

INTRODUCING

# TLC-2000

NON-THERMAL THERAPEUTIC LASER

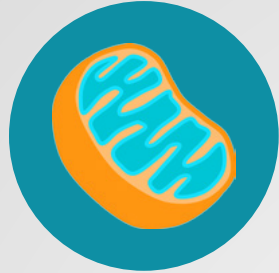


ACCELERATE HEALING  
REDUCE INFLAMMATION  
ELIMINATE PAIN



# How Theralase Laser Work

Theralase lasers activate all three known cellular pathways

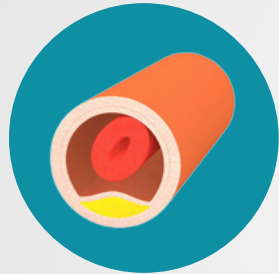


## Accelerate Healing

660 nm - Adenosine Triphosphate (ATP) Pathway:

**Theralase stimulates the mitochondria of the cell to produce more Adenosine Triphosphate (ATP or basic cell energy) to accelerate tissue repair. (Proceedings of the International Society for Optics and Photonics, 2015)**

Cells that lack energy are unable to participate in the healing process. Laser energy is delivered to injured cells, which absorb the light and convert it into chemical energy, which is used to accelerate tissue repair. Once cells are fully energized they are able to stimulate each other to rebuild and heal the injured area.

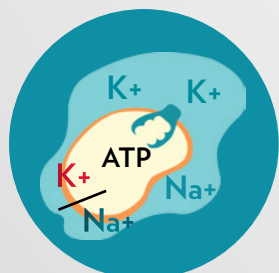


## Reduce Inflammation

905 nm - Nitric Oxide (NO) Pathway:

**Independent research proves that the proprietary Theralase 905nm superpulsed laser technology increases the production of Nitric Oxide (NO) by over 700%, increasing vasodilation and decreasing inflammation versus other competitive wavelengths. (Lasers in Surgery and Medicine, 2009).**

When tissue injury occurs, the inflammatory process is initiated to immobilize the area and prevent further damage to the tissue. This process is associated with pain caused by inflammation exerting pressure on nerve endings. In order to decrease inflammation in the particular region, the body produces Nitric Oxide (NO). However if not enough NO is produced, the inflammation remains. Increased Nitric Oxide production has been proven to relax the vascular network, dilate the capillaries, improve vascular function, protect against cell injury and help rebalance the immune response. This process not only reduces inflammation but brings much needed oxygen and other metabolites to the injured tissue aiding in their natural healing.



