The ultimate all-in-one hard and soft tissue laser

LightWalker®
Virtually Unlimited Applications

From Dentistry to Aesthetics

LightWalker® lasers are designed for ultimate versatility, with one of the most comprehensive lists of clinical applications available on any dental laser. With both tipped and tipless handpieces, your clinical options are endless. LightWalker® offers the highest standard of dental treatment as well as simplicity of use in:

- Restorative dentistry
- Endodontics
- Periodontics
- Oral surgery
- Implantology
- Aesthetic treatments
- NightLase®
- PBM and Pain management.

Presets for 80 Different Applications
The LightWalker® touchscreen offers a simple menu of personalized laser treatments. You select the treatment and the laser automatically sets your optimum starting parameters. With easy-to-follow protocols and one-touch treatment settings, you’ll be able to perform every dental procedure with confidence and high success rates, bringing in extra income to your practice along the way. You can even upgrade the AT model to perform aesthetic skin treatments such as skin rejuvenation and removal of benign and vascular lesions.

“...I am no longer limited by the old technology that I used to have. Lasers are the future and certainly that’s why I love my Fotona LightWalker®.”

Jason Pang, DDS
The LightWalker® model AT S comes standard with dentistry’s two most effective laser wavelengths: Er:YAG and Nd:YAG for no-compromise dentistry with a touch of the control screen.

**Universal Laser System**

It is a well-established fact that different dental procedures require different laser wavelengths. Wavelength is important because specific oral tissues react in different ways depending on the particular laser source. With the choice of two complementary wavelengths (in terms of their effect on tissues) LightWalker® comes very close to being a “universal” laser. Practically all laser-assisted dental treatments can be performed with either the most highly absorbed Er:YAG laser wavelength or the most homogeneously absorbed Nd:YAG laser wavelength.

**TwinLight® Treatment Concept**

The combination of the two best wavelengths in one laser system enables practitioners to perform not only single-wavelength but also dual-wavelength (TwinLight®) treatments. Utilizing both wavelengths in a treatment makes optimum use of the unique laser-tissue interaction characteristics of each wavelength. For example, Nd:YAG laser energy is superior for coagulation and deep disinfection while Er:YAG is uniquely efficient at ablating hard and soft tissues. Combined, they can greatly expand the range of treatment possibilities and dramatically improve the outcome of laser-assisted treatments.
Exceptional Power and Range of Pulse Modes

Technology for efficacy and safety

In LightWalker®, both “gold standard” laser wavelengths are produced by solid crystal lasers that can significantly outperform diode lasers in terms of peak power and the range of pulse durations.

**Fast efficient cutting with unmatched patient comfort**

With the advent of QSP technology and higher output power (several kW), the LightWalker® ATS has established a new standard for ablation/cutting speed. This new accelerated cutting speed provides today’s dentists with the speed and precision they demand, while simultaneously increasing patient comfort.

**Precise tissue surgery with simultaneous disinfection**

The homogeneous absorption of the Nd:YAG laser in soft tissue results in controlled tissue vaporization with simultaneous coagulation for superior healing and disinfection.

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*Cutting speed: Er:YAG vs. diamond drill *

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The Technology Behind an Award-Winning Dental Laser

Solutions for experts as well as beginners

The development of LightWalker® is based on Fotona’s 60 years of experience in laser technology, utilizing technologically advanced laser elements that are engineered for ultimate performance in the world of dentistry.

**Third Generation ASP Technology**

LightWalker® and its groundbreaking ASP (Adaptive Structured Pulse) technology represent a cosmic shift forward for the medical and dental laser industry. This third-generation technology combines the unsurpassed range of pulse duration modes of Fotona’s VSP (Variable Square Pulse) technology with the revolutionary capability of ASP technology to adapt the temporal structure of laser pulses to the bio-photonic dynamics of laser-tissue interaction.

**Quantum Square Pulse (QSP)**

By avoiding the hard-tissue debris cloud the laser ablates more efficiently and with greater precision in Fotona’s patented QSP mode because the laser beam is not affected by the debris. By being able to ablate more efficiently, the edges of individual craters are sharp and consistent, providing higher levels of precision and preservation in hard-tissue treatments.

