weber
medical
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WEBERNEEDLE ®
ENDOLASER

YOUR ALLROUNDER FOR MEDICAL LASER THERAPY

- intravenous
- interstitial
- intra-articular
- topical
- transcranial
- photodynamic therapy
- laserneedle acupuncture

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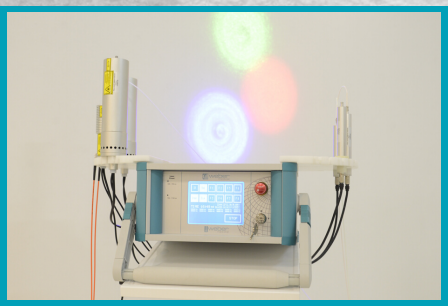
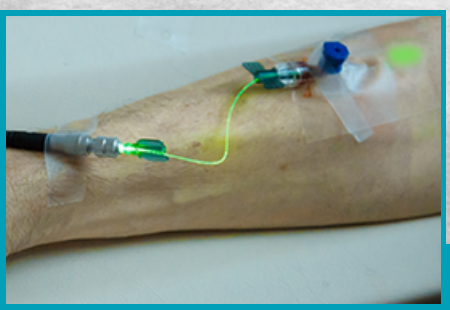




After working as a general physician for almost 20 years, Low-Level-Laser Therapy (LLLT) first captured my interest in 2001. At that time, I felt frustrated about the limitations of conventional western medicine in the treatment of a broad number of diseases.
Discovering the enormous potential and practical utility of LLLT, it very quickly turned from a useful therapy to my true passion. Since then, the number of studies in this field rose exponentially and high-quality research nowadays provides evidence for the efficacy of LLLT in many different areas. We still learn more day by day and see the field of possible applications growing constantly.

> **Low-Level-Laser Therapy surely is an incredibly powerful method to contribute to the promotion of health and quality of life.**

DR. MED. DIPL. CHEM. HANS-MICHAEL WEBER

INTERNATIONAL APPROVALS

CE

Europe

FEDERAL SERVICE FOR SURVEILLANCE IN HEALTHCARE

Russia

สำนักงานคณะกรรมการอาหารและยา
Food and Drug Administration

Thailand

BASIC PRINCIPLES OF LOW-LEVEL-LASER THERAPY

In comparison to surgical lasers (hard lasers), Low-Level-Lasers (also called soft or cold laser) utilize low-intensity irradiation to generate therapeutic effects instead of damaging tissue.

Through different endogenous chromophores, micro-biological structures can absorb the light energy in form of photons. Thereby, they trigger photophysical and photo-chemical events at various biological scales which eventually lead to various cellular effects, depending on the wavelength of the light, its power and the exposure time.

An example is the absorption within the mitochondrial respiratory chain that causes a signaling cascade resulting in an increase of cellular energy production (ATP) and a normalization of the membrane potential.

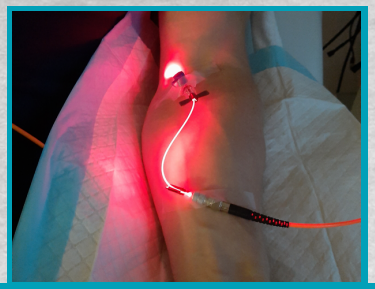
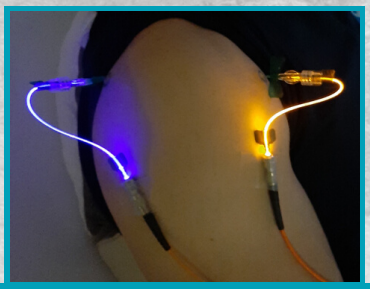
Low-Level-Laser Therapy is well-proven, side-effect-free and minimal- to non-invasive and therefore well tolerated by any patient.

↑ Promotion of **POSITIVE PROCCESSES**

Inhibition of **NEGATIVE PROCCESSES** ↓

APPLICATION MODALITIES OF LOW-LEVEL-LASER THERAPY

	**Intravenous**	Blood Irradiation | Photodynamic Therapies
	**Intra-articular/ Interstitial**	Irradiation of joints or the interstitial area | Interstitial Photodynamic Therapies
	**Topical**	Area Irradiation | Sublingual Treatments | Transcranial Treatments | Laser Acupuncture | Photodynamic Therapies

EFFECTS OF DIFFERENT COLORS (WAVELENGTHS)

Infrared (810 nm)

