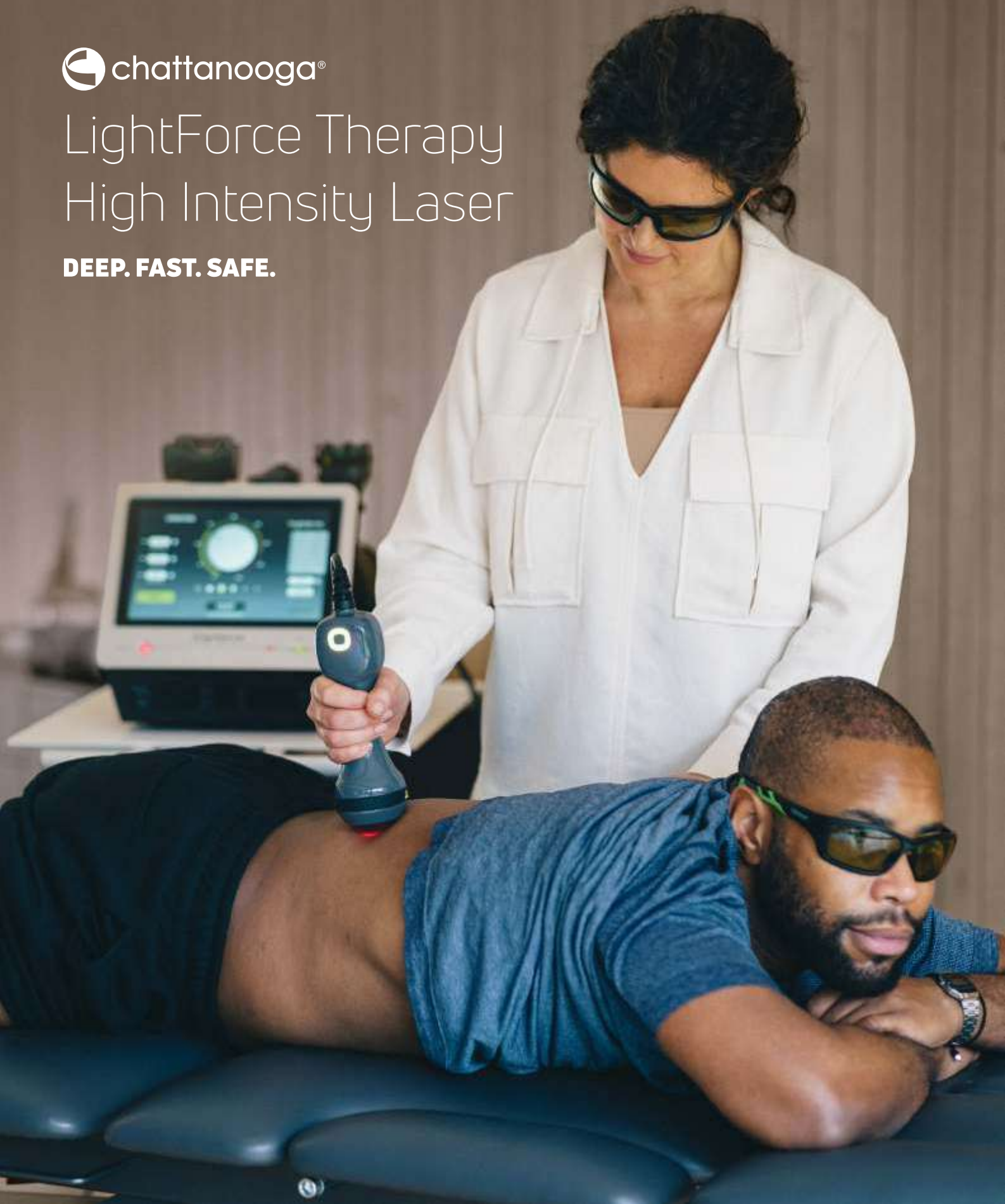


enovis™

chattanooga®

LightForce Therapy
High Intensity Laser

DEEP. FAST. SAFE.





Creating Better Together™

Enovis® is a world leading orthopaedic company focused on helping people maintain and regain the joy of natural mobility. Offering a diverse portfolio of products and solutions to prevent injury, rehabilitate muscles, bones and joints and treat pain, we strive to help people live their lives to the fullest. We believe that our powerful brands, comprehensive range of products, extensive distribution network, unwavering focus on quality, innovation and customer service, and our strong relationships with orthopaedic and physical therapy professionals have all contributed to our leading market position. We have award winning manufacturing facilities across the globe with industry leading product design teams to continue the development and production of new products.

THE POWER OF INTEGRATED BRANDS

We stand out as a collection of integrated brands. Brands that have already established their name and reputation in the marketplace. Each product brand retains its individuality with the support of the ENOVIS™ corporate umbrella. Taken together, the Enovis product range delivers an unparalleled continuum of care.

AIRCAST®

chattanooga®



COMPEX®

DONJOY®

Dr.Comfort®

Lima Corporate

PROCARE®

MOTIONMD®

ADAPTABLE®

AltiVate®

ARVIS®

enovis™

EMPOWR™

STAR®

TRILLIANT™

MATHYS
a company of enovis.

Chattanooga® is the world's largest manufacturer of rehabilitation equipment for treating musculoskeletal, neurological and soft tissue disorders. For over seven decades, Chattanooga has set a benchmark for leadership, reliability and excellence. Our products contribute to better treatment outcomes in hospitals and private clinics worldwide.



PROUD OF OUR PAST. READY FOR YOUR FUTURE.

75+ YEARS



Bruce Spears VP	John Maley Owner	Jack Walker Co-founder	Hank Kanies Sales
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1947 Founded in Chattanooga, Tennessee, by local athletic trainer Lee Jensen and his business partner Jack Walker, the Chattanooga Group began life as Chattanooga Pharmacal Company



1977 Traction Released the first motorized traction system, the TX[®] Traction Unit



2004 CPM, Cefar Tens and Complex ARTROMOT CPM, CEFAR[®] Tens and Complex[®] added to the product portfolio



2020 Next Gen SW and Electrotherapy GENERATION 2020 A new generation of electrotherapy and RPW devices are launched



1948 Hot and Cold Therapy Chattanooga entered the hot and cold therapy market with the introduction of the Hydrocollator[®] Moist Heat Steam Pack[®]



1981 Intellect Ultrasound Launched the first Intellect[®] device, the Intellect[®] 200 ultrasound unit



2011 Shockwave Entered the Shockwave market, been a success story and main driver of our growth in International



2021 High Intensity Laser Therapy DJO acquires LiteCure, making Chattanooga the world's largest High Power Laser manufacturer and provider

LIGHTFORCE

LightForce devices are known around the world for innovative technology and evidence-based treatment solution.