## Eliminate Pain

905 nm - Lipid Absorption Pathway

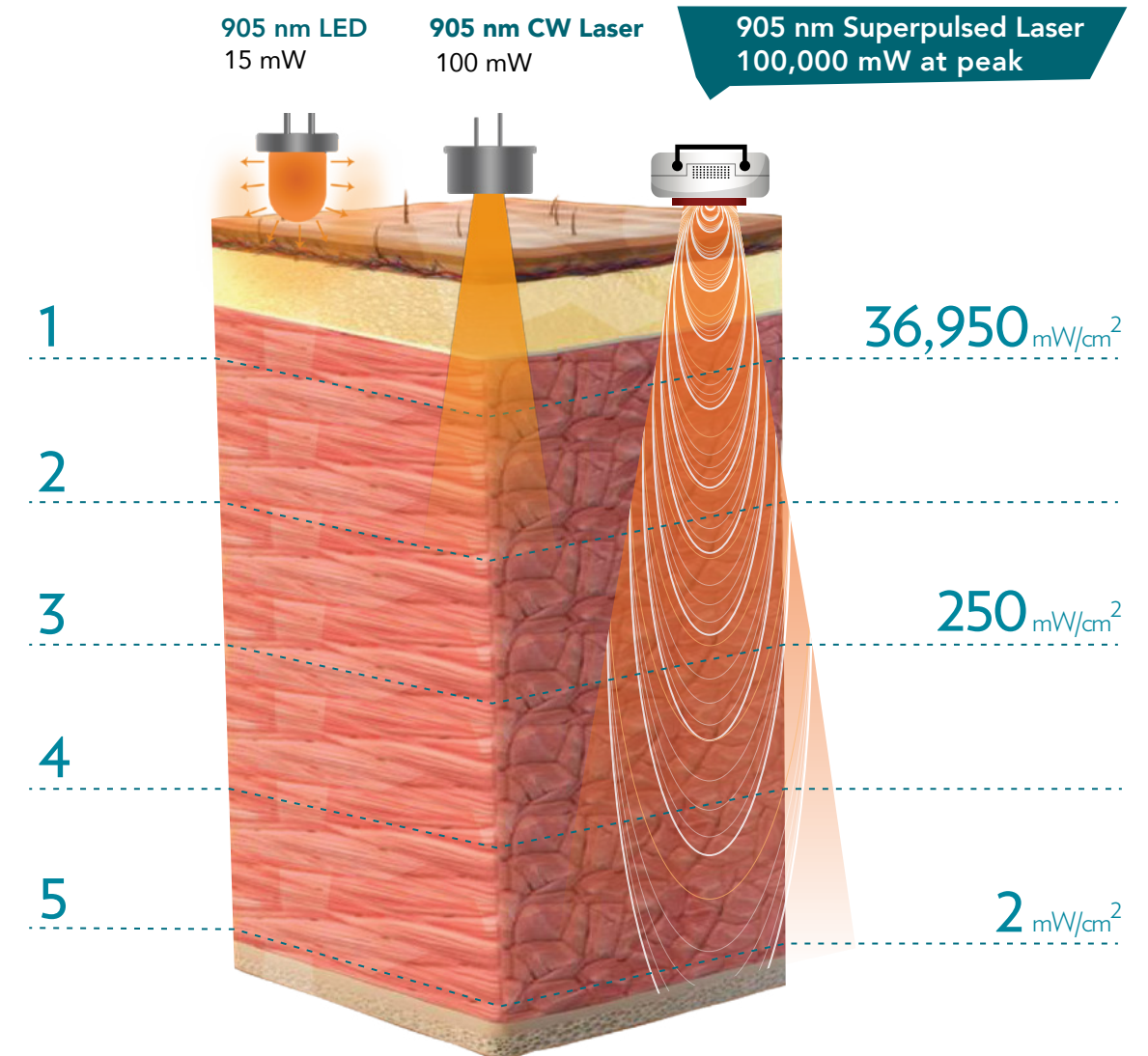
**Theralase laser technology effectively removes the pain signal at source by rebalancing the sodium potassium pathway. (Harvard Medical School, 2010)**

Neurons use electrical and chemical signals to transmit information. The transmission of pain is primarily due to an expulsion of sodium ions (Na+) and an influx of potassium (K+) ions into the nerve cell across the cellular membrane, altering the electrical potential difference of the nerve cell. The peak absorption of lipids occurs in the near infrared wavelength range of 905 nm to 930 nm. Since the cellular membrane is a bilipid membrane, laser light in the 905 nm range increases the porosity of the cellular membrane. Allowing the re-absorption of sodium ions and the expulsion of potassium ions across the membrane re-balancing the sodium-potassium pump and removing the pain signal at source.

# Delivers energy deep into tissue

Superpulsed 905 nm technology penetrates up to 5 inches

Theralase's super-pulsed 905 nanometer (nm) technology delivers energy deep into the target tissue. This causes bio-stimulation effects while staying below the Maximum Permissible Exposure (MPE) tolerance for tissue.

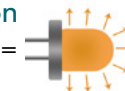


## True Laser Diodes VS Light Emitting Diodes

True lasers are highly directional delivering 100% of the photons to the affected area versus only 5% with an LED; hence, much more effective treatment outcomes occur with true lasers versus LEDs.

