

Equine Laser Therapy

Laser Therapy is the application of red and near infra red light over injuries or lesions, to improve wound/soft tissue healing and give relief, for both acute and chronic pain. It is now officially referred to as (Low Level Laser Therapy) LLLT.

What is Laser Therapy?

Laser therapy is the application of laser light over injuries and the lesions to stimulate healing within those tissues. The term Laser is an acronym for Light Amplification by Stimulated Emission of Radiation. Laser light is different from normal ambient light due to the process of production. Laser light is (a) Monochromatic (all the same wavelength), and (b) Coherent (all the waves peak at the same time or are "phased") and hence resist scattering.

Laser are best known for their ability to cut and have been well known in the medical field for surgery. However the laser light we are referring to is of a much lower power and also usually of a different wavelength. Laser therapy is also sometimes referred to as "cold laser" or "low level laser therapy". The first name is because unlike ultrasound, the laser does not heat up the tissues. Laser therapy usually uses light in the 400-1200 nanometer range. This is light in the infrared range of the electro-magnetic spectrum. Light below 750nm is visible and light above 750nm is not visible.



How Does Laser Therapy Work?

Work using a laser irradiation of tissue cultures has shown that the light energy (photons) are absorbed by various enzymes within the cell. Enzymes which react to light by absorbing energy are called chromophores. The best known example of a chromophore is chlorophyll, which is the light absorbing pigment of plant cells.

In a mammalian cell the light is usually absorbed by the enzymes of the phytyochrome oxidase pathway or the mitochondria. The energy entering the pathway as light is used to produce ATP, the general energy currency of the cell. The cell uses the ATP to perform all its various functions.

It has been shown that irradiation with laser light causes: On a Cellular Level

- Increased phosphorylation in the mitochondria and increased levels of cellular ATP
- Increased protein synthesis, including increased growth and reproduction
- Increased activity in the nucleus resulting in increased DNA and RNA synthesis
- Increased production and activation of cellular enzymes
- Improved membrane stability and increased activity of the Sodium/Potassium pump

On a Tissue Level

- Increases in collagen production
- Increased epithelial production
- Angiogenesis, and an increase in capillarisation of tissue
- Reductions in scar tissue formation and keloid adhesions
- Reduced pain and inflammation
- Nerve regeneration
- Muscle relaxation and reduction in muscle spasms and atonicity
- Increased immune system response

What can you use lasers for?

[Click here to see actual results of Laser Therapy](#)

1. Treatment of traumatic, inflammatory and overuse injuries.
2. Pain relief and healing of arthritic lesions.
3. Reduce abscess and treat persistent non-healing wounds such as cold sores and ulcers.
4. Prevent or minimize keloid formations and adhesions.
5. Reduce edema and reduce pain from surgical and other treatments.
6. Encourage formation of collagen and cartilage in damaged joints.
7. Encourage repair of tendons and ligaments.



Treating Navicular with a laser

A therapy laser can also be used to stimulate acupuncture points in a non-invasive, pain free manner. Power is measured in watts. Cutting lasers produce 20-30 watts, a therapy laser produces less than one watt and is usually measured in milliwatts or mW. A laser can also be 'pulsed' that is the light needs to be switched on and off to increase penetration in to the tissue. The pulsing is called frequency and is measured in Hertz (Hz). Most therapy lasers can be set to several different frequencies, the frequency desired depending on the tissue being treated.

A joule is watts (x) time. The minimum dose which will affect a cell is 0.01 J/cm². To be effective as a therapy tool a laser needs to produce an average power output of greater than 2 mW. In order to have a measurable effect on the tissues it is necessary to infuse 2-4 joules of power per cm² of tissue.



Lasers are great for sore backs!

We purchased our **Thor DD laser** from Foxden Equine a couple of years ago and we have grown so accustomed to it that we use it on at least 6 horses in our barn everyday.

We use it mostly for the general relaxation of the horse's body as well as for more severe ailments such as suspensory injuries and burns. We have 2 horses in the barn whose condition was so acute that we were told they would never heal. The first being one of my breeding stallions, a lovely Akhal Teke who was in a barn fire 6 years ago and lost all of the hair along the topline from his head down to his tail. When we bought him, he had grown back most of the hair except where the saddle lies. I was told that this accident happened so long ago that the hair follicles were dead and there was no hope for the hair to ever come back. But I use the laser religiously each day and in the last 2 months fifty percent of the hair has already grown back and most of it is of his natural coat color, brown.

My second "patient" is a lovely horse who tore the suspensory from the sesamoid bone. We gave the horse a year off but the outcome seemed pretty grim. Although the horse was never lame, the leg was swollen and the ultrasound and x-rays were pretty awful. But I did not lose hope and I lasered that leg daily. Every 3 months the vet came back to check the horse and was amazed by the healing process. Now a year later, the vet came to check and could not believe it was the same horse on the cross ties. Both the ultrasound and the x-rays have shown it has healed immensely. I cannot mention how valuable this laser is. It is a tool that heals the horse from sore aches and pains to truly severe conditions.