“LightWalker® is amazing. LightWalker® allows us to work in a minimally-invasive way. So with disinfection, coagulation and photobiomodulation I can improve every step of my everyday practice. I am very very proud to be a part of the Fotona Family using LightWalker®.”

Giovanni Olivi, MD, DDS

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Convenience in Use

Designed with the dentist in mind

Easy-to-use touchscreen
LightWalker® has an easy-to-use color touchscreen with an adjustable tilt and 80 customizable presettings that cover more than 40 different applications.

Patented weightless OPTOflex® arm
LightWalker’s unique and patented OPTOflex® Er:YAG articulated arm is designed to transmit a high-power laser beam to the handpiece, while maintaining the quality of the laser beam to ensure precision and repeatability even at the highest settings.

The OPTOflex® arm is perfectly balanced during use, making handpieces completely weightless in your hand. OPTOflex® allows a full range of motion and a maximum degree of control as it makes maneuvering the handpiece much smoother, which improves treatment precision and ease.

Energy Feedback Control
The laser system incorporates a sophisticated double channel safety structure for energy regulation, which contributes to procedure safety. The laser output energy is constantly regulated by a signal from two energy meters.

Tissue Effect Graphical Interface (TeGI)
LightWalker’s TeGI technology provides a precise graphical indication of the laser tissue effect as you select the various treatment parameters. In other words, the system will guide you in terms of the effect on tissue for optimal patient safety, practitioner confidence and ease-of-use.

Easy access spray/heated water reservoir
The integrated spray water container means that you don’t have to rely on any water mains outlet, making your laser system exceptionally mobile and hassle-free. The container is handily located at the back of the system for easy refilling access. Additionally, the water is heated to body temperature, avoiding cold sensitivity reactions during procedures.

Optimal mobility and Wireless footswitch
Four swiveling wheels allow for easy mobility of the laser system. LightWalker® also has an optional wireless footswitch that avoids unnecessary tangling of electric cables on your practice floor.

"The LightWalker® is the easiest, most efficient, clean cutting laser I have ever used. Having both the Er:YAG and Nd:YAG wavelengths in one system easily allows you to switch from one procedure to another at the touch of a button."

Mark Colonna, DDS
Shorter and More Effective Treatments
With LightWalker®, procedures are typically shorter, easier to perform and more effective. Laser treatments are by nature minimally invasive, and LightWalker® takes this concept to a new level.

Patient Comfort
Working with LightWalker® is less stressful for the patient because pain and bleeding are minimal if any. LightWalker® lasers are so gentle for cavity preparations and most soft-tissue procedures that patients rarely require any anesthetic. Laser light allows you to work in a non-contact way and without drilling noise, which is far more comfortable for patients, especially children. LightWalker® also allows you to achieve simultaneous disinfection and prevention of cross-contamination.

Unmatched Flexibility
The Nd:YAG laser source is ideal for root canal disinfection, soft-tissue crown lengthening and numerous other applications. And LightWalker’s Er:YAG laser is compatible with a set of over 20 specialized fiber tips, expertly designed to offer advanced options in conservative dentistry plus an additional range of lucrative, high-quality treatments in endodontics, periodontics, and implant recovery, areas you may otherwise have to refer out to specialists.

Return of investment is quite straightforward with the LightWalker® because, with any kind of treatment, we have big advantages. And it’s easy for the patients to understand what they are. They are happy to have those treatments.

Ilay Maden PhD, MSc
The Fotona endodontic treatment with Er:YAG photoacoustic irrigation successfully addresses the major goals of endodontic treatment: to clean, debride and disinfect anatomically complex root canal systems, including lateral canals and dentinal tubules.

The powerful combination of the revolutionary SSP and SWEEPS® technologies in LightWalker® represents a unique and highly effective solution for modern endodontics.

1. SSP (Super Short Pulse) irrigation (also known as Photon Induced Photo-acoustic Streaming) uses the Er:YAG laser to create non-thermal photoacoustic waves within the cleaning and debriding solutions introduced in the canal. Following this photoacoustic treatment, the canals and sub canals are left clean and the dentinal tubules are free of a smear layer.

