



Multi Radiance
Super Pulsed Lasers

BETTER SCIENCE. BETTER OUTCOMES.

As a Global Leader in Laser Therapy for Pain Management, Veterinary, Sports Performance and Rehab, Multi Radiance Medical's mission is to develop new applications and technologies that will address unmet needs in the medical community.

Our Commitment to research and education has allowed us to optimize our technology, validate our methodology and create predictable and reproducible patient outcomes.

We will support, develop and nurture clinicians, their practices and patients, our researchers and employees, as well as the communities in which we serve.

 **Multi Radiance**
Super Pulsed Lasers





CORPORATE & CLINICAL CAPABILITIES

- Non-Invasive Pain Relief & Faster Recovery
- Clinically Proven and Validated through Research
- Treatment of Equine, Companion & Exotic Animals
- Wound and Anti-Microbial Treatment
- Opioid-Free Pain Relief
- Pre / Post Op Treatment Options for Clinical and At-Home Use



ABOUT THE COMPANY

- Headquarters in Solon, Ohio
- Products Sold in U.S. since 2006
- Leader in Laser Therapy field
- Global Presence:
 - FDA
 - Health Canada
 - CE (Europe)
 - TGA (Australia)
 - Anvisa Brazil

MULTI RADIANCE LASER THERAPY

The Research is Validated:

- In Vitro, In Vivo, in controlled laboratory studies and in clinical trials
- 50 Clinical Studies and 30+ Research projects currently underway
- 18 Peer-Reviewed journal publications
- 6 more submitted and under review