With thousands of customers across the globe, Chattanooga estimates over 1 million treatments are performed per month with LightForce solutions.

Understanding Terminology

LightForce Therapy devices provide high intensity laser therapy (HILT) enabling photobiomodulation (PBM) to take place at cellular level.

“Cold Laser”, “Low-Level Laser Therapy (LLLT)” and “Low-intensity Laser Therapy (LILT)” are all terms previously used in the laser therapy field. The key point is that laser therapy, no matter the terminology used, affects the body through a process called photobiomodulation (PBM).

More recently, based on a consensus in the field, the term photobiomodulation therapy (PBMT) was added to the National Library of Medicine MeSH database as an entry term to the existing record of laser therapy.¹



Physical Agent
Laser Light

Clinical Effect
Photobiomodulation (PBM)

Modality
Photobiomodulation Therapy (PBMT) / HILT / LLLT...

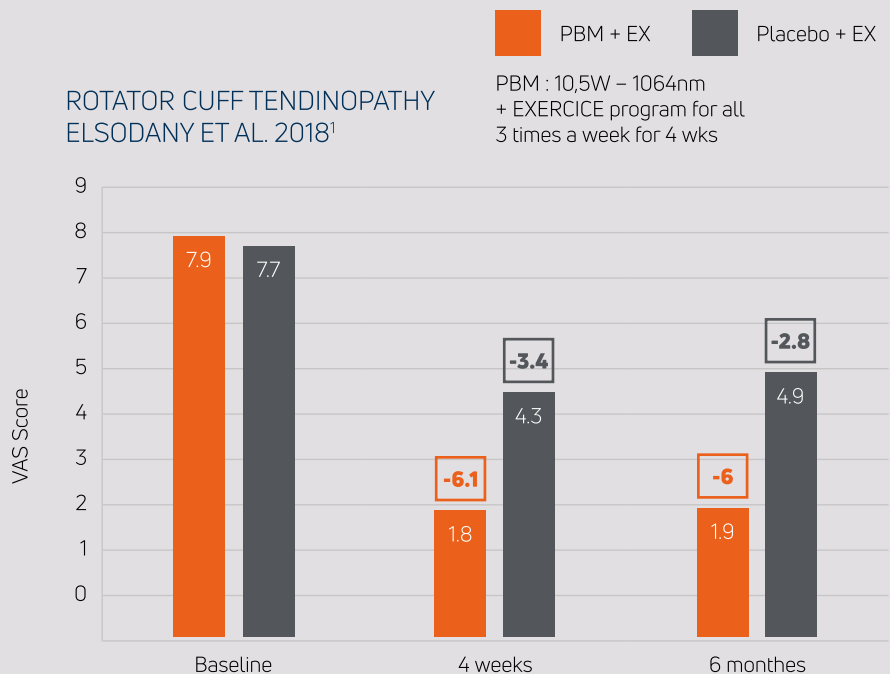
LightForce THERAPY
is our own modality

1. Anders JJ, Lanzafame RJ, Arany PR. Low-level light/laser therapy versus photobiomodulation therapy. Photomedicine and Laser Surgery. 2015; 33(4):183-184

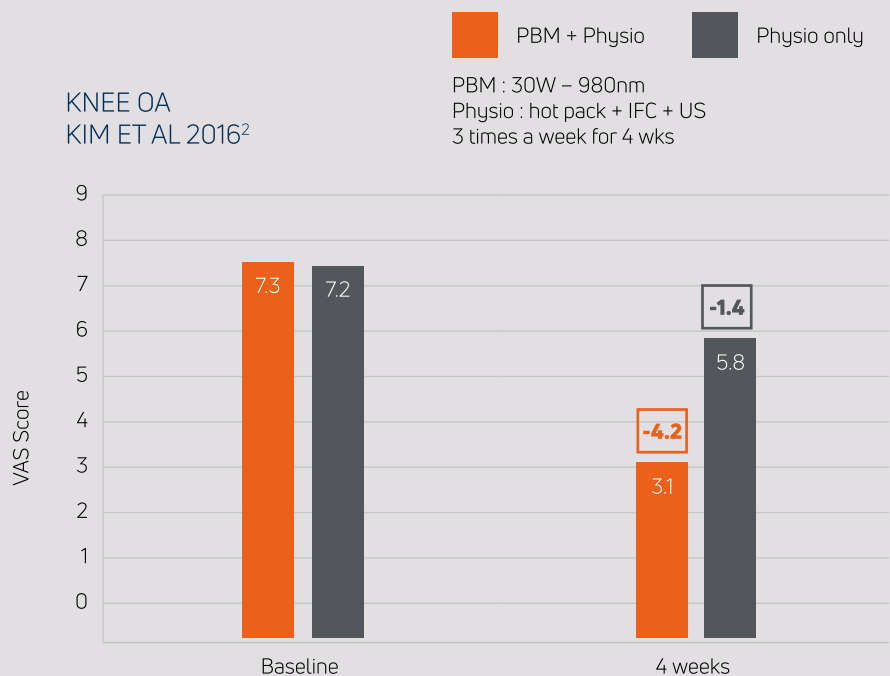
LIGHTFORCE THERAPY INDICATIONS

LFT CAN ADDRESS PAIN AND TISSUE REPAIR ASSOCIATED WITH:

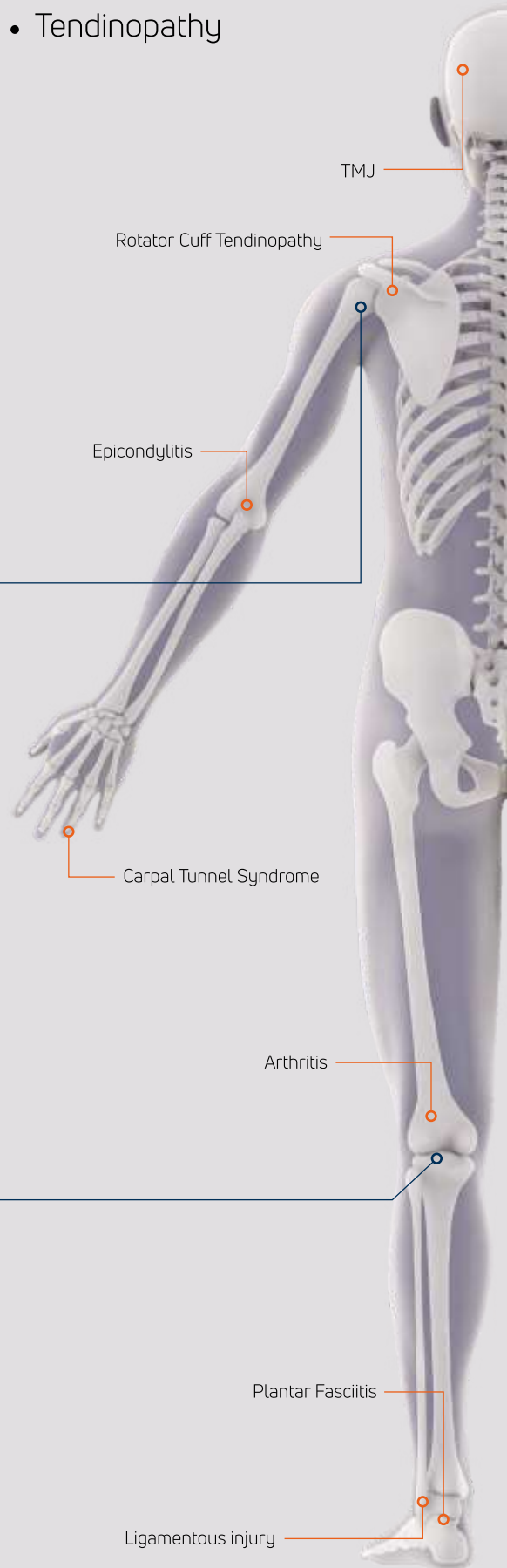
- Back pain
- Tendinopathy



SIGNIFICANT AND LONG TERM IMPROVEMENT OF SYMPTOMS ASSOCIATED WITH ROTATOR CUFF TENDINOPATHY¹



BETTER RESULTS ON IMPROVEMENT OF PAIN AND FUNCTION IN KNEE OA PATIENTS WHEN PBM IS ADDED²



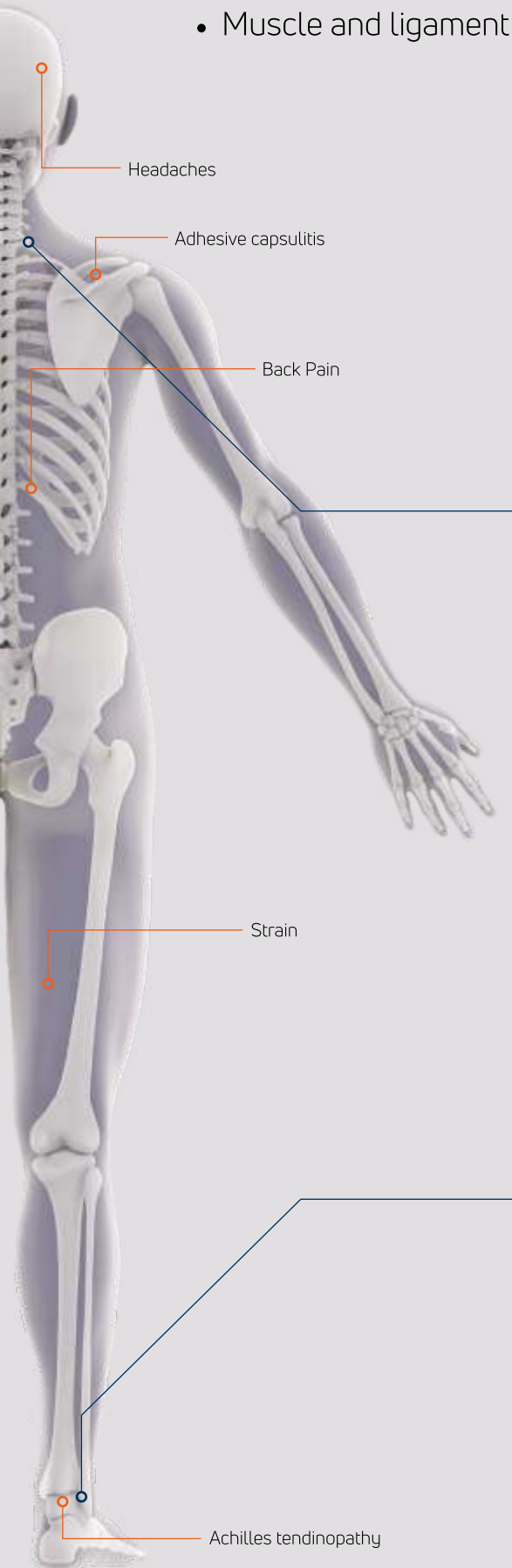
1- ElsodanyAM, AlayatMSM, Ali MME, KhapraniHM. Long-Term Effect of Pulsed Nd:YAGLaser in the Treatment of Patients with Rotator Cuff Tendinopathy: A Randomized Controlled Trial. PhotomedLaser Surg. 2018 Sep;36(9):506-513.

2- Kim GJ, Choi J, Lee S, Jeon C, Lee K. The effects of high intensity laser therapy on pain and function in patients with knee osteoarthritis. J Phys Ther Sci. 2016 Nov;28(11):3197-3199



- Arthritis
- Muscle and ligament injury

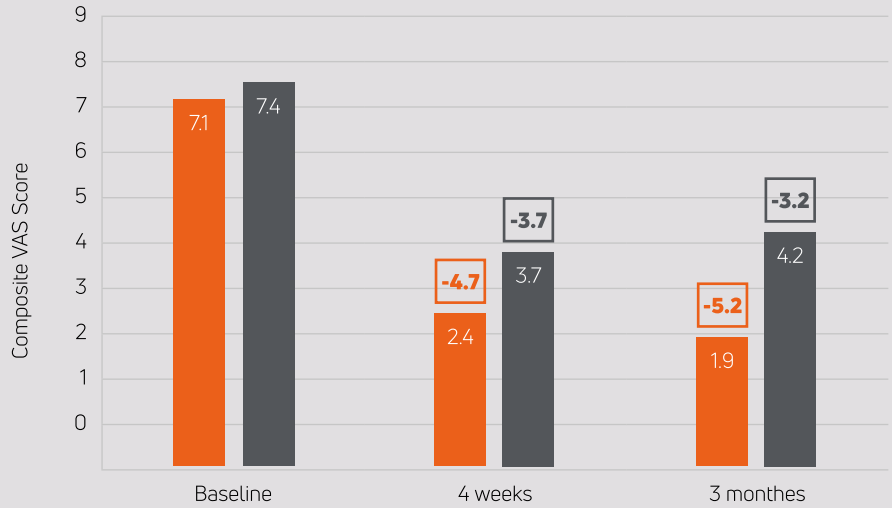
- Bursitis / Capsulitis
- Nerve compression / Radiculopathy



