DOCTOR VET THERAPY LASER

VETERINARY LASER THERAPY

THE NEW HOLISTIC APPROACH TO ANIMAL CARE

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VETERINARY LASER THERAPY: THE NEW HOLISTIC APPROACH TO ANIMAL CARE

Discover the therapy that improves animals' well-being, optimizes time management in the clinic and makes your business grow

Introduction

Do you worry about improving the well-being of your animal patients, optimizing time management in your clinic and growing your business?

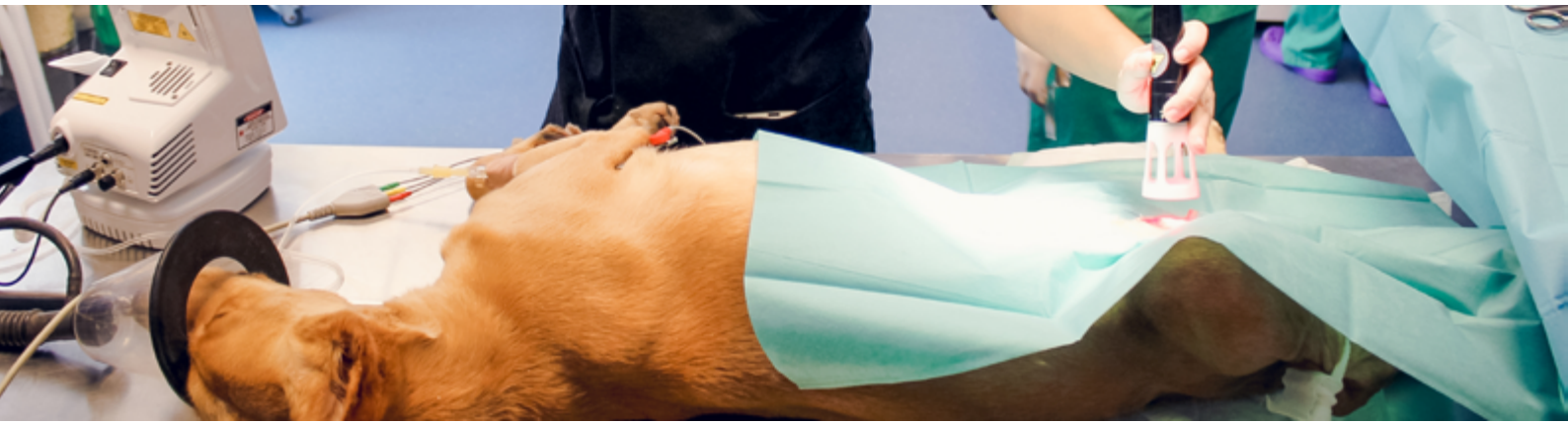
Well, the good news is that you can easily achieve all this goals. How? With laser therapy, of course.

In this guide we're going to explain you what laser therapy is, how it works and why you should implement it in your clinic to ensure the best treatments for your patients, make pet owners happy and take your veterinary clinic to the next level.

What veterinary laser therapy is?

Laser technology is nowadays a well-known and widely adopted solution in modern veterinary medicine. It offers faster and painless therapies for any pet and it is highly appreciated by owners all around the world.

This new approach is used to treat joints traumas, wounds, inflammations, infections, and many other clinical situations. It is also useful in post-surgical and orthopedic rehabilitations and before surgery to condition the tissues. Laser therapy allows to properly manage acute pain, such as sprains and tendinitis, and chronic pains, such as arthritis and hip dysplasia, becoming “a must to have” for vet clinics today.



« LASER THERAPY IS A **HOLISTIC THERAPY** FOR HEALTHY PET AND HAPPY OWNERS »

Veterinarians, as a rule, tend to explore alternative methods to improve the health of their patients. In addition, with many owners considering their pets more and more a part of the family, the level of care demanded has driven the incorporation of many technologically advanced modalities for routine diagnostic and therapeutic procedures. These include, of course, lasers.