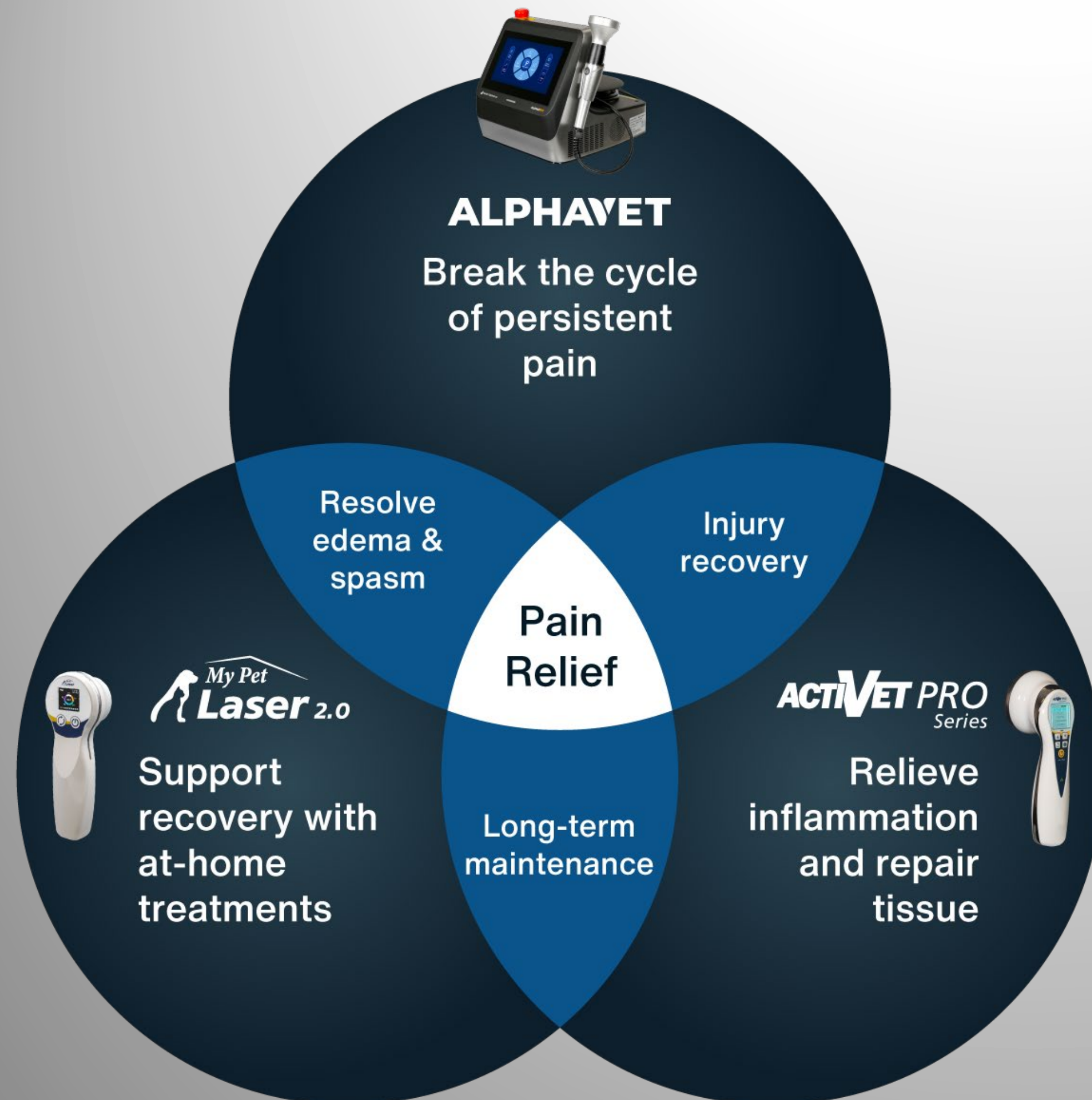
**BE JUDGED BY THE
COMPANY YOU KEEP!**



From Quick Pain Relief to Tissue Healing and Long-Term Care

The Right Technology for Every Stage of Care

You have different goals for your patients at each stage of care. The Laser Therapy Continuum of Care is designed to provide you with the right non-invasive tools in your laser therapy toolbox to meet your clinical goals throughout a complete plan of care.



FLAGSHIP PRODUCTS

SPECIFICATIONS

ACTIVET PRO
LaserShower™



- 200W SLP Power
- 500mW MOP
- 30cm² aperture
- Blue Light

ACTIVET PRO



- 50W SLP Power
- 450mW MOP
- 4cm² aperture
- Blue Light

- 25W SLP Power
- 200mW MOP
- 4cm² aperture

My Pet
Laser 2.0



Brand New Model!

ALPHAVET

Most versatile laser therapy device.

Class IV 28 Watts Power

- Continuous mode
- Pulsed Mode
- Super Pulse Boost
- 7-inch LCD touch screen
- 635 nm 810nm, 915nm, 980 nm

Companion, Equine, Exotic Animal
Protocols

Priority Principal Protocols

Custom Mode-Frequency 1-20000Hz.





My Pet **Laser 2.0**

**Brand New
Model!**

Provides effective pain relief, inflammation control, and wound healing safe enough for use in the home under the veterinarian's direction to reduce the burden of care.

