## ROBOTIC SCANNING SYSTEM

Automated high intensity laser at your service.



# UΣ **NNIN YSTEI S** S BOTI 0



Why not take advantage of a universal therapeutic tool that covers a range of acute to chronic musculoskeletal conditions and offer it to patients who:

Need an immediate alleviation of **back pain**?

Experienced a muscle or tendon rupture during sports activity and need to recover faster?

Are looking for a non-invasive and side-effect free pain management for arthrosis?

BTL provides you with the automated **HIGH INTENSITY LASER**, so-called **ROBOTIC SCANNING SYSTEM**, that delivers the most gentle and effective pain management to your patients!



## **ROBOTIC SCANNING SYSTEM**

BTL sets a new trend in **HIGH INTENSITY LASER** applications with automated **ROBOTIC SCANNING SYSTEM** which allows you to treat both small and large body areas up to 1200 cm<sup>2</sup>.

### **ROBOTIC SCANNING SYSTEM** is an operator free procedure that:

Saves you time and provides an opportunity to cover a wide spectrum of indications:

- acute and chronic back pain
- sport injuries including muscle ruptures, ligament and tendon distensions or ruptures
- hematomas
- arthrosis
- pain and edemas following post-surgical interventions of the musculoskeletal system
- inflammatory conditions of tendons and joints

## **MECHANISM OF ACTION**

## The healing effect of laser light is based on biostimulation and speeding up cell processes that contribute to pain suppression and faster injury recovery.

- Although originally used in surgery, the laser industry introduced therapeutic high intensity lasers that gained its popularity in pain management and injury recovery.
- BTL developed the very first automated HIGH INTENSITY LASER delivering 30 W power and using a 1064 nm wavelength.
- The unique combination of these parameters allows for targeting deep-lying tissues, maximizing pain relief and delivering strong thermic therapies within a short time.



1064 nm wavelength has a 10x lower absorption in melanin. This allows laser light to penetrate into deep-lying tissues



The photomechanical wave stimulates the nerve endings which leads to pain relief.

Biostimulation of the affected tissue increases oxygen intake and enhances blood circulation.

Interaction with human skin & penetration to deep-lying tissues.



Accumulation of laser light energy and its high power results in a thermic effect.

## MEDICAL EFFECTS AND INDICATIONS

**HIGH INTENSITY LASER** is the first-choice treatment in musculoskeletal pain resulting from post-traumatic and chronic conditions, surgical interventions, and inflammatory conditions.



SUBTOTAL RUPTURE OF VASTUS INTERMEDIUS, AFTER 5<sup>TH</sup> TREATMENT, COURTESY OF: BTL

#### PAIN RELIEF IN POST-TRAUMATIC CONDITIONS

Immediate pain relief allows patients to take the next step in the recovery process and shorten the immobilization phase. This is very important especially in muscle ruptures or tendon distensions. Pain relief is achieved with the photomechanical wave and explained through gate control theory of pain. When used in a pulsed mode with high power, the photomechanical wave:

- stimulates thick nerve endings
- blocks the pain transmittance
- causes immediate pain relief





CARPAL TUNNEL SURGERY, AFTER 5<sup>TH</sup> TREATMENT, COURTESY OF: BTL

#### **BIOSTIMULATION FOR FASTER RECOVERY**

Biostimulation helps to restore the original structures of damaged tissues after traumas or surgical interventions. Biostimulation leads to:

- increased production of ATP and acceleration of the healing process
- enhanced blood perfusion and oxygen uptake to increase cell metabolism
- removal of non-viable inflammatory cells that aids in the regeneration and repair processes





## THERAPY PROCEDURE

## **ROBOTIC SCANNING SYSTEM**

#### **BEFORE THE THERAPY**



The Robotic Scanning System was developed to substitute an operator while spreading the laser light energy in the most homogeneous way, even in large body areas.