2. The latest SWEEPS® (Shock Wave Enhanced Emission Photo-acoustic Streaming) Er:YAG laser modality additionally improves the irrigation and disinfecting efficacy of laser endodontics. By using synchronized pairs of ultra-short pulses, an accelerated collapse of laser-induced bubbles is achieved, leading to enhanced shockwave emission inside even the narrowest root canals.

Resonant R-SWEEPS®
- patented solution for treatment procedure optimisation
- delivers highest possible laser-activated irrigation efficacy
- significantly enhances the effective flushing action of SWEEPS®
- increases pressure generation along the root canal without increasing the risk of apical extrusion
The TwinLight® approach enables wavelength-optimized treatments for minimally invasive periodontal therapy (WPT™), which create favorable conditions for healing periodontal tissues by removing the diseased epithelial lining of the periodontal pocket, removing microbial biofilm and calculus from the root surface and sealing the pocket after treatment with a stable fibrin clot.

Moreover, LightWalker® has been cleared for laser-assisted new attachment procedure and true periodontal regeneration of the attachment apparatus (new cementum, new periodontal ligament, and new alveolar bone) on a previously diseased root surface.

Key Advantages:

- No scalpels, no sutures
- Significantly enhanced treatment success rates
- Shorter recovery times
- Easy-to-follow protocols and one-touch treatment settings

"Lasers are really an essential part of periodontics, I believe. After using lasers in periodontics for 10 years I couldn’t imagine one day trying to do periodontics without a laser. I’d be back in the Stone Age."

Alan Dalessandro, DDS
TwinLight® peri-implantitis treatment combines dentistry’s two best laser wavelengths. Removal of granulation tissue from the alveolar bone and connective tissue with Er:YAG laser is selective. The bactericidal effect of Er:YAG on the surgical site is highly effective and the implant surface is completely cleaned without chemicals. The subsequent Nd:YAG treatment step promotes faster healing by decontaminating and biomodulating the tissue. Inflammation, swelling, and bleeding of soft-tissue lesions, which may lead to bone loss, can be handled without surgery, and healthy peri-implant tissue assures greater long-term implant success.

Key Advantages:
- Minimally-invasive technique
- No thermal or mechanical damage to the surrounding bone
- Fast regeneration/healing
- Reduced inflammatory response

“For me, the bestselling application is immediate implantation. Very often, when the tooth is fractured and you have to extract the root, there is a granulation soft tissue. With the laser I’m able to clean it thoroughly. I can disinfect the bone. So it’s quite safe and predictable to do immediate implantation.”

Michał Nawrocki, DDS, MSc
TouchWhite® patented tooth whitening makes use of the fact that the Er:YAG laser wavelength has an absorption peak in water, which is the major component of aqueous bleaching gels. This eliminates the need for any additional absorbing particles in the bleaching gels. More importantly, taking into account thermal burden considerations, the TouchWhite® procedure represents the most effective and least invasive laser-assisted tooth whitening method possible.

Due to its high absorption in bleaching gels, the Er:YAG laser beam is fully absorbed in the gel and does not penetrate to the hard tissue or the pulp. All of the laser energy is thus effectively used for the heating of the gel.

There is no direct heating of the dental tissue and the pulp, as is the case with other laser-assisted whitening methods. There is also no risk of accidentally damaging the hard dental tissue as the laser fluence of every laser pulse is set to be significantly below the ablation threshold for dental tissues. As a consequence, the procedure can be performed with a minimal undesirable thermal burden on the tooth, and the tooth whitening speed can be safely increased by 5 – 10 times.

With TouchWhite® whitening, only the gel is heated (a) while with standard laser whitening the entire tooth is heated (b).

“*It is a very safe, very efficient, non-invasive technique due to the short application time of the product. So no sensitivity, no over-bleaching. I’m very happy.”

