



RJ-LASER-Therapy



RJ- LASER-THERAPY

A practical guideline



This booklet contains a brief overview how to perform LLLT on some common indications. Please refer to the scientific literature to get to know more details about this therapy.

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RJ- LASER-THERAPY

A practical guideline

Contents

Medical lasers.....	5
LLLT, Low Level Laser Therapy	5
Biological effect of LLLT	6
Penetration into the tissue	8
How to apply the laser in general	9
Treatment duration and dosage (energy, J/cm ²).....	12
Recommended anti-inflammatory dosage for Low Level Laser Therapy (according to WALT)	15
Therapy interval	19
Frequency modulation / frequency application.....	20
Oscillations, frequencies of the body.....	23
Microvibrations of the muscular system.....	24
NOGIER frequencies.....	25
Frequency zones according to NOGIER	27
RAC (VAS) or NOGIER'S pulse	28
Detection of hidden focus using laser, 3V hammer and RAC diagnosis	30
Hidden focus in ear acupuncture	31
BAHR frequencies	32
REININGER frequencies	35
Indications, contra indications	38
Safety precautions.....	39
Acupuncture	41
Laser acupuncture, laserpuncture	42
Six advantages of laser acupuncture	43
Acupuncture meridians.....	46
How to apply the laser in acupuncture.....	53

RJ- LASER-THERAPY

A practical guideline

Terminal points – VOLL diagnosis	56
How to measure the acupoints and terminal points?	57
Ear acupuncture – Auriculo medicine.....	60
How to apply the laser in ear acupuncture.....	61
How to measure the ear points?	61
Ear chart	63
Addiction therapy	64
Scull acupuncture	67
Hand acupuncture	68
Head zones	69
Organ zones	70
Trigger points.....	71
NPSO zones.....	73
Foot reflex zones	74
Macro system, local therapy	75
Skin.....	76
Herpes simplex, hordoleum, inflammations	76
Acne	78
Warts, fibroma.....	82
Anti-aging	84
Tissue	86
Diabetic ulceration, gangraen/necrosis, wounds	86
Burns	90
Vessel system, lymphatic system.....	93
Inflammation	95
Bones, joints, tendons, sports injuries	96
Carpal tunnel syndrome	96

RJ- LASER-THERAPY

A practical guideline

Sports injuries, traumata	98
Fracture healing	100
 Nerve system.....	 102
Nerve injury	102
Paralysis.....	104
 Dentistry - Oral Application.....	 105
Fracture healing, bone repair, implant healing.....	106
Bone necrosis (bisphosponate associated)	108
Gingiva healing	113
Pain management, hypersensitivity	115
Oral mucositis, aphtae	117
Destruction of bacterials, periimplantitis, infections,	119
root channel infections – Photo Dynamic Therapy	119
How to perform the PDT/PDD.....	120
 Alternative Therapy – Medicament applicator	 126
Book recommendation.....	127
Laser Associations	128
Laser warning signs.....	129
RJ laser devices	130
Scanning laser and multi-functional laser devices	130
Handheld laser devices.....	131
Polylaser family, multi-cluster probes (Physiolaser)	132
 RJ Service & Support	 133

Medical lasers

Medical lasers divide into two main groups:

1. Laser for surgery

Surgical lasers belong to laser class 4 and offer between 2-50 W (continuous wave, cw).

2. Laser for biostimulation/biomodulation (LLLT)

These lasers belong to class 3B laser devices and sometimes to class 4 (without focus up to 5 W continuous beam).

LLLT, Low Level Laser Therapy

The RJ-Laser devices cover the whole area of LLLT and offer a successful diagnosis and therapy for the beginner and the advanced practitioner.

The RJ-Laser devices are made for application to individual points, reflex therapy and for the treatment of larger areas. RJ laser devices are used for:

Reflectory therapy (micro system)

Local therapy (macro system)

Supply of photon energy (Joule)

Transfer of information (Hz)

For further information about laser therapy consult the extensive specialist literature or contact RJ or your local supplier.

Diagnosis

Beside the therapy, RJ-Laser devices offer comprehensive diagnostic options for measurement of organ zones, ear acupuncture, body acupuncture and trigger points.

The diagnosis can be made by means of electric measurement of the skin resistance (VOLL) or by frequency application (RAC, pulse diagnosis according to NOGIER).

Biological effect of LLLT

The laser beam is a gentle but powerful therapeutic tool, consider that a laser with just **1 mW / $\lambda= 670$ nm will emit $3 \cdot 10^{15}$ photons /sec..**

Appropriate laser application will lead to various reactions in living organisms. The laser energy will be absorbed by the tissue and cells, leading to an improvement of cellular metabolism via activation of the respiratory chain.

According to Tina Karu et al Cytochrome c oxidase is discussed as a possible photoreceptor when cells are irradiated with monochromatic red to near-IR radiation. Four primary action mechanisms are reviewed:

1. changes in the redox properties of the respiratory chain components
2. following photoexcitation of their electron states, generation of singlet oxygen, localized transient heating of absorbing chromophores,
3. increased superoxide anion production with subsequent increase in concentration of the product of its dismutation, H_2O_2 .
4. A cascade of reactions connected with alteration in cellular homeostasis parameters (pHi, [Cai], cAMP, Eh, [ATP] and some others) is considered as a photosignal transduction and amplification chain in a cell (secondary mechanisms).

Tina Karu Institute of Laser and Informatic Technologies of Russian Acad. Sci., 142092 Troitsk, Moscow Region, Russian Federation

For more information refer to the literature and studies of e.g.
Herbert Klima, Atomic Institute of the Austrian Universities, Vienna, Austria
Helmut Walter, Germany

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A practical guideline

Ga-AIAs (808 nm) Laser Irradiation Enhances ATP Production in Human Neuronal Cells in Culture

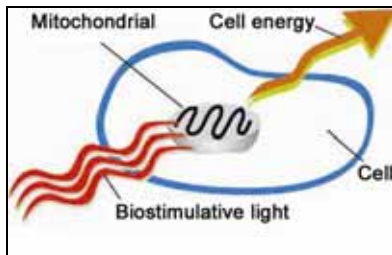
U. ORON, Ph.D., S. ILIC, M.D., L. DE TABOADA, M.S.E.E.,
and J. STREETER, M.D. 2005

Objective: The aim of the present study was to investigate whether Ga-AIAs laser irradiation can enhance adenosine triphosphate (ATP) production in normal human neural progenitor (NHNP) cells in culture.

Methods: NHNP were grown in tissue culture and were treated by Ga-AIAs laser (808 nm, 50 mW/cm², 0.05 J/cm²), and ATP was determined at 10 min after laser application.

Results: The quantity of ATP in laser-treated cells was 7513 \pm 970 units, which was significantly higher ($p < 0.05$) than the non-treated cells, which comprised 3808 \pm 539 ATP units.

Conclusion: Laser application to NHNP cells significantly increases ATP production in these cells. These findings may explain the beneficial effects of low-level laser therapy (LLLT) in stroked rats. Tissue culture of NHNP cells might offer a good model to study the mechanisms associated with promotion of ATP production in the nervous system by LLLT.



Penetration into the tissue

Depending on the wavelength, the laser energy will be absorbed by the tissue and cells. In order to penetrate deeply into the tissue the correct wave length is important. Depending on the medium to be penetrated it succeeds in sustaining relatively high power intensity. In principle, however, energy levels decrease the deeper the beam penetrates and the effect is weakened.

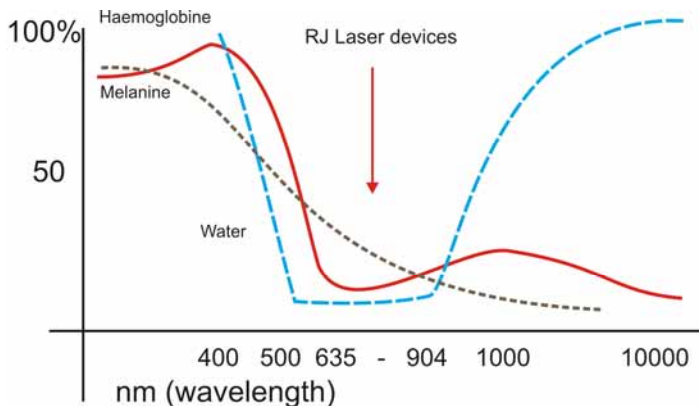
Each type of tissue has different optical reactions

The penetration depth is always dependent on the type of the tissue. Fat, muscles, bones react differently in terms of the absorption and reflection of the laser beam.