### MANUAL LASER THERAPY

#### **BEFORE THE THERAPY**



### THERAPY TECHNIQUES

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6000



**2nd** The continuous laser emission applied in a scanning motion is used for biostimulation.



## PRODUCT HIGHLIGHTS

### HIGH INTENSITY LASER

#### Parameters

- The most powerful 30 W high intensity laser for maximized effect of pulsed analgesia, as well as delivering strong thermic therapies
- **1064 nm** wavelength for the most effective energy delivery to deep-lying tissues

#### Intelligent features

- **Body Condition Screen** for personalized therapy tailored to suit every patient's condition
- Equipped with continuous **multi-level control** of power

#### Additional features

- Intuitive colour touch screen
- **Presets** with a therapeutic encyclopedia





### **ROBOTIC SCANNING SYSTEM**

- The very first intelligent Robotic Scanning System covering body areas up to 1200 cm<sup>2</sup>
- Ideal for back area, large muscle groups, and joints
- Temperature monitoring of homogenous energy spread and maximized therapeutic efficiency
- Equipped with Thermal Perception Scan for personalized therapy
- Continuous control of a safe distance between the patient and the Robotic Scanning System





### MANUAL LASER THERAPY

- The most powerful manual laser therapy delivering **the power of up to 30 W**
- Intelligent applicator with therapy control buttons and therapy indicator light
- The optical system for setting spot size within the range of 10-30 mm

### ROBOTIC SCANNING SYSTEM CLINICALLY TESTED IN INDEPENDENT STUDIES

### KNEE PAIN MANAGEMENT WITH ROBOTIC SCANNING SYSTEM

#### EFFECTS OF CLASS IV LASER IN KNEE OSTEOARTHRITIS: A RANDOMIZED CONTROL TRIAL

#### Bettencourt F.

Department of Medicine, Sporting Clube de Portugal, ComCorpus Clinic, Lisbon, Portugal Published: Journal of Arthritis, 9:289.

#### **HIGHLIGHTS**

- To evaluate the effects of a 1064 nm wavelength, 30 W powered Class IV laser.
- 60 patients with knee osteoarthritis were randomly assigned into two groups.
- 7 treatment sessions every other day.
- 30 patients were treated with a semiconductive Class IV Laser with Scanning System applicator with a maximal power of 30 W and 1064 nm wavelength.
- 30 patients were treated with the same device without emission from the laser diode (placebo).
- Visual Analogue Scale (VAS) was evaluated prior to beginning treatment (baseline), following the first session, after the 7 therapies, and 1 month following the last treatment.
- The Mann–Whitney test revealed there was a significant reduction in pain according to the VAS results for the laser group.



### AUTOMATED SCANNING SYSTEM VERSUS MANUAL LASER THERAPY

#### COMPARISON OF ENERGY SPREAD HOMOGENEITY IN AUTOMATED AND MANUAL CLASS 4 LASER THERAPY

#### Baack HO.

Sporthopaedic Hamburg, Vogt-Wells-Straße 1222529 Hamburg, Germany Published: Journal of Medical and Health Sciences, 9(2): 6-12.

#### HIGHLIGHTS

- To evaluate the homogeneity of the spread of energy delivered by the manual handpiece and automated Scanning System applications.
- Maximal power of 30 W and single wavelength of 1064 nm.
- 70 patients with skin type I-V according to the Fitzpatrick scale.
- Each patient received initial treatment with the manual applicator and one week type later received treatment with the automated Scanning System applicator.
- The automated application provided a more homogeneous spread of energy compared to the manual application using the handpiece.



Figure 1. Thermal images for manual (left) and automated (right) application for skin type II



Figure 2. Thermal images for manual (left) and automated (right) application for skin type I

### WAVELENGTHS BEYOND 1000 NM CAN ALLOW PENETRATING HIGHER AMOUNT OF ENERGY INTO THE TISSUE

#### SPECTRAL DEPENDENCE OF LASER LIGHT ON LIGHT-TISSUE INTERACTIONS AND ITS INFLUENCE ON LASER THERAPY: AN EXPERIMENTAL STUDY

#### Marshall RP, Vlková K.

RasenBallsport Leipzig GmbH, Cottaweg 3, D-04177 Leipzig, Germany; Faculty of Biomedical Engineering, Czech Technical University in Prague, Prague, The Czech Republic

Published: Insights Biomed 5 (1):1

#### HIGHLIGHTS

- Laser light on specific wavelength is widely used in medicine for diagnostic and therapeutic purposes.
- Research shows different studies which are analyzing the wavelength dependency on human tissue interaction.
- In this paper, various articles about the spectral influence to the reflection, refraction, and absorption are reviewed.
- The results show decreasing absorption and refraction index in the melanin for the longer wavelengths, as well as reduction of hemoglobin absorption.
- Longer wavelengths increase the probability of the interaction with water particles and its (own) light absorption.
- We conclude that for wavelengths beyond 1000 nm reflection and melanin absorption are negligible which can allow penetrating higher amount of energy into the tissue.
- Water absorption increases with the longer wavelengths.
- Refraction index and hemoglobin absorption are reduced.