- Activation of stem cells
- Deepest tissue penetration (5-7 cm) → ideal for topical applications & acupuncture

Photodynamic Activation: ICG

Yellow (589 nm)

- Detoxifying and antidepressant effects
- Stimulation of serotonin and vitamin D metabolism

Hypericin (St. John's Wart)

Blue (405 /447 nm)

- Strongest anti-bacterial and anti-inflammatory effects
- Release of bound NO → improved microcirculation
- Activation of telomerase

Curcumin, Riboflavin

Red (635 / 658 nm)

- Immune stimulation (leucocytes, enzymes, etc.)
- Improvement of rheological properties of the blood
- Analgesic and spasmolytic effects

Chlorin E6, 5-ALA, EGCG

Green (532 nm)

- Binds to hemoglobin → improved function, behavior and cell elasticity
- Increase of oxygen delivery
- Improvement of blood flow

Ultraviolett (370 nm)

- Increases oxygen absorption in body tissues
- Destroys fungal, viral, and bacterial growth

Shogaol, several infusions and chemo drugs (e.g. 5-FU, Paclitaxel)

Stimulation of the mitochondria

Further, one of the most important effects of Low-Level-Laser Therapy is the increase of ATP-production in the mitochondria through photon absorption within the respiratory chain. Each complex gets stimulated by another wavelength.

- Complex I - Blue
- Complex II - Blue, Green
- Complex III - Green, Yellow
- Complex IV - Red, Infrared

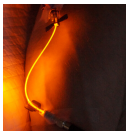
AREAS OF APPLICATION

TOPICAL LASER THERAPY [1]

- **Local Pain Management**
  (e.g. degenerative afflictions, musculoskeletal pain, distorsions, tendinopathies, rheumatism)
- **Neurological and Psychological Issues**
  (e.g. TBI, Alzheimer's, Parkinson's, strokes, depressions)
- **Dermatological Diseases and Cosmetics**
  (e.g. neurodermatitis, acne, chronic wounds, eczema)
- **Laser Acupuncture**
  (as in metal-needle acupuncture, also for trigger points)

INTRAVENOUS LASER THERAPY

- **Immune stimulation**
- **Metabolic Disorders**
  (e.g. diabetes, liver / kidney diseases)
- **(Chronic) Pain**
  (e.g. fibromyalgia, rheumatism)
- **Sportsmedicine**
  (e.g. performance improvement, muscle lesions)
- **CFS, Burn-Out, Depression**
- **Cardiovascular disorders**
  (e.g. hypertension, (micro)circulation problems)
- **Prevention & Anti-Aging**
- **Neurological Diseases**
  (e.g. MS, polyneuropathies)

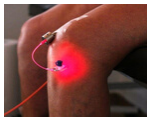


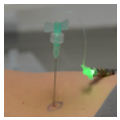
INTRA-ARTICULAR / INTER-STITIAL LASER THERAPY

- **Intra-articular Pain Management**
  (e.g. arthritis and arthrosis of any joint, chronic pain)
- **Interstitial Pain Management**
  (e.g. chronic back pain, slipped disks, spinal stenosis, nerve lesions, tendon inflammations, strains)

Special puncture needles available.
(length of 4cm, 6cm, 8cm, 10cm, 12cm)

Enhanced effects with stem cells, PRP and hyaluronic acid.





PHOTODYNAMIC THERAPY

Photodynamic Therapy is based on the stimulation of a light-sensitive photosensitizer (infused into the blood-stream, injected locally or applied as a cream) that binds with high specificity to tumorous tissue and pathogens.
By irradiation with (laser) light of a specific wavelength, radical oxygen species are released from the bound photosensitizer which destroy the malignant tissue without harming healthy surrounding tissue.

- **Photodynamic Tumor Therapy**
  (all kinds of tumors, with and without metastases)
- **Antimicrobial Photodynamic Therapy**
  (for [chronic] bacterial, viral and parasitic diseases, e.g. lyme disease, hepatitis, staphylococci, acne)

[1] accessories required (body shower, head-adapter, mouth shower, acupuncture sticky tubes

ANTIMICROBIAL PHOTODYNAMIC THERAPY

Antimicrobial PDT: Specific inactivation of bacteria, viruses and parasites

Antimicrobial Photodynamic Therapy is a specific form of Photodynamic Therapy that aims to inactivate different kinds of pathogens. It is based on the combination of a photosensitizer that selectively accumulates at the pathogen and the application of light of an appropriate wavelength to activate the photosensitizer, resulting in the release of radical oxygen species (ROS) and finally photodamage to and death of the microbial cell.