The most wide spread use of lasers in the veterinary field is for laser therapy; to reduce pain and inflammation and to enhance tissue healing. And it is the healing effect that is most beneficial. Laser therapy directly stimulates tissue repair, regeneration, and remodeling. It allows practitioners to resolve conditions that were traditionally less responsive. In addition, it helps many common conditions heal much faster and much better.

Laser light in the red and near-infrared range is absorbed by specific chromophores in the body (cytochrome C oxidase/hemoglobin/water) and this has a positive effect on specific biological reactions. This photochemical reaction increases blood flow to tissue, stimulates the release of O2 from the hemoglobin delivered, and enhances the conversion of O2 to useful energy by cytochrome C oxidase in the production of ATP. This leads to improved cellular function and/or an increase in cell growth, replication, repair, or production of beneficial biochemical compounds – enzymes, proteins, cytokines, immunoglobulins, DNA/RNA. There is a cascade of secondary and tertiary affects which enhance/accelerate/improve the following physiologic reactions:

- Vasodilation
- Angiogenesis
- Lymphatic drainage
- Accelerate tissue repair and growth
- Faster wound healing
- Decreased fibrosis
- Improved osteogenesis
- Analgesia
- Decreased inflammation
- Improved nerve function, axonal regeneration, neurologic repair
- Immunoregulation/Immunomodulation
- Acupuncture stimulation
- Trigger Point modulation

It's worth emphasizing again that laser therapy does not just accelerate healing; it actually improves repair, regeneration, and remodeling of tissue.

With laser therapy pets can get back to their daily routines and become an active member of the family again.

Clinical applications of laser therapy: one solution for many conditions

For all the reasons seen in the previously paragraph, laser therapy has been advocated for a broad range of clinical applications for pain management, wound healing, reducing inflammation/swelling/edema, and rehab in both large and small animals.

Measurable positive results can be seen consistently in the following conditions:

- Arthritis/DJD (Hip dysplasia)
- Muscle, ligament, and tendon injuries (Sprains, strains, and tears)
- Ulcerations and open wounds (Lick granulomas, Hot Spots, Abscesses)
- Acute and Chronic Ear Problems
- Post-Surgical pain/healing/rehab
- Trauma/Fractures
- Neck and Back Pain (Acute and chronic)
- Neuromuscular disease/damage/degeneration
- Even some respiratory, urinary, and GI conditions
- Chronic rhinitis/bronchitis
- Insect/ snake bites
- Allergic reactions
- Chronic intestinal or urinary tract inflammation
- Bacterial/viral infections

Focus: Lasers on wounds and dermatology issues

Wounds and dermatology issues represent perhaps the widest variety of ailments in vet clinics, both in origin and complication. From an acute burn to a chronic lick granuloma, from an ischemic ulcer to a dehiscent surgical site, no two wounds will be alike.

Needless to say, having one modality that functions well throughout this gauntlet of variation is invaluable. Laser therapy has documented success treating each corner of this wound healing domain, with particular success in contaminated wounds and infections.

Through increased cellular oxygenation and metabolism, lasers promote fibroblast proliferation, collagen regulation and a host of positive enzymatic changes that lead to faster and stronger wound closure. Simultaneously bringing more oxygen to anaerobic fungi and bacteria, lasers can provide anti-microbial protection. Unfortunately, the job is not finished when the wound has been disinfected and closed. Scarring, both internal and external, can lead to a host of problems for the animal. Fortunately, the fundamental nature of laser therapy can reduce this risk.

Of course, other modalities are specifically suited to aid in the healing process of a particular type of wound based on the histological and enzymatic profile of a given patient. But the fundamental action of laser therapy makes it perhaps the most versatile piece of equipment a general practitioner can have. Neither the origin of nor the complications that arise from any wound a veterinarian faces (malignant cancers aside) will exclude the potential benefits of laser therapy.

