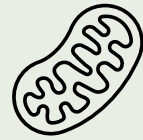
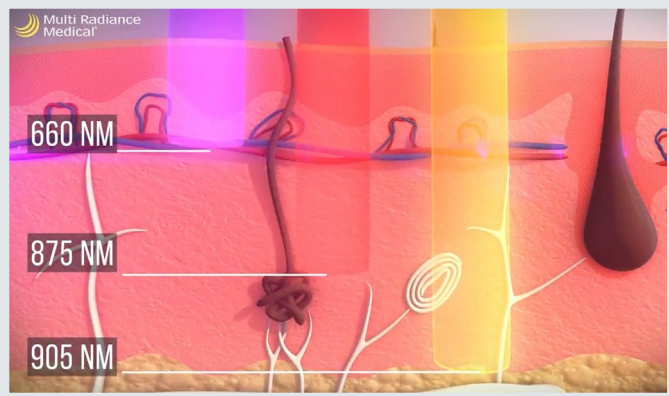


# Competitive advantage for Multi Radiance devices



Innovation and safety advantage with Photo biomodulation: broader spectrum of treatments like, wound and pain management, injuries or infection control after surgeries, chronic pains, arthritis etc.

- Easy to learn safe to use, powerful super pulsed, they're still class 1 lasers!
- All Multi Radiance lasers FDA cleared, validated for efficacy and dosimetry
- MRM lasers light based **photochemicals** for fast pain relief, reduced inflammation and infection fighting without side effects while accelerating more complete healing.
- Almost no **contraindications** (cancer and pregnancy).
- Treatment Protocols backed by evidence— Exclusive Priority Principle shows exactly how to treat hundreds of conditions based on the symptoms presented and what the individual's target tissues need.
- **Cordless** with long battery life of up to a week of unmatched versatility to take and use anywhere. Vet prescribed My Pet Laser for stress free **use @ home**.
- Global specialist team with 13 years of experience in laser therapy, **64 published studies** validating its laser efficacy and dosimetry.
- **Local and global support, incl. online trainings** (webinars, YouTube, private Facebook chat for specialists...



## Advantages equine

- **FEI Approved:** MRM lasers approved for same day use at FEI events.
- Very effective for trigger points and other muscle pain relief.
- Holistic application: zero drug side effects for arthritis, injuries, all together can be treated in one session.
- Revascularizes as it heal to minimize proud flesh.



## Advantages companion animals

- Continuity of treatments assured by My Pet Lasers, solves compliance issues by making vet-prescribed stress-free home laser treatments possible for better, faster outcome without drug side effects...
- **Reduce use of pain meds** and for sensitive patients like cats to help prevent long term side effects to cat's kidneys and livers. ....
- Cats do not tolerate the heat and intensity of class 4 lasers. **Zero thermal issues** with MRM

# Challenges



3 devices are available:

- AlphaVet (CL 4), **Activet Pro (Cl 1)** and **MyPet Laser (Cl 1)**
- **Wavelengths:** 650nm, 810nm, 915nm, 980nm
- **Penetration Depth:** 3-5 cms

Which treatments are unique to MR Lasers?

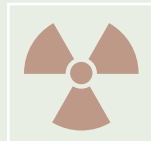
- Blue wavelength fights Infections
- Handling : higher safety with same or better performance.

Why is more power not always better?

- Good cooking / treatment takes time (turkey).
- More power can heat skin, potentially damage tissue.

How does the infection management work with?

- 3 wavelengths treat inflammation.
- The blue wavelength fights wound infections -- bactericidal properties.



Main advantage of Super Pulsed ACTIVet Pro compared to class 4 lasers?

- Safer
- No hazards like thermal overloading, etc.
- More features, like blue light, cordless versatility.
- More affordable

Is there a difference in Tx time, e.g. for arthritis by ALPHAVET or ACTIV Pro or MyPet?

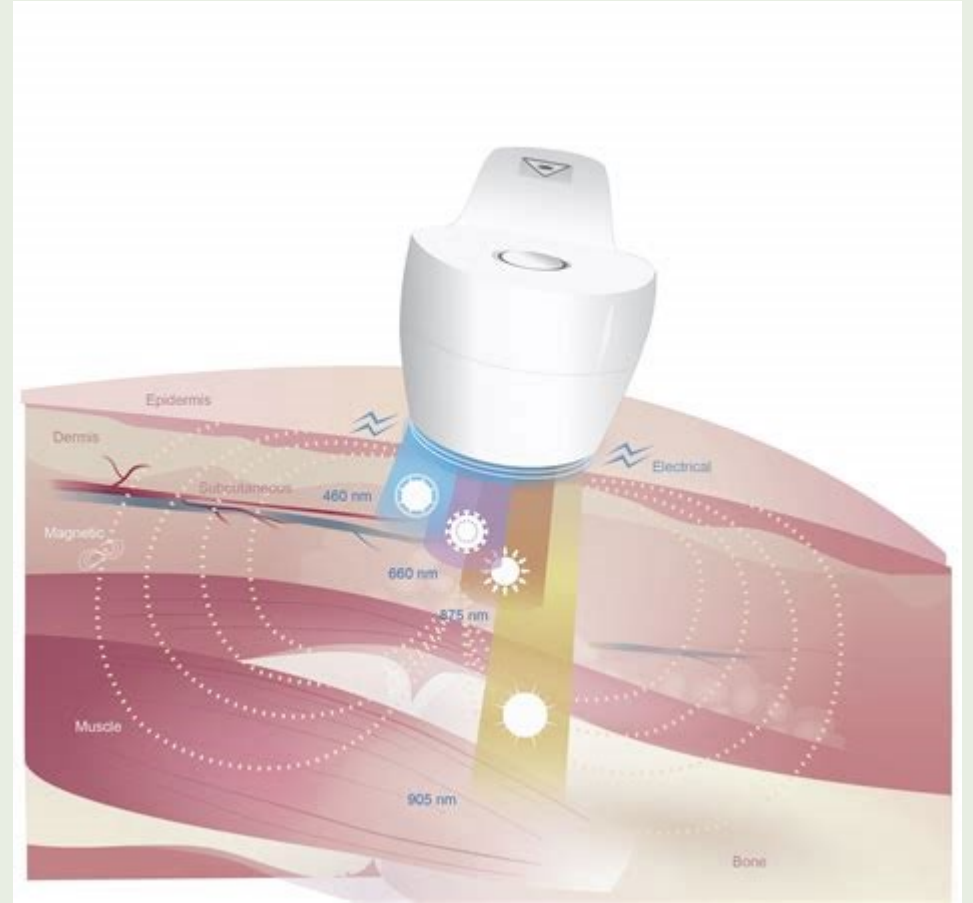
- No difference between ALPHAVET and ACTIVet Pro
- My Pet laser treatments times slightly longer.