NECK PAIN INCE ET AL. 2023³

PBM + EX **Placebo + EX**

PBM : 10,5W – 1064nm
+ EXERCICE program for all
5 times a week for 4 wks

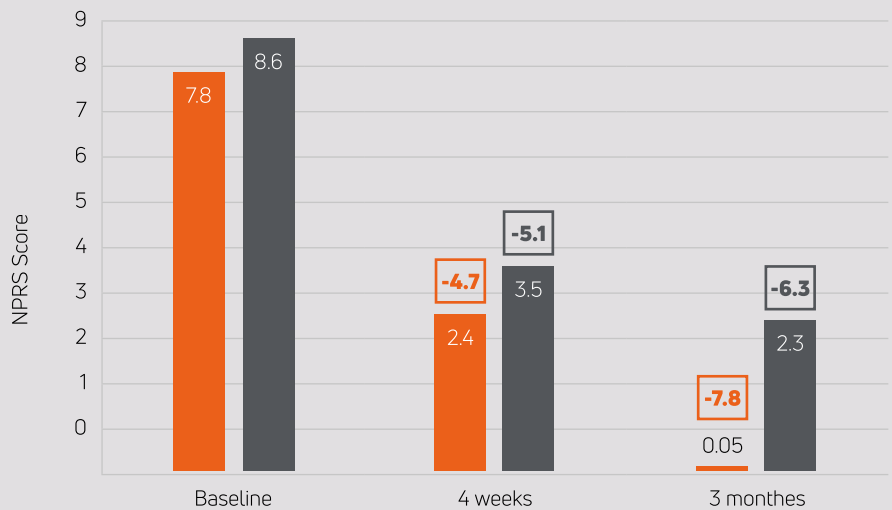


SIGNIFICANT AND LONG TERM IMPROVEMENT OF SYMPTOMS ASSOCIATED WITH CERVICAL RADICULOPATHY WITH PBM AS ADJUNCT TO EXERCISE³

ACHILLES TENDINOPATHY TUMILTY ET AL. 2016⁴

PBM + EX **Placebo + EX**

PBM: 10W-810-980nm 3 times a week for 4 wks
+ EXERCICE program for all, 2 times a week



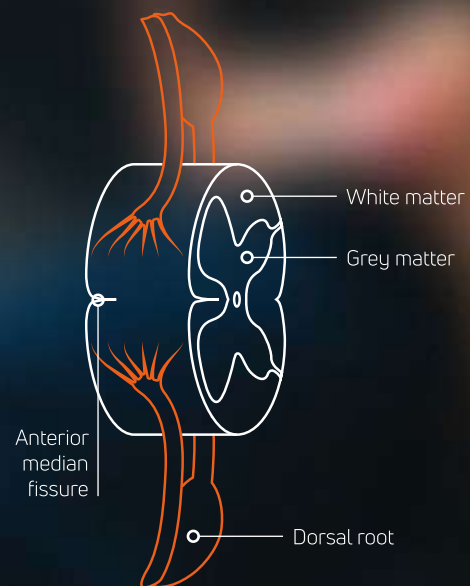
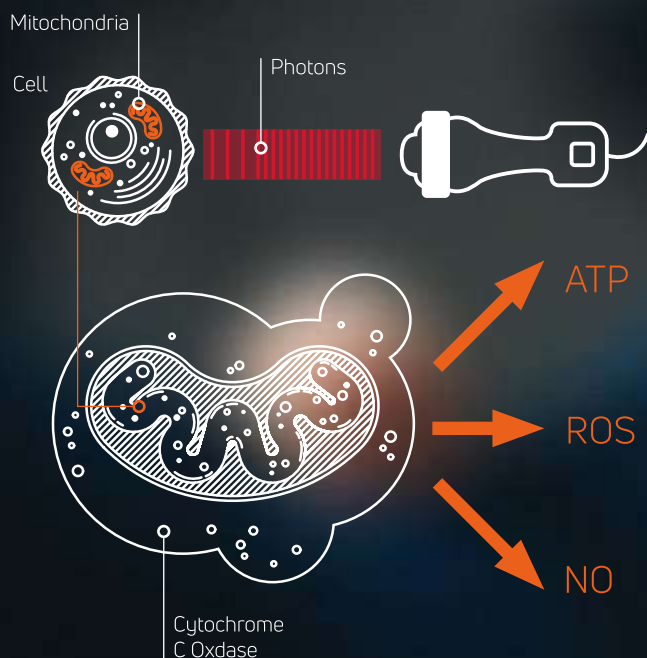
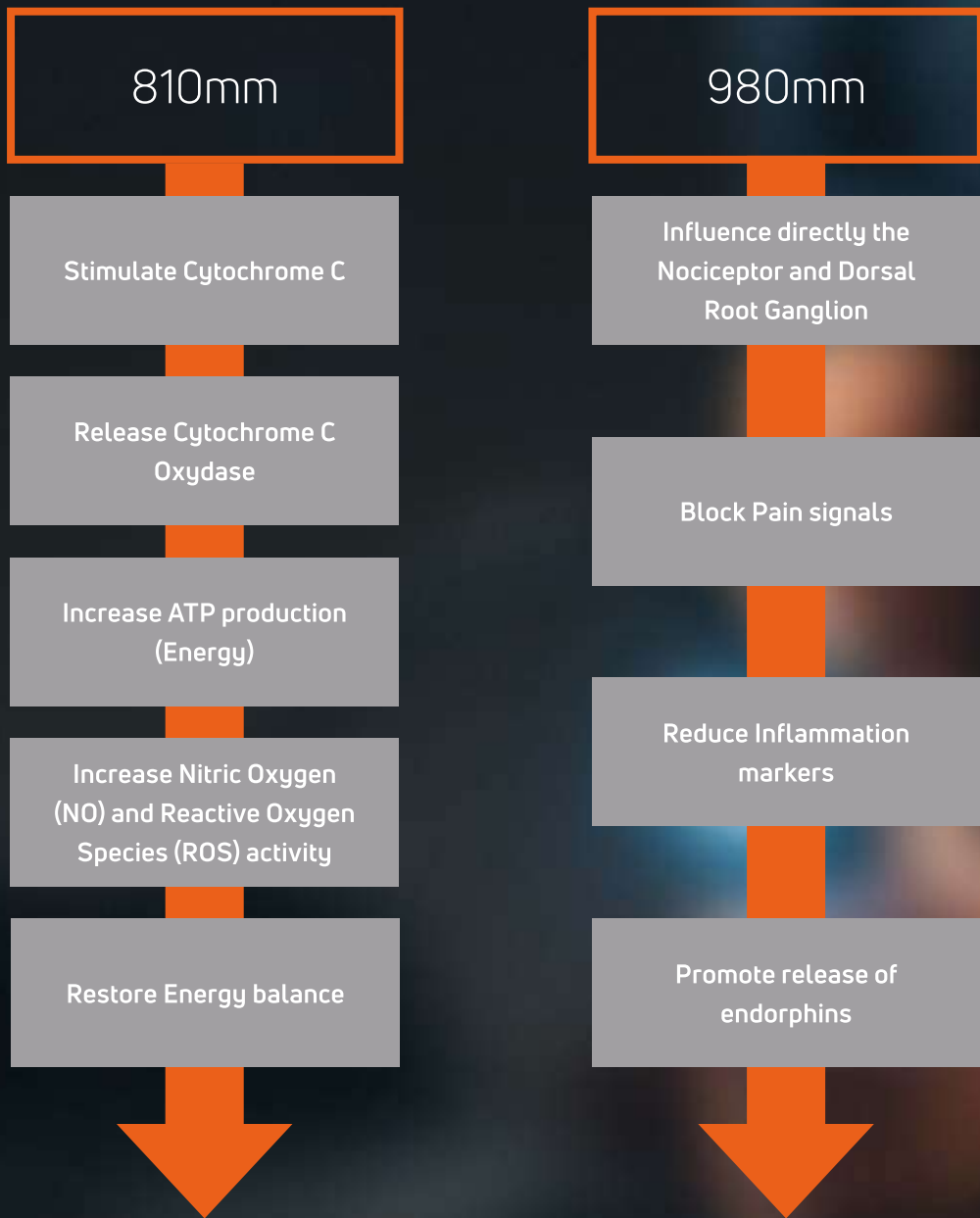
IMPROVED OUTCOMES FOR ACHILLES TENDINOPATHY WITH PBM AS ADJUNCT TO EXERCISE TWICE A WEEK⁴

