ENERGY LASER

FOR TREATMENT OF

WOUNDS AND PAIN

Company Mission

Our goal is to improve the quality of life for all by providing the best LLLT/PBM lasers on the market with a unique design and functionality at an affordable price throughout the world.

The word “LASER” is an acronym for “Light Amplification by Stimulated Emission of Radiation”.

Company Vision

We envisage a world where every person and animal benefits by the use of our laser technology.

Laser for therapeutic use is called Low Level Laser Therapy (LLLT) or Photobiomodulation (PBM), which is the best technical term.

About Energy Laser

Our ultimative passion is to design and develop reliable, userfriendly, ergonomic and effective therapy lasers and provide our clients with an excellent service.

Energy Laser A/S was founded in 2018 following a merger of two companies involved with the design, development, and manufacture of laser technology. We are in Lystrup, Denmark.
This is where our laser production also takes place. We manufacture a wide range of portable and static lasers in the class 3b range. Our lasers are the smallest LLLT/PBM lasers available in the world today and are used by a wide variety of healthcare professionals involved in both human and veterinary practice.
With 25 years of experience in the clinical laser environment behind us, and a highly competent team of medically qualified staff to support you, we are confident that Energy Laser can offer new and old customers alike clinical and technical assistance if and when required without delay or obligation.

Sales Team

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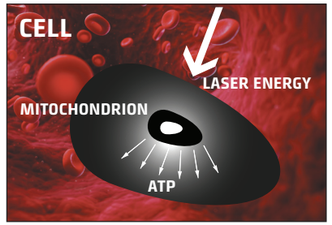
The Special Characteristics of Laser Light

How the Properties of Laser Light Differ Significantly From Ordinary Light.

Laser light is a form of electromagnetic radiation and should not be confused with ultrasound or other electromedical therapies.

Laser light is of an electrical and magnetic character. Laser light can change the chemical structure of cells and tissue, which visible light cannot. Thus laser light differs significantly from visible light.

The Biological Effect of Laser Light
Photons have the ability to accelerate cell proliferation and healing processes. It has been shown that laser energy stimulates the endogenous substances such as flavins and cytochromes, which are part of the cell's respiration.
The absorbed energy is converted to free oxygen which stimulates respiration and increases ATP production in the mitochondria. The ATP production then activates the formation of DNA and RNA, which increases the calcium concetration in the cytoplasm. This is necessary to increase cell division, so the healing process can continue. The effect of LLLT/PBM lasers may be that the energy of the laser light is deposited and converted directly into the cells, thus starting to absorb oxygen.



Effects of Laser Light
Treatment with the laser causes an increase in bloodflow by the dilatation of blood vessels, the oxygenation of tissues, the increase of the fibroblas synthesis, the acceleration of collagen connective tissue, as well as formation of granulated tissue. This ultimately results in a reduction of inflammation as well as the production new skin and tissue.

Moreover, treatment with LLLT/PBM reults in a positive influence on lymphatic drainage. Stimulation of macrophages counteracts the risk of secondary infection, which is an important factor in the healing process.

Laser light in general
-has the following effect, and an increase is seen in:

- **Cell activity**
- **Cell metabolism**
- **ATP-production**
- **The local concentration of lymphocytes, leucocytes and macrophages**
- **Blodflow**
- **Collagen production**
- **The uptake of oxygen in the cells**
- **Na-K-pump is normalized**
- **Cell membrane potential is normalized**

Effects of Laser Light

1.
Anti-inflammatory
Laser light stimulates the cells that control the inflammatory process. The effect is seen in the form of decreased swelling, decreased redness and decreased tenderness.

2.
Pain Inhibitory Effect
Endorphins are released through stimulation of the nerve cells, which, like the laser light, influences inflammation. It lowers the release of compounds that increase the sensitivity of the pain receptors. The analgesic effect achieved by working with stimulation of nerve points is very valuable.