Features

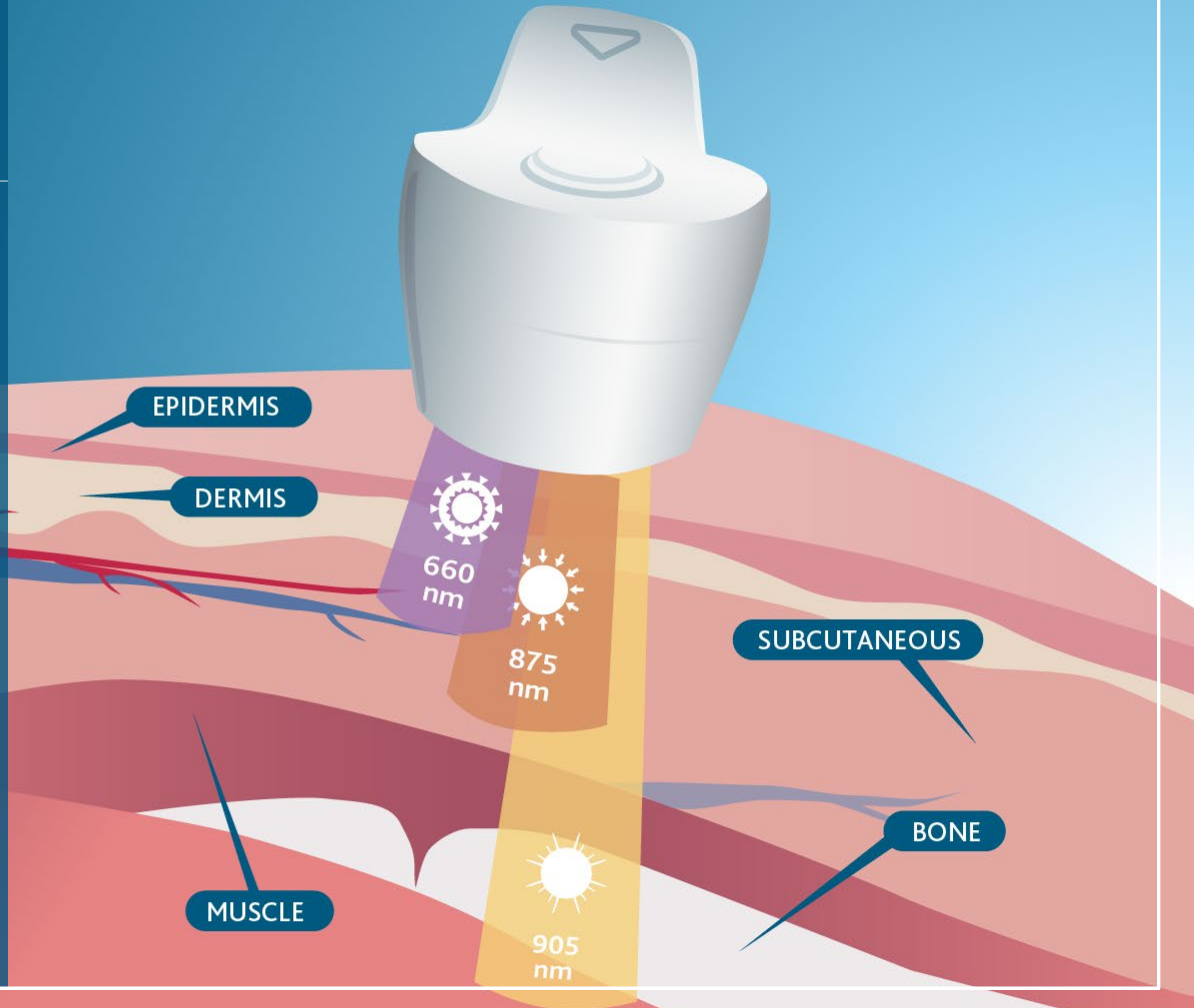
- 3X the power of the original
- Increased pre-programmed settings
- Color LED screen
- High and low dose indicator
- Cordless, portable, and lightweight
- Rechargeable battery
- FDA cleared safe for at-home use

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.





TREATABLE CONDITIONS

Some conditions improve w/ 1 or 2 visits, such as post-surgery acute pain, while others require treatments over a few weeks.

- *Lick granulomas*
- *Otitis*
- *Pododermatitis*
- *Bursitis*
- *Tendonitis*
- *Gingivitis*
- *Stomatitis*
- *Tooth extractions*
- *Roden ulcers*
- *Feline acne*
- *Pyotraumatic*
- *Cystitis*
- *Feline asthma*
- *Rhinitis*
- *Sinusitis*
- *Trauma*
- *Hip dysplasia*
- *Bowel Disease*
- *Dermatomyositis*
- *Tail fractures*
- *Acupuncture*
- *Dermatitis*

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 Sene^{*};
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.¹ It results when muscle activity exceeds tissue substrate and oxygenation capacity. Previous researchers^{2,3} 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).^{4,5}

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^{6,7} 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.

EQUINE SKIN PENETRATION COMPARATIVE STUDY

Concluded that the PBMT (MR4 ActiVet Pro) device provided a greater penetration than a class IV laser (Companion brand) in unclipped light and dark skin, suggesting that the former may produce a better therapeutic clinical effect. The color of the skin changes the penetration profiles of PBMT.



Original Research

Penetration Profiles of a Class IV Therapeutic Laser and a Photobiomodulation Therapy Device in Equine Skin

Stelio Pacca Loureiro Luna^{a,*}, Allen Schoen^b, Pedro Henrique Esteves Trindade^a, Paula Barreto da Rocha^a

^a School of Veterinary Medicine and Animal Science (FMVZ), São Paulo State University (Unesp), Botucatu, São Paulo, Brazil
^b Center for Integrative Animal Health, Salt Spring Island, British Columbia, Canada



ARTICLE INFO

Article history:
Received 13 September 2019
Received in revised form 5 November 2019
Accepted 8 November 2019
Available online 4 December 2019

