

The Use of Therapeutic Lasers.

The word "Laser" means

L - Light

A - Amplification (by)

S - Stimulation

E - Emission (of)

R - Radiation

A Therapeutic Laser is known by several forms of terminology and are often referred to as Low Powered Lasers, Low Level Laser, "Cold" laser or Therapeutic Laser all these terms apply to the same thing and should not be confused with Surgical Lasers which are generally used to create irreversible changes in the cells – or in James Bond films!

The Laser is an energy transfer system. The essential part of a Laser is a substance that has been put into an excited high energy state. In this state the atoms of the substance are able to radiate energy of a particular frequency; the energy released by the atoms is added to the stimulating waves, amplifying it. The activated and stimulated emissions from the system are amplified coherently to produce the laser beam.

The frequency in Therapeutic Lasers refers to the pulsing of the wave emission which is the same as switching a light source on and off. The length of the "on and off" part can be varied. Some Lasers can have quite extreme cycles with very short and very intense light pulses with long "off" gaps. The very intense light flashes allow deeper penetration than with a continuous laser with the same wave length and average power output.

The maximum power output will be very different in a pulsed laser than the average power output and both should be known, or at least accounted for, in the computing software for dose setting purposes.

Main uses for Therapeutic Lasers

Wound Healing

Pain Influence

Acupuncture

Acute Injuries (fresh)

Non Union Fractures

Circulation Stimulation

Chronic Conditions (old injuries) Hoof conditions

Sprains/Strains to muscles, tendon and ligaments

Basically the Laser beam stimulates and benefits healing by increasing the natural processes. Additionally the substantial increases are noted in Serotonin ACTH and the Growth Hormone. It should be noted that the stimulation of certain cell functions is only seen if they are damaged or impaired, with the normal tissue showing less change.

Times of treatment vary according to the animal and location of injury or the areas to be treated. Frequency used plus time is the key to successful laser therapy

In addition to the power density the question of how many treatments are necessary to achieve success. Reports and practical experience show that treatments required can vary from a few to as many as ten laser treatments.

Treatment intervals

As with all biological systems there is a biphasic reaction possible with Laser therapy. Initially there can be bio stimulation but if the time/dose exceeds a critical level bio-inhibition can be achieved instead.

Therefore avoid to long a treatment time and avoid treatments to close together as there is a cumulative effect to treatments particularly in chronic conditions.

Laser treatments can be divided into those that have a direct local action and treatments that have systemic or distal effects.

Local Treatment

Wounds, slow healing hoof ulcers

Ulcers

Acral lick Granuloma's

Tendons

Muscle e.g. local trauma

Systemic or Indirect treatment

Acupuncture points. This is a now very much accepted use of Laser and some very good results are being achieved

Trigger Points

Spinal Processes

There are of course contraindications for the use of Therapeutic lasers and the main ones I have listed below.

Direct Treatment of the eye

Irradiation of the foetus

Use over the site of photosensitised/sensitised skin or tissue

Thyroid

A considerable contraindication is the presence of hair and dark skin pigment. If feasible always clip the area to be treated. If this is not possible always try to get skin contact and increase the treatment times with dark pigmented animals.

But as a matter of course you should always consult your Veterinary Surgeon before embarking on Laser Therapy