3 - Ince S, Eyvaz N, Dündar Ü, Toktaş H, Yeşil H, Eroğlu S, Adar S. Clinical Efficiency of High-Intensity Laser Therapy in Patients With Cervical Radiculopathy: A 12-Week Follow-up, Randomized, Placebo-Controlled Trial. Am J Phys Med Rehabil. 2024 Jan 1;103(1):3-12.

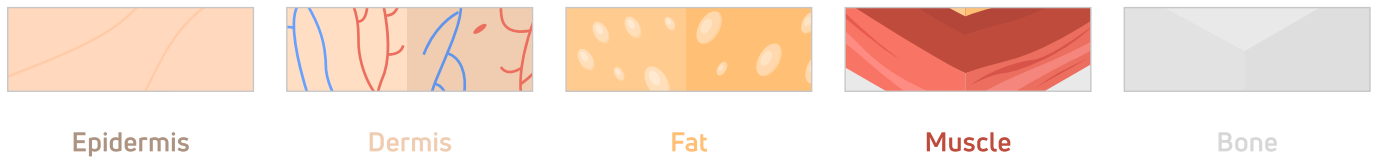
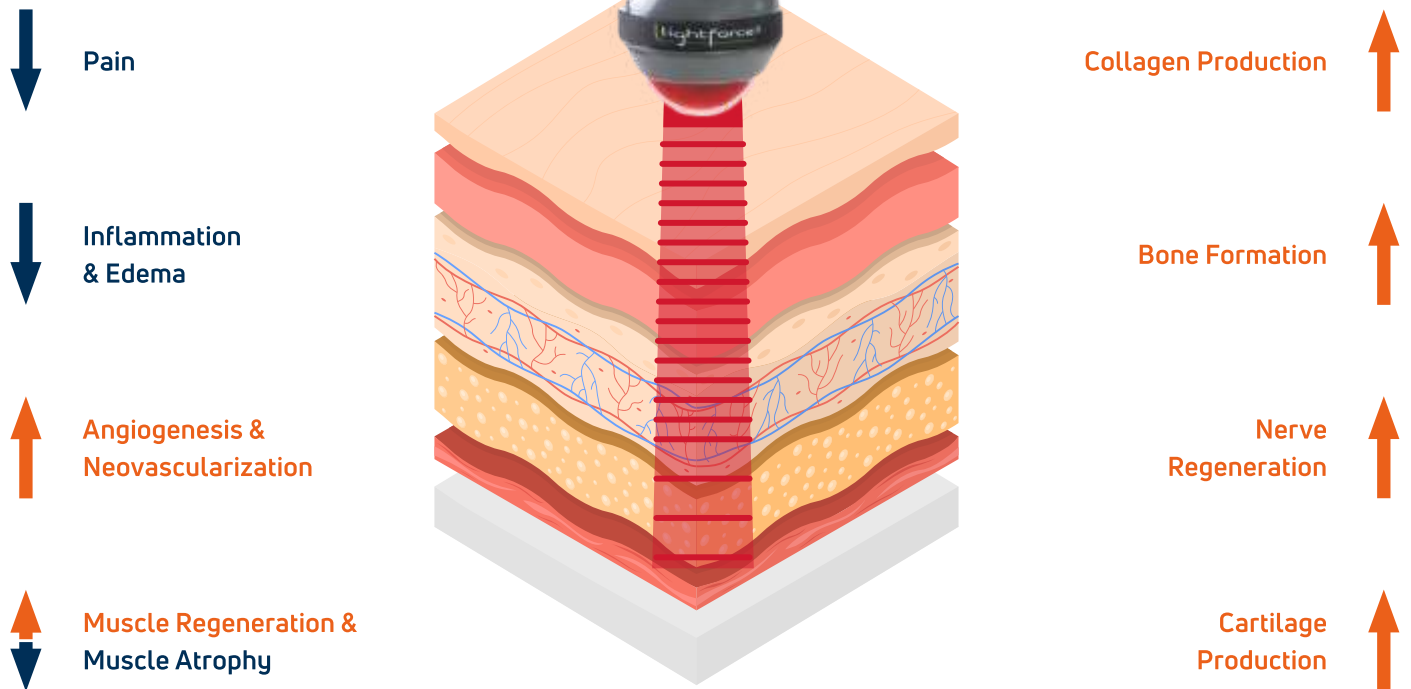
4 - Tumilty S, Mani R, Baxter GD. Photobiomodulation and eccentric exercise for Achilles tendinopathy: a randomized controlled trial. Lasers Med Sci. 2016 Jan;31(1):127-35.