ALPHAVET to be considered, if a dedicated room is available and laser 4 is preferred.

- No technical / medical advantage as compared to ACTIVet Pro.

Which one should be the first device?

- ACTIVet Pro, but possible also to start with the My Pet laser.



**Super pulsed laser** (905 nm) GaAS is the semiconductor refinement of Multi Radiance Medical technology.

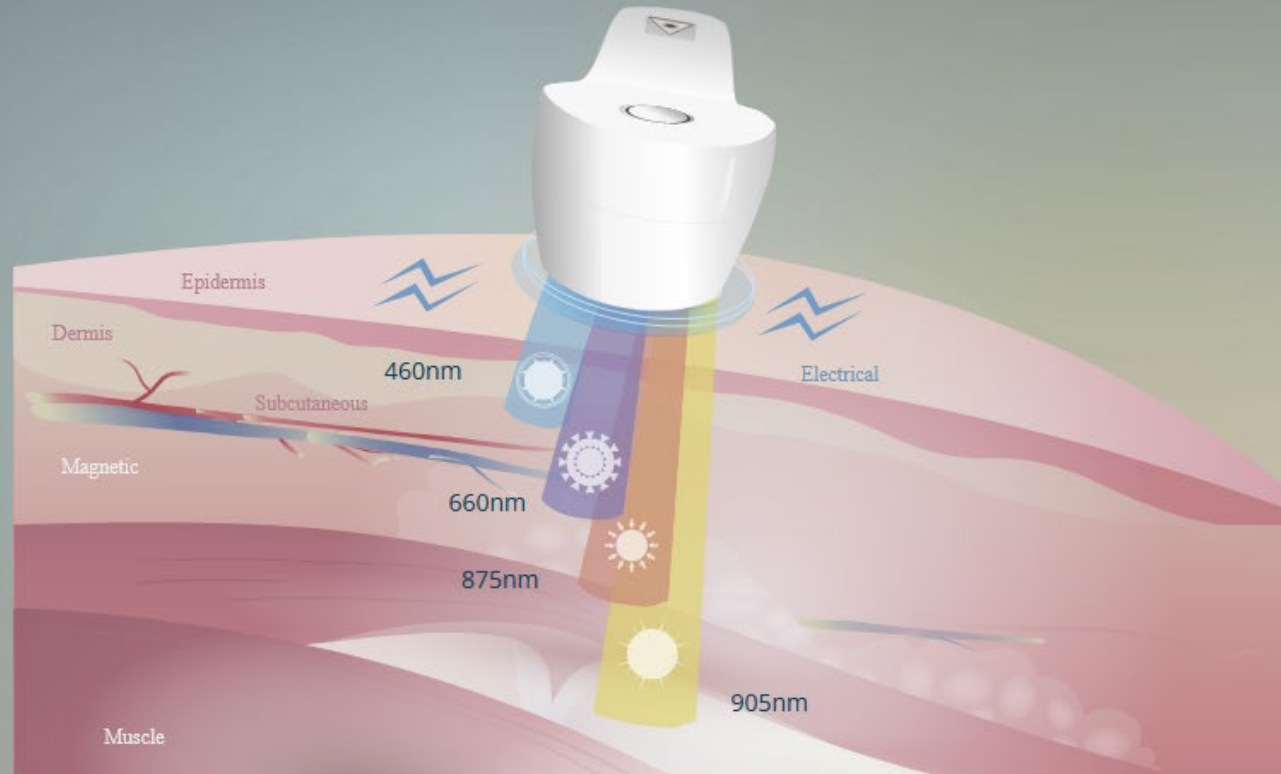
- Up to 50,000mW of peak power for a higher density of light energy or photons, driven deeper into target tissue, without risk of overheating.
- Super pulsed diodes emit a series (of light pulses with high amplitude in an extremely short duration (typically 100 to 200 nanoseconds).

# How it works

## PROVEN, POWERFUL, SAFE AND EFFECTIVE

Multi Radiance Super Pulsed Lasers use innovative technology to deliver light energy to tissue, which reduces pain and increases circulation.

Cascading Energy Effect™ Multi Radiance Super Pulsed Lasers combine three clinically proven wavelengths to create the Cascading Energy Effect™, allowing for deeper penetration and enhanced absorption of light.



### Static magnetic field

Static magnetic field keeps ionized molecules of tissue in a dissociated state, enhancing the body's potential to absorb energy.

### Pulsed Blue LEDs

Pulsed Blue Light (465nm) superficial penetration. Bactericidal blue light technology supports infection control for wound healing, intra-operative, and post-surgical applications.

### Pulsed Red LEDs

Pulsed red light (660nm) penetrates shallower depths

### Infrared SLDs

Pulsed broad band infrared emitting diodes (875nm) penetrate shallower tissue depths than the laser but provide a broader spectrum of coverage.

### Super Pulsed Laser

The super pulsed laser (905nm) produces high powered light in billionth-of-a-second pulses. The power of each pulse drives the photons deep into the target tissue. Multi Radiance Medical technology creates a high photon density, strongly reducing pain and improving micro-circulation. Super pulsed diodes emit a series (frequency) of radiation impulses with high amplitude in an extremely short duration (typically 100 to 200 ns).