Keywords:
Laser
Horse
Soft tissue injuries

ABSTRACT

Photobiomodulation therapy (PBMT) effects depend on the energy settings and laser penetration. We investigated the penetration time profiles of two different light therapy devices, at the dark and light skin regions in horses. Six light skin and six dark skin adult clinically healthy Arab and Quarter horses were used. A cutometer was used to measure the width of the skin fold from both sides of the cervical area, followed by three measurements of the thickness of the same skin fold by transversal and longitudinal ultrasonography (US). The depth of light penetration was compared based on the percentage of penetration versus power, between a portable PBMT device versus a class IV laser device. The laser mean power output was measured with an optical power meter system for 120 seconds after penetrating the skin. Skin width and laser penetration were compared among equipment by paired "t" test. There was no difference in the width of the skin fold between measurements acquired by the cutometer against either longitudinal or transversal US or between the US measurements at cervical versus metacarpus area. Light penetration was greater in both kinds of skins in the PBMT (0.01303 ± 0.00778) versus class IV laser (0.00122 ± 0.00070) ($P < .001$). The PBMT device provided a greater energy penetration than the class IV laser in unclipped light and dark skin, suggesting that the former may produce a better therapeutic effect. The color of the skin changes penetration profiles of PBMT.

© 2019 Elsevier Inc. All rights reserved.

1. Introduction

Photobiomodulation therapy (PBMT) is currently used for tissue injury repair [1,2]. Several beneficial effects have been attributed to PBMT such as an acceleration of nerve regeneration and function

Animal welfare/ethical statement: The authors certify that legal and ethical requirements have been met with regard to the humane treatment of animals according to the legislation of the Brazilian Council of Control in Animal Experimentation (<http://www.mctic.gov.br/mctic/openscms/institucional/concea/index.html>). The study was approved by the Animal Research Ethical Committee from the School of Veterinary Medicine and Animal Science, University of São Paulo State, under the protocol number 0103/2018.

Conflict of interest statement: A. Schoen is an occasional consultant for Multi Radiance Medical (Solon, OH), a laser device manufacturer, but did not participate in data acquisition, management, and interpretation of data or statistical analysis. Other authors do not have conflict of interest. Data storage and documentation: data are available on request.

* Corresponding author at: Stelio Pacca Loureiro Luna, School of Veterinary Medicine and Animal Science (FMVZ), São Paulo State University (Unesp), Botucatu, São Paulo, Brazil.

E-mail address: stelio.pacca@unesp.br (S.P.L. Luna).

<https://doi.org/10.1016/j.jevs.2019.102846>
0737-0806/© 2019 Elsevier Inc. All rights reserved.

[1] and modulation of the synthesis and organization of collagen in skeletal muscles and tendons [2].

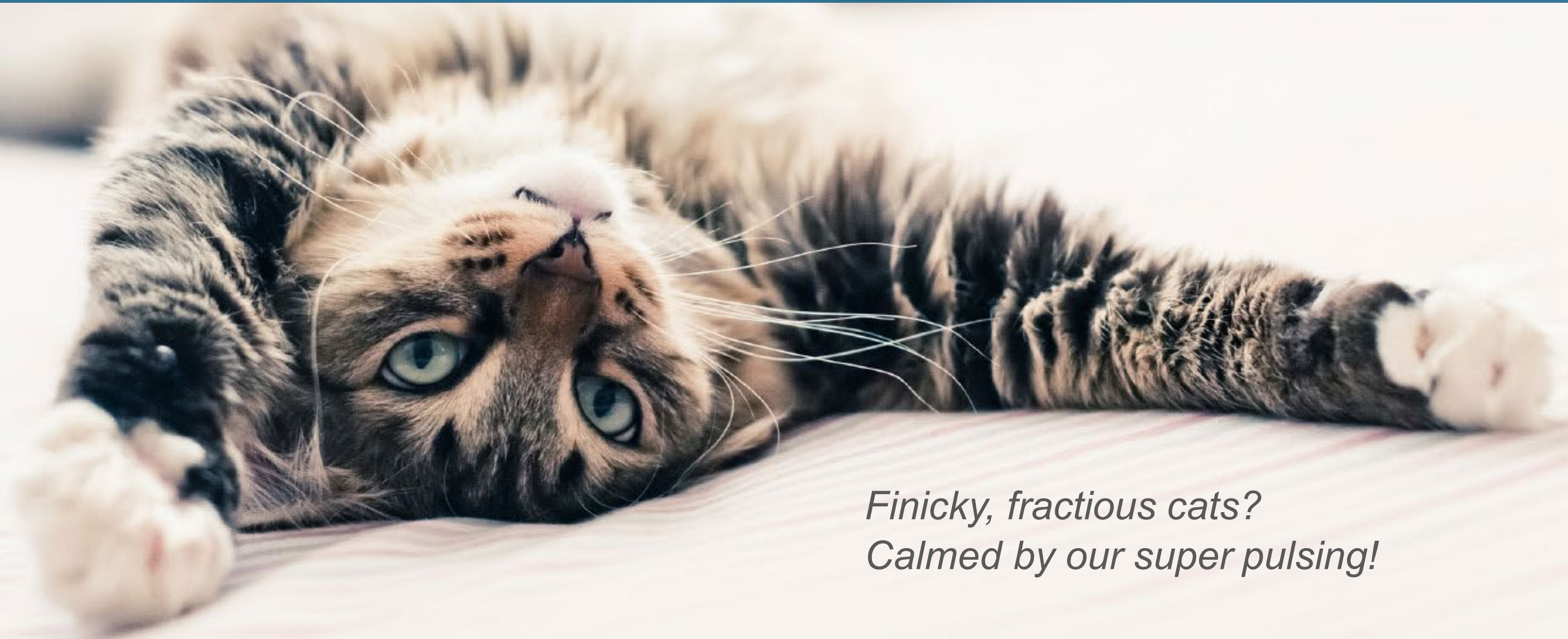
Most studies investigating penetration of PBMT (using laser and/or LED light) are performed in vitro on skin flaps, by measuring immediate penetration depth and energy loss [3,4]. Data in vitro are not necessarily reproducible in vivo as absorption and reduced scattering coefficients are apparently smaller in vivo than in vitro [5].