HOW DOES LIGHTFORCE THERAPY WORK?



BENEFITS



TOP BIOLOGICAL EFFECTS OF LASER THERAPY¹

Analgesic effect

Laser therapy of diseased and damaged tissue produces a suppression of hypersensitive nociceptors, normalization of the membrane firing threshold, and an increased release of tissue endorphins, amongst other mechanisms. In addition to the reduction in inflammation, the result is a decreased patient perception of pain.

Decreased inflammation and swelling

Laser therapy reduces inflammation through several mechanisms especially via the reduction of pro-inflammatory mediators. Facilitating lymphatic drainage can significantly reduce swelling as well. As a result, inflammation, erythema, bruising, and oedema are reduced.

Improved vascular activity

Laser light increases the formation of new capillaries in damaged tissue. This improves blood supply to areas with poor circulation.

Accelerated tissue repair and cell growth

Photons of light from lasers penetrate deeply into tissue and accelerate cellular reproduction and growth. Laser light increases the energy available to the cells so that they can take on nutrients and get rid of waste products more quickly.

Improved nerve function

Slow recovery of nerve function in damaged tissue may result in numbness and impaired limbs. Laser therapy accelerates nerve cell regeneration.

Trigger points and acupuncture points

Laser Therapy treats muscle trigger and acupuncture points without mechanical invasion to aid in providing musculoskeletal pain relief.

Immunoregulation

Therapy laser photons have an effect on the immune system's status through modulation of the immune response.

(1) Chung H, Dai T, Sharma SK, Huang YY, Carroll JD, Hamblin MR. (2012), The nuts and bolts of low-level laser (light) therapy. Ann Biomed Eng. Feb;40(2):516-33

POSITIVE OUTCOMES ARE **DOSE** DEPENDENT

High Intensity laser light needs to reach the mitochondria of the damaged target tissue and the best results are achieved with a sufficient amount of light (number of photons = DOSE).

RECOMMENDATIONS FOR DOSAGES

Our recommendations used in our Protocols

Average Subacute indication	10 J/cm²
Superficial tissue	6 J/cm²
Deep tissue	15 J/cm²
Acute / Inflammation	Decrease dosage by 20%
Chronic problem	Increase dosage by 20%

“USING THE CORRECT DOSAGE CAN SIGNIFICANTLY REDUCE PAIN AND EXPEDITE THE HEALING PROCESS (1).”

CALCULATE THE DOSE NEEDED

DOSE (JOULES) = RECOMMENDED DOSAGE (J/CM²) X TREATMENT AREA (CM²)

Example :

Indication Deep and Chronic => 15 J/cm² + 20% = 18 J/cm²

Treatment area => equivalent 2 palms : 200cm²

Total DOSE needed = 18 x 200 = 3600 Joules

Treatment area can be calculated in number of hand palms or CD size (around 100cm²)



TREATMENT TIME (SECONDS) = TOTAL DOSE NEEDED (JOULES) / POWER APPLIED (WATTS)

The delivery of this DOSE will depend on POWER and TIME. The higher power means shorter the treatment time.

Example : 3600 Joules to be delivered

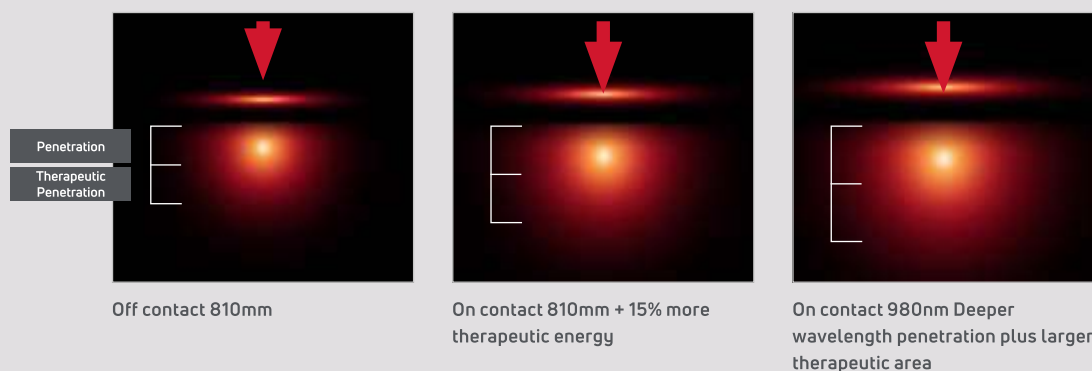
at 1 Watt => 3600 seconds (1 hour)

at 10 Watts => 360 seconds (6 minutes)

at 20 Watts => 180 seconds (3 minutes)

Preset protocols are set following these rules. In addition, the Perfect protocol© guide will help to configure the most customized treatment parameters possible for better outcomes.

CONCLUSION



The bright area shows the light penetration of 1W delivered in 1 second. The therapeutic effect on cells exceeds this area (shown in red).

FACTORS INFLUENCING THE DOSE DELIVERY

1. HIGH CONTINUOUS POWER

The higher the Power delivered to the skin,

- the more important the dose to the target tissue,
- the deeper the penetration,
- the shorter the treatment time,
- the better the pain blocking effect.



2. IMPROVING LIGHT PENETRATION

When contact between the Laser head and the skin :

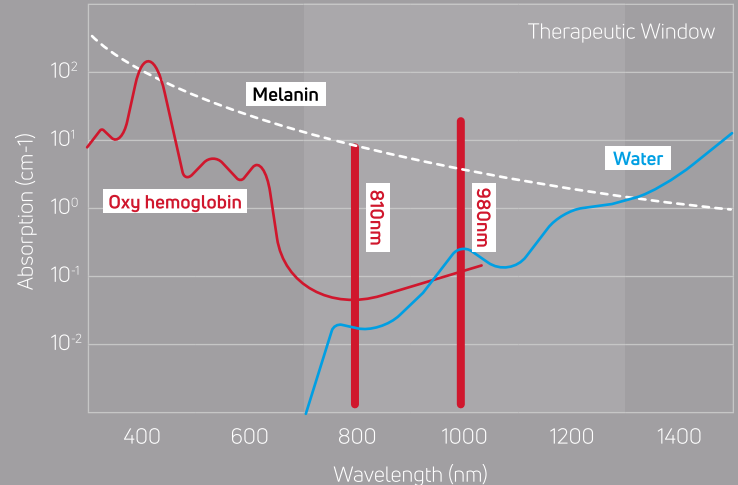
- Compression removes competing blood chromophores (blanching),
- Opens hair follicles,
- Reduces light reflection on the skin between 4-7%,
- Collimated beam improves light transmission by increasing energy density,

Energy transmitted to the tissues increased by 15%.