During therapy please take care that all clothing is removed from the area to be treated, as textiles weaken the effect of the laser considerably. Due to radiation loss, body parts with hair require longer application (use the brush cluster probe).

Wavelength

The wavelengths of the **RJ-lasers** are in a very convenient “window” with very low absorption levels which offer deep penetration. In higher ranges (1000 nm) absorption by water is greater and in lower ones, below 500 nm, absorption by red blood coloring and melanine is also greater.

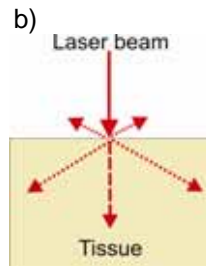
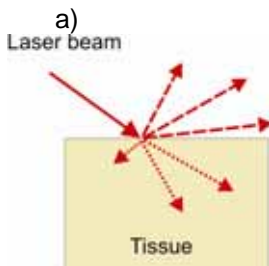


How to apply the laser in general

The correct position of the laser probe is important in order to avoid loss of energy.

Reflection by the skin – apply with correct angle

The extent of reflection depends on the angle from which the laser beam is aimed, thus the beam should always be aimed from a 90° angle as shown in b), with minimum reflection. Use direct skin contact or just 1-2 mm above the skin.



To take advantage of the reflections, RJ is using an innovative photon reflection foil on the Polylaser and multi-cluster probe.

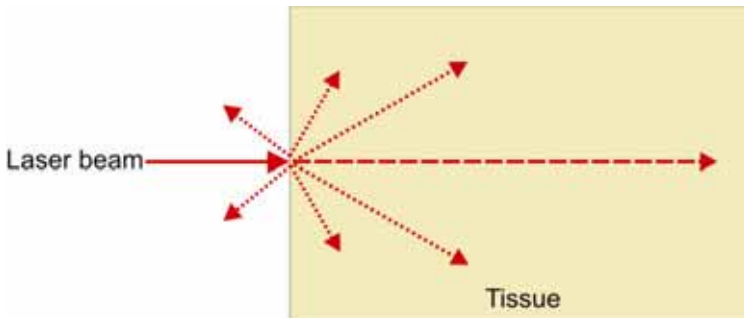


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A practical guideline

Dispersion in the tissue

The laser beam is dispersed among the different constituents in the tissue and reflected. The main part of the beam penetrates directly.



Absorption

The laser beam will be absorbed by the cells and the body's fluids. Absorption is mainly dependent on the color of the laser and that of the tissue constituents, for example,

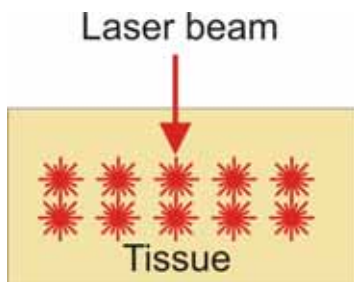
- A green argon laser will be absorbed almost completely by the haemoglobine (complementary colors). The wavelengths of the RJ laser devices (635 - 904 nm) have excellent penetrative properties and there is minimal absorption by haemoglobine, water and melanine.
- Dark, pigmented skin (melanin) will absorb more energy than white skin.
- Bone absorbs more energy than skin or muscles.

Three methods to apply to the body

1. Energy deposits - the best method

Placing energy deposits offers best cell saturation and lowest reflection. Put the tip of the laser probe directly onto the skin and leave it until the required energy (e.g. 4 Joule) is reached. Point by point until the whole area was covered.

This method is not suitable for the treatment of painful areas or open wounds.



2. Stroking

The laser is placed directly to the skin and runs over the entire surface to be treated, line by line. Move slowly in order to saturate the cells with energy.

3. Application from a distance

The laser is applied from a distance of approximately 1-5 cm. Due to the divergence of the beam when it is emitted by the laser diode, a larger area is covered than that actually aimed at. This technique is recommended for wounds and painful conditions (e.g. herpes zoster). It is relatively demanding for the therapist as the distance should be kept constant, we recommend to use the RJ tripod.

In this method less energy (low energy density, higher reflections) is transmitted to each area and longer therapy duration is necessary.

Treatment duration and dosage (energy, J/cm²)

The patient's reaction and the symptom being treated should be used as guidelines. As soon as an improvement becomes apparent, therapy time can be adjusted and reduced gradually until final healing.

Start with medium therapy duration

Do not start the treatment for too long with highest power! The goal is to "charge" the cells with photon energy. If therapy is undertaken at high power intensity for too long, blockages could prevent the acceleration of the healing process, especially in case of wound healing.

Dosage, energy (Joule/cm²)

Instead of talking about *treatment duration* it is better to express the required time in energy, Joule per cm². Because we want to transfer energy not time. Within a certain time we transfer energy on a specified area (Joule/cm²). Laser mathematics begins here - but don't worry, you don't need a computer to find it out! Simply set the energy value in the submenu of your RJ laser. The microprocessor of your RJ laser will do the rest. If you want to calculate please use the formula:

Joule= Watt x Seconds x Duty Cycle

On continuous mode (cw), the duty cycle is 1

2 Joule= 0.05 W x 40 sec. x 1 (or e.g. 0.5 W x 4 sec.)

On pulse mode e.g. square modulation please multiply by 0,5

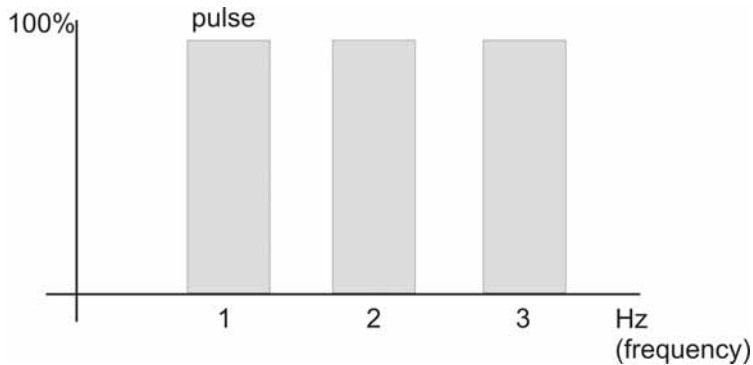
1 Joule= 0.05 W x 40 sec. x 0,5 (or e.g. 0.5 W x 2 sec. x 0,5)

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A practical guideline

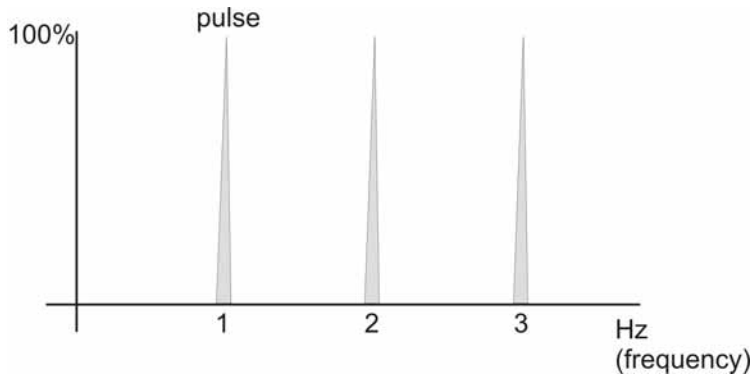
The energy calculation for cw laser diodes is quite simple (653-810 nm), because generally the pulse/pause relation is equal (sinus modulated). For pulsed laser diodes 904 nm it is more complicated. The energy of a pulsed laser is frequency related because the pulse width is fixed 100 or 200 nsec. and the pulse/pause relation is not equal. Higher pulse rates generate more energy.

cw modulation, square pulse 3 Hz



→ Constant energy level (50%), pause and impulse have the relation 1:1.

pulse modulation, needle pulse 3 Hz



→ Energy depends on the pulse rate.

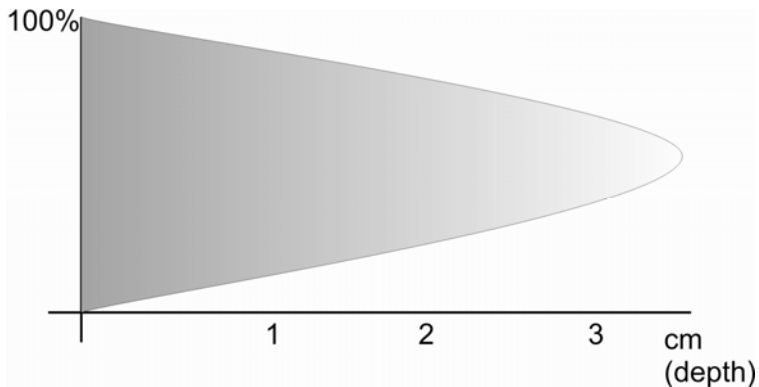
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Dosage is relative to target tissue

Please consider that the photon energy will be absorbed by the tissue and it makes a difference if you want to irradiate e.g. superficial skin (wound healing) or deeper tissue layers e.g. the nerves in the spinal cord region.