How does laser therapy work?

Laser is both a visible and infrared light that stimulates the body to do what it naturally does, but faster and more efficiently.

The combination of 3 different wave lengths stimulates 3 different chromophores - melanin, hemoglobin, and water – which trigger 3 main effects:

BLOOD CIRCULATION

- Stimulates capillary micro-circulation
- Improves red blood cells profusion to tissues

OXYGENATION

- Stimulates oxygen release from blood to tissues
- Improves oxygenation of therapy target tissues

METABOLIC STIMULATION

- Improves ATP cycle efficiency
- Increases tissues energy level

Laser therapy mechanisms of action

In a nutshell, therapeutic lasers enhance the body's natural tendency to fight pathologies, repair injuries, and remain healthy. The generality of this approach is one of its primary advantages since apart from a subset of auto-immune or malignant pathologies, the body wants to fight most of the maladies it encounters. To accomplish this, the goal is to bring more nutrients to the affected cells and stimulate them to metabolize these nutrients into energy more efficiently.
The question is: how can this be done with light?

WITHIN THE CAPILLARIES

Step 1 How it works: Capillary pressure governs blood perfusion into the tissues.

Step 2 What we can target with light: OH-bonds in water molecules.

Step 3 What it does after light absorption: Water's vibration bands lead to localized heat, which modulate capillary pressure (especially at the venal end) and can enhance blood perfusion.

OUT OF THE CAPILLARIES AND INTO THE TISSUE

Step 1 How it works: Hemoglobin releases oxygen, which makes its way into the cells.

Step 2 What we can target with light: Iron within heme group of hemoglobin.

Step 3 What it does after light absorption: Hemoglobin's release of oxygen is stimulated, which makes more oxygen available to cells.

WITHIN THE CELL

Step 1 How it works: Respiratory chain in mitochondria uses oxygen as its final electron receptor to produce ATP (chemical energy).

Step 2 What we can target with light: Copper in cytochrome c oxidase.

Step 3 What it does after light absorption: Stimulates transient oxidation/reduction cycles, enhancing the efficiency of ATP production.

If we combine all the Step 3's for each sub-process, we can summarize the effect of laser on the metabolic process of cells. Light incident on water's vibration bands lead to localized heat, which modulate capillary pressure (especially at the venal end) and can enhance blood perfusion. Light stimulates hemoglobin's release of oxygen, which makes more oxygen available to cells. Finally, light stimulates transient oxidation/reduction cycles, enhancing the efficiency of ATP production.

The science of laser therapy: Biostimulation

Laser therapy is the result of electromagnetic energy interacting chemically and biologically with tissue, causing biostimulation.

Biostimulation occurs when a dose of light energy reaches target tissue and results in decreased inflammation, decreased pain, and accelerated healing. For biostimulation to occur, light needs to reach the mitochondria of the damaged target tissue. There are a number of factors that can help maximize the light that reaches the target tissue. These include:

- proper wavelength selection
- sufficient laser power
- reducing reflections
- minimizing absorption by molecules not involved in biostimulation

Wavelength and laser power

Wavelength and power are the two most important features that determine the optimum response of a laser.

What wavelengths of light are the best for biostimulation?

Laser light in the red and near-infrared range has biostimulatory properties. Roughly, this corresponds to wavelengths between 600nm and 1100nm. The shorter wavelengths are absorbed more superficially and therefore do not have the ability to penetrate as readily as the longer wavelengths.

Wavelengths in the visible red range (650nm-660 nm) are highly absorbed by melanin and other superficial receptors. These can enhance wound healing. They may also stimulate trigger points, acupuncture points, and/or cause release of secondary messengers that may improve other deep-seated conditions.

