEW** REPAIR Perio and REPAIR Implant Apps to assist in the management of periodontitis and peri-implantitis
- ◆ Take control of tissue with adjustable settings as needed



Flexibility You Deserve

Waterlase iPlus has the lightest, most flexible trunk fiber ever. Titanium fiber cable and an extremely small diameter give the Waterlase iPlus handpiece virtually zero resistance in your hand to help eliminate fatigue so you can easily access any treatment site. Words don't really describe it — you have to try for yourself.

- ◆ Redesigned optics efficiently deliver precise laser energy to cut enamel, dentin, and bone for increased precision and less destruction
- ◆ Optimized to provide more uptime with a replaceable, disposable shield for better dependability
- ◆ Decrease your treatment fatigue with the most flexible, tension free delivery system available
- ◆ Improved clinical access and comfort with the SureFire™ exclusive contra-angle handpiece, navigate subgingivally with ease

SureFire[™]
YSGG Delivery System



Access You Need

Waterlase iPlus features the only illuminated contra-angle handpiece on any dental laser. BIOLASE's patented contra-angle design allows you to easily and precisely move the laser tip around the treatment site, giving you access to those difficult to reach posterior cases, while the illumination of the handpiece provides the visibility you need.

The iPlus handpiece is also the smallest handpiece, an important consideration for pediatric patients and working in the back of the mouth.



Waterlase iPlus features the only illuminated contra-angle handpiece on any dental laser. BIOLASE's patented contra-angle design allows you to easily and precisely move the laser tip around the treatment site, while the handpiece's illumination provides the best visibility.

— Dr. Glenn van As, Vancouver, BC



Waterlase contra-angle handpiece is the sleekest and most ergonomic of any dental laser.

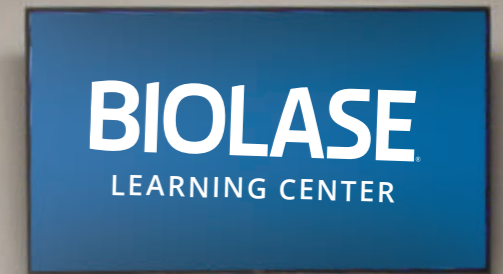
World-Class Training

BIOLASE is a World Leader in Laser Education and Training

With more than 14,000 global members, it is the largest dental and medical laser education organization in the world. WCLI symposiums are held frequently around the world.

Choose from a wide range of learning tools and educational solutions to meet your learning style. To ensure that you feel comfortable and confident with this exciting technology, we encourage you take advantage of some of the following educational solutions we have to offer:

- ✦ Group or in-office certification training
- ✦ Advanced laser training courses
- ✦ On-demand online training
- ✦ Full schedule of live and online CE events
- ✦ Comprehensive library of published clinical articles and videos from laser researchers and experts worldwide



Certified Training Courses (CTC)

Combining lecture and hands-on exercises, CTC teaches you essential soft-tissue, hard-tissue, perio (including REPAIR) and endo procedures that you can immediately provide your patients with new or enhanced treatment techniques that will improve their experiences in your practice. As you hone your skills, move on to Advanced Training Courses or even Master Level courses offered frequently in locations worldwide by WCLI or other laser organizations with associations with WCLI.

Advanced Training Courses (ATC)

Develop your clinical skills with in-depth training on a particular technique or treatment. Advanced training courses offered for pediatrics and periodontics.

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 amalgam or composite
- ✦ 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

*For use on adult and pediatric patients.
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) |
| Water level sensor beam: | 635 nm laser, 1 mW max (safety classification 1) |
| Nominal Ocular Hazard Distance (NOHD): | 5 cm |
| Maximum Permissible Exposure (MPE): | 3.5 x 10 ⁵ W/m ² |

Waterlase**iPlus*



Waterlase[®] iPlus™



*“Waterlase laser has provided a technological leap across a broad spectrum of dental specialties. **We are able to provide services in a more minimally invasive manner** while compressing the biologic response for faster healing. My clinical outcomes are more predictable and effective, and enhance patient confidence in the treatment we provide.”*

— Dr. Robert Miller, Delray Beach, FL

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¹ BIOLASE analysis based on global Waterlase systems and average patients treated with per clinician

² BIOLASE Brand Development Research; Final Report Rev. Aug. 2005

³ Kusek, Edward R. "Immediate implant placement into infected sites: bacterial studies of the Hydroacoustic effects of the YSGG laser." *Journal of Oral Implantology* 37.sp1 (2011): 205-211.

⁴ The antimicrobial efficacy of the erbium, chromium:yttrium-scandium-gallium-garnet laser with radial emitting tips on root canal dentin walls infected with *Enterococcus faecalis*: Wanda Gordon, DMD, Vahid A. Atabakhsh, DDS, Fernando Meza, DMD, Aaron Doms, DDS, Roni Nissan, DMD, Ioana Rizoiu, MS and Roy H. Stevens, DDS, *MS JADA* 2007; 138(7): 992-1002.

⁵ The impact of an erbium, chromium: yttrium-scandium-gallium-garnet laser with radial-firing tips on endodontic treatment: U. Schoop, A. Barylyak, K. Goharkhay, F. Beer, J. Wernisch, A. Georgopoulos, W. Sperr, A. Moritz *Lasers in Medical Science*; DOI 10.1007/s10103-007-0520-4.

⁶ The use of the erbium, chromium:yttrium-scandium-gallium-garnet laser in endodontic treatment. The results of an in vitro study: Ulrich Schoop, DDS, MD, Kawe Goharkhay, DMD, MD, Johannes Klimscha, DMD, MD, Manuela Zagler, DMD, Johann Wernisch, TD, PhD, Apostolos Georgopoulos, MD, PhD, Wolfgang Sperr, DDS, MD, PhD and Andreas Moritz, DMD, MD, PhD *JADA* 2007;138(7): 949-955.