With 1 cm penetration, you will roughly lose 40-50% of the photon energy. To bring sufficient energy to the target tissue, a longer duration is needed or with other words, more Joule (e.g. 12-16 cm²) must be applied.



Follow the research

Please pay attention to the results of scientific research which, of course, must also be integrated into your therapy concept. Generally speaking a dosage of 4-6 Joule per cm² or point seems to be a good stimulus for laser therapy.

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A practical guideline

Recommended anti-inflammatory dosage for Low Level Laser Therapy (according to WALT)

Laser class 3 or 3 B, 780-860nm GaAlAs lasers.

Continuous or pulse output less than 0.5 Watt power delivered to the skin over the target tendon or synovial.

Tendinopathy	Points or cm2	Joules	Notes
Carpal-tunnel	2-3	12	Minimum 6 J/point
Lateral epicondylitis	1-2	4	Maximum 100mW/cm2
Biceps humeri c.l.	1-2	8	
Supraspinatus	2-3	10	Minimum 5 J/point
Infraspinatus	2-3	10	Minimum 5 J/point
Trochanter major	2-4	10	
Patellartendon	2-3	6	
Tract. Iliotibialis	2-3	3	Maximum 100mW/cm2
Achilles tendon	2-3	8	Maximum 100mW/cm2
Plantar fasciitis	2-3	12	Minimum 6 J/point
Arthritis			
Finger PIP or MCP	1-2	6	
Wrist	2-4	10	
Humeroradial joint	1-2	4	
Elbow	2-4	10	
Glenohumeral joint	2-4	15	Minimum 6 J/point
Acromioclavicular	1-2	4	
Temporomandibular	1-2	6	
Cervical spine	2-4	15	Minimum 6 J/point
Lumbar spine	2-4	40	Minimum 8 J/point
Hip	2-4	40	Minimum 8 J/point
Knee medial	3-6	20	Minimum 5 J/point
Ankle	2-4	15	

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A practical guideline

Daily treatment for 2 weeks or treatment every other day for 3-4 weeks is recommended.

Irradiation should cover most of the pathological tissue in the tendon/synovia.

Tendons

Start with energy dose in table, then reduce by 30% when inflammation is under control (Does not apply for carpal tunnel tendosynovitis).

Therapeutic windows range from typically +/-50% of given values recommended doses are based on ultrasonographic measurements of depths from skin surface and typical volume of pathological tissue and estimated optical penetration for the different laser types in caucasians.

Disclaimer

The list may be subject to change at any time when more research trials are being published. World Association of Laser Therapy is not responsible for the application of laser therapy in patients, which should be performed at the therapist/doctor's discretion and responsibility

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A practical guideline

Laser class 3B, 904 nm GaAs lasers (peak pulse output more than 1 Watt). Energy dose delivered to the skin over the target tendon or synovial.

Tendinopathy	Points or cm2	Joules	Notes
Carpal-tunnel	2-3	4	Minimum 2 J/point
Lateral epicondylitis	1-2	1	Maximum 100mW/cm2
Biceps humeri cap.long.	1-2	2	
Supraspinatus	2-3	3	Minimum 2 J/point
Infraspinatus	2-3	3	Minimum 2 J/point
Trochanter major	2-3	2	
Patellartendon	2-3	2	
Tract. Iliotibialis	2-3	2	Maximum 100mW/cm2
Achilles tendon	2-3	2	Maximum 100mW/cm2
Plantar fasciitis	2-3	3	Minimum 2 J/point
Arthritis			
Finger PIP or MCP	1-2	2	
Wrist	2-3	3	
Humeroradial joint	1-2	2	
Elbow	2-3	3	
Glenohumeral joint	2-3	6	Minimum 2 J/point
Acromioclavicular	1-2	2	
Temporomandibular	1-2	2	
Cervical spine	2-3	6	Minimum 2 J/point
Lumbar spine	2-3	10	Minimum 4 J/point
Hip	2-3	10	Minimum 4 J/point
Knee anteromedial	2-4	6	Minimum 2 J/point
Ankle	2-4	6	

RJ- LASER-THERAPY

A practical guideline

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Therapy interval

The individual patient's symptoms are the decisive factor.
There is no golden rule which can be applied to every case, each patient will react differently depending on such factors as age, sex, temperament, illness etc. .

However, there are a certain number of criteria which can be used as a basic guideline and can be adapted to the individual case.

Acute 1 - 3 times daily

For herpes simplex labiales several sessions on one day are best for immediate healing.
Treatment should be commenced as soon as possible.

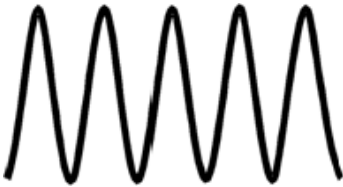
Chronic 2 - 3 times weekly

Keep the interval and see if improvement becomes apparent, if not, reduce it.
Then you can gradually increase the interval between treatments.

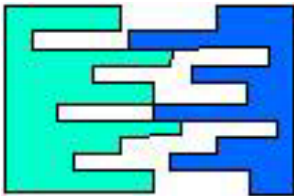
Generally speaking, chronic conditions need longer treatment cycles and intervals, additional therapy measures as diet etc. are recommended.

Frequency modulation / frequency application

RJ laser devices offer a large range of comprehensive medical proven bio frequencies in order to transfer healing information and generate resonance in the body. To achieve this, the Signals need high coherence and must be clear/clean (monochromatic). Please refer to the research of Fritz Albert POPP, "Cell communication".



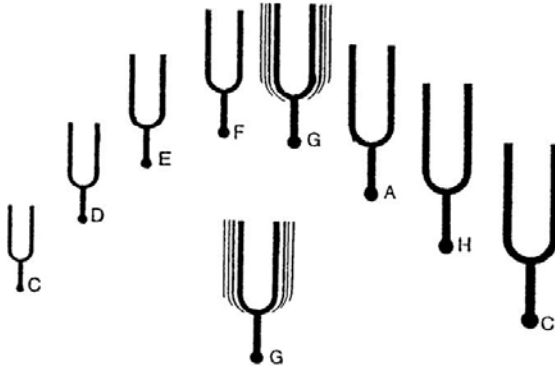
Coherent and monochromatic signal



The signal (information, correct and exact bio frequency) must fit to the receiver (cell/nerve system) like the key to the lock.

The laser beam as a carrier of information

By using certain frequencies, the therapist will send a therapeutic information to the patient, in order to get the cells and the nerve system in resonance.



Example: Only the correct frequency will create resonance

The laser beam is used as the carrier of the information. If a perfect resonance is reached, there will be a high therapeutic effect with minimum energy requirement.

The frequencies are applied for:

1. Diagnosis (see RAC, Reflex Auriculo Cardial)

Pulse test according to NOGIER.

2. Therapy

Frequencies are applied to relevant parts of the body (information therapy).

To improve the effect in many cases the combination of various frequencies is beneficial.

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A practical guideline

Continuous emission

The continuous emission function should be used when maximum energy is required quickly (2 Joules/40 seconds). Continuous emission has no frequency modulation, no or better to say neutral information. The cells are stimulated through the introduction of energy.

Combination of continuous beam and frequency

In many cases it can be effective if a **combination of frequency modulation and continuous emission** is used in therapy. Combine the two functions according to the patient's reaction (e.g. at first 40 seconds frequency modulation, then 40 seconds continuous emission).

Frequencies in medicine

Today several frequency systems for medical application can be found. In the RJ laser devices only the proven bio frequencies which are used by European scientists since many years are pre-programmed and combined in special frequency programs.

If you want to apply or test other frequencies (e.g. VOLL, Rife), you may program it in the Physiolaser olympic. More than 100 spaces are free for your own settings and research.