Super Pulsed Laser



Infrared SLDs



Pulsed Red LEDs



Pulsed Blue LEDs



Static magnetic field



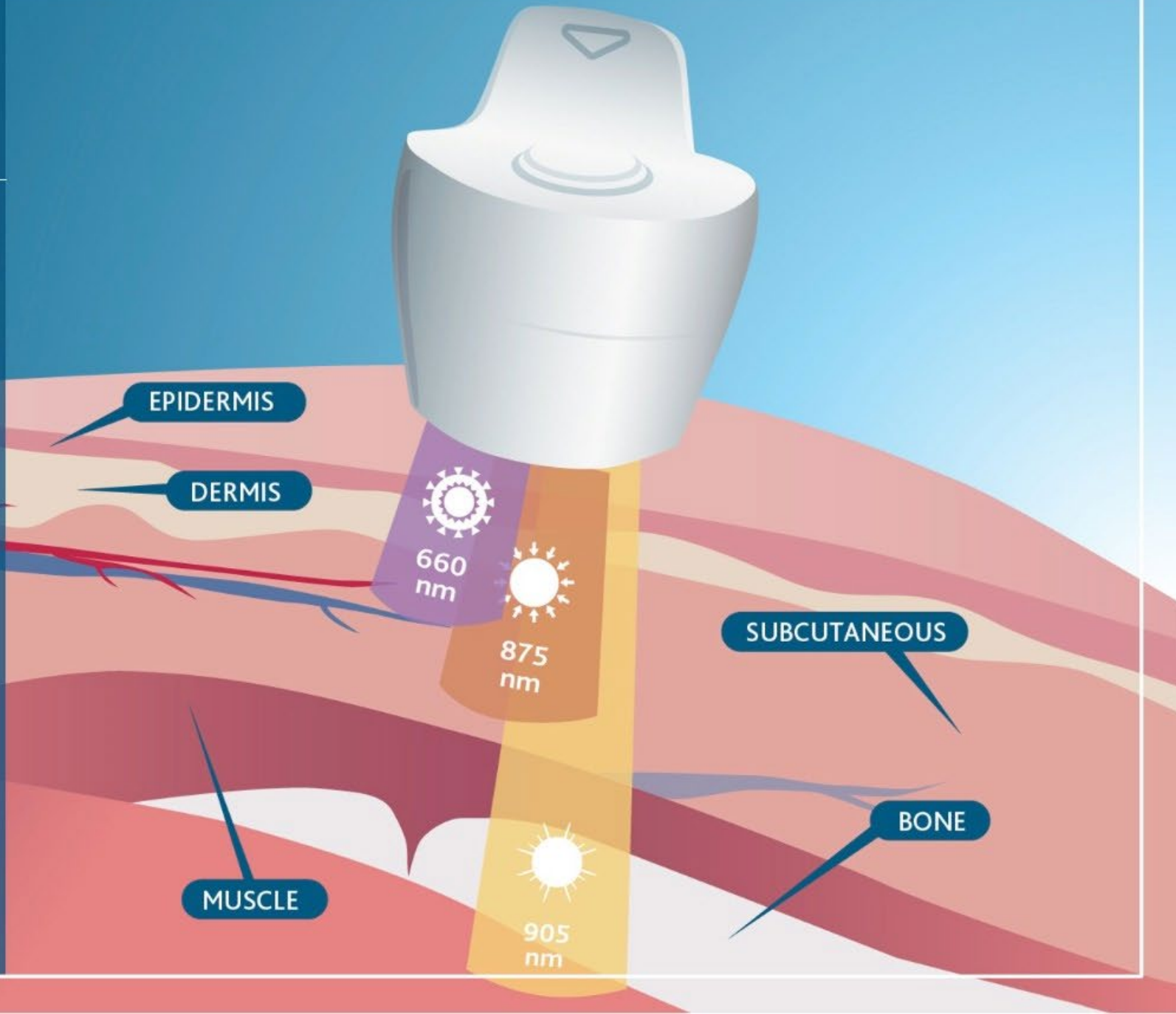
Electrical stimulation  
(LaserStim)

# THE CASCADE ENERGY EFFECT

## *4 clinically proven wavelengths:*

475 nm, 660nm, 875nm, and 905nm, covering the therapeutic spectrum for optimal tissue saturation.

Up to 50,000mW of peak power for a higher concentration of light energy, or photons, driven deeper into TARGET tissue, without risk of overheating.



# THE CASCADE ENERGY EFFECT

## (True) Super Pulsed Laser (905nm)

produce high powered impulses of infrared light, but for very brief durations registering the lowest thermal impact on tissues. The technology operates like a camera flash, a very large burst of light, delivered in a very short amount of time, tens or hundreds of NANOSECONDS.

**Biological Effect:** Super-pulsed infrared lasers exert powerful stimulating influences upon blood circulation, cellular membrane metabolism and nerve function.

## Pulsed Broadband Infrared (860nm)

emit non-coherent infrared light and while it may penetrate less deeply into the body than the infrared super pulsed laser, it's a unique biological response. While laser light is monochromatic (single color), the IREDs contain broadband diodes. This creates the ability to "shift" bandwidth plus or minus up to 100nm! This varying and constantly changing stimuli reduces biological adaption to light stimuli and further fills in "gaps" of the Therapeutic Window.

**Biological Effect:** 860nm light provides many of the same effects as infrared laser, however photophysical changes also occur at cell membranes. This improves circulation and cell membrane permeability and reinforces the laser's penetration into target tissues

## Pulsed Non-coherent Narrowband Red (660nm)

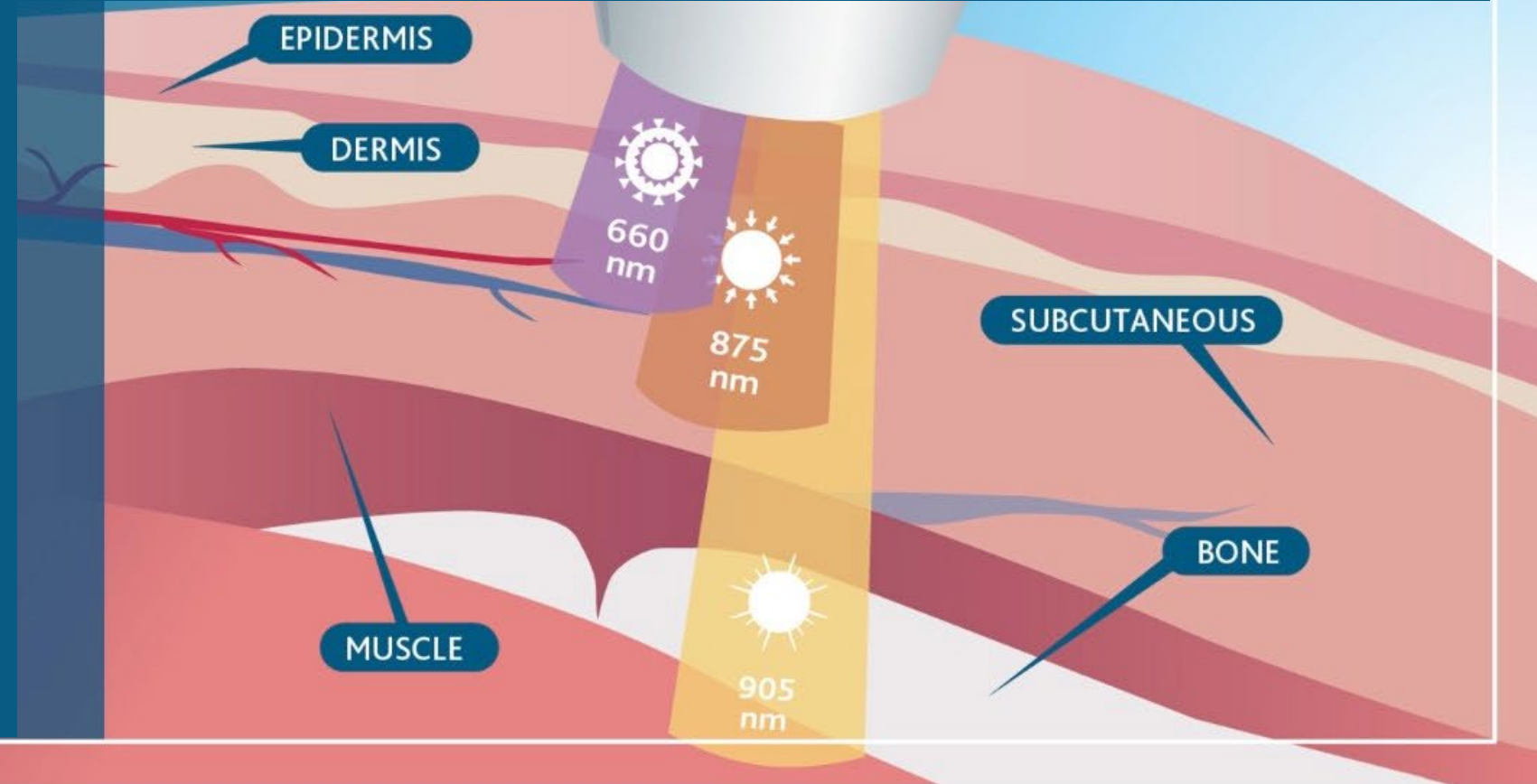
All red light photons, regardless of their source (laser, IREDs, LEDs, etc), are significantly absorbed by cytochrome c oxidase. And, they carry higher amounts of energy than infrared photons. Therefore, the amount of energy necessary to stimulate photochemical processes with red light is far less than those for infrared. However, pulsing non-coherent red light penetrates only superficially (about 1-2 cm) due to absorption in melanin. So, while depth is limited, red light is ideally suited for superficial conditions. Red light exerts very favorable therapeutic effects on the inflammatory process especially in tissues saturated with porous connective tissues. The 660nm wavelength is used to saturate superficial tissue layers, and to enhance the depth of penetration and photon distribution of other wavelengths used.