3.
Increased Release of Various Building Materials From the Cells
Collagen produced by the fibroplasts is the most significant one. Collagen forms part of almost all tissues - especially in the lower layers of the skin. The increase in collagen synthesis, produced by the laser, is essential for the healing of wounds. In addition, the production of collagen is responsible for ensuring that no form of scar tissue occurs when tissue is treated with laser light.

4.
Release of Waste Products From the Cells
This effect is of great importance for the treatment of e.g. tissue injuries and hematomas.

PERSONAL-LASER™
L200

Handheld LLLT/PBM laser equipped with 200 mW – 660 nm (visible/red). The laser is powered by a powerful Li-Ion battery, which ensures long treatment time. It is an effective and powerful all-round laser designed specifically for skin care.
The laser wavelength of 660 nm ensures an effective treatment of the skin and tissue. Treatment depth: approx. 1-2 cm.

Supplied accessories
Comes complete and ready for use in an aluminum case with the following accessories:

- 1 pc. MINI-Li-Ion battery
- 1 pc. Li-Ion charger
- 1 pc. Protective goggles
- Quick guide and user manual

Specifications:
- Lasereffect CW max. 200 mW
- Wavelenght 660nm (visible/red)
- Laser class 3B

Applications:
- Wounds and skin disorders
- Scar tissue

PERSONAL-LASER™
L400

Handheld LLLT/PBM laser equipped with 400 mW – 808 nm (invisible /IR). The laser is powered by a powerful Li-Ion battery, which ensures long treatment time. It is an effective and powerful all-round laser designed specifically for pain and injury treatment.
The laser wavelength of 808 nm ensures an effective depth of impact in the skin and tissue. Treatment depth: approx. 3-4 cm.

Supplied accessories
Comes complete and ready for use in an aluminum case with the following accessories:

- 1 pc. MINI-Li-Ion battery
- 1 pc. Li-Ion charger
- 1 pc. Protective goggles
- Quick guide and user manual

Specifications:
- Lasereffect CW max. 400 mW
- Wavelenght 808 nm (invisible/IR)
- Laser class 3B

Applications:
- Muscles
- Tendons
- Joints
- Scar tissue

ENERGY-LASER™ L200/L400 in case with accessories

Patent pending
no. PA2018_70556

ENERGY-LASER™
L500 PRO (Bluetooth)

Handheld LLLT/PBM laser equipped with 500 mW – 808 nm (invisible/IR).
Powerful all-round laser for the professional. The laser has built-in LED guide light and comes with focus optics.The laser is suitable for pain and injury treatment and for dental and veterinary use. The laser optics make it suitable for reflexology, acupuncture and trigger point treatments.
Programming and controlling the laser regarding to time, power and guide sound settings is done simply and easily via the built-in Bluetooth feature in the laser and the app (Android). Treatment depth: approx. 3-4 cm.

Supplied accessories
Comes complete and ready for use in an aluminum case with the following accessories:

- 1 pc. Li-Ion MAXI battery
- 1 pc. Li-Ion charger
- 1 pc. Protective goggles
- Quick guide and user manual

Specifications:
- Lasereffekt CW max. 500 mW
- Wavelength 808 nm (invisible/IR)
- Laser class 3B

Applications:
- Mucles
- Tendons
- Joints
- Scar tissue

ENERGY-LASER™ L500 PRO (Bluetooth) in case with accessories

Patent pending
no. PA2018_70556

ENERGY-LASER™
L800 PRO (Bluetooth)

Handheld LLLT/PBM laser equipped with 4 x 200 mW = tot. 800 mW – 660 nm (visible/red).
A powerful and efficient all-round laser for the professional. The laser uses scattered optics which make it indeed suitable for skin treatment and veterinary use. Programming and controlling the laser regarding to time, power and guide sound settings is done simply and easily via the built-in Bluetooth feature in the laser and the app (Android).
The laser wavelength of 660 nm ensures an effective depth of impact in skin of approx. 1-2 cm.