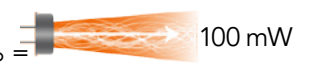
LED - 5% of light energy in the forward direction

$$\text{LED } 15 \text{ mW} \times 5\% = 0.75 \text{ mW}$$



Laser - 100% of light energy in the forward direction

$$\text{Theralase Laser } 100 \text{ mW} \times 100\% = 100 \text{ mW}$$



Unlike class 4 lasers, which generate excessive heat and are classified by the FDA as a "heating device" (ILY), Theralase lasers are classified as "non-heating instruments" (NHN). This reflects the fact that their bio-stimulation effects do not produce heating of tissue.

# Challenges with Laser Therapy

In accordance with the Laws of Photochemistry, to provide the highest efficacy the laser therapy device must:

1. Provide light of the correct wavelength
2. Penetrate tissue to the required depth
3. Deliver the required dose of light to the tissue of interest
4. Stimulate a biological response (photobiology)

Every animal's body is different. Even for the same condition being treated, the depth that the laser must penetrate before it reaches the target tissue can vary significantly from one animal to another.

Additionally, each animal has a unique optical profile. An optical profile is determined by skin colour, subcutaneous fat, muscle content, bone density, water hydration levels, oxygen perfusion, and vascular density. Each animal's profile is unique and may change over time due to physical exercise, and dietary reasons.

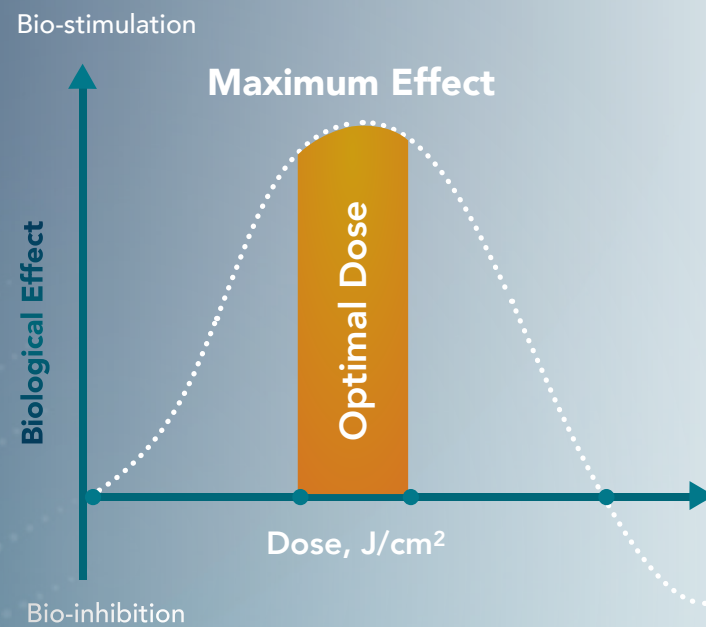
Taking both into consideration, the difference in the actual dose of light received at the target tissue can vary up to 10,000 times between animals.

## What if:

- We could accurately predict the target tissue depth for the specific diagnosis of each individual animal?
- We could accurately measure light energy loss in the animal's tissue at the time of treatment?
- We could adjust the power of laser output accordingly to compensate for the light energy loss during tissue penetration?

## Result:

- We could deliver an optimal dose of energy to the target tissue at depth, to achieve maximum treatment efficacy, and personalize the treatment for each animal.



# TLC-2000

## The New Gold Standard in Laser Therapy

Features	TLC-1000 (multi probe)	TLC-2000	Benefits
Laser Class	3B	3B	High power that delivers non-heating therapeutic effect (FDA classification: NHN)
Peak Power (superpulsed at 10,000 Hz)	50,000 mw	100,000 mw	Effective energy delivery deep into the tissues
Maximum tissue depth reached	~4 inches	~5 inches	Versatility in treating different body types and injury sites
Wavelength	660 nm / 905 nm	660 nm / 905 nm	Targets all three known cellular pathways for enhanced bio-stimulation effects
Number of true laser diodes	4x 660 nm + 5x 905 nm	4x 660 nm + 5x 905 nm	100% directional delivery of light energy
905 laser diode average power	100 mW	200 mW	Double the power for faster and deeper treatments
660 laser diode maximum power	25 mW	100 mW	Quadruple the power for faster and deeper treatments
Maximum number of probes by single controller	1	4	Significant reduction in treatment time; increased capacity for more patients
Automatic software and treatment protocol update	No	Yes, via the Internet	Ensure best performance of laser at all times
Product Warranty	1 Year	5 Years	Complete peace-of-mind for repair and maintenance
Marketing Support	Initial Start-up	5 Years	Continuous support to drive new patients to your practice