**Biological Effect:** Heavily absorbed by cytochrome c oxidase, red light is ideal for localized pain relief, improvement of microcirculation and reduction of inflammation.

## Pulsing Non-coherent Narrowband Blue Light (465nm)

penetrates rather poorly, due to the almost complete absorption superficially. A photolytic release of NO from nitrosated proteins is observed indicating that they are light acceptors and signal transducers.

**Biological Effect:** Blue light therapies have shown promise in treating MRSA and inflammatory skin conditions. , in addition they causes oxidative stress to bacteria. Unlike with drugs, they cannot mutate their way around it.



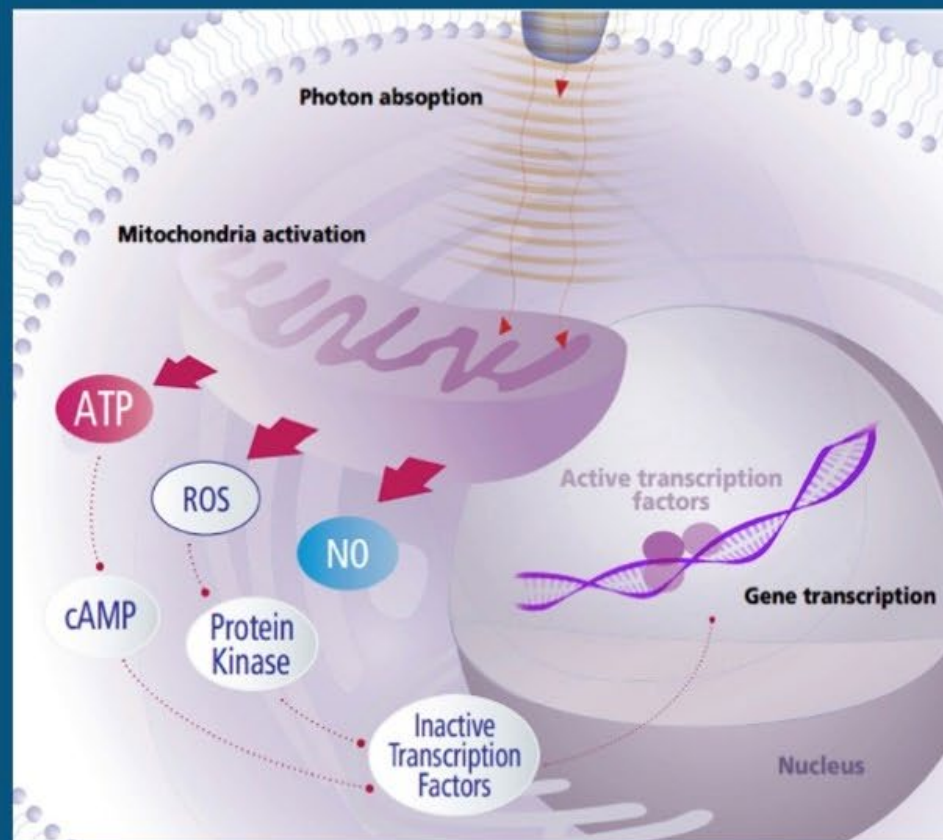


## SUPER PULSED LASER THERAPY

TECHNOLOGY

Generates ATP, dissociates Nitric Oxide, creates vasodilation and improves blood flow. Relieve pain and accelerate recovery.

Multi Radiance  
Super Pulsed Lasers



# Priority principle



## What is the priority principle (in simple words)

- MRM's Priority Principle is the result of 15 years of research and testing.
- It provides practitioners exactly how to use its safe, powerful and effective laser settings based on what symptoms are presented and what the target tissue needs. Then pain, inflammation, tissue repair, range of motion and functional strength.

## Treatment according to Priority Principal

MRM developed the exclusive Priority Principle that based on the symptoms and what the target tissue needs.

1. If there is swelling, treat that first as it could be causing pain and anxiety (Ohshiro's principle).
2. Tissue inflammation and infection as the key to promoting and initiating tissue repair.
3. Treat muscle spasms and pain for patient comfort and improved blood flow where congested blood is causing inflammation.
4. Treat for tissue repair next to accelerate healing while using the exclusive blue wavelength to also fight infection.
5. Then, range of motion and functional strength.