#### MEASUREMENT OF WAVELENGTHS





### HIGH INTENSITY LASER CLINICALLY TESTED IN INDEPENDENT STUDIES

### CHRONIC PAIN TREATMENT WITH HIGH INTENSITY LASER

#### EFFECT OF HIGH-INTENSITY LASER TREATMENTS ON CHRONIC PAIN RELATED TO OSTEOARTHRITIS IN FORMER PROFESSIONAL ATHLETES: A CASE SERIES

White PF, Cao X, Elvir-Lazo L, Hernandez H.

White Mountain Institute, The Sea Ranch, CA, USA Published: Journal of Molecular Biomarkers & Diagnosis, 2017, 8(4)

#### HIGHLIGHTS

- 39 patients with osteoarthritis.
- To achieve pain relief.
- 3 tx every other day, power of 10.5 W.
- VAS was taken at the baseline, after each therapy, at rest and during activity.
- Significant chronic pain reduction after each therapy.



### KNEE PAIN REDUCTION WITH HIGH INTENSITY LASER

#### EFFECTIVENESS OF HIGH INTENSITY LASER THERAPY FOR REDUCTION OF PAIN IN KNEE OSTEOARTHRITIS

#### Angelova A, Ilieva EM.

Medical University of Plovdiv, Plovdiv, Bulgaria Published: Pain Research and Management, 2016, Volume 2016

#### HIGHLIGHTS

- 72 patients with knee osteoarthritis.
- Determining the effect of high intensity laser therapy.
- 7 treatments scheduled every other day, laser group parameters were 3 treatments using pulsed emission of 5 W and 4 treatments using continuous emission of 5 W; control group received sham stimulation.
- VAS was taken at the baseline, after 7 treatments, during 1- and 3-month follow-ups.
- Laser group showed significant pain relief maintained during follow-up compared to control group.



### EPICONDYLITIS PAIN REDUCTION WITH HIGH INTENSITY LASER

#### LONG-TERM EFFECTS OF HIGH INTENSITY LASER THERAPY IN LATERAL EPICONDYLITIS PATIENTS

#### Akkurt E, Kucuksen S, Yılmaz H, Parlak S, Sallı S, Karaca G.

Department of Physical Medicine and Rehabilitation, Konya Education and Research Hospital, Haci Saban Mah., Turkey Published: Lasers Med Sci. 2016, 31(2), 249-53.

#### HIGHLIGHTS

- 30 patients with lateral epicondylitis.
- Investigate short- and long-term effects of laser therapy.
- 10 treatments scheduled every other day, 4 treatments using pulsed emission of 4 W and dosage 6 J/cm<sup>2</sup>; 6 treatments using continuous emission 6 W and dosage 100-150 J/cm<sup>2</sup>.
- VAS, Disability of the arm, shoulder and hand questionnaire (DASH) were taken at the baseline, after 10 treatments, after 6-month follow-up.
- Statistically significant decrease in the VAS and DASH evaluations were maintained during 6-month follow-up.





## MAXIMIZE YOUR PATIENTS DATABASE!

To boost your patients' interest in **HIGH INTENSITY LASER** treatment, BTL provides its customers with promotional materials. These materials include prints (banners, patient brochures) for placement in the waiting room or to hand out, as well as online materials.



#### **IN-OFFICE BRANDING**

Learn how to implement HIGH INTENSITY LASER branding in high-traffic areas in your office by using patient brochures, roll-up banners and videos.



### IN-OFFICE COMMUNICATION

We will provide you with documents that will help you effectively communicate the treatment to your patients. Train and support all personnel who will be responsible for phone and face-to-face communication on how to effectively talk about HIGH INTENSITY LASER.



#### MAXIMIZING YOUR PATIENT DATABASE

BTL will provide you with ready-made e-blast template you can send to inform everybody that you now offer the HIGH INTENSITY LASER for fully non-invasive and side-effect free pain management and faster injury recovery!



#### SOCIAL MEDIA STRATEGY

Start promoting HIGH INTENSITY LASER on your social media account including Facebook, Instagram and Twitter from day 1. Let your patients know that you have something new and revolutionary for them!



### WEBSITE PROMOTION

Optimize your practice's website by promoting HIGH INTENSITY LASER to generate leads.



#### **CLINICAL TRAINING**

Our trainers will help you to become a clinical expert on HIGH INTENSITY LASER. This is the key to successful patient outcomes and satisfaction.