Tendinitis and desmitis are some of the main musculoskeletal disorders [6] leading to decreased performance and lameness in horses [7]. PBMT is indicated to treat tendinitis and desmitis. The effects are dependent on the energy settings. PBMT may also induce tendinopathy [8,9]; therefore, it is essential to determine the optimal settings to achieve a beneficial therapeutic effect.

Considering the plethora of light therapy devices available in the market, an important matter is to select the most appropriate equipment to guarantee sufficient penetration into the target tissue in situ. Although both a class I PBMT equipment and a class IV therapeutic laser may be used for tissue repair, there are no studies comparing light penetration between these devices and also

HEAT IS NOT REQUIRED FOR OPTIMAL OUTCOMES

- Patient comfort and compliance is not a problem because there is zero thermal overloading.
- Laser therapy is based photochemical and photophysical effects at the cellular level.



*Finicky, fractious cats?
Calmed by our super pulsing!*

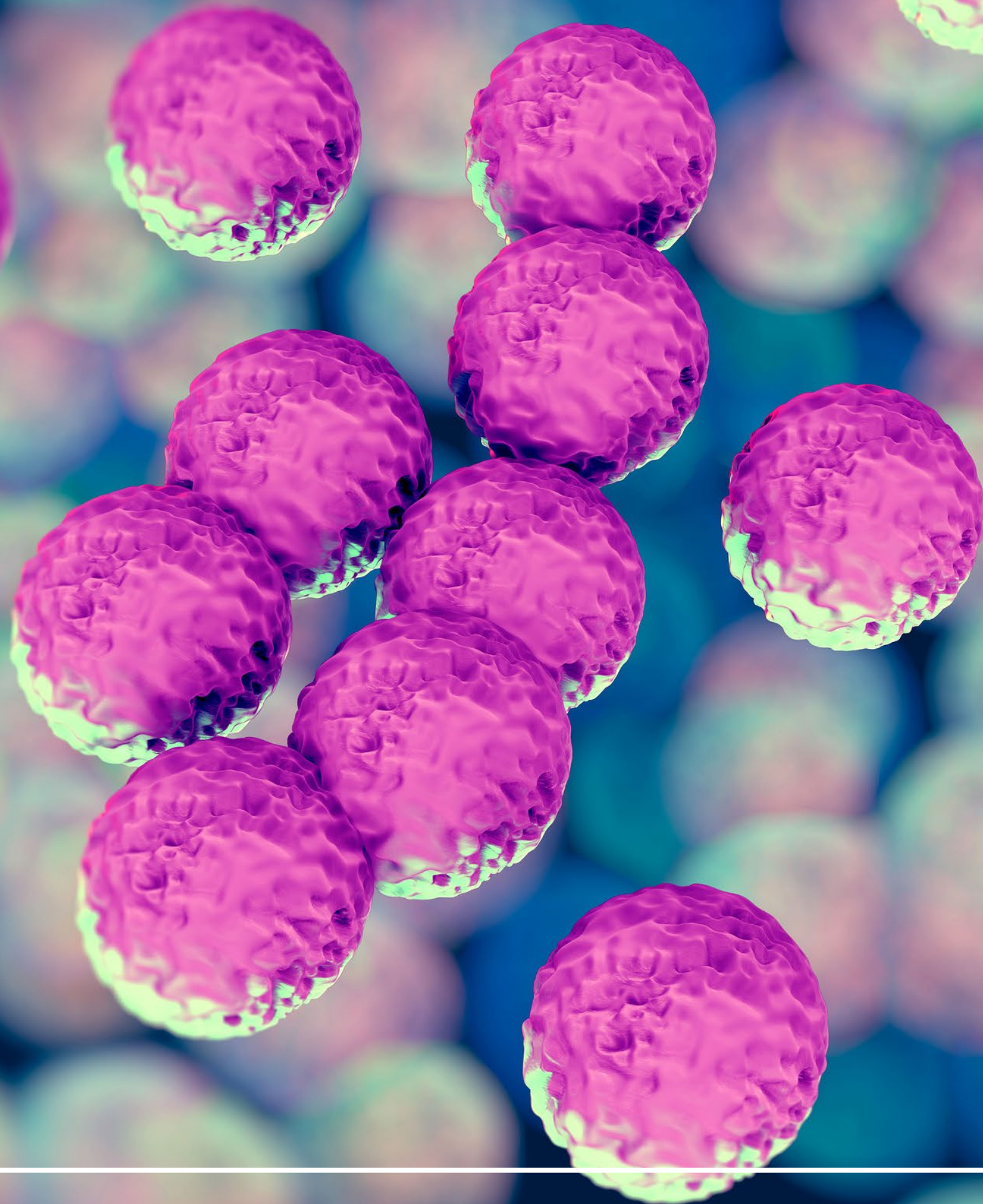
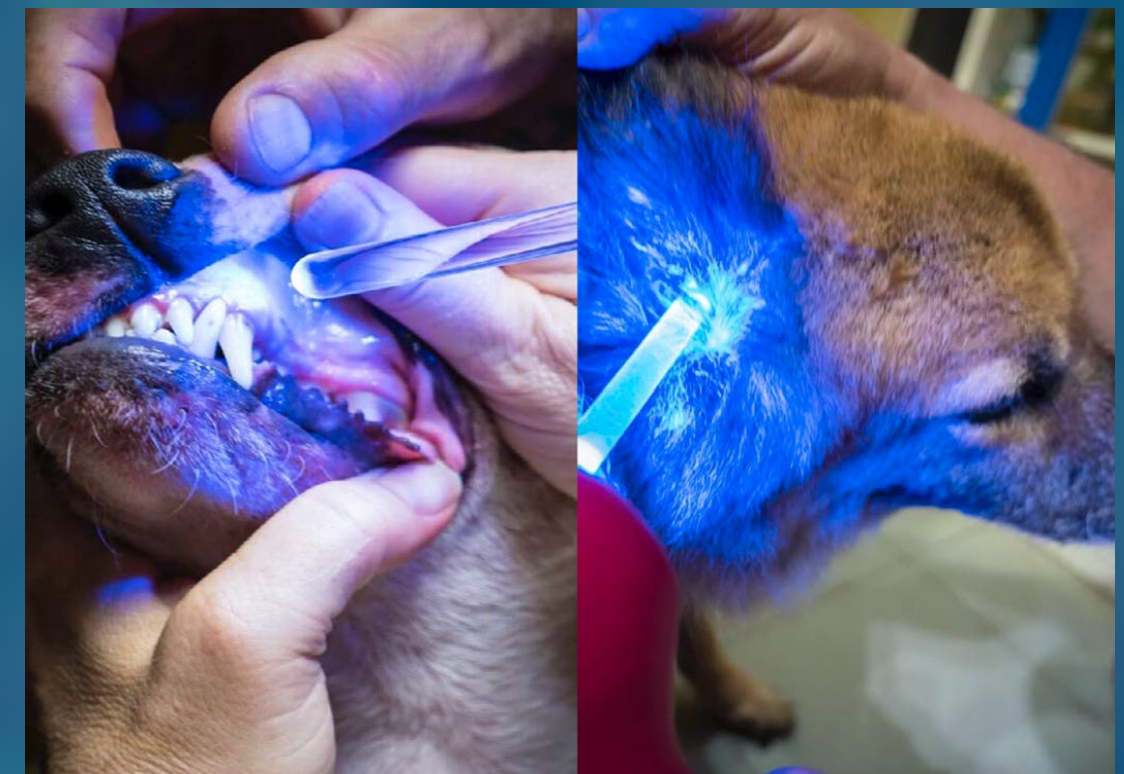