**All steps are technology and dosimetry validated by published studies.**

# Holistic approach

## Holistic Approach – Methods for preparation of treatment like unwind and Ohshiro's Method

Clients are more informed than ever about new technologies in the media and word of mouth. They want evidence-based alternatives to drug side effects. Unwind protocol provides systemic release of endorphins to assure comfort.

### Unwind Method: Relaxation

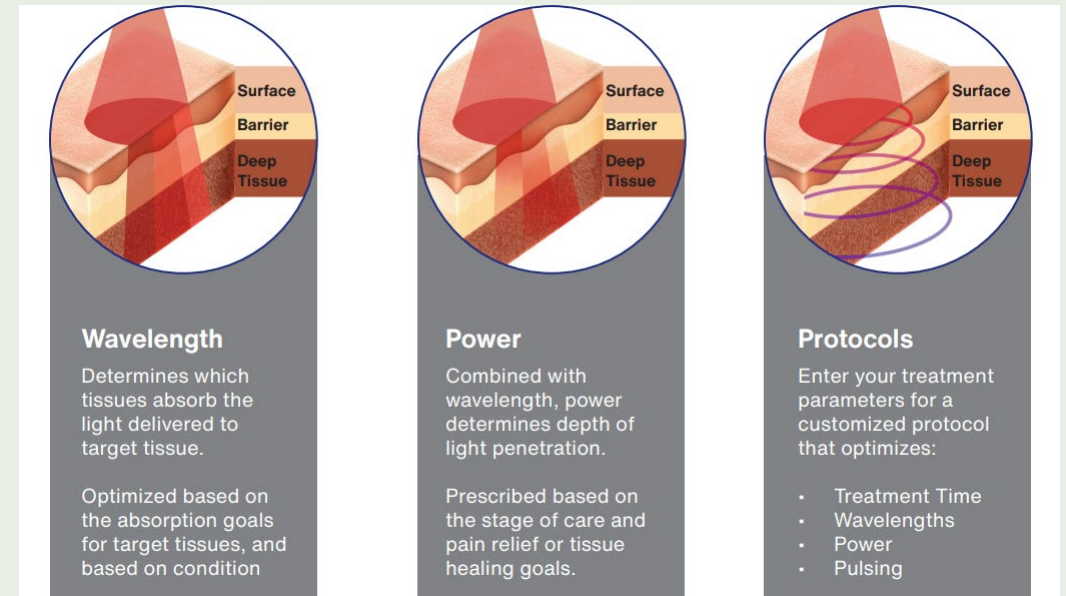
The Unwind protocol is a safe and very effective way to reduce anxiety and acclimate the patient that may never have experienced laser therapy. Since MRM lasers are all super pulsed, eliminating any pain provocation from heat, it can be used, scanning at 1cm/sec from base of skull to tail start. Typically, it takes less than 5 min to treat.

### Swelling caused by interstitial fluid can be reduced with Ohshiro's Method

- It provides analgesic relief by introducing an inhibitory frequency along the spinal nerve roots that systemically releases endorphins to calm and relax patients.

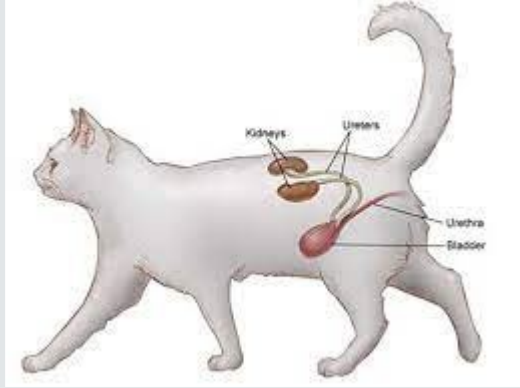
### Continuity of Care (CoC) with stress free comfort @home

- This addresses the critical need for more vet care without increasing trauma and anxiety, especially for cats going into a carrier for trips to the vet.





# Example Treatment Protocol – Cystitis (FIC)



The anatomy of the feline urinary tract.  
Cornell University College of Veterinary Medicine (CVM).



## Challenge Feline Idiopathic Cystitis

- Multi-factorial disease, inflammation is located inside of the body cavity.
- Cats can suffer side effects to kidneys and livers from pain and anti-inflammatory drugs over time.
- Antibiotics have their limitations and resistance is a risk.
- Going to vet in a carrier can be stressful and can be a factor to aggravate the clinical condition.
- Pain and anxiety can cause spasm.



## 1. Holistic Approach – Preparation for the treatment (Unwind Protocol)

The Unwind protocol is a safe and very effective way to reduce anxiety and acclimate the patient that may never have experienced laser therapy. Since MRM lasers are all super pulsed, eliminating any pain provocation from heat, it can be used, scanning at 1cm/sec from base of skull to tail start. Typically, it takes less than 5 min to apply.

**Unwind Protocol:** Scan along the spine, using the large Dome Probe, from base of skull to tail start at 1000 Hz with a speed of 1cm/sec for 2-3 minutes.



## 2. Treatment according to Priority Principal – Tissue inflammation

Improving blood flow through vasodilation reduces tissue inflammation; key to promoting and initiating tissue repair.

**Treatment Protocol:** 50 Hz, slowly scan with light contact over the entire bladder and urethra for 2-3 minutes.

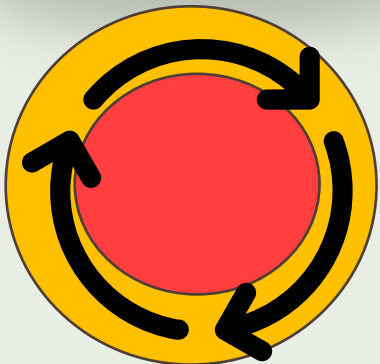
- Optimal use, in case pet owner can come twice per day or cat can stay at the hotel:
- Two sessions, Same time each day (separated by 4 hours) during 5 days for an initial loading dose of photoceutical.
- Remark: the blue wavelength cannot penetrate to the bladder.



## Follow up – therapy treatment with My Pet Laser @home

- Assessment – everything back to normal after a week?
- If not fully recovered -> continue for another week or use the My Pet Laser.

# Example Treatment Protocol – Infections (open wounds)



## Challenge

- Most severe ones requires anesthesia and surgery.
- Complications are common in wound healing due to location, size, contamination and aetiology
- Difficult to control pet's licking and scratching.
- Antibiotics have their limitations and resistance is a risk (MRSP..)
- Pain is a huge negative factor..



## 1. Holistic Approach – Preparation for treatment

To relax and provide analgesia the Unwind protocol is a safe and very effective way to reduce anxiety and acclimate the patient that may never have experienced laser therapy. Since MRM lasers are all super pulsed, eliminating any pain provocation from heat, it can be used, scanning at 1cm/sec from base of skull to tail start. Typically, it takes less than 5 min to treat.