Free Frequency	Nogler Bahr	Reininger	
Meridians	Nogler	Bahr 1	
A'	B'	C'	D'
E'	F'	G'	
			mix not active
Stand by	500 mW 5J 00:20		

Pre-programmed

Therapy program	Free Frequency	Nogler Bahr	
Free Freq. 1	Free Freq. 2	Free Freq. 3	
F1	F2	F3	F4
F5	F6	F7	F8
F9	F10	F11	Edit
Stand by	500 mW 5J 00:20		

Free programming

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A practical guideline

Oscillations, frequencies of the body

The human body is a vibrating and oscillating system, organs, cell systems, molecules etc. are constantly in cyclic movements and are emitting electromagnetic waves (frequencies). There are long and short cycles, for example:

Life cycle (7, 14, 21, 28 years)

Growth, adjustment to environment

Reproduction

Regeneration/healing

Sleep/wake rhythm

Vegetative tonus of the muscles

Blood circulation

Peristaltic of the intestine

Blood circulation

Respiration

Heart beat

EEG

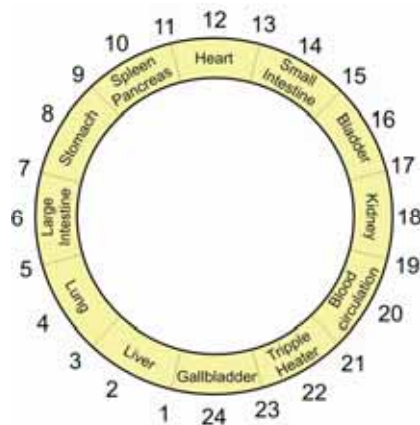
Brain frequencies

Nerve action



Brain frequencies

The organ energy is circulating/oscillating within 24 hours



Perfect time for the therapy is during the organ time.

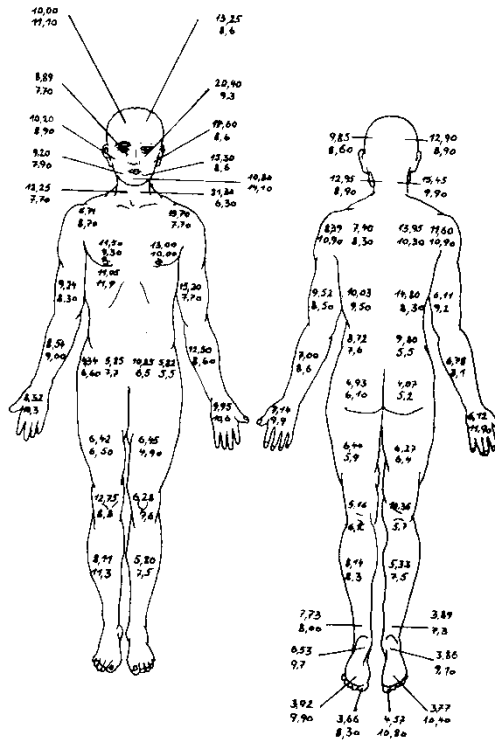
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Microvibrations of the muscular system

Muscle cells are vibrating permanently between 4-18 Hz (even in relaxed state). Main frequencies are between 7-13 Hz (range of Alpha waves).

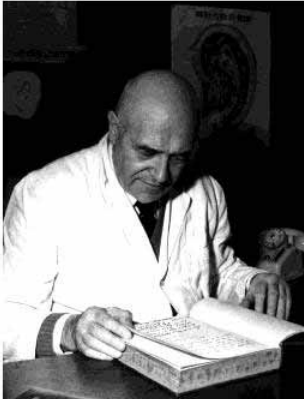
Discovered 1944 by Hubert Rohrer (Austria).



Why do not take advantage of the body's frequencies and oscillations and use it for the therapy?

NOGIER frequencies

Dr. Paul Nogier may be considered as the *father of modern ear acupuncture* (auriculo therapy) and frequency therapy. He studied Medicine in Lyon including homeopathy and acupuncture, brain stimulation.



Discovery of the auriculo therapy 1951
First publication 1956

Discovery of the RAC (VAS) 1966

New points in the auriculo medicine

Founding of the international school: l'Ecole Internationale
Paul Nogier, 1996

**Paul Nogier was born 1908 and died on the 15th of May
1996 in Lyon**

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A practical guideline

The NOGIER frequencies are pre-programmed in the RJ-Lasers and are used since more than 30 years. There is a low and high potency, both *octaves* are used for the same indications. Below there is a brief summary of the NOGIER frequencies, which are displayed as:

A´ B´ C´ D´ E´ F´ G´

Frequency/Hz	Disease, part of the body	Acupuncture
A´/292	Acute illness, cellular level, inflammation, tumors Body orifices	Shu point
B´/584	Chronic illness, metabolism, cell nutrition Abdomen	Sedation
C´/1168	Circulation, energy transfer, locomotor disorder, Bones, muscles, joints, extremities	Tonification
D´/2336	Psychic disorders, fatigue, laterality disorders Commissures	Alarm point
E´/4672	Nerve disturbances/pain, neuralgia, neuritides, Spinal cord, nerves	Starting point
F´/9344	Depressions, psychic symptoms and causes, Bone reconstruction Face, subcortex, emotions	End point
G´/18688	Intellectual and psychosomatic disturbances Frontal cerebral zone	Source point

Regenerating= A+B+F Analgesic= C+D+G,

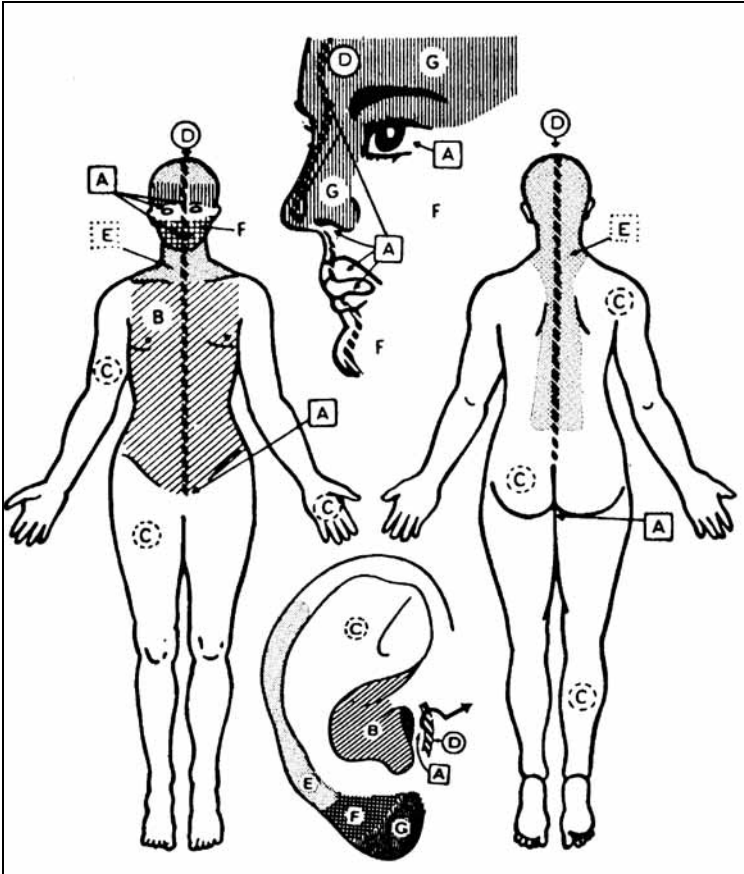
Muscle relax.= E+F

Low range A 2,28, B 4,56, C 9,12, D 18,25, E 36,48, F 73, G 146 Hz

Apply the NOGIER frequencies directly on the body part and if possible according to the RAC pulse reaction.

Frequency zones according to NOGIER

The picture below shows the frequency zones as discovered by NOGIER, modified by Bourdiol. As a general recommendation, apply the relevant frequency to the corresponding zone or according to the pulse reaction (advanced practitioner).



RAC (VAS) or NOGIER'S pulse

Auriculo medicine is a reflex method based on modifications of the NOGIER pulse in response to stimulation.

The NOGIER's pulse, called RAC (Reflex Auriculo Cardial) or Autonomic Circulatory Reaction), also called VAS (Vascular Autonomic Signal).

In practice, the physician tests the skin of the patient's body or external ear. With one hand, he holds the laser, and with the other the patient's pulse.

The patient's radial pulse is taken very carefully and requires a great deal of practice in order to be performed rigorously. The pulse is conventionally taken with the thumb placed perpendicularly to the radial artery against the styloid process. The VAS phenomenon is usually felt by the practitioner as a qualitative variation of perception of the pulse. It starts 1 to 3 cycles after application of a stimulus. This signal occurs without any alteration of heart rate and can last for 8 to 15 cardiac cycles.

