



# Laser phototherapy Powerful light in veterinary medicine

- injuries •wounds •inflammations •pain



# LASER THERAPY - GENERAL INFORMATION



شرکت دارویی بهداشتی آسینه  
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## History

In the past several years, some excellent experimental work has been performed and medical treatments with laser photo-therapy have passed through its infancy, leaving controversy behind. In the past 40 years, leading scientists and medical doctors all over the world published over 4.000 clinical studies on the laser photo-therapy. The overall results stated, that low intensity laser radiation acts directly on the molecular level of the organism, a process which is called biostimulation / biomodulation.

## Biostimulation or biomodulation

This effect is mainly based on an improved ATP-synthesis (ATP = Adenosine-Tri-Phosphate). ATP is known as the power storage of our cells and it is built in the mitochondria - energy generating organelles in the cells. This energy is necessary for a proper functioning of each cell and its metabolism. If there is a lack of ATP, a reduced regeneration process takes place and wound healing disturbances can occur.

## Wound healing

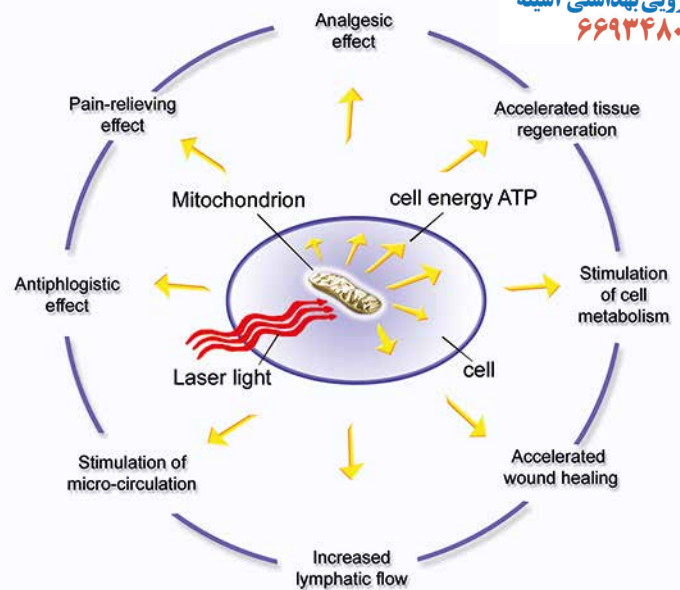
Soft but high energy laser light stimulate the mitochondria of the cells to produce more ATP. It is known now, that cells with a low ATP level can be energetically recovered with laser light. Wound healing is a complex and energy consuming process. Cellular debris and toxins have to be removed, bacteria and potential infections need to be defended, new tissue must be build and stabilized.

Laser light provides the required energy by stimulating the ATP-synthesis, especially as it is normally reduced due to the damage or impaired capillary perfusion in tissue and organs.

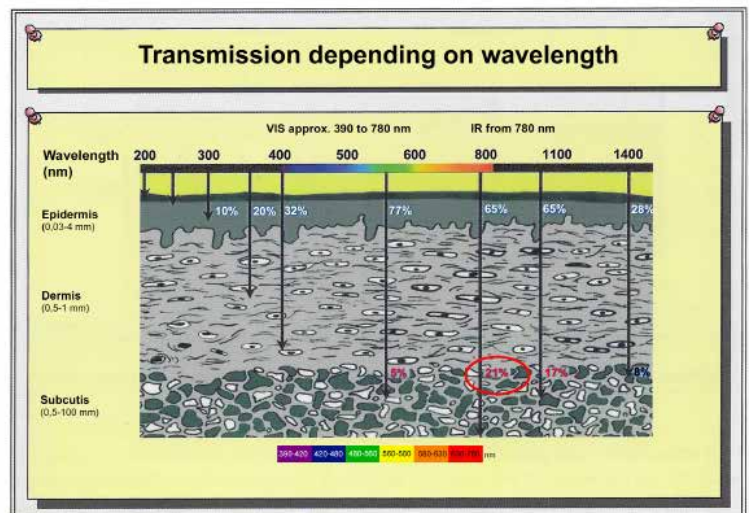
Especially animals suffering from wound healing disturbances, acute injuries and pain benefit from the laser light and the increased wound healing effects.

## Pain therapy

In addition to its role in wound healing, ATP also plays an important role in pain reduction. It influences the sodium-potassium



Based on Simunovic 2000



SOURCE: LOW LEVEL LASER THERAPIE - LICHT KANN HEILEN, PROF. DR. BRINGMANN

pump, which is crucial to the normal functioning of the cellular membrane and its action potential.

40-60% of the ATP is consumed by the ion pump in order to maintain optimal cellular conditions. A shortage of ATP leads to a dysfunction of the sodium-potassium pump mechanism. Consequently there is an impact on the membrane potential, leading to cellular imbalances and pain stimulus transfer.

The soft laser light increases the ATP production, which helps to normalize the activity of the sodium-potassium pump and to restore the function of the membrane potential, thus alleviating pain.



# LASERCAT & LASERCAT500

## LaserCat & LaserCat500

### Powerful

Laser devices from MedSolution are part of the latest laser generation. Powerful red and infrared laser light produce very impressive results. Optimal power is strong enough for maximum efficiency and short treatment times, but soft enough not to cause any tissue injuries.