**Unwind Protocol:** Scan along the spine, using the large Dome Probe, from base of skull to tail start at 1000 Hz with a speed of 1cm/sec for 2-3 minutes.



## 2. Treatment according to Priority Principal

Treatment of the wound, fight against infection and accelerate healing, use the large Dome Probe, add blue light to the 50 Hz setting and hover over the wound with about two centimeters distance.

- Treatment by small doses, 1 to 2 minutes with all 4 wavelengths are best for wounds.
- The wound should be treated starting around the periphery to the inside in circles.
- Sessions: 1 treatment per day is usually sufficient.



## Follow up – therapy treatment with My Pet Laser @home

- Assessment – everything back to normal after a week?
- If not fully recovered -> continue for another week or use the My Pet Laser.

# Example Treatment Protocol – Lick granulomas



## Challenge

- Possible cause: obsessive compulsive disorder characterized by a dog's anxiety tendency with boredom to self-medicate. One theory is that excessive licking causes endorphin release, which reduces pain and makes the dog feel euphoric temporarily, exacerbating the problem.
- Other causes: include bacterial or fungal infections, trauma causing nerve damage, allergies, or joint disease
- Difficult to control pet's licking and scratching, lack of movement, boredom can have a huge negative factor.



## 1. Holistic Approach – Preparation for treatment

To relax and provide analgesia, the Unwind protocol is a safe and very effective way to reduce anxiety and acclimate the patient that may never have experienced laser therapy. The produced serotonin can stave off depression and provide a feeling of euphoria. Since MRM lasers are all super pulsed, eliminating any pain provocation from heat, it can be used, scanning at 1cm/sec from base of skull to tail start. Typically, it takes less than 5 min to treat.

**Unwind Protocol:** Scan along the spinal nerve roots, using the large Dome Probe, from base of skull to tail start at 1000 Hz Scanning at 1cm/sec for 2-3 minutes.

If dog suffers from **severe pain**, prioritize on Pain treatment with high dose of 1-3000 Hz for 3 min or 5000 Hz for 1 min.



## 2. Treatment according to Priority Principal

Treatment of the wound, fight against inflammation and if present infection and accelerate healing, use the large Dome Probe, add blue light to the 50 Hz setting and hover over the wound with about two centimeters distance.

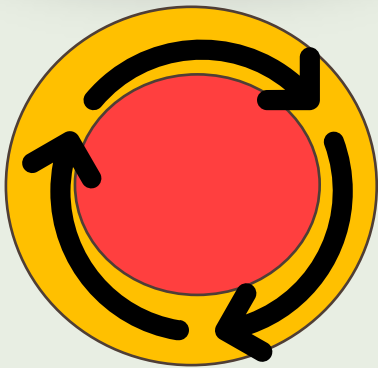
- Treatment by small doses, 1 to 2 minutes with all 4 wavelengths are best for wounds.
- The wound should be treated starting around the periphery to the inside in circles.
- Sessions: 1 treatment per day is usually sufficient.



## 3. Follow up – therapy treatment with My Pet Laser @home

- Accelerate tissue repair by treatment with My Pet Laser Setting #2 for 1 min using contact technique and Setting #1 for 5 min Photochemotherapy using contact technique.

- If not fully recovered -> continue for another week after rest of 1-2 days.



# Osteomyelitis



## Challenge

- Painful condition
- Might require anesthesia and surgery
- Requires long periods of medication (antibiotics and/or anti-fungals..)
- Difficult to administer drugs to cats over long periods
- Antibiotics have their limitations, side effects and resistance is a risk
- High risk of recur



## Challenge for laser therapy

- MRM's 465nm blue wavelengths are excellent for wounds and are synergistic with the 660, 875 and 905nm wavelengths.



## Osteoarthritis

- Well proven effects with MR lasers to treat the pain, inflammation and tissue repair along the joint surfaces.

# Feline Lower Urinary Tract Disease - FLUTD

## Challenge



- Painful condition
- Might require anesthesia and surgery
- Requires long periods of medication (antibiotics and/or anti-fungals..)
- Difficult to administer drugs to cats over long periods
- Antibiotics have their limitations, side effects and resistance is a risk
- High risk of recurrence

## Challenge for laser therapy – as an adjunctive modality if ultrasound shows sediment that may pass



- MRM's proven synergistic combination of wavelengths 465nm, 660nm, 875nm, 905nm SPL wavelengths are excellent for penetrating through skin to reach deeper target tissue like bladders and urethra that become inflamed, restricting passing of sediment. Zero side effects
- Many cats have become highly resistant to traditional antibiotics. Well proven effects with MRM lasers to treat the pain (Unwind protocol), reduce inflammation and blue wavelength to help prevent infection around catheter sites. Bacteria are not able to mutate around this different mechanism of action as they do with drugs; it causes lethal oxidative stress instead.



## Treatment according to Priority Principal -

Treat the inflammation by using Pro laser with large Dome Probe, 50 Hz setting and scan with light over pressure on the bladder and abdomen, for 1-2 minutes. If a catheter has been placed, add blue to fight potential infection around the puncture.



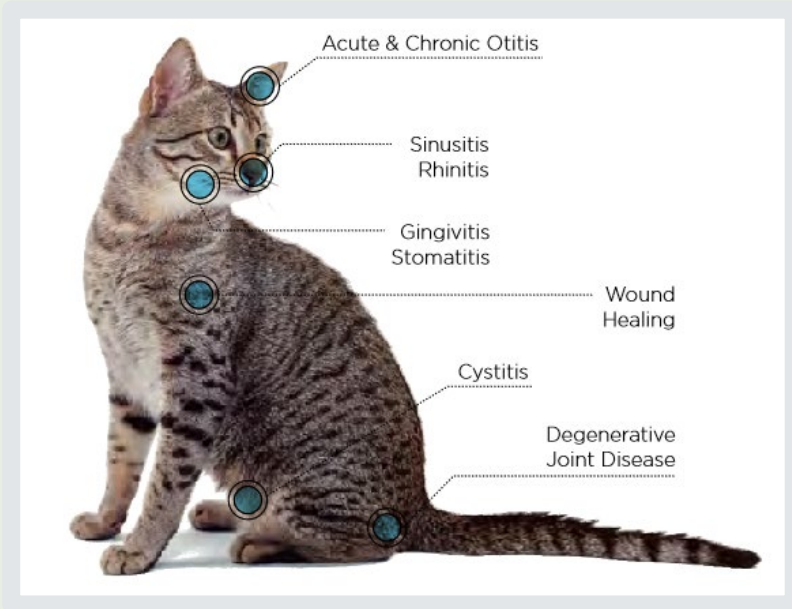
- Sessions: 2x daily treatment if possible the first week. Then check patient's improved ability empty its bladder. Confirm with ultrasound