## THEIR WORD MATTERS



#### Salvatore Galasso Italy

"I chose the BTL High Intensity Laser 30W with Robotic Scanning System based on BTL's reputation for synonymous quality and therapeutic results."



**Jiří Neumann** The Czech Republic

"Indeed, the optimal wavelength allows for penetration into relatively deep-lying tissues and treating them effectively."



Martin Janousek The Czech Republic

"BTL High Intensity Laser helped us in prevention and treatment of acute disorders..."



**Predrag Jovicic** Serbia

"BTL High Intensity Laser gives excellent results in both acute and chronic conditions."



Lise Lotte Buch Denmark

"I already see many good results that would have taken longer to resolve without the BTL High Intensity Laser. I am highly satisfied."



#### Luis E. Rojas Landívar Ecuador

"In different pathologies we achieved pain relief in 3 - 4 sessions without using any consumables which helped us with a faster return on investment of our center."



Jaroslav Vetvicka The Czech Republic

"I can say that the most effective was the High Intensity Laser. Because its therapeutic effect can be seen almost immediately just after a few applications."



**Eugene Wong** Malaysia

"BTL High Intensity Laser is useful in treating deep musculoskeletal pathologies. Patients are happy as they recover rapidly."

## THE BEST SOLUTION FOR

#### **TR-THERAPY**

Constantly hearing from your patients that they are tired and their muscles feel very stiff? TR-THERAPY:

- Relieves muscle pain and soreness
- Eliminates muscle fatigue
- Regenerates muscles



#### HIGH INTENSITY LASER

Are your patients shortly after surgery or injured? Do you want to help them recover faster? Did you know that our HIGH INTENSITY LASER and ROBOTIC SCANNING SYSTEM speed up healing through a natural process of energy transfer on a cellular level called biostimulation? This contributes to healing and tissue regeneration in:

- Acute pain
- Muscle strain
- Joint sprain
- Muscle injury





## ANY OF YOUR PATIENTS



#### SUPER INDUCTIVE SYSTEM

Nerve damage can significantly decrease your patients' quality of life. Help them restore nerve function and overcome their pain with the SUPER INDUCTIVE SYSTEM using the high-intensity electromagnetic field energy.

- Blocked back
- Muscle strengthening
- Fractures
- Recovery after a stroke



#### SHOCKWAVE THERAPY

Chronic pain will not limit your patients anymore. Degenerative processes in tendons lead to their stiffness which is hard to address with manual techniques or stretching. SHOCKWAVE THERAPY provides fast pain relief and mobility restoration through mechanical stimulation in:

- Shoulder pain
- Tennis elbow
- Runner's knee
- Achilles tendon
- Heel pain

## A SOLUTION FOR ANY OF YOUR PATIENTS

EXPLANATION	RADIAL SHOCKWAVE THERAPY	FOCUSED SHOCKWAVE THERAPY	HIGH INTENSITY LASER	TR-THERAPY	SUPER INDUCTIVE SYSTEM
Energy	divergent acoustic wave	convergent acoustic wave	laser light	radiofrequency current	electromagnetic field
Mechanism of action	superficial mechanical stimulation	deep mechanical stimulation	laser biostimulation	thermic effect	nerve depolarization
Key tissue	tendon	tendon, bone	cellular repair	muscle	nerve
Medical effect	healing start-up in superficial tendinopathies, chronic pain management	elimination of calcifications, healing of bone non-unions and tendinopathies at tendon-bone junction	healing of acute injuries anti-inflammatory effect acute pain management	muscle spasm relaxation muscle regeneration oedema removal	joint mobilization muscle stimulation and relaxation pain management
Penetration depth	up to 5 cm, maximum intensity spread superficially	adjustable depth of focal zone within range 0-35 mm, 15-50 mm, 30-65 mm	up to 10 cm	anywhere between electrodes	up to 10 cm
Application	manual	manual	operator free/manual	manual	operator free
Patient perception	pressure sensation up to mild discomfort	pressure sensation up to mild discomfort	intense heat	intense heat	muscle contraction or tingling
Medical branch	orthopaedics, PRM*, PT**	orthopaedics, PRM	orthopaedics, PRM, PT, sports medicine	PT, sports medicine	orthopaedics, PRM, neurology, PT
Application limits	any acute stage, spine area, head area	any acute stage, spine area, head area, organs with gas content	sensory deficit, safety requirements	sensory deficit, experienced manual therapist	head area, metal and electronic implantable devices
Disposables	shell, gel	pads, gel	none	cream, single-use electrode (optional)	none
Number of treatments	10 sessions	5 sessions	5-10 sessions	5-10 sessions	5-10 sessions
Application frequency	up to twice a week	once a week	up to daily	up to daily	up to daily
Treatment duration	10 min	5 min	5-15 min	minimally 15 min	up 10 min