3. WAVELENGTH MINIMIZING UNWANTED ABSORPTION

- Interest to both 810 and 980 nm wavelengths due to their ability to be preferentially absorbed by musculoskeletal tissues.
- They also minimize the interference of melanin which has an affinity for shorter wavelengths as well as the impact of water within the body which preferentially absorbs longer wavelengths.
- Energy that is absorbed by melanin or water in the body is energy that is lost at the target tissue.
- The wavelength ratio has to be set depending on the skin colour (melanin concentration).

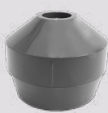


**HIGH CONTINUOUS POWER + ON CONTACT TREATMENT
+ RIGHT WAVELENGTHS = THERAPEUTIC EFFICIENCY**

THE LIGHTFORCE SOLUTION



EXCLUSIVE LIGHTFORCE® TREATMENT HEADS



Small Cone
Up to 6W only. OFF CONTACT (10 cm away from the skin maximum). To treat very narrow or precise areas.



Small Massage Ball
Up to 6W only. ON CONTACT only. To treat trigger points, around the face, fingers or toes.



Large Cone
OFF CONTACT. To treat large areas or deep tissues when need of high power settings. Not recommended around the face or on small areas.



Rolling Pin
ONLY with 40W – XLi. ON CONTACT only. To treat large areas with an easy movement, reducing light energy loss and allowing physical compression of tissue.



Flat Window
Up to 6W only. OFF CONTACT (10 cm away from the skin maximum). To treat superficial tissues or with bony prominences.



Large Massage Ball
ON CONTACT only. Most common used, to treat problems on back, hips and large muscle groups.



XL Cone
ONLY with 40W – XLi. OFF CONTACT. To keep high power treatment comfortable even at over 25W (Spot size twice bigger than Large cone). To treat large areas or deep tissues when need of high power settings.

TREAT DEEPER, FASTER AND EFFICIENTLY...

HIGH POWER AND EFFECTIVE WAVELENGTHS

- **High power** delivered in continuous mode: 40W, 25W or 15W.
- **Average treatment time** of 4-7 minutes.
- **Clinically proven wavelength:** 810 and 980nm wavelength are the most recognized wavelength in laser research.

ON CONTACT TREATMENT WITH EXCLUSIVE MASSAGE HEADS

- **Limited reflection** on skin thanks to the patented on-contact delivery system.
- **More energy transmitted** - up to 15% - by compressing the tissue and "blanching" the superficial blood vessels.
- **Manual tissue work** while delivering energy.
- **Consistent light distribution** promoting warming and soothing comfort.

The exclusive LightForce® patented massage ball allows the clinician to treat patients on-contact.

Compression

The on-contact massage ball compresses superficial tissues, displacing excess fluid and helping to enhance laser penetration to deep structures. This compression reduces the impact of superficial absorbers.

Collimation

The massage ball acts to keep the light beam collimated, helping to reduce energy loss.

Refractive Index

The fused silica composition of the massage ball helps minimize light loss as it passes from the massage ball into the skin.

Reflection

On-contact application of delivery to tissue minimizes energy loss due to reflection.



...MOST MUSCULOSKELETAL PATHOLOGIES...

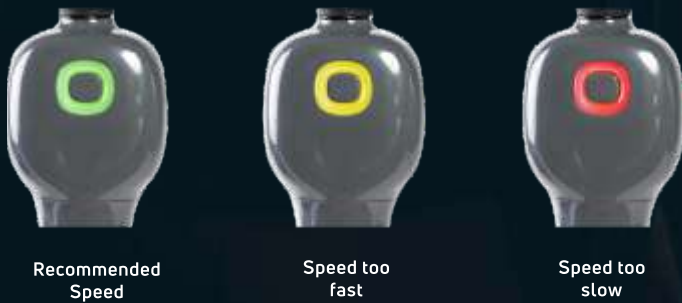
Accurately dose and create consistent outcomes for multiple conditions thanks to customizable protocols accounting for: chronicity, body mass, height, skin tone.

Patient specifications such as condition, body type, and skin type are taken into account. The in-depth protocol settings provide recommended parameters on treatment heads and power levels to aid in clinician confidence and reduced learning time.



...WITH A SAFE, SMART AND USER-FRIENDLY DEVICE

- **Safety recognized:** Safe Class IV laser on the market. The only one classified as Class IIa according to the EU medical devices classification.
- **Consistent outcomes and improved patient comfort** thanks to the software helping with head selection and optimizing power density.
- **Easy customization of treatment parameters** for advanced users thanks to Perfect Protocol©.
- Smart Handpiece© allows for:
 - **Consistent dosing**
 - **Safer treatment** by minimizing risk of skin overheating with real-time visual and sensory feedback.
 - **Easier training** for new users



- **Quick and easy head change** with bayonet release.
- **Most durable fiber** on the market. Extra long for user convenience.
- **Long period of use** thanks to a reliable cooling system.

...AND MORE : EDUCATION AND SERVICE

- Able to interact directly with manufacturer/ Industry leading customer service.
- Support available on how to attain return on investment.
- Expert technical training on dosing/ treatment concepts.
- Ability to save preferred protocols.
- Certified installation/ safety check list.
- Patient information material delivered with device in local language.

Enovis Institute



Contraindications

- Do not treat over growth plates in children
- Do not treat pregnant patients over the abdominal area or the low back/pelvic area
- Avoid treating around glandular tissue (such as thyroid, testes, ovaries)
- Do not treat over pacemakers or internal pain pumps
- Do not treat patients taking photosensitive medications (such as steroids or antibiotics)

FREQUENTLY ASKED QUESTIONS

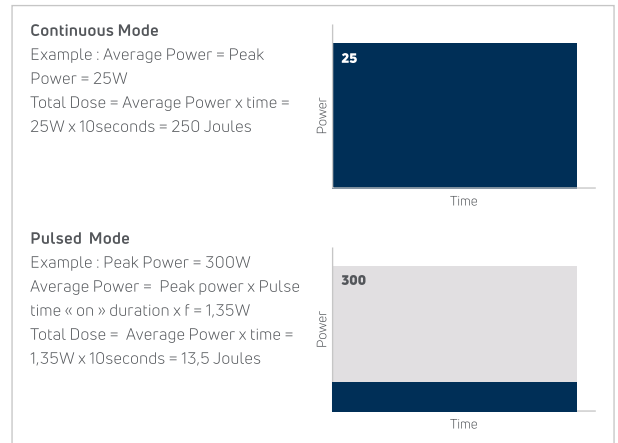
NUMBER OF WAVELENGTHS ?