Supplied accessories
Comes complete and ready for use in an aluminum case with the following accessories:

- 1 pc. Li-Ion POWER battery
- 1 pc. Li-Ion charger
- 1 pc. protective goggles
- Quick guide and user manual

Specifications:
- Laser effect CW max.
  4 x 200 mW = total 800 mW
- Wavelenght 660 nm
  (visible/red)
- Laser class 3B

Applications:
- Wounds and skin disorders
- Scar tissue

ENERGY-LASER™ L800 PRO (Bluetooth) in case with accessories

Patent pending
no. PA2018_70556

ENERGY-LASER™
L2000 PRO (Bluetooth)

Handheld LLLT/PBM laser equipped with 4 x 500 mW = tot. 2000 mW – 808 nm (invisible/IR).
A powerful and efficient all-round laser for the professional. The laser uses scattered optics which make it indeed suitable for pain and injury treatment as well as for veterinary use. Programming and controlling the laser regarding to time, power and guide sound settings is done simply and easily via the builtin Bluetooth feature in the laser and via the app (Android).
The laserwavelength of 808 nm ensures an effective depth of impact in skin and tissues of approx. 3-4 cm.

Supplied accessories
Comes complete and ready for use in an aluminum case with the following accessories:

- 1 pc. Li-Ion POWER battery
- 1 pc. Li-Ion charger
- 1 pc. protective goggles
- Quick guide and user manual

Specifications:
- Laser effect CW max.
  4 x 500 mW = total 2000 mW
- Wavelength 808 nm
  (invisible/IR)
- Laser class 3B

Applications:
- Muscles
- Tendons
- Joints
- Scar tissue

ENERGY-LASER™ L2000 PRO (Bluetooth) in case with accessories

Patent pending
no. PA2018_70556

ENERGY-LASER™
X1-L1200 SKIN

Stationary LLLT/PBM laser equipped with 6 x 200 mW = tot. 1200 mW – 660 nm (visible/red).
A very powerful stationary laser system for the professional clinic. The laser is especially suitable for skin treatment, as well as for veterinary use. The laser is operated easily and quickly, and controlled with a time program (0-99 min).
The laser wavelength of 660 nm ensures an effective depth of skin and tissue of approx. 1-2 cm.

Supplied accessories
Delivered complete and ready to use with the following accessories:

- Adjustable table
- Laser arm with ball joint
- Patient stop button
- 2 pc. protective goggles
- Quick guide and user manual

Specifications:
- Laser effect CW max. 6 x 200 mW = total 1200 mW
- Wavelenght 660 nm (visible/red)
- Laser class 3B

Applications:
- Wounds and skin disorders
- Scar tissue

X-1 control box for controlling the ENERGY-LASER™ X1-L1200 SKIN laser probe.

Patent pending
no. PA2018_70556

ENERGY-LASER™
X1-L3000 MULTI

Stationary LLLT/PBM laser equipped with 6 x 500 mW = tot. 3000 mW – 808 nm (invisible/IR).
A very powerful stationary laser system for the professional clinic. The laser is especially suitable for pain and injury treatment as well as for veterinary use. The laser is operated easily and quickly, and controlled with a time program (0-99 min).
The laser wavelength of 808 nm ensures an effective depth of skin and tissue of approx. 3-4 cm.

Supplied accessories
Delivered complete and ready to use with the following accessories:

- Adjustable table
- Laser arm with ball joint
- Patient stop button
- 2 pc. protective goggles
- Quick guide and user manual

Specifications:
- Laser effect CW max. 6 x 500 mW = total 3000 mW
- Wavelength 808 nm (invisible/IR)
- Laser class 3B

Applications:
- Muscles
- Tendons
- Joints
- Scar tissue

X-1 control box for controlling the ENERGY-LASER™ X1-L3000 MULTI laser probe.