From absorption spectra data we know that the wavelengths near the 970nm range have moderate increased absorption by water. With the higher-powered lasers, this can create some thermal gradients and increase circulation in these areas. It is also near the peak of the Hb absorption curve. However, the 905 nm wavelength is even closer to the peak of the hemoglobin absorption curve. Recent studies have indicated that this wavelength creates as much as a 30-50% increase in O2 release to the tissue over the 970-980 nm wavelengths.

The most important discovery was related to wavelengths nearer the 800nm range (750-830). These are at the peak of absorption for the cytochrome-C oxidase enzyme. This is the rate-limiting step in the conversion of O2 to ATP within the electron transport cycle. These wavelengths will accelerate the production of ATP within the mitochondria.

Utilizing all 4 wavelengths can give you a synergistic effect and/or a wider range of treatment options across a broader spectrum of clinical conditions and patients which will result in better clinical outcomes.

What is laser power and how does it affect biostimulation?

Power is a measure of the number of photons emitted from the laser each second. In other terms, laser power is the rate at which the laser energy is delivered. The greater the number of photons delivered to the surface, the greater the number of photons at any tissue depth. There is a threshold, a minimum number of photons that are needed to “turn on” the therapeutic effects of laser light.

Laser therapy is non-invasive, as the light is applied to the surface of the skin. Some of that light is reflected by the skin or absorbed by other chromophores that are not associated with the injured cells and therefore do not contribute to biostimulation. Sufficient dose needs to be applied to the skin so that despite these losses sufficient dose reaches the skin and biostimulation occurs at the target tissue. With the higher-powered lasers it is possible to not only apply the benefits of biostimulation superficially, but it is also possible to treat a greatly expanded range of conditions by delivering a clinically effective quantity of photons to cells deep within the tissue.

Classification of all lasers is based on the maximum power the laser can deliver. It is used for guidance when discussing safety and the potential to cause harm/damage, especially to the eye. Most therapeutic lasers are class IIIa, IIIb, or IV.

Class IIIb lasers produce < 500 mW of power (1/2 watt).

Class IV Lasers are anything over 500mW of power. Class IV therapy lasers are extremely safe. The main benefit of higher power is the ability to deliver enough photons at the surface (a larger total dose) to compensate for the power loss (decreased number of photons) reaching deeper tissues. This allows for a more direct photochemical response on these tissues. Lower dosages are used when treating superficial wounds/lesions and for acupuncture point or trigger point stimulation. Adjustable power output can make a Class IV laser effective for superficial dermatologic lesions, deep musculoskeletal conditions, and anywhere in between!

Is laser therapy easy?

Class IV laser therapy is one of the fastest growing modalities in the veterinary industry.

However, DVMs who are new to laser therapy often do not know how to adjust the intensity, wavelength, and pulse frequencies to maximize the efficacy of various treatments. A small mistake when adjusting these parameters or administering a treatment could reduce the effectiveness of laser therapy or, in extreme cases, injure the patient. That said, the predictability of clinical success is very much contingent on proper prescription and administration of the therapy.

But don't worry: DoctorVet makes laser therapy easy.

DoctorVet is an automated technician ready to help you

Laser therapy is arguably the most impactful veterinary breakthrough of the last decade. However, it is critical that DVMs and their teams of technicians administer laser therapy properly in order to have the most predictable and consistent efficacy.

DoctorVet is the best solution to this problem!

DoctorVet is an expert veterinary laser therapy clinician, ready to help you in your clinic and to train your staff for as long as you need. He will guide you through the process of adjusting the parameters of your Class IV laser and will help you administer treatments.

DoctorVet is a vet's best friend

At the end of every phase of treatment, DoctorVet pauses briefly to give you a tidbit of advice that will guide you through the next phase. He tells you when to treat in contact vs non-contact based on if you are treating a deep-seeded injury vs an open flesh wound.

He tells you when to increase your scanning speed based on the power settings and color of the animal. He tells you which types of tissue to target during which phases based on the pulse frequencies in that phase and why. He tells you when to follow the lymphatic pathways of the stifle when the goal is to remove metabolic waste from an area in the final stages of treatment.

