

# Laser Therapy: Principles and Applications

## The main effects to be achieved are:

### ▶ Relaxing effect:

*Vasodilatation  
Ionic balancing  
ATP production stimulation*

### ▶ Anti-inflammatory effect:

*Vasodilatation  
Phagocytose stimulation with reduction of the responsible cells of the inflammation  
Stimulation of leucocyte production*

### ▶ Immune defense stimulation:

*Vasodilatation  
Stimulation of leucocyte production  
Macrophage stimulation*

### ▶ Analgesic effect:

*Stimulation of endorphine production  
ATP production stimulation*

### ▶ Anti-Edema effects:

*Vasodilatation*

### ▶ Aid wound healing:

*Fibroblasts stimulation  
Stimulation of collagen production  
Angiogenesis stimulation  
Immune stimulation*

**Laser Therapy consists of bio-stimulation of tissues with specific wavelengths of lights in order to get therapeutic effects.**



The applications list is directly correlated to the effects of Laser Therapy as described previously. This list is not exhaustive.

Any application intended to obtain one of the effects mentioned above is potentially effective. It is important to know the contraindications, always take into account the clinical circumstances and control the short and long-term effects to adapt the treatment if necessary.





## Examples of common applications for veterinarian medicine:

- Pain reduction
- Promotion of post surgical healing
- Promotion of wound healing
- Inflammatory symptom reduction
- Arthrosis pain reduction
- Joint pain reduction
- Gingivitis and dental problems
- Help to heal ligament sprains
- Help with muscle repair
- Oedema reduction

## Which frequencies for which treatment ?

<b>Arthritis:</b>	3 times the 1st week 2 times the 2nd week 1 time the 3rd week Then a treatment every 3 to 5 weeks according to the obtained results
<b>Difficult wounds and healing:</b>	1 time every 3 to 4 days, then adapt the frequency according to the results until complete healing
<b>Joint pain:</b>	Once a day every 3 to 4 days, then adapt the frequency according to the intensity of the pain and the effectiveness of the treatment
<b>Gingivostomatitis:</b>	Once a day during 2 to 3 days, then every 3 to 4 days, then every 2 weeks and less if possible
<b>Post surgical healing:</b>	One time immediatly after surgery If necessary, once a day during the inspection visit
<b>Others treatments:</b>	In general, any treatment of an acute problem needs a higher frequency of treatments (several times a day if necessary) using lower powers. The treatment of a chronic problem will require on the contrary a higher power but a lower frequency

## Laser Therapy: Simple rules for unlimited applications

### CLINICAL DIAGNOSIS:

#### LASER THERAPY DOES NOT INVENT MEDICINE:

Only a correct and accurate diagnosis enables an adapted treatment. Good anatomical and physiological knowledges are necessary.

Protocols setting:

Power (Watts) multiplied by exposure time (Seconds) sets total energy quantity distributed (Joules). The highest the power is the shortest the treatment time should be.

$P(\text{Watt}) \times \text{Time (Seconds)} = \text{Energy (Joules)}$   
 High power = Short treatment

But, there are limits to use a high power (Example: dark coat)

Total amount of emitted energy is not necessarily the amount of energy received by the target anatomical part.

Protocols are developed to take into account, among others, the following factors:

- ▶ Vital power to penetrate the area to be treated
- ▶ Power not to exceed to avoid collateral problems
- ▶ Exposure time adapted to the selected power to deliver the amount of required energy at the level of the targeted anatomically part for the determined area.  
 (Depth of lesion causes energy losses. Therefore, the total amount of emitted energy must increase depending on the depth of the lesion and tissues density)

### WHY DOES EACH PROTOCOL INCORPORATE CONTINUOUS AND PULSED PHASES OF VARIABLE FREQUENCY?

The different tissues composing the target anatomical parts respond differently depending on the frequencies used ; By systematically using continuous phases and different frequencies, it is more likely to bring the required energy to the various tissue components in a suitable manner.

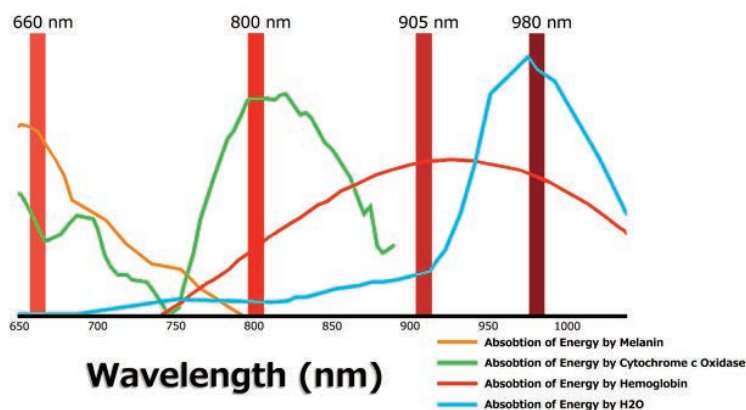
### WAVELENGTHS:

Laser LT10 uses the most important wavelengths:

▶ 980 nm : optimal wavelength's adaptation of water, the main component of our body and blood (Haemoglobin also absorbs very well at 980 nm)

▶ 810 nm : Cytochrome c oxidase favoring the production of ATP and therefore the production of energy.

### Cellular Targets in Red and Near Infrared (NIR) Wavelengths



**Mano Médical**

15, rue Noroit - 22100 Taden - France

Tel. +33 (0)2 96 85 86 76 - Fax +33 (0)2 96 85 86 77

[welcome@manomedical.com](mailto:welcome@manomedical.com) - [www.manomedical.com](http://www.manomedical.com)

## HOW TO APPLY A TREATMENT?

### ALWAYS WORK FROM PROXIMAL TO DISTAL

to allow the evacuation of the fluxes generated by the vasodilatation

### APPLICATION:

The application must be made as closest and as much perpendicularly as possible of the area to be treated.

Continuous movement avoids overheating of the target zone

Working on the skin, hair restricts penetration.

Always control the temperature of the treated area by touching this area from time to time.

Protocols choice: When we hesitate between 2 different protocols, always choose the less powerful to start the treatment. Too much power can generate pain.

Acute or chronique, how to treat properly:

The treatment of an acute problem should be done with a lower power and a higher frequency than the treatment of a chronic problem.

Osteopathy, massage and laser treatments: All these techniques allowing mobilization of the joints or tissues concerned by the treatment can improve its effectiveness, if these actions are not contraindicated.

### SAFETY:

Our equipment is supplied with safety goggles.

**NEVER** use this equipment if people in the room do not wear goggles.

Be aware that the laser beam can cause irreversible damages to the eye, if the beam is directed **DIRECTLY** towards the eye but also **BY REFLECTION** of the beam on a window or, more commonly in veterinary medicine on a stainless table.

## WARNING:

DO NOT use Laser Therapy for the following cases:

- DO NOT apply on eye area
- Cancers: it stimulates the cell development so it is countradicated in case of cancer
- DO NOT apply on thyroid gland
- DO NOT use on growing animals joints (DO NOT treat growth cartilage)
- DO NOT use close to fetus of pregnant animals
- DO NOT use on tattoos
- DO NOT use in case of recent infiltration

**FOR A FREE TRIAL OF OUR LASER,  
CONTACT US +33 296 85 86 76**