Patent pending
no. PA2018_70556

ENERGY-LASER™
ACCESSORIES

BATTERIES

MINI battery
Li-Ion 650 mA

MAXI battery
Li-Ion 650 mA

POWER battery
Li-Ion 1300 mA

MEGA battery
Li-Ion 1950 mA

OPTICS

Veterinary optics

Oral optics

Focus optics

Scattered optics

FLOOR RACK

Floor rack with holder for laser

Product	**PERSONAL-LASER™** L200	**PERSONAL-LASER™** L400	**ENERGY-LASER™** L500 PRO (Bluetooth)	**ENERGY-LASER™** L800 PRO (Bluetooth)	**ENERGY-LASER™** L2000 PRO (Bluetooth)	**ENERGY-LASER™** X1-L1200 SKIN	**ENERGY-LASER™** X1-L3000 MULTI
Wavelength	660 nm	808 nm	808 nm	660 nm	808 nm	660 nm	808 nm
Max power	200 mw	400 mw	500 mw	4x200mw	4x500mw	6x200mw	6x500 mw
Max total power	200 mw	400 mw	500 mw	800 mw	2000 mw	1200 mw	3000 mw
Operations mode (CW continus wave)	CW	CW	CW	CW	CW	CW	CW
SPOT/BEAM (divergence), approx.	Spread 20˚x30˚	Spread 10˚x10˚	Focus	Spread 4x20˚x30˚	Spread 4x10˚x10˚	Spread 6x20˚x30˚	Spread 6x10˚x10˚
Guide LED red	No	No	Yes	No	Yes	No	Yes
Laser Class	3B	3B	3B	3B	3B	3B	3B
Energy pr. 10 sec.	2 joule	4 joule	5 joule	8 joule	20 joule	12 joule	30 joule
Laser Penetration, approx.	1-2 cm	3-4 cm	3-4 cm	1-2 cm	3-4 cm	1-2 cm	3-4 cm
Cooling	No	No	No	Air	Air	Air	Air
Bluetooth	No	No	Yes	Yes	Yes	No	No
Battery Li-Ion	650 mA	650 mA	650 mA	1300 mA	1950 mA	No	No
Treat. time per charging	3 h	2 h	1,5 h	1,5 h	1 h	No	No
Powersupply	No	No	No	No	No	130/230 v	130/230 v

Produced and registered as medical equipment

Patent pending
no. PA2018_70556

Laser Light for Therapeutic Use

Laser Light can Transfer Energy to the Cells Without the Risk of Heating the Tissue.

Laser for Therapeutic Use is Called Photobiomodulation (PBM) or Low Level Laser Therapy (LLLT).

Laser light has been used for treatment for more than 40 years. Today, the most used laser is 500 mW, but there are lasers of up to 60.000 mW.

Laser Light Versus Visible Light

The wavelength of the laser is measured in nm (nanometer) and the laser light energy is measured in mW (milliwat) and in Joule (1000 mW = 1 W = 1J per sec.). A laser is a light gun that emits trillions of photons (energy packs) in a specific color (wavelength) which is amplified many times and sent out through an optical lens that gathers the light. This allows for a large amount of energy to be deposited in a small area. Light can be described as photons moving in waves. The difference between two wave peaks is called the wavelength (nm) and determines whether the human eye can perceive it and also what color the light is perceived as. The visible part of the light spectrum ranges from 380 to 670 nm.

Laser light intended for treatment with a wavelength of 808 or 980 nm is invisible to the human eye while laser light emitted with e.g. 660 nm is visible as red light.

The crucial difference between laser light and ordinary light is that all the laser light photons move in waves that are in phase. This means that the laser energy is not emitted as heat, but first released when the laser light hits a surface where energy can be absorbed. Normal light releases most of its energy as heat, because the energy can not be transmitted directly.

Laser Classes

Laser class 3B for treatments are, as a starting point, harmless and safe to use.