## Follow up – therapy treatment with My Pet Laser @home

- If patient has improved, but could benefit with an additional week, vet can prescribe the My Pet Laser as a stress-free home care option using Setting 1 on the My Pet Laser 2.0



# Further frequent indications for cats



List of indications where traditional treatments have limitations in cats:

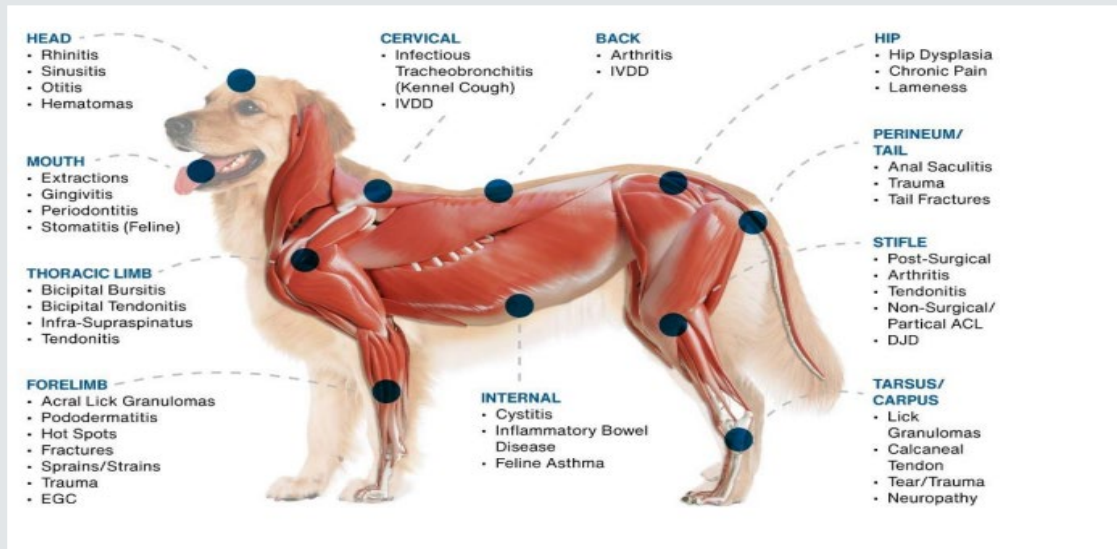
## **Osteoarthritis/Degenerative Joint Disease**

- Vet visits can traumatize cats. They can become stoic and hide.
- Many cats are made anxious by the intensity and heat potential of Class 4 lasers.
- They can also suffer side effects to kidneys and livers from pain and anti-inflammatory meds.
- None of these are short- or long-term issues with MRM Super Pulsed devices for pain relief, reducing inflammation with Osteoarthritis. Nor is compliance an issue. MRM is ideally suited for Vet prescribed Continuity of Care (CoC) with stress-free My Pet Laser home use.

## **Feline Stomatitis**

- All the above advantages plus incorporation of MRM's exclusive blue wavelength to also fight infection during each blue light treatment with MRM Photo Probes (Utility).
- Vet prescribed My Pet Laser for CoC also applies.

# Further frequent indications for cats and dogs



List of indications where traditional treatments have limitations in dogs:

## Osteoarthritis/Degenerative joint disease

- MRMs technology is validated to reach ligaments, tendons and internal joint surfaces.
- To improve outcomes Photothemothrapy (PHT) or even stimulation of corporal acupoints with the PhotoProbe can prime the treatment.
- Helps vets reduce drug use side effects.
- Vet prescribed My Pet Laser for CoC also applies.

## Lick Granulomas

- MRM's unique Unwind protocol along spinal nerve roots inhibits pain and provides relaxation, allowing vets to then use MRM's stimulatory settings at the wound site to reduce inflammation and anxiety while also promoting tissue repair.
- Blue light can be used to fight or prevent granuloma infections.
- Vet prescribed My Pet Laser for CoC also applies.
- Produced serotonin can reduce anxiety and stave off depression and provide a feeling of calm.
- Unwind protocols reduce the level of anxiety, greatly improve compliance.

# Classical Class 4 lasers via Super Pulsed lasers

### Class IV Lasers

Class IV Lasers do not produce PBM effect due to the generation of excessive heat and create non-specific photothermal effects that result in apoptosis and cell death.

**ROS**  
Excessive levels of ROS cause toxic effects which are associated with various pathologies, including carcinogenesis, neurodegeneration, atherosclerosis, diabetes, and aging.<sup>37</sup>

**HEAT (ATF-4 and HSP70)**  
Increasing laser doses generates heat and ROS damage that induces ER stress mediated by Activation Transcription Factor 4 (ATF-4) & Heat Shock Protein 70 (HSP70) resulting in autophagy.<sup>32</sup>

**ATP**  
The accumulating heat limits the PBM effects, and the generated ATP is used to fuel apoptosis.

**Nitric Oxide**  
The small amount of NO created results in local vasodilation.<sup>39</sup>

### Super Pulsed Lasers

Low level laser and light photobiomodulation (PBM) is a non-thermal process where photochemical and photophysical changes occur to the cell.<sup>40</sup>

**ATP**  
This is the primary effect of PBM and is generated when light is absorbed by the Mitochondria. This extra energy provides the fuel to run a variety of biological processes within cells for metabolism, synthesis of proteins and membranes, movement of the cell, cellular division, transport of various solutes, etc.

**Nitric Oxide**  
The increased dissociation of NO results in vasodilation which enhances nerve cell perfusion and oxygenation, and has a direct effect on Pain sensation acting as a neurotransmitter. It is essential for normal nerve cell action potential in impulse transmission activity.<sup>39</sup>

**ROS**  
Low levels of ROS exert beneficial effects regulating cell signaling cascades.<sup>10</sup>

Six examples have been identified that are scientifically provable, but challenge currently held beliefs:

- 1) Class IV lasers are NOT the most advanced devices currently available.
- 2) More (potentially hazardous) power DOES NOT equate to better outcomes.
- 3) The resulting heat from high powered laser is NOT beneficial.
- 4) Larger doses are NOT necessary to derive clinical benefits.
- 5) Heat is not required for effective photobiomodulation.
- 6) Clinical and laboratory research DOES NOT mandate the use of high-powered lasers in therapy.

UNRIVALED

In head-to-head clinical studies, our technology vastly outperforms competitors.