- proven safe f. humans, no side-effects
- superior results than conv. therapies
- no development of resistances
- broad therapeutic window
- simple application

IN-VITRO: EFFICACY OF PATHOGEN INACTIVATION

Type	Pathogen Specification	Log/ml reduction; Mirasol Effect. in %
Virus, enveloped	HIV (active, cell-associated human HIV)	5.9
Virus, enveloped	Rabies Virus (Vesicular Stomatitis Virus)	≥6.3 *
Virus, enveloped	Influenza A Virus	≥5.0 *
Virus, non-enveloped	Hepatits A Virus (Human)	1.8
Virus, enveloped	MERS-CoV (EMC strain)	≥4.42 *
Parasite	Plasmodium Falciparum (Malaria)	≥3.2 *
Parasite	Leishmania donovani infantum (Leishmaniasis)	≥4.0 *
Parasite	Orienta Tsutsugamushi (Scrub Typhus)	≥5.0 *
Bacterium, gram-neg.	Escherichia coli (e-coli)	100%
Bacterium, gram-pos.	Bacillus cereus	100%
Bacterium, gram-pos.	Streptococcus (agalactiae, mitis, pyogenes)	100%
Bacterium, gram-neg.	Klebsiella pneumoniae	100%
Bacterium, gram-neg.	Yersinia enterocolitica	100%

Examples for Pathogen Inactivation with Riboflavin aPDT (in-vitro); Goodrich et al. 2011

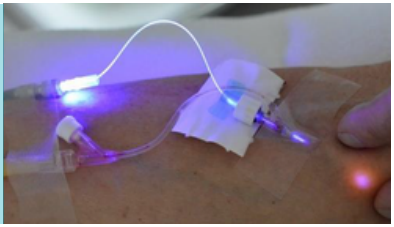
IN-VIVO: RIBOFLAVIN + ENDOLASER (UV, BLUE)

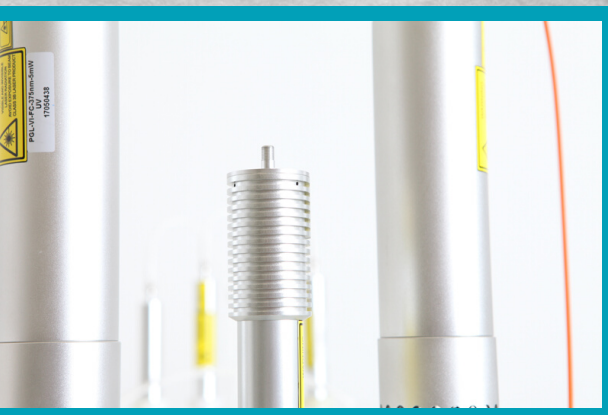
Utilizing the Endolaser-System, we conducted the first in-vivo study on the treatment of Malaria Tropica patients with aPDT in 2017. Our treatment protocol has proven to be safe (white blood cell count and haematocrit values stable, no side-effects observed) and to achieve superior results than the conventional therapy (tested negative at study end, number & severity of symptoms).

FINAL MALARIA TEST RESULTS

Study group
89% negativ

Control group
50% negativ





WEBERNEEDLE ® ENDOLASER

LATEST TECHNOLOGY FOR YOUR PRACTICE

- Quality made in Germany
- Unique: All commonly used plus novel application modalities in just one device
- Modular set-up for flexible exchange of laser diodes (colors)
- All colors of the light spectrum available, also in different powers
- Free setting of frequencies and output percentage
- User-friendly operation by a touchscreen panel
- Different disposables and accessories available at a reasonable price

Light is Life.

GET YOUR INDIVIDUAL QUOTE TODAY!

We are happy to advise you on the ideal device set-up tailored to your treatment intentions and clinical settings. Don't miss to ask us about leasing opportunities (not available in all countries)!

ISLA: RESEARCH, NETWORK, EDUCATION

The international Society for Medical Laser Applications (ISLA) is the scientific partner of weber medical. Throughout the year, ISLA offers three main conferences and several one-day seminars with lectures by the world's best-known laser experts in the US, Europe and Asia. Further it participates in current research projects, organizes network events and provides educational material for physicians interested in Laser Therapy.
More information and membership forms at www.isla-laser.org!

ISLA
International Society for Medical Laser Applications

www.isla-laser.org

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