# Benefits of Non-Thermal Lasers

- ✓ Decrease / eliminate pain
- ✓ Reduce inflammation
- ✓ Promote new blood vessels and tissue growth
- ✓ Promote nerve axon growth
- ✓ Fast wound healing and closure
- ✓ Non-invasive / no side effects
- ✓ Extremely safe / drug free
- ✓ Highly effective for animal (90% efficacy rates)
- ✓ Highly effective alternative to other treatments: such as Analgesics, NSAID's, COX-2 Inhibitors, TENS, Ultrasound, Inferential therapy

## Treatment

Efficacy rates of up to 90% with no side effects

Non-thermal lasers are used to treat acute and chronic pain conditions. Non-thermal laser therapy is a highly effective alternative to other treatments: such as pharmaceutical drugs, TENS, Ultrasound and Inferential therapy.

Acute  
Conditions

△ 5 Treatment  
Sessions\*

Sub-Acute  
Conditions

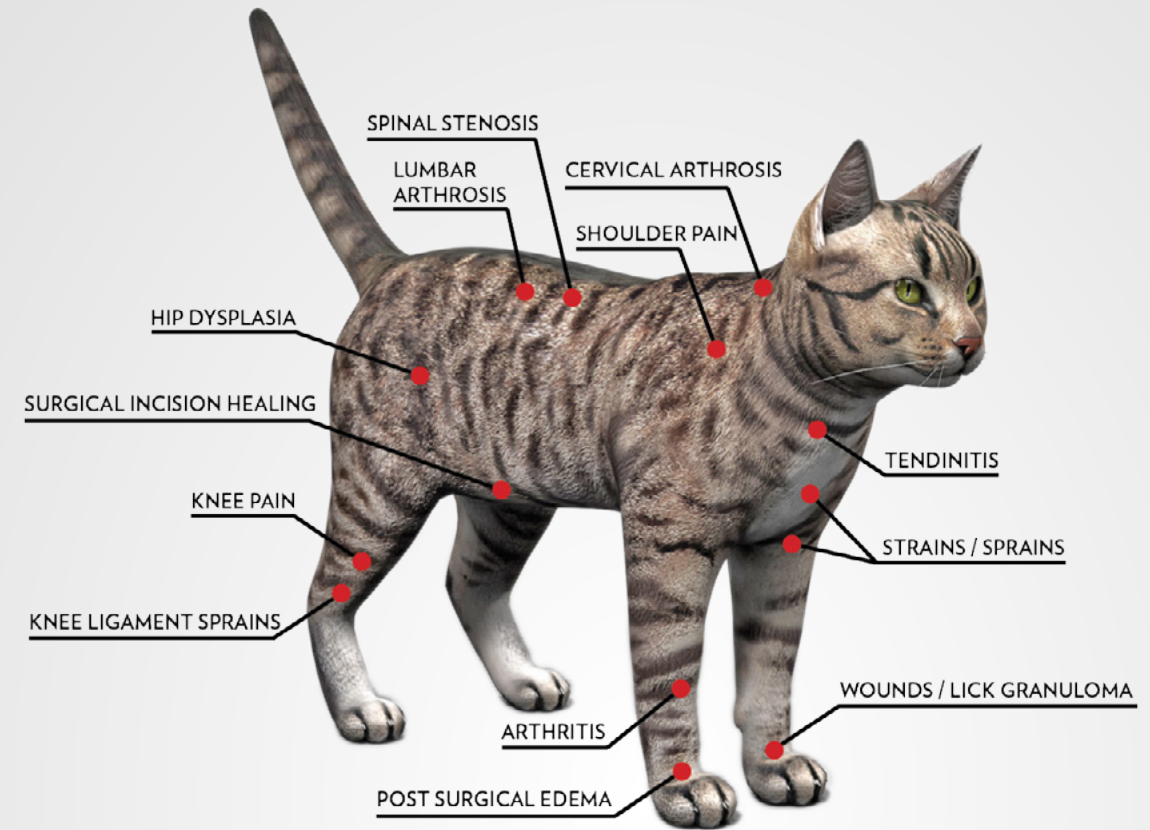
△ 10 Treatment  
Sessions\*

Chronic  
Conditions

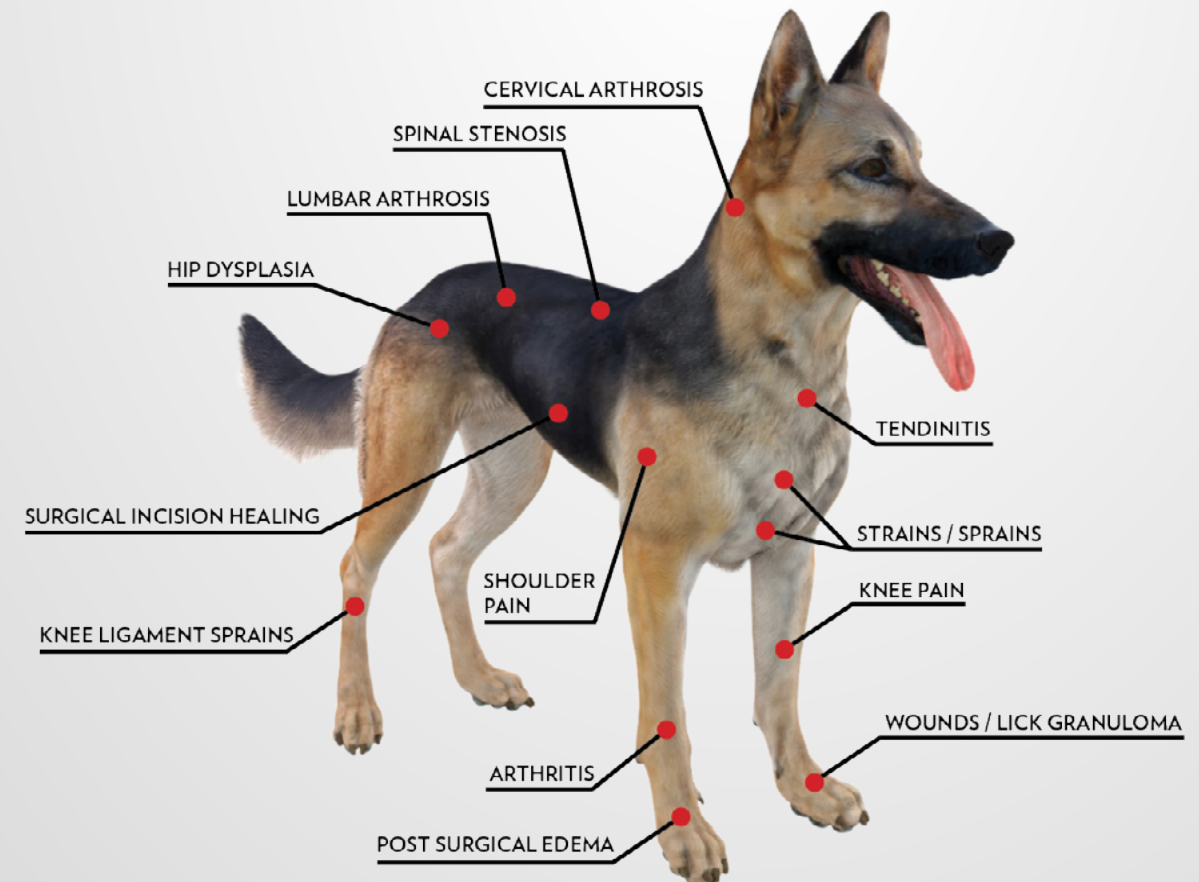
△ 20 Treatment  
Sessions\*

\* Typical number of 8-10 minute sessions.