SPEED UP POST-OP RECOVERY

- Post operative and other wounds heal much faster when dosimetry is optimized.
- Ask about our validated research published in peer-reviewed journals

WOUND TREATMENT

Our blue wavelength has been proven to be highly efficient against bacteria, even MRSA



ANYTIME...ANYWHERE

Safety means delegating to your techs without worry. Portability means taking it anywhere!

At Elephant Nature Park in Thailand:

3 ACTIVets for 70+ elephants, 10 horses, hundreds of cats and dogs. ENP has 1000+ animals in total



“ I used it on my own dog who had a terrible skin sloughing wound and it healed beautifully! Also used on a lot of elephant cases”.
Erica Ward, DVM

MANAGE PAIN & REDUCE INFLAMMATION

'Wizard' was in a horrific barn fire, but new tissue growth responded very significantly to the cool Super Pulsing of ACTIVet Laser therapy to the delight of his owner and trainer.



TREAT EVERYTHING... EVEN THE SMALL STUFF

Abrasions from play and rough surfaces can be managed more effectively with maintenance treatment programs using ACTIVet Lasers.



MANAGE ARTHRITIS & JOINT DISEASE

Large cats like Florida panthers and cougar mixes frequently suffer from degenerative joint disease and arthritis. Both, respond very well to our Laser therapy



NONE TOO SMALL OR TOO TALL!

*From baby birds to giraffes,
they all respond beautifully
to our Laser therapy.*



THE ACTIVet PRO

- Allows unique control of depth/power of laser energy delivered
 - Highest photon density without hazardous thermal impact to tissue
- Higher peak power with greatest degree of safety of any laser available

Delivers controlled light energy deep into tissue more effectively than continuous wave and pulsed-modulated lasers while preserving the overlying epidermis

LASERPUNCTURE AND UTILITY PROBES

For Laserpuncture and muscle trigger points. Very convenient and versatile for hard to reach places, like ears or mouths. 4 different types.



ACTIVet PRO LASERSHOWER

- 200W of power
- 500 mW total average power
 - 30cm² radiation aperture
- Multiple treatment settings
 - Cordless (6-hour battery)
 - Class 1 Safe
 - 3-year warranty



MY PET LASER

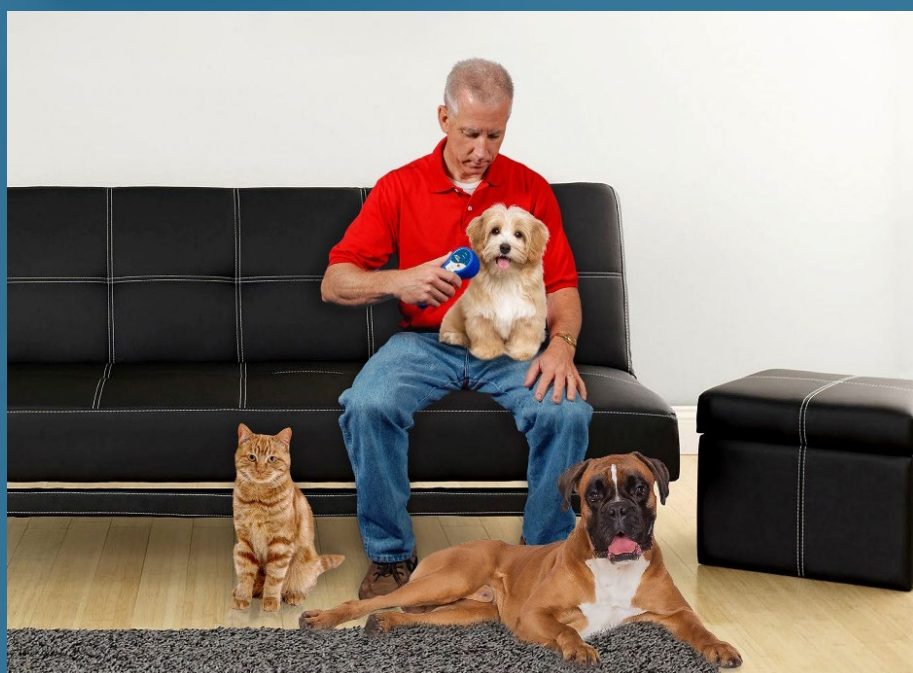
- 15W of power
- 90 mW total average power
 - 4cm² radiation aperture
 - 3 treatment settings
- Cordless (8 hour battery)
- Non-invasive and natural
 - Class 1 Safe