A laser with an energy rating of more than 500 mW is categorized as a laser class 4, which means, that there are claims regarding equipment safety and operation, as well as the need for eye and unprotected skin protection.

Laser class 4 lasers may cause large areas of burns on skin and in tissue when used incorrectly.

Treatment With Laser Light

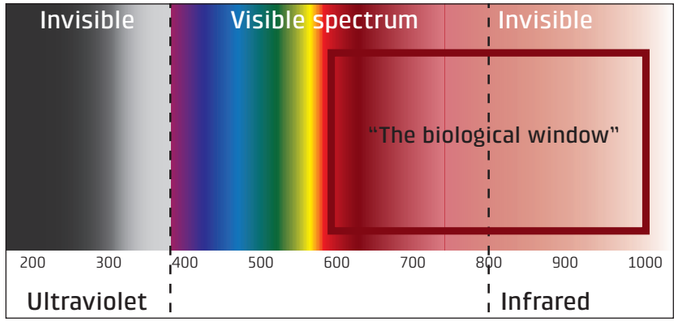
Lasers for therapeutical usage must not exceed 500 mW pr. cm^2 skin due to the fact, that the laser energy converts into heat in the tissue.The energy will deposit in the pigments of the skin, hair follicles and blood vessels, causing a burn in the tissue.

If the laser energy is higher than 500 mW, the laser energy must be spread by optics. The energy will then distribute widely.

E.g. a laser with an energy rating on 5000 mW would have to be spread over an area of approx 10 cm^2 to avoid heating and burns of skin and tissue. If a high amount of laser energy is required for the treatment, this can be obtained by using multiple lasers, affecting their own respective areas.

The laser can also be built with multiple lasers, each of which must be max. 500 mW, affecting its own area. Thus a laser can be designed to treat a large area at once.

The word "LASER" is an acronym for "Light Amplification by Stimulated Emission of Radiation."



The Biological Window

Laser light with wavelength from approx. 600 nm (visible/red) to 1000 nm (invisible/IR) is referred to as the "biological window", allowing the light to penetrate and thereby spread into the tissue and affect the cells. The depth effect of a 600 to 700 nm wavelength is approx. 1-2 cm, and is mostly used for skin and wound treatment. While at 800-900 nm a depth effect of approx. 3-4 cm is obtained, which is primarily used for pain and tissue treatment.

Laser light with a wavelength of less than 600 nm or above 1000 nm is stopped by the skins pigment, hair follicles, blood and the water molecules in the body.Therefore it can not be used for treatment.

Transfer of Energy

Laser light is the transfer of energy to the cells. The energy of the laser light penetrates skin and initiate cell functions. This strengthens the immune system and increases blood flow.

The fact that laser light affects the body's immune system and the ability to accelerate the healing process during disease and injury, causes the laser's treatment applications area to be numerous.

Approved Treatment Method

PBM/LLLT is approved as a recognized medical treatment, and medical equipment marked a CE is approved by the EU. More than 6000 published, scientific studies and clinical trials worldwide have been presented, supporting the significant effect of the treatment with PBM/LLLT on a variety of issues and treatments.

WALT, (Word Association for Laser Therapy), have released treatment guidelines based on positive clinical trials with LLLT/PBM, listing indications as follows:

Tendinopathies

- *Carpal-tunnel*
- *Lateral epicondylitis*
- *Biceps humeri c.l.*
- *Supraspinatus*
- *Infraspinatus*
- *Trochanter major*
- *Patellartendon*
- *Achilles tendon*
- *Plantar fasciitis*

Arthritis

- *Finger PIP or MCP*
- *Wrist*
- *Humeroradial joint*
- *Elbow*
- *Glenohumeral joint*
- *Acromioclavicular*
- *Temporomandibular*
- *Cervical spine*
- *Lumbar spine*
- *Hip*
- *Knee medial*
- *Ankle*

Source: waltza.co.za

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