# Treatable Conditions\*\* of Non-Thermal Lasers



OVER 24 CLINICAL PROVEN PRE-PROGRAMMED TREATMENTS



\*\*partial list

# TLC-2000 Features

Personalized Protocols • Customized Treatments • Optimal Outcomes

- ✓ Peak Power 100,000 mw
- ✓ Superpulsed dual wavelength
- ✓ Penetration up to 5 inches of tissue depth
- ✓ 4x 660 nm + 5x 905 nm all laser diodes
- ✓ Software and treatment algorithm updates
- ✓ Up to 4 probes for faster treatment times



## Partnering to Grow Your Practice

In addition to providing you our latest cutting-edge technology, Theralase will partner with you to help you deliver superior treatment outcomes for your animal patients and grow your business.

Included in your Theralase TLC-2000 package are the following services for **5 years**:

- Unlimited training for all clinic staff
- Technical support by Internet remote access
- Full coverage product warranty
- Software updates and upgrades
- Customized patient education materials for your clinic
- Prominent, customizable profile of your clinic on Theralase's online Clinic Locator
- Mass media campaign to increase awareness of laser therapy and drive new patients to your clinic through the Theralase Clinic Locator



## Don't take our word for it

Here is what healthcare practitioners are saying about Theralase

“ The Theralase laser is the most cutting-edge therapeutic laser on the market and has been a wonderful addition to my veterinarian practice. It provides superb safety and high efficacy to my canine and feline patients by providing pain relief, inflammation reduction and accelerated healing in just a few treatments. I routinely use it post surgically with excellent results. The first time I acquired the technology I used it on a cat with an injured tail and after just one treatment, the cat was pain-free and holding his tail high. Amazing. I also find it dramatically helps in marketing my clinic and differentiating my clinic from my competitors thus allowing me to advertise laser therapy without having the burden of purchasing a surgical grade laser. Overall, I can say that I am impressed with the company and the technology. Do yourself and your clinic a favour, get a Theralase”

**KENT ACKERMAN, DVM**

King West Vets, Toronto, Ontario

“ I was interested in what the laser could do for lameness rehabilitation, both soft tissue & orthopedic injuries, including post surgical rehabilitation; it has proved to be a wonderful adjunct for repair, in many cases obviating the need for NSAID's”

**B.J. BERESFORD, DVM**

Amaranth Animal Hospital, Grand Valley, Ontario

“ We have been using the Theralase laser in our veterinary surgical referral practice for almost one year. We have been very impressed by both its wound healing abilities and efficacy in management of chronic pain from osteoarthritis. Additionally, tolerance in our small animal patients is excellent”

**KRISTA HALLING, DVM**

Oakville Veterinary Emergency Hospital, Oakville, Ontario

## Clinical proof

### ASSESSMENT OF LASER BIOSTIMULATION ON CHONDRAL LESIONS: AN IN VIVO EXPERIMENTAL STUDY

Guzzardella GA, et al. Blood Substitutes and Immobilization Biotechnology, 2000.

This controlled study examined the effects of GaAlAs laser on the healing of cartilaginous tissue in rabbits. Bilateral chondral lesions created in the femoral medial condyle of the rabbits were either treated with laser or left untreated (control). Histological examination of tissues from animals sacrificed at 2, 6, and 12 weeks post treatment was performed to measure the results.

*Conclusion: Laser therapy generated progressive filling with fibrous tissue in the treated group.*

### LASER-AIDED CIRCUMFERENTIAL SUPRACRESTAL FIBEROTOMY AND LOW-LEVEL LASER THERAPY EFFECTS ON RELAPSE OF ROTATED TEETH IN BEAGLES

Su-Jung Kim, et al. Angle Orthodontist, 2010.