## Phototherapy for Improvement of Performance and Exercise Recovery: Comparison of 3 Commercially Available Devices

Thiago De Marchi, MSc, PT\*; Vinicius Mazzochi Schmitt†; Carla Danúbia da Silva Fabro\*; Larissa Lopes da Silva\*; Juliane Senes\*; Olga Tairova, PhD†; Mirian Salvador, PhD\*

\*Postgraduate Program in Biotechnology, Oxidative Stress and Antioxidant Laboratory, and †Sports Medicine Institute, University of Caxias do Sul, Brazil

**Context:** Recent studies suggest the prophylactic use of low-powered laser/light has ergogenic effects on athletic performance and postactivity recovery. Manufacturers of high-powered lasers/light devices claim that these can produce the same clinical benefits with increased power and decreased irradiation time; however, research with high-powered lasers is lacking.

**Objective:** To evaluate the magnitude of observed phototherapeutic effects with 3 commercially available devices.

**Design:** Randomized double-blind placebo-controlled study.

**Setting:** Laboratory.

**Patients or Other Participants:** Forty healthy untrained male participants.

**Intervention(s):** Participants were randomized into 4 groups: placebo, high-powered continuous laser/light, low-powered continuous laser/light, or low-powered pulsed laser/light (comprising both lasers and light-emitting diodes). A single dose of 180 J or placebo was applied to the quadriceps.

**Main Outcome Measure(s):** Maximum voluntary contraction, delayed-onset muscle soreness (DOMS), and creatine kinase (CK) activity from baseline to 96 hours after the eccentric exercise protocol.

**Results:** Maximum voluntary contraction was maintained in the low-powered pulsed laser/light group compared with placebo and high-powered continuous laser/light groups in all time points ( $P < .05$ ). Low-powered pulsed laser/light demonstrated less DOMS than all groups at all time points ( $P < .05$ ). High-powered continuous laser/light did not demonstrate any positive effects on maximum voluntary contraction, CK activity, or DOMS compared with any group at any time point. Creatine kinase activity was decreased in low-powered pulsed laser/light compared with placebo ( $P < .05$ ) and high-powered continuous laser/light ( $P < .05$ ) at all time points. High-powered continuous laser/light resulted in increased CK activity compared with placebo from 1 to 24 hours ( $P < .05$ ).

**Conclusions:** Low-powered pulsed laser/light demonstrated better results than either low-powered continuous laser/light or high-powered continuous laser/light in all outcome measures when compared with placebo. The increase in CK activity using the high-powered continuous laser/light compared with placebo warrants further research to investigate its effect on other factors related to muscle damage.

**Key Words:** skeletal muscle performance, low-level laser therapy, light-emitting diode therapy, high-intensity laser therapy, photobiomodulation therapy

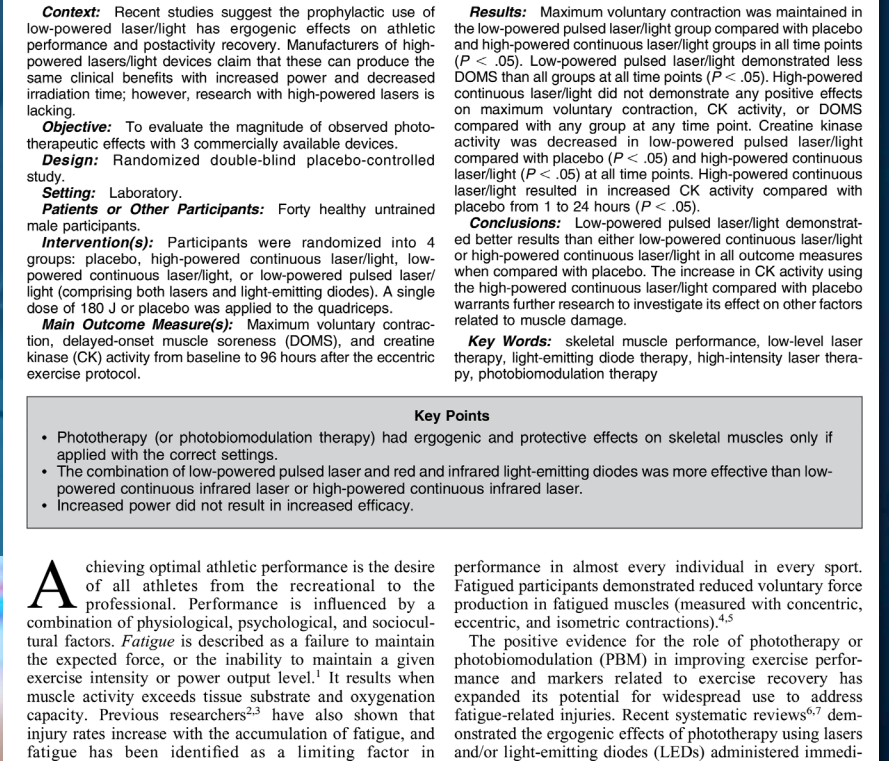
### Key Points

- Phototherapy (or photobiomodulation therapy) had ergogenic and protective effects on skeletal muscles only if applied with the correct settings.
- The combination of low-powered pulsed laser and red and infrared light-emitting diodes was more effective than low-powered continuous infrared laser or high-powered continuous infrared laser.
- Increased power did not result in increased efficacy.

Achieving optimal athletic performance is the desire of all athletes from the recreational to the professional. Performance is influenced by a combination of physiological, psychological, and sociocultural factors. *Fatigue* is described as a failure to maintain the expected force, or the inability to maintain a given exercise intensity or power output level.<sup>1</sup> It results when muscle activity exceeds tissue substrate and oxygenation capacity. Previous researchers<sup>2,3</sup> have also shown that injury rates increase with the accumulation of fatigue, and fatigue has been identified as a limiting factor in

performance in almost every individual in every sport. Fatigued participants demonstrated reduced voluntary force production in fatigued muscles (measured with concentric, eccentric, and isometric contractions).<sup>4,5</sup>

The positive evidence for the role of phototherapy or photobiomodulation (PBM) in improving exercise performance and markers related to exercise recovery has expanded its potential for widespread use to address fatigue-related injuries. Recent systematic reviews<sup>6,7</sup> demonstrated the ergogenic effects of phototherapy using lasers and/or light-emitting diodes (LEDs) administered immedi-



**PROVEN ADVANTAGES:**  
**THE COMPARATIVE STUDY**

Concluded that Super Pulsed laser (MR4) light demonstrated better results in all outcomes measured when compared with placebo, and high-powered continuous laser had no effects on any outcome measured.