There is no magic wavelength, The target cell, Cytochrome C, is generous, absorbing, and responding to, everything from 600nm out to 1064 and beyond. The trick is getting the light to the tissue with the help of Power. And blending 808 and 980nm based on skin color and other parameters, **is the most well understood, and clinically proven approach.**

WHAT ABOUT SUPERPULSING ?

The "on" time, the pulse duration, is equal to microseconds (s 10^{-6}) and nanoseconds (s 10^{-9}). **The dose of energy (amount of light) delivered to tissues is miniscule and does not allow to trigger the photobiomodulation in an optimal way.**

The literature does not support the claims made for this feature as it has been demonstrated that the optimal laser emission to trigger photobiomodulation must be continuous or pulsed with a pulse duration of at least few milliseconds (10^{-3} seconds), as stated by Hashmi, in 2010 in the article "Effect of Pulsing in Low-Level Light Therapy".



ANY SIDE EFFECTS OF LIGHTFORCE THERAPY?

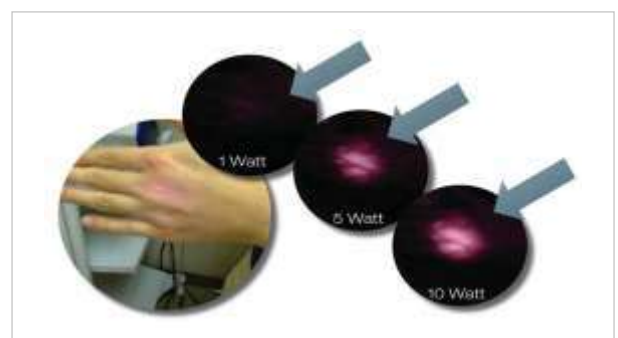
Based on peer-reviewed literature, **there are no known significant side effects** from LightForce therapy for most conditions. Increased blood flow is a positive benefit associated with LightForce therapy that can cause the skin to get flush and the feeling of warmth. These changes are short-lived, typically lasting for up to a few hours. Understanding proper dosing parameters and the use of our Smart Handpiece minimize this phenomena.

WHY REPLACE MY "LLLT DEVICE" ?

"Cold Laser", "Low-Level Laser Therapy (LLLT)" and "Low-intensity Laser Therapy (LILT)" are all terms previously used in the laser therapy field.

The main difference is the power available in the device. Class IIIb lasers are only delivering power < 0,5 watt when Class IV lasers are not limited except by technology and cooling function.

Increased power enables the clinician to treat a larger area in a shorter time, thus allowing a more efficient delivery of a therapeutic dose to target tissues.



Comparison of the tissue saturation between setting of 1W, 5W and 10W of power. Hand placed in contact with treatment head and light penetration observed with Infrared camera on the other side of the hand.

CAN LIGHTFORCE THERAPY BE USED WITH OTHER MODALITIES/TREATMENTS?

Yes, it generally works well with other modalities that are designed to promote tissue repair. Best known example is shockwave devices. The mechanisms that are associated with this modality work well with LightForce therapy. Clinical proven benefits are being studied. Generally using modalities that are designed to provide cryotherapy which generally reduce blood flow and promote vasoconstriction are not recommended as adjunctive therapies with LightForce therapy.

FAMILY OF PRODUCTS – ORDERING INFORMATION



STANDARD ACCESSORIES (ALL PRODUCTS)

Safety eyewear : 4 units



Treatment heads set



All international power cords

Protective carry bag

OPTIONAL ACCESSORIES

Rolling Hard case

Laser Cart

XLi 40W

“Treat larger, deeper areas and provide faster pain relief with real time dosing feedback. Chattanooga’s most powerful laser, the 40W LightForce® XLi impacts deep tissue faster for pain relief in less time. The LightForce smart hand piece and onscreen recommendations increase dosing accuracy and help clinicians treat with confidence.”

Laser Type: Class IV, Solid State

Laser Wavelength: 980/810 nm

Laser Power: 1W – 40W

Operating Modes: CW or Pulsed

Aiming Beam: 650 nm, < 4.5 mW

Dimensions: 43 cm x 28 cm x 26 cm

Weight: 9 kg

Warranty: 24 months

PART NUMBER	PART DESIGNATION DESCRIPTION
SYS-000656-000-00	LTS-4000-L-S8 (XLi) System - Int'l LightForce XLi (40W) Therapy Laser System

FEATURE	XLI 40W
XL treatment heads	✓
« Smart » Handpiece	✓
Treatment head recommendation and check	✓
Predefined protocols library	✓
Perfect Protocol©	✓
Chronic / Acute criteria	✓
Battery - mobility	✗
Patient information material kit – local language	✓



XPi 25W

“Smarter than your average laser. The 25W LightForce® XPi gives real time visual and haptic feedback, allowing clinicians to provide consistent, accurate treatments. The XPi’s built-in intelligence tells users which treatment heads are acceptable or not recommended for different power levels, which helps to provide for safer treatments and less guesswork from clinicians.”

- Laser Type:** Class IV, Solid State
- Laser Wavelength:** 980/810 nm
- Laser Power:** 1W – 25W
- Operating Modes:** CW or Pulsed
- Aiming Beam:** 650 nm, < 4.5 mW
- Dimensions:** 43 cm x 28 cm x 26 cm
- Weight:** 9 kg
- Warranty:** 24 months

FXi 15W

“Treat quickly and consistently on the go. The 15W LightForce® FXi is ideal for those practices or athletic training rooms needing to treat in multiple locations in or out of the office. Easily transportable with an integral battery, the lightweight FXi quickly impacts pain while weighing in at only 7 lbs.”

- Laser Type:** Class IV, Solid State
- Wavelengths:** 980/810 nm
- Laser Power:** 0.5W – 15W
- Operating Modes:** CW or Pulsed
- Aiming Beam:** 650 nm, < 4.5 mW
- Dimensions:** 38 cm x 28 cm x 20 cm
- Weight:** 3.2 kg
- Warranty:** 24 months

PART NUMBER	PART DESIGNATION DESCRIPTION
SYS-000837-000-00	LTS-2500-L-S8 (XPi) System - Int'l LightForce XPi (25W) Therapy Laser System

PART NUMBER	PART DESIGNATION DESCRIPTION
SYS-000829-000-00	LTC-1510-L-B6 (FXi w/ BHP) System - Int'l Light Force FXi (15W) Therapy Laser System

XPI 25W	FXI 15W
✗	✗
✓	✗
✓	✗
✓	✗
✓	✗
✓	✗
✗	✓
✓	✓

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