DoctorVet is by far the most effective training tool ever to grace the veterinary laser industry

With the amount of turn-over in a clinic, training and re-training new people can be a nightmare, and is most often watered down at each generation of newbie. DoctorVet allows you to put a new nurse in front of the laser and a patient and provide an effective therapy session on her first attempt, as DoctorVet is always ready to teach him or her how to administer laser therapy safely and effectively.

Intuitive organization to simplify laser therapy use

DoctorVet's graphical user interface allows the user to enter important factors such as the size, color, and anatomy of the animal and, in some cases, the chronicity and condition name. These details are used to organize a parameter-set that will enable the veterinarian to deliver the most effective treatment possible.

Technology that teaches

Each patient is unique, and the specific condition you are treating will determine how you should administer the laser therapy.

DoctorVet will help you to adjust the light intensity, wavelength, and pulse frequencies based on the unique characteristics of each patient and condition, and he will provide you with advice before each phase of treatment.

Therapy laser is very easy to learn with DoctorVet and equally as important, fits into daily life in the clinic.

" DoctorVet's laser is amazing!
It's very easy to use and extremely intuitive. "

Anita, DVM

Why implement laser therapy in your clinic

« A NEW HOLISTIC METHOD, WITH PROVEN **CLINICAL EFFICACY** »

In veterinary medicine laser therapy is considered a holistic therapy, as it has an anti-inflammatory, analgesic, biostimulating and bactericidal effect. Laser therapy is used for pain management, wound healing, reducing inflammation/swelling/edema, and rehab in both large and small animals. Clinical results are granted by the most advanced therapy protocols and the most advanced technology available in the market.

This new holistic approach has numerous advantages for you and for your animal patients:

- Painless treatments, easier to perform to patients and to be accepted by owners
- Decrease of drugs and antibiotics use and so increase of the collaboration level of both pets and owners
- Short and relaxing therapy treatment sessions, thanks to minimal invasive and anesthesia free approach
- Faster soft tissues healing and decrease of post-surgery discomfort
- Management of both “serious” and “chronic” clinical cases, e.g. arthritis and hip dysplasia

« **IMMEDIATE** AND **SUSTAINABLE** PROFITABILITY »

While you did not enter the veterinary field to get rich, you have to run a good business to continue to help your patients.

As highlighted above, laser terapy is an effective modality that is useful on a wide range of patients and conditions (80% of patients can benefit from laser therapy). In terms of profitability, the increase of clinical treatments variety is a great growth opportunity for your clinic, as you will have new revenue stream from laser treatments.

Furthermore, incorporating laser into your clinic improve your branding and differentiate clinic’s image with respect to local competition.

Also, word of mouth and social media referrals, related to this new therapy in your clinic, are good to increase your clients' portfolio.

" Laser therapy had a huge positive impact on my business. I have seen a significant increase in income. "

Rosa, DVM

« **EFFECTIVE** AND **EFFICIENT** USE OF YOUR TIME »

DoctorVet laser therapy treatments are very fast, thanks to the power of the laser and the pre-set protocols. Laser therapy is an efficient use of time that frees up doctors to do more important procedures that generate even more revenue or to dedicate more time to their private life.

" Laser therapy definitely changed time management in my clinic. I save a lot of time and I can use it to do other treatments or operations. "

Amedeo, DVM

Conclusion

As the nimble problem-solver on your clinic, laser therapy is fast-acting and versatile. This modality effectively treats a wide variety of conditions including pre-surgical, post-surgical, acute, and chronic disease states. It's an effective therapy, that wins favor with fast results and non-invasive delivery, that patients (and their owners) enjoy.

Better Medicine

›Better Revenue

›Growth of your clinic to serve even more patients

Improve the well-being of animals, optimize time management in your clinic and grow your business with DoctorVet laser therapy.

BOOK A DEMO »

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www.doctorvetlaser.com