This controlled study investigated the effectiveness and periodontal side effects of laser circumferential supracrestal fiberotomy (CSF) and low-level laser therapy (LLLT) on orthodontically rotated teeth in beagles. In the study, eighteen mandibular incisors from nine dogs were divided into three groups by treatment: orthodontic couple force application only, laser CSF following orthodontic couple force application, and LLLT following orthodontic couple force application.

*Conclusion: Laser is an effective procedure to decrease relapse after tooth rotation, causing no apparent damage to the supporting periodontal structures.*





# TLC-2000 System Components



## Each TLC-2000 Therapeutic Laser System includes:

1. Tablet Computer
2. Power Pack
3. Power Supply
4. Laser Probe (up to 4)
5. Medical Grade AC Cable
6. Safety Eyewear
7. Laser Probe Cable
8. Hands free option - Cart and Boom Arms



# Theralase

Founded in 1994, Theralase Technologies Inc. designs, develops and manufactures patented, super-pulsed non-thermal laser technology for the safe and effective treatment of a wide range of pain conditions. The technology has been approved by Health Canada, the U.S. Food and Drug Administration ("FDA") and Conformité Européene ("CE") for sale in over 172 countries for the safe and effective treatment of chronic knee pain. Theralase technology has been proven scientifically and clinically effective in: eliminating pain, reducing inflammation and accelerating tissue healing in numerous nerve, muscle and joint conditions.

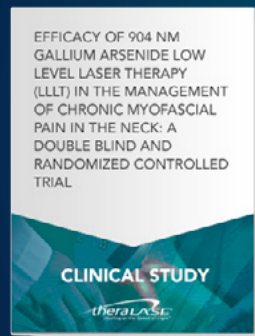
Our next generation TLC-2000 laser with Biofeedback technology automatically adjusts its parameters to deliver the most effective dose of light energy to the exact location of tissue damage for every patient, every time, optimizing their healing benefit and returning patients to peak performance

Theralase remains the most scientifically and clinically supported therapeutic medical laser technology on the market. Theralase has partnered with leading research institutes including Toronto's University Health Network advance our scientific and clinical knowledge of how to best optimize the effects of non-thermal laser technology. Theralase also operates a full service medical rehabilitation clinic in Toronto, Ontario for training and education of a wide range of healthcare practitioners.



*"In order to develop cutting edge technology that is superior to any existing technology on the market and in the process create a new industry standard takes: vision, knowledge, perseverance, capital and luck. Thankfully, Theralase was blessed to have all five in the creation of the next generation TLC-2000 therapeutic laser system over the last few years. I join my entire organization into welcoming the debut of the next generation non-thermal laser therapy product to healthcare practitioners."*

*~ Roger Dumoulin-White,  
President & CEO, Theralase*



## Over 3,000 clinical studies worldwide have proven the effectiveness of laser therapy

Find out more at [theralase.com/clinical-studies](http://theralase.com/clinical-studies)

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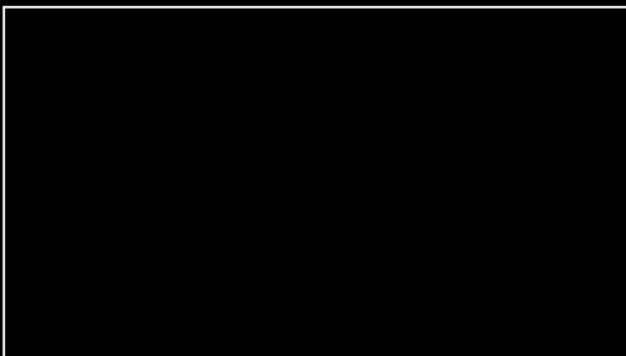
[www.theralase.com](http://www.theralase.com)





# Call for a free demonstration

Increase your revenue while delivering superior clinical results with the Theralase TLC-2000 non-thermal therapeutic laser technology today



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