The NOGIER pulse involves the autonomic system (sympathetic and parasympathetic). Modification of the VAS is mediated by the unconscious autonomic nervous system and corresponds to a neurological reflex.

You can study the RAC pulse diagnosis on RJ seminars and

DAAA e.V.

Ambazacstraße 4, 90542 Eckental, Germany

Tel. +49-295210, E-Mail akademie@eCompetenceCenter.de
www.akupunktur-arzt.de

OGKA

Glacisstraße 7, 8010 Graz, Austria

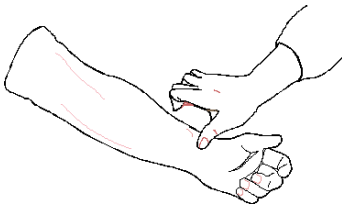
Tel. +43 (0)316 37 40 50, E-Mail office@ogka.at
www.ogka.at

How to perform the RAC?

Example: A patient complains about pains in the stomach region.

1. Check the radial pulse with your thumb (do not count it) and at the same time irradiate the aching area or the ear zone.

2. Change the frequency on the laser as you observe the pulse (pulse quality).



In case the frequency causes change of pulse wave (dislocation or increase in volume of a wave), you found the proper frequency to cure the patient's disorder rapidly. The frequency serves as diagnosis and therapy.

Change of pulse (RAC) due to:

- A=** acute process, inflammation (e.g. gastritis)
- B=** chronic process, metabolic disorder
- C=** blockage, reduced blood circulation, spasm etc.
- E=** nerve disturbance, etc.
- F=** psychic, emotional disturbance

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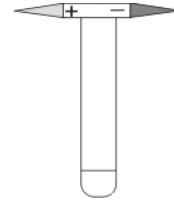
A practical guideline

The RAC therapy should be applied until the change of pulse subsides and the pulse wave is back to normal (in most cases after a few seconds).

The advanced practitioner is able to checking the pulse as well for medicaments (homeopathic remedies, Bach flowers, nutrition etc.). The RAC method is similar to the muscle test in kinesiology and the O-Ring test.

Useful diagnostic tools

There are various methods to test the pulse with the help of optional equipment (9V bar, 3V hammer etc.) in order to increase or improve the pulse reaction. It is recommended to take advantage of these tools.



3V hammer

To avoid interference by radiation of the surrounding and 50 Hz mains current, grounding of the patient is recommended.

Detection of hidden focus using laser, 3V hammer and RAC diagnosis

Often a disease is complicated or caused by hidden focal inflammations in the body. Quite common is the dental focus (chronic inflammation of the root, pulpa etc.), which is causing an instability in the immune and energy system of the body. It is very important for the healing process to detect the focus and remove it, but the main problem is the diagnosis, to find the focus.

With the knowledge of RAC-pulse testing, the RJ-Laser and a 3V hammer, you may be able to locate inflammatory focal disorders within seconds.

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1. **Put the laser** on the extremities of the patient, e.g. lower arm, hand, leg or stomach.
2. **Select NOGIER-frequency F or BAHR-frequency 7, use diagnostic power** (5 mW with the diagnosis button).
3. **Check the pulse reaction (RAC)** with the 3V hammer when you move it over the area of lower/upper jaw or where ever you expect a focus.

In case of focal disorders you will get a RAC-reaction on frequency F/7 in e.g. the upper or lower jaw region.

Thereafter a dental treatment of the tooth must be carried out.

Hidden focus in ear acupuncture

The NOGIER-frequency A (deep tissue layer) and BAHR-frequency 3 (middle tissue layer), 5 (upper tissue layer) are used in ear acupuncture for focus detection.

Attach the laser probe to the hand/arm, check the body parts and organs in the ear with the 3V hammer and use the relevant frequencies at the same time e.g. on the lower arm. An RAC-reaction indicates that there is a focal disturbance.

Book recommendation (available from RJ and Amazon):

Identifying and Treating Blockages to Healing: New Approaches to Therapy-Resistant Patients (Paperback)

Beate, M.D. Strittmatter (Author)

Publisher: Thieme Medical

ISBN-10: 1588901068

ISBN-13: 978-1588901064



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BAHR frequencies

The physician Dr. Frank Bahr, Germany, discovered various frequencies which are used since many years. Most important is BAHHR 1, BAHHR 2 and the Chakras. The frequencies are pre-programmed in the RJ laser devices and can be controlled by the RAC.

BAHR 1 is displayed as: 1, 2, 3, 4, 5, 6, 7

Frequency/Hz	Disease, part of the body
1/599,5	Disruption in conversation of acquired energy, disruption in conversation of own energy resources, source of illness, affinity to sympatetic nerve system Lower tissue layer
2/1199	Transfer of energy, neuronal energy and distribution function, hormonal and nerve systems, affinity to parasympathetic nerve system Central tissue layer
3/2398	Boundary and tangential area between man and the environment, biotic points, Omega-Ren channel points Surface tissue structures Omega-Ren-channel
4/4796	Omega-Du channel points
5/9592	Oscillation frequency , Super omega
6/19184	Left axis , right points
7/38360	Right axis , left points

Frequencies 6, 7 are used in auricular medicine for lateral balance.

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BAHR 2

Frequency/Hz	Disease, indication
963,5	Pain
1131	Hysteria
7708	Homeopathy
1927	Anti allergy
699	Defence
637	Yang-Energy
1102	Yin-Energy

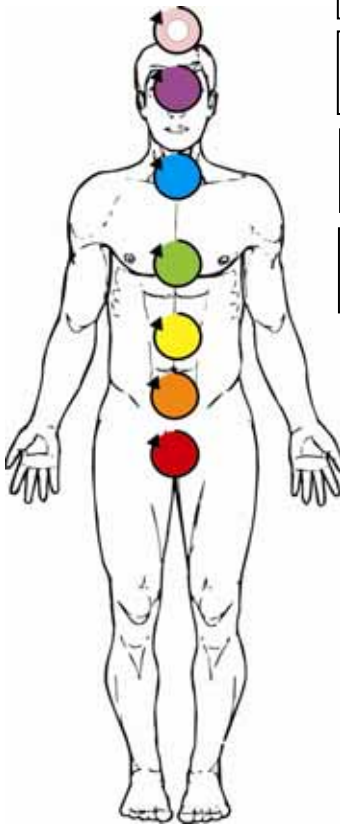
Chakra

Frequency/Hz	Chakra
4.023	Root
3.123	Sacral
2.398	Solar plexus
1.589	Heart
990	Throat
573	Third eye
232	Crown
7.695	Qi Master point
24	Shaman-Chakra 8
7.696,5	Shaman-Chakra 9
7.697	Protection-Chakra general
7.698	Pocks charge
7.699	Pest charge
7.700	Disturbance field / Thymus
7.707	Upper-Omega
7.708	Master of constitution (Homeopathy)
7.710	Inner mental core
7.713	Life/Karma

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Position and spin of the seven main chakras



Brain, head

Pineal, eyes, temples thought, imagination

Hypothalamus, thyroid, throat, ears, jaw, neck

Heart, lungs, breasts, shoulders, arms, hands

Solar plexus, digestive system, liver, gall bladder, spleen, pancreas, adrenals

Ovaries, prostate, kidneys, bladder, sacrum

Testicles, coccyx, perineum, pubic bone, legs and feet

Apply the chakra frequency directly on the chakra in the correct movement.

Example: Throat problems, 990 Hz, turn the probe tip clockwise.

REININGER frequencies

Dr. Manfred Reininger, Austria, was the first who published frequencies of the meridians. In the previous years he found a large number of different frequencies related to the human body, diseases and the environment.

Reininger RI, RII, RIII, each with 7 frequencies, recommended for the advanced practitioner only. RJ can supply the data on request.

Level frequencies with 17 frequencies recommended for the advanced practitioner only.

Meridian frequencies

Frequency/Hz	Meridian
824	Lu , lung
553	LI, large intestine
471	St, stomach
702	SP, spleen pancreas
497	He, heart
791	SI, small intestine
667	Bl, bladder
611	Ki, kidney
530	Ci, circulation (pericard)
732	3H, triple heater
583	Gb, gall bladder
442	Li, liver

Apply the meridian frequencies to acupuncture points on the relevant meridian.