## NO 2 PATIENTS ARE ALIKE

INDICATION	RADIAL SHOCKWAVE THERAPY	FOCUSED SHOCKWAVE THERAPY	HIGH INTENSITY LASER	TR-THERAPY	SUPER INDUCTIVE SYSTEM
Acute back pain	N/A*	N/A	1 <sup>st</sup> CHOICE	OPTIONAL	2 <sup>nd</sup> CHOICE
Chronic back pain	OPTIONAL	OPTIONAL	OPTIONAL	1 <sup>st</sup> CHOICE	2 <sup>nd</sup> CHOICE
Degenerative joint disorder	2 <sup>nd</sup> CHOICE	1 <sup>st</sup> CHOICE	OPTIONAL	OPTIONAL	OPTIONAL
Joint sprains	N/A	N/A	1 <sup>st</sup> CHOICE	OPTIONAL	2 <sup>nd</sup> CHOICE
Degenerative disorder of spine	N/A	N/A	2 <sup>nd</sup> CHOICE	OPTIONAL	1 <sup>st</sup> CHOICE
Rheumatoid diseases	N/A	N/A	1 <sup>st</sup> CHOICE	OPTIONAL	2 <sup>nd</sup> CHOICE
Calcifications	2 <sup>nd</sup> CHOICE	1 <sup>st</sup> CHOICE	OPTIONAL	OPTIONAL	OPTIONAL
Enhancement of fracture healing	N/A	2 <sup>nd</sup> CHOICE	OPTIONAL	N/A	1 <sup>st</sup> CHOICE
Bone non-union	N/A	1 <sup>st</sup> CHOICE	N/A	N/A	N/A
Joint blockage	N/A	N/A	OPTIONAL	2 <sup>nd</sup> CHOICE	1 <sup>st</sup> CHOICE
Muscle atrophy	N/A	N/A	N/A	2 <sup>nd</sup> CHOICE	1 <sup>st</sup> CHOICE
Muscle hypertonus	2 <sup>nd</sup> CHOICE	OPTIONAL	OPTIONAL	1 <sup>st</sup> CHOICE	OPTIONAL
Muscle regeneration	OPTIONAL	OPTIONAL	2 <sup>nd</sup> CHOICE	1 <sup>st</sup> CHOICE	OPTIONAL
Muscle injury	N/A	N/A	1 <sup>st</sup> CHOICE	2 <sup>nd</sup> CHOICE	OPTIONAL
Myofascial syndrome	2 <sup>nd</sup> CHOICE	OPTIONAL	OPTIONAL	1 <sup>st</sup> CHOICE	OPTIONAL
Spasticity	2 <sup>nd</sup> CHOICE	2 <sup>nd</sup> CHOICE	OPTIONAL	OPTIONAL	1 <sup>st</sup> CHOICE
Tendinopathy	1 <sup>st</sup> CHOICE**	1 <sup>st</sup> CHOICE***	OPTIONAL	OPTIONAL	OPTIONAL
Nerve damage	N/A	N/A	2 <sup>nd</sup> CHOICE	OPTIONAL	1 <sup>st</sup> CHOICE
Sports injuries	N/A	N/A	1 <sup>st</sup> CHOICE	2 <sup>nd</sup> CHOICE	OPTIONAL
Post-traumatic oedemas	N/A	N/A	2 <sup>nd</sup> CHOICE	1 <sup>st</sup> CHOICE	OPTIONAL

## **BTL: OVER 25 YEARS OF INNOVATION**



More than 65 offices around the globe



2,400 employees worldwide



More than 370 engineers



2 focused divisions: medical and aesthetics

## Growing to meet your needs



1993 Continuous growth worldwide

## OUR COMMITMENT TO YOU

## BTL will:

- Provide safe and efficacious solutions of the highest quality
- Offer technology with NO costly consumables
- Continue to offer an affordable upgrade programs

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sales@btlnet.com btlnet.com

BTL-6000\_High\_Intensity\_Laser\_2\_CAT\_Complete-edition\_EN101 043-77HIL2COMPLEN101