### Save

LaserCat & LaserCat500 are class 1 laser devices. Therapists and clients benefit of a class 1 device as:

- no protection goggle is required
- no additional safety precautions are prescribed
- no special education (laser safety representative or similar) necessary.

All devices are safe in operation and application. The treatment is done under direct skin contact, as long as there is no open wound. The specially designed handpiece and treatment tip have an ergonomic, handy design.

### Wavelength combination

LaserCat and LaserCat500 emit laser light in the red and infrared wavelength area. Each wavelength can be adjusted individually in terms of power output. Both lasers offer a mixture of continuous wave and pulsed laser diodes. While laser light in the visible red spectrum works best on the top layers of the tissue, infrared laser light can travel up to approx. 60 mm deep into the tissue. Nevertheless the silver bullet for many indications is the simultaneous combination of red and infrared laser light.

### Memory function

Both devices from the LaserCat series have a memory function. The therapist can store up to 1.000 data records.

### Preprogrammed

LaserCat and LaserCat500 are preprogrammed devices. Different application fields can be selected and from them the therapist finds many preset treatment settings for various indications.



### Accessories

A LaserCat device comes with a useful, high-quality aluminum case. The treatment tips are stored in a shapely aluminum storage box. A detailed manual completes the set. Trolley with drawer and 3 racks optional.



	LaserCat	LaserCat500
Wavelength 1 red, cw	650 nm	650 nm
Power 1 red	35 mW	50 mW
Wavelength 2 infrared, pulsed	904 nm	904 nm
Power 2 infrared	50 mW / pulsed (50 Watt pulse power)	50 mW / pulsed (50 Watt pulse power)
Wavelength 3 infrared, cw	---	808 nm
Power 3 infrared	---	400 mW
Total output power	85 mW	500 mW
Dimensions	342 mm x 128 mm x 260 mm (B/H/T)	
Weight	approx. 4,5 kg	



# PALMLASER & PALMLASER PROFESSIONAL

## PalmLaser & PalmLaser professional

Laser devices from MedSolution are part of the latest laser generation. Powerful red and infrared laser light produce very impressive results. Optimal power is strong enough for maximum efficacy and short treatment times, but soft enough not to cause any tissue injuries.

PalmLaser and PalmLaser professional are class 1 laser devices. The benefits of a class 1 device are:

- The therapist doesn't need to wear a protection goggles, the animal is safe.
- Safety precautions are not required.
- A special education as a „laser safety representative“ is not necessary.

All devices are safe in operation and application. The treatment is done under direct skin contact, as long as there is no open wound. The specially designed treatment head allows the treatment of large areas effectively within a short time.

Laser light with specific wavelengths in red and infrared spectrum as it is emitted by PalmLaser and PalmLaser professional, take effect both - on the surface as well as in deeper tissue layers, up to approx. 6 cm.

## Simple operation:

1. Switch device on
2. Adjust time
3. Start laser.
4. Apply laser slowly over the treatment area

The ideal treatment parameters are described in detail in the attached manual.

PalmLaser is battery driven (rechargeable batteries) and thereby mobile. As a modern therapy device, PalmLaser can be used outside the practice.



An optional practical hygiene-pack can be offered.

## Laser therapy - advantages

Laser photo-therapy offers some strong benefits for the therapist and the animal:

- **no known side effects**
- safe, simple and painless therapy
- complementary or alternative treatment method
- harmless
- easy to operate and apply
- economic

	PalmLaser	PalmLaser professional
Wavelength 1 red	650 nm	650 nm
Power 1 red	20 mW	20 mW
Wavelength 2 infrared	785 nm	808 nm
Power 2 infrared	80 mW	180 mW
Total output power	100 mW	200 mW
Akkumulatoren	Lithium-Polymer, no memory effect	
Dimensions	250 mm x 60 mm	
Weight	approx. 150 g	







## Veterinarian indications

Each single cell plays its own role and needs to function properly. The organism can benefit from laser light in multiple ways and for many different indications, like:

- Injuries of different cause
- Herpes
- Haematoma
- Udder inflammation
- Wounds after surgery
- Swellings
- Fractures, broken wings
- Wounds
- Acromastium, mastitis
- Injuries at tendons, ligaments, muscles
- Contusions, strains
- Decubitus
- Tacked or sutured wounds
- Disorders caused by lumbar disk herniation
- Laminitis caused by improper microcirculation
- Arthrosis
- Umbilical hernia
- Neuralgia

Animals tolerate the laser treatment very well. It is harmless and free of pain. Because of its effectiveness and many benefits laser therapy has won worldwide recognition. A lot of application fields have been discovered over several centuries of scientific work. Animals benefit from laser light significantly - therefore it is used worldwide in veterinarian medicine. More information and clinical studies can be found on our web page: [www.MedSolution.de](http://www.MedSolution.de).



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Since 1995 MedSolution develops, manufactures and sells laser photo-therapy devices worldwide. All devices carry the CE sign and are manufactured under the strict ISO 13485 conditions and the directive 93/42/EEC.

For the customer, this translates into:

- Controlled quality
- Made in Germany
- Development & manufacturing in one location
- Direct service