Rita El Feghali, DDS, MSc

Facial Aesthetic Treatments

In today’s competitive healthcare industry it makes sense to widen horizons and develop strong healthcare partnerships through additional services. Apart from providing a wide range of hard- and soft-tissue dental treatments, Fotona’s LightWalker® AT-S laser system also enables many popular facial aesthetic treatments which can draw a completely new clientele to your practice and offer more to your patients.

Benign skin lesions are quickly removed with a minimally invasive and fast-healing Er:YAG treatment.

Facial spider veins, telangiectasias and hemangiomas are removed with long-pulsed Nd:YAG via complete occlusion of the vessels.

Long-pulsed Nd:YAG ensures penetration to the deepest hair follicles to remove hair efficiently and safely, regardless of skin type, without affecting the surrounding skin structures.

Unique Fotona SMOOTH® mode
Fotona’s revolutionary non-ablative Fotona SMOOTH® mode treats the skin in a smooth, almost “feather-like” non-ablative manner, without bleeding and with precisely controlled temperature deposition. This makes it ideal for skin tightening. The intense, controlled surface tissue heating stimulates collagen remodeling and initiates neocollagenesis. The result is an overall improvement of wrinkles, skin laxity and elasticity.

Facial spider veins, telangiectasias and hemangiomas are removed with long-pulsed Nd:YAG via complete occlusion of the vessels.

"To be a dentist in the 21st century you have to get out of the mouth."

Linhlan Nguyen, DDS
In contrast to injectable fillers, the LipLase® Fotona SMOOTH® Er:YAG treatment is completely non-invasive, creating more volume by stimulating natural collagen and elastin production within the lips.

"If you just look at the business perspective, adding on what you are not already doing is probably the best option. If you’re not doing any facial aesthetics, you start doing that with the LightWalker®. I think that’s a big change."

Ilay Maden, PhD, MSc
NightLase® treatment is a patented, fast, non-invasive and friendly way of increasing the quality of a patient’s sleep. NightLase® lessens the effects of sleep apnea and decreases the amplitude of snoring through the use of gentle, superficial Er:YAG laser light. No anesthesia is used in this treatment.

During NightLase® treatment laser light gently heats the tissue, causing tightening of the tissue. It is gentle enough to be used on the sensitive tissue inside the mouth, but strong enough to provide clinically efficacious heating. NightLase® is easy for any doctor or dentist to perform and has a high success rate in producing a positive change in sleep patterns. Research has shown that NightLase® reduces and attenuates snoring and provides an effective, non-invasive way to lessen the effects of sleep apnea.

Images of one of the patients before (left) and after (right) three NightLase® treatments. (Shiffman et al. 2021)

Airway volume before and after NightLase® treatment showing increase in both total volume and area of minimum constriction. (Lee CYS, Lee CCY 2015)

Key Advantages:
- Safe and non-invasive
- Lessens the effects of snoring and sleep apnea
- Increases the quality of a patient’s sleep
- Extremely easy for any doctor or dentist to perform

“What attracted me to the LightWalker® was its ability to do aesthetic treatments as well as NightLase, a non-ablative laser treatment for snoring. The LightWalker® AT-S in my opinion is at the top of the game. I cannot imagine how the technology could be improved.”

Linhlan Nguyen, DDS
Photobiomodulation (PBM) utilizes low-level, visible-red to near-infrared light energy, which stimulates cells to naturally heal, relieve pain and reduce inflammation. LightWalker’s Nd:YAG laser light has an optimal infrared wavelength that penetrates homogeneously into the tissue. The effect of the Nd:YAG wavelength on healing through the stimulation of growth factors is thus substantially higher than with other wavelengths.

The process creates three key mechanisms of action:

1. PBM energy is absorbed in mitochondria in the cell and results in an increase in ATP, a natural fuel for cell activity and metabolism.
2. The process creates mild oxidants (ROS), which leads to cellular repair and healing.
3. PBM therapy helps to dilate blood vessels and improves blood circulation.

Key Advantages:
- Safe, non-invasive and effective treatment
- Analgesic and anti-inflammatory effect
- Accelerated tissue regeneration
- Stimulation of micro-circulation and cell metabolism
- Increased lymphatic flow
- Patient and practitioner friendly
# The LightWalker® Range

## Laser model comparison chart

<table>
<thead>
<tr>
<th>Model</th>
<th>AT S</th>
<th>ST-E Pro</th>
<th>ST-E Pro Plus</th>
<th>ST-E Advanced</th>
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<td><strong>Er:YAG</strong></td>
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<td>SWEEPS, QSP, SSP, MSP, SP, LP, VLP</td>
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### Special Features

- Photoacoustic Endodontics
- Variable Square Pulse Technology
- Electronic Spray Control
- Quantum Square Pulse
- Wireless Footswitch

- Titanium Handpieces
- Digitally Controlled Dental Handpiece
- Multiple Er:YAG Fiber Tips
- Automatic Handpiece detection
- Tissue Effect Graphical Interface

- Superior Power
- Facial Aesthetic Treatments
- TouchWhite® Laser Assisted Tooth Whitening
- TwinLight® Perio Treatment
- Peri-implantitis Treatment

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New Revolutionary Adaptive Structured Pulse Technology
To get the most out of your LightWalker® system, our practitioner workshops, coorganized with the Laser and Health Academy, provide hands-on demonstrations of our lasers from international clinical experts. Fotona also works closely with other leading educational authorities in the field of laser dentistry to offer the LA&HA Master’s program to help you on your path to becoming a top laser specialist.

Key benefits of the LA&HA Master’s Program include:

- **200 hours** of active training by high-level industry experts and skilled professionals in multiple fields of dentistry
- **Module-based training** in a supportive and highly functional educational setting with the most efficient and up-to-date laser technologies
- **Hands-on clinical training** sessions with close supervision at advanced and highly experienced dental laser centers (live modules only).

“*I’ve been using lasers for quite a while now and the amount of information that I’ve picked up over LA&HA Master modules has been really significant. For new laser users and even for experienced laser users I would very much recommend doing this course.*”

Dr. Timothy Johnston, Australia
Advanced Easy-to-use Handpieces

**Er:YAG**

**H02-N**
Tipless (non-contact), 90°-angled Er:YAG handpiece

**R15**
Dermatological, straight handpiece, with collimated 3 mm spot size

**H14-N**
90° degree tipped Er:YAG handpiece and straight tipped Er:YAG handpiece

**R16**
Dermatological, straight handpiece, with collimated 7 mm spot size

**H14-NS**
90° degree tipped Er:YAG handpiece and straight tipped Er:YAG handpiece

**PS04**
Pixel structure Er:YAG handpiece with 7 mm spot size

**R17**
Tipless, non-contact Er:YAG straight handpiece with a collimated beam at 5 mm spot size

**PS04-LA**
Pixel structure Er:YAG handpiece with intraoral LA adapter (spot size 10 mm)

**LA adapter**
Intraoral adapter for Er:YAG R16 and Nd:YAG (Genova, MarcCo S) handpieces

**X-Runner**
Robotic Scanner
deep, wide and precise geometrics up to 6 mm in diameter
Nd:YAG

**R21-C3**
300 µm fiber-optic Nd:YAG handpiece

**R21-C2**
200 µm fiber-optic Nd:YAG handpiece

**R30-A**
Nd:YAG dermatological handpiece with a variable 2 to 8 mm spot size

**MarcCo S**
Unique collimated homogeneous Nd:YAG beam with 10 mm spot size

**MarcCo M**
Unique collimated homogeneous Nd:YAG beam with 24 mm spot size

**MarcCo L**
Unique collimated homogeneous Nd:YAG beam with 43 mm spot size

**Genova**
Unique collimated homogeneous Nd:YAG beam with 10 mm spot size
Fotona's 55 years of laser experience has inspired some of the world's most advanced multi-application dental laser technologies. At the heart of Fotona's medical lasers are high-performance, solid-state crystal laser sources that generate the industry's proven and effective treatment wavelengths. These 'golden-standard' wavelengths are well suited for handling an exceptionally wide range of dental and facial aesthetic procedures. Fotona's proprietary handpieces, innovative operating modes and advanced beam-profile technologies further enhance these medical wavelengths to ensure maximum performance and efficacy.