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Anti frequencies

Frequency/Hz	Indication
129	Psyche
4221	Anti Psyche
112	Vegetative
3665	Anti vegetative
112	Addiction
3305	Anti addiction
108	Carcinoma
3534	Anti Carcinoma
101	Pain
3894	Anti pain
128	Inflammation
4189	Anti inflammation
3648	Allergy
933	Anti Allergy
125	Tinnitus
4090	Anti Tinnitus
384	General

Use the pure frequency e.g. Allergy for RAC diagnosis and the anti frequency e.g. Anti allergy for the treatment.

Apply as long as the RAC is active or according to the general guideline for local therapy.

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viral/bacterial

Frequency/Hz	Indication
1408	Viral
360	Anti viral
1664	Bacterial
425	Anti bacterial

Use the pure frequency for RAC diagnosis and the anti frequency for therapy.

Various

Frequency/Hz	Indication
640	Regeneration
2503	Regeneration blocked by disturbance field
158	Kidney-Yin
5160	Kidney-Yang
182	Geopathogenic charge
7680	Toxic charge

More information about the REININGER frequency system at:

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Tel. +43 (0)316 37 40 50, E-Mail office@ogka.at

www.ogka.at

The book of Dr. Reininger is available in German language.

Indications, contra indications

Indications

The laser is used for the treatment of wounds and joint pain e.g. in orthopaedics. Further more it can be used to treat diseases and injuries in:

Skin: Dermatitis, herpes (herpes simplex labialis, zoster), acne, hordeolum, erythema, eczema, inflammation.

Tissue: Healing and alleviation of ulcerations, aftercare of operation wounds, aftercare of scars, burns, sunburns, frost bite, decubitus, necrosis.

Vessels: Improvement of blood circulation by means of collateral vessel regeneration (wound healing), improvement of lymphatic system, reduction of edema.

Inflammation: Alleviation of inflammation, rheumatism.

Bones/joints: Traumatism, carpal tunnel syndrome, joint pain, fracture healing, improved callus formation and mineralization, bone necrosis.

Nerves: Improvement of nerve healing, nerve pain, lesions, ruptures, neuritis, paresis, neuritis, neuralgia.

Pain management: Pain reduction and alleviation.

Dentistry: Analgesic and anti inflammatory, trophic effect especially after surgery.

Acupuncture: The laser device can be used for stimulation of acupuncture points and for all indications which can be treated with acupuncture according to the WHO (World Health Organization).

Contra indications

- irradiation of the eyes
- over the thyroid gland and endocrine glands, testicles
- on patients with pace makers
- no treatment on the head on patients with a tendency for epilepsy
- irradiation of the fetus and over the uterus during pregnancy
- irradiation of the epiphysis (children), open fontanella
- on patients taking zytostatics/immune suppressions
- over cancerous or malignant areas, tumor patients

Regarding the treatment of cancer existing different opinions and researches. The cellular reaction after irradiation is not described sufficiently, therefore precaution is important.

Safety precautions

Personnel

The laser should only be operated by trained medical personnel. The personnel must be instructed in safe handling procedures and also made aware of the potential risks of laser radiation.

Radiation injuries

Do not look directly into the laser beam outlet. Laser radiation can cause eye damage. Protective gear must be worn inside the treatment room during treatment at all times, caution during therapy in the head area. Laser safety representative: The operator must be able to name a laser safety representative.

Treatment room

The laser may only be operated in closed rooms. The treatment room in which laser therapy is performed must meet the requirements of the Accident Prevention Regulation BGV 11 "Laser radiation". Attach a warning sign to all entrances in accordance with DIN IEC 76 (CO) 6. Reflecting objects, mirrors and chrome parts must be removed.

For more detailed and comprehensive description of the laser safety rules refer to the manual of your laser.



Micro systems, Reflectory therapy

To the micro systems belong e.g.

Body acupuncture

Ear acupuncture

Scull acupuncture

Hand acupuncture

Head zones

NPSO zones

Foot reflex zones

Trigger points

RJ-recommendation: Perform the laser therapy on

1. **micro system (reflectory therapy)**
- +**
2. **macro system (local therapy).**

RJ will provide in this booklet just a brief overview about the comprehensive reflectory therapy. Please refer to the literature, up-to-date charts and seminars to get to know more details about the micro systems.

Acupuncture

Acupuncture is a health science, which is used to successfully treat both pain, and dysfunction in the body. At first glimpse, acupuncture appears strange, as its primary notoriety is the utilization of needles placed in the skin at various locations to relieve pain or affect a body part. Early Chinese physicians discovered there is an energy network traversing just below the surface of the skin, which communicates, from the exterior to the interior organs and structures at over 360 acupuncture points on the body. This energy works in harmony with the body's circulatory, nervous, muscular, digestive, genitourinary and all other systems of the body. When this vital energy becomes blocked or weakened, an effect in a body system or anatomic location becomes evident. Stimulation of one or a combination of key acupuncture points on the body may restore harmony to the affected area.

Today therapists differentiate between many types of acupuncture:

Body acupuncture (modern e.g. VOLL/TCM)

Ear acupuncture (NOGIER-BAHR/Chinese)

Scull acupuncture (Yamamoto/Chinese)

Hand acupuncture (Chinese, Bahr)

Nose, tongue acupuncture and other sub systems



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Laser acupuncture, laserpuncture

Laser acupuncture or laserpuncture therapy is the accepted name employed by those who practice the principle of acupuncture by using the stimulation of a laser beam instead of a penetrating needle.

In some way the laser energy seems to be more suitable to the meridian system which is an "oscillating energy field" than the needle.

The laser beam can produce low-heat light and is an electromagnetic wave, which can stimulate the acupuncture point of human body, and input an energy into it, so as to excite the channels and properties, regulate the function of organism, promote the metabolism, possessing the function of both acupuncture and moxibustion and via frequencies e.g. the information of the needle type (steel, gold/silver, left/right turn etc.).

According to the research of Reininger (Meridian frequencies), Bahr and Nogier, frequencies can be applied to the meridians and acupuncture points in order to improve the meridian energy.

What is the purpose of acupuncture?

The purpose of acupuncture is to prevent and treat disease, and to optimize health and well-being through balancing the body's energies. Specifically, in western medical terminology, acupuncture can:

- achieve pain relief**
- improve blood circulation**
- relax muscles**
- reduce inflammation**
- normalize autonomic function**
- promote regeneration of tissue**
- promote healing**
- restore homeostasis**
- alleviate withdrawal symptoms**

How does acupuncture work?

The human body's energy flow courses over twelve meridians or channels that are normally well balanced. If a disruption of energy flow exists, it can alter the entire system, producing pain or symptoms in the body. This is acupuncture's goal - to restore normality to the body's energy balance by utilizing a combination of acupuncture points located on the fourteen meridians.

The monochromatic laser beam and correct frequency modulation will energize the meridian and acupuncture point, in order to will improve the oscillation of the meridians own frequency.

Six advantages of laser acupuncture

1. Short therapy duration (10-30 seconds/point).
2. Points which are difficult or painful to treat with a needle (mucous membranes, wounds, joints, oral etc.) can be included in the treatment.
3. Painless and non invasive therapy (particularly suited to the treatment of sensitive patients, children etc.).
4. Used in those cases for which classical acupuncture does not recommend the use of needles (asthenia).
5. Aseptic
6. Can be used to complement and extend the needle program, if additional points are required in order to optimize energy flow.

Research information

Lasers in Medical Science

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Abstract Volume 15 Issue 1 (2000) pp 57-62

Specific Effects of Laserpuncture on the Cerebral Circulation

G. Litscher (1), L. Wang (1), M. Wiesner-Zechmeister (2)

(1) Biomedical Engineering, Department of Anesthesiology and Critical Care, University of Graz, Graz, Austria

(2) European Forum for Laser therapy and Fractal Medicine

Paper received 10 May 1999; accepted after revision 23 August 1999.

Abstract . Acupuncture is a form of traditional Chinese medicine that has developed over thousands of years.

We studied the effects of laser puncture, needle acupuncture, and light stimulation on cerebral blood flow in 15 healthy volunteers (mean age 25.0 ± 1.9 years, 5 female, 10 male) with non-invasive transcranial Doppler sonography. In addition 40-Hz stimulus-induced brain oscillations, heart rate, blood pressure, peripheral and cerebral oxygen saturation, and the bispectral index of the EEG were recorded.