RENTAL REVENUE OPPORTUNITY

Patients can be treated safely and effectively in their own home.

Ask us how to transform your practice with home rental lasers for you patients for better outcomes.



WATCH OUR FEATURES VIDEOS

- ACTIVet PRO LaserShower
- MR4 vs. Class IV Comparison
- MyPetLaser



WHAT THE EXPERTS ARE SAYING

“Rental lasers have been a tremendous addition to our rehabilitation practice. Having these safe and effective lasers available for home-use for our clients has helped us improve comfort and recovery times for many of our patients. Owners enjoy being able to get involved and this gives them a way to help impact the healing process. Not only do these rental lasers make for improved patient care, but they also make good business sense. Our fleet of rentals just keeps growing!”



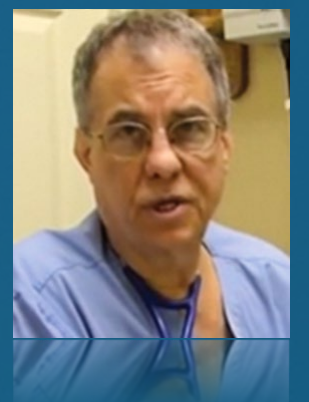
Jessica Rychel, DVM DACVSMR
*Fort Collins Veterinary Emergency
& Rehabilitation Hospital*



WHAT THE EXPERTS ARE SAYING

“Class IV lasers are very expensive and generate a lot more heat, creating a thermal burn potential. The MR4 Laser is powerful and safe. It has the power, with Super Pulse which does exactly what I need it to do, so I don’t have to go out and spend a big sum of money for a Class IV Laser when the MR4 gives me what I need for my practice.”

Dave Dysert, DVM
*Affordable
VetCare*



WHAT THE EXPERTS ARE SAYING

“ The laser has proven to be a highly effective device for treating muscular pain in the vast majority of my patients. This allows me to virtually guarantee the patients get the comfort they deserve.”



James Gaynor, DVM
*Animal Care
Center*

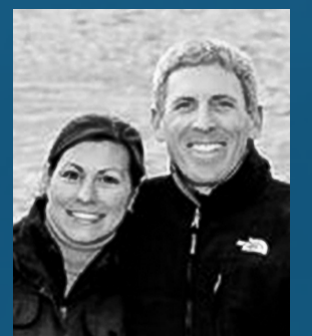




WHAT THE EXPERTS ARE SAYING

This is the heart of Virginia horse country for upper level eventers. We cover hundreds of square miles and see a wide range of conditions and injuries. Our MR4 ACTIVet laser has proven to be a valuable modality to relieve pain and enhance healing. We're seeing wound resolutions in 2 weeks that previously took 5. Our Multi Radiance laser therapy is an indispensable tool for helping our equine athletes recover from injuries and return to perform at the highest levels

Dr. Chad & Dr. Stephanie Davis
Sport Horse Medicine Veterinarians
Davis Equine, LLC



WHAT THE EXPERTS ARE SAYING

“ We have been using MRM’s safe Super Pulsed Lasers for years. We have found that the use of MRM’s lasers shortens healing time and decreases the incidence of secondary infections in superficial wounds. Our staff finds them easy to use and our animals readily comply with daily treatments. We particularly appreciate the quick technical support response we receive from the company.”



Gregg Levine
*Attending Veterinarian
Dolphin Quest Hawaii*





MULTI RADIANCE LASERS ARE S.A.F.E

Superior to Class 4 lasers in
head to head studies

Affordable

Functional...Adaptable
product offerings that fit your
practice requirements

Effective...Clinically Proven

**ARE YOU READY
TO GET STARTED?**

Thank you for your time and
interest in Multi Radiance...

Contact us:
+1-440-542-0761
multiradiance.com