Stimulation with light significantly increased blood flow velocity in the posterior cerebral artery ($p < 0.01$, ANOVA). Similar but less pronounced effects were seen after needle acupuncture ($p < 0.05$, ANOVA) and laserpuncture (n.s.) of vision-related acupuncture points.

Further more both, laserpuncture and needle acupuncture, led to a significant increase in the amplitudes of 40-Hz cerebral oscillations. Stimulation of vision-related acupuncture points with laser light or needle acupuncture elicits specific effects in specific areas of the brain.

The results indicate that the brain plays a key intermediate role in acupuncture. However, brain activity of itself does not explain anything about the healing power of acupuncture.

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ICMART Symposium, 14.-17. of June 2001, Berlin

Hyposensitization of Allergies with Laser Acupuncture

Becke, H. Walter Rathenaustr. 106,14974 Ludwigsfelde, Germany

Allergies are becoming more frequent, complex - for example cross allergies and complicated. As a rule the diagnosis is costly (for instants: prick test) and arduous. Food allergies are mainly controlled by IgE, rarely by IgG. Allergies which cause skin and mucoso membrane reactions are treated symptomatically with multitude antihistamines and/or cortisones.

The classical hyposensitization is not rarely unsuccessful, but is costly and tainted with side effects. In the presented method diagnosis and cheek up are carried out kinesiologically. The tested medium will be placed on the patient's navel. Than the 1. Meridian will be treated with laser beam at 10 Hz per dot for 12-15 seconds (tonicized) at its beginning and end points.

38 patients with various allergies have been treated successfully. Four patients needed an additional interference field treatment through neuraltherapy. Food and animal hair obtain the best and most impressive results. The continual healing effect lasts for months and even years. A repetition of the treatment produces the same effect.

Needle Acupuncture Versus Laserpuncture: Synergism or Opposition

Küblböck, J., Zeughausgasse 4a, 6020 Innsbruck, Austria

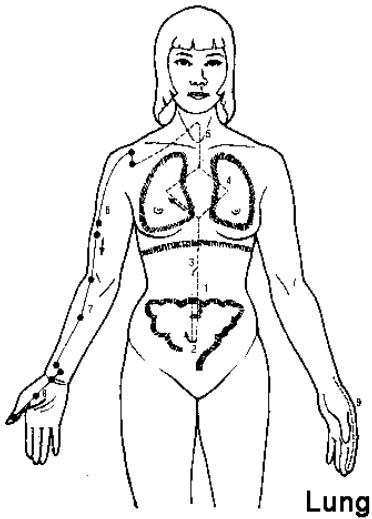
Needle acupuncture is well established as a classical method, whereas Low Level Laser is used as acupuncture treatment, too. It is a known fact that different methods, which basically have the same result will always give rise to the question of which is better. Both methods have influence on live tissue and the energetic system of meridians - the needle by the stimulus, which triggers a reaction in the body, and the Laser by light energy and photons.

Needles and Laser, both have similar, but also different effects on body functions because of ist special influence on live tissue (harmonizes, neutralizes, tonifies and reduces) it is advisable to use Laser with patients who are either hyper-sensitive, have anticoagulants or very painful areas on the skin.

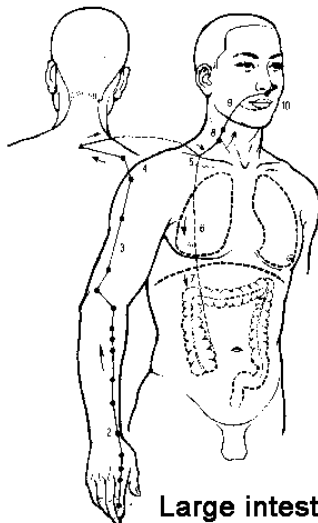
Acupuncture triggers reactions in the body's nervous system, the same does Laser light. The possibility to use lesser needles by combining needling with Laser treatment could be employed very effectively and we can also prevent anxiousness of needles with patients.

Needle acupuncture and laserpuncture will complete each other. They are both able to be a useful combination depending on the situation. Each method can be used by itself, but will never replace the other method completely.

Acupuncture meridians



824 Hz

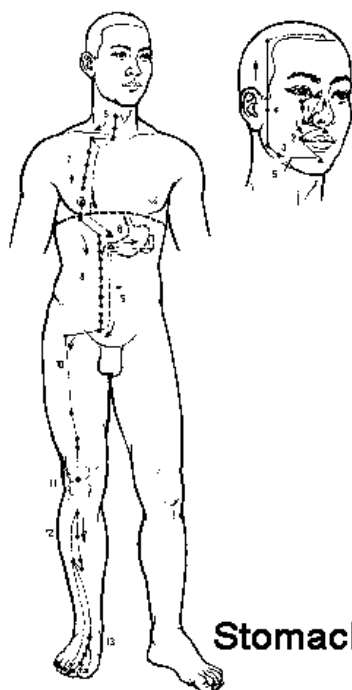


553 Hz

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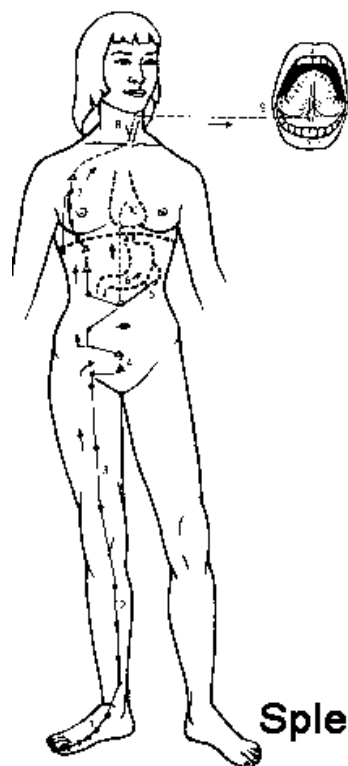
A practical guideline

471 Hz



Stomach

702 Hz

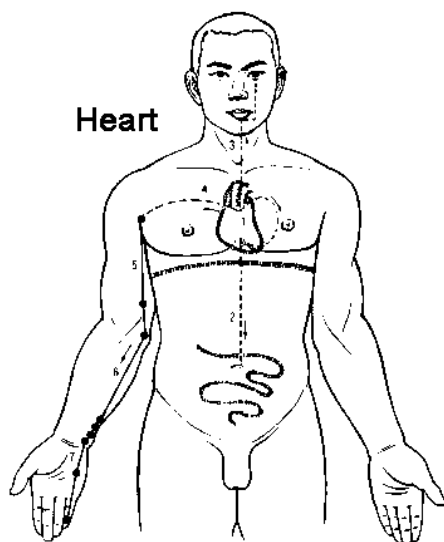


Spleen

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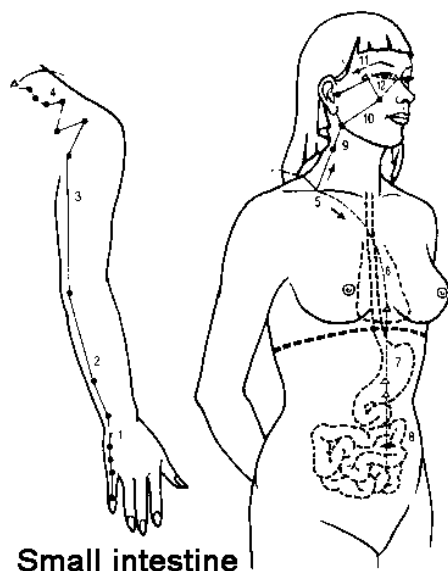
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Heart



497 Hz

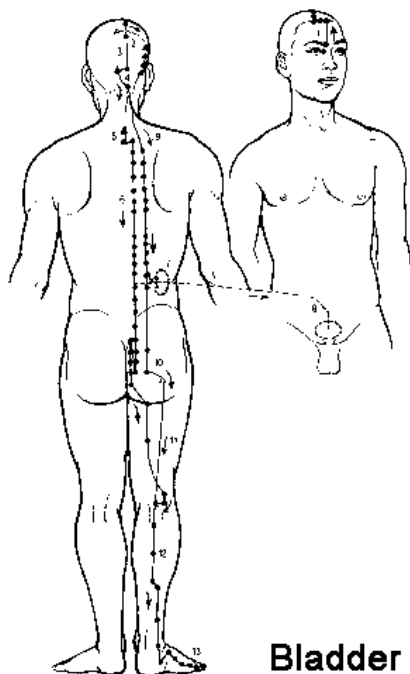
791 Hz



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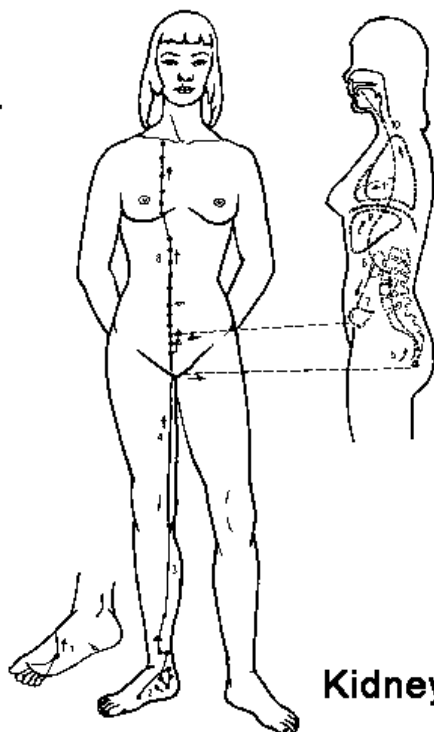
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667 Hz



Bladder

611 Hz

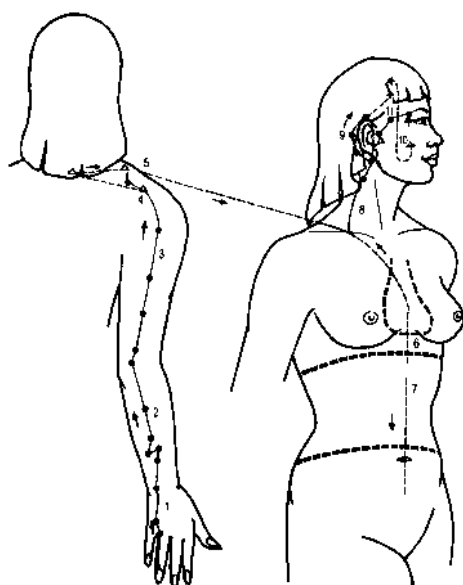
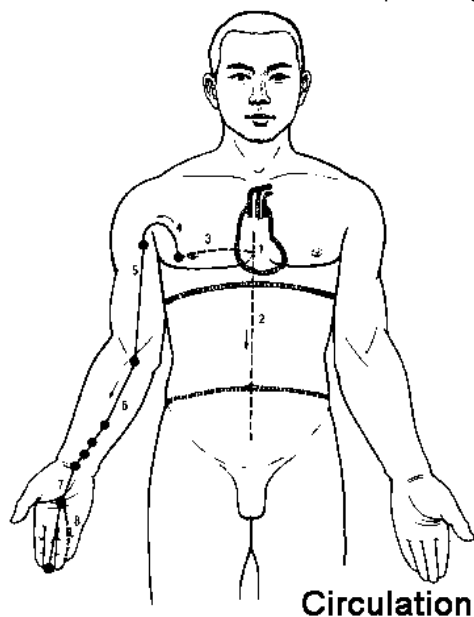


Kidney

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530 Hz

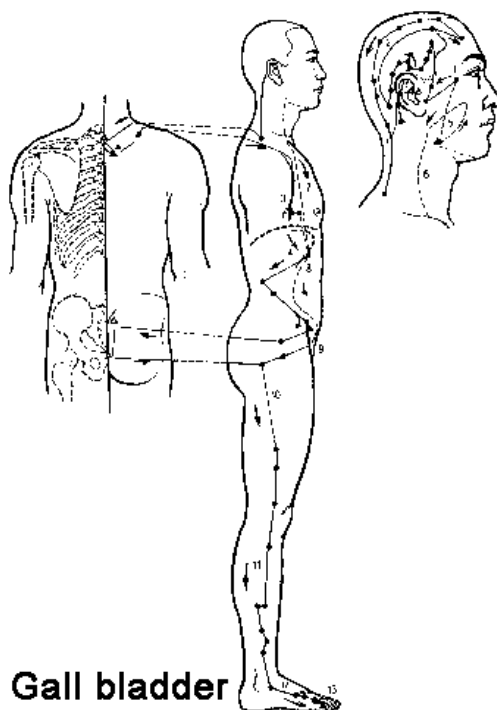


Triple heater 732 Hz

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Liver 583 Hz

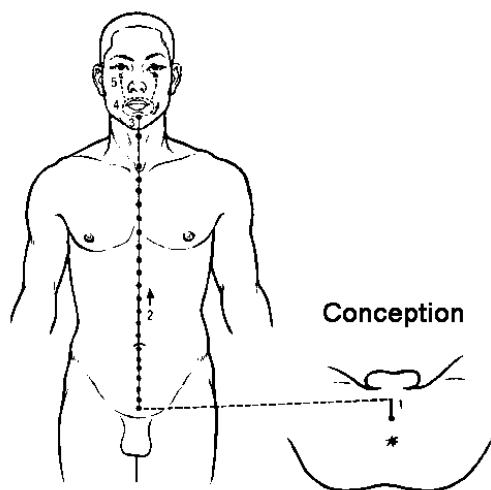


442 Hz

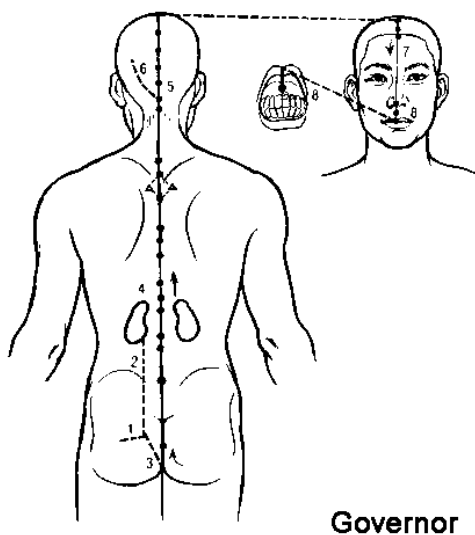
Gall bladder

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No frequency determined yet



Governor



No frequency determined yet

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How to apply the laser in acupuncture

1. Choose the correct frequency from the group of NOGIER, BAHR or REININGER (meridian frequency)
2. **Apply point by point**, one after the other, each for approx. 10-30 seconds, 2-4 Joule or longer if required.
3. **Apply by meridian**, put the tip of the laser probe (or Photonic) on the starting point of the meridian and move gently along the whole meridian in order to manage and improve the energy flow.
4. If possible perform pulse controlled acupuncture (RAC) according to NOGIER/BAHR/REININGER.

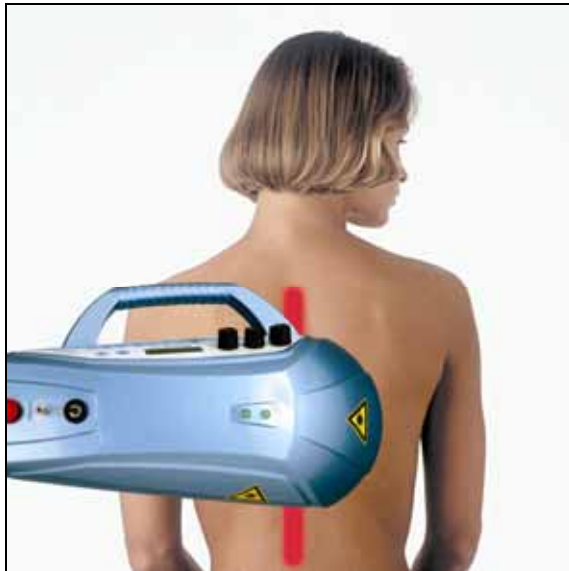
Indication		Joule point	Frequency	Treatments week
Acupuncture		4-6	Meridian Nogier	2-4
	X	If possible use the RAC or detect the points by symptom, palpation or via electronic measurement (Handylaser, Physiolaser).		
				

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Stimulation of the Governor meridian with the Photonic

The laser beam will stimulate the energy flow of the whole meridian and additionally activate the points (organ points).



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Combination therapy: laser + needle

1. Use the laser as a stand-alone therapy or in combination with the needle program in order to manage/manipulate the energy flow.
2. Irradiate the needle to supply additionally photon energy to the point (Hybrid therapy).
3. Irradiate the needle to transfer frequency information to the point (Hybrid therapy).
4. Irradiate each point after the needle has been removed for approx. 5-10 seconds to increase the healing process of the needle damage to the skin



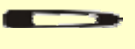

Irradiation of the needle with the meridian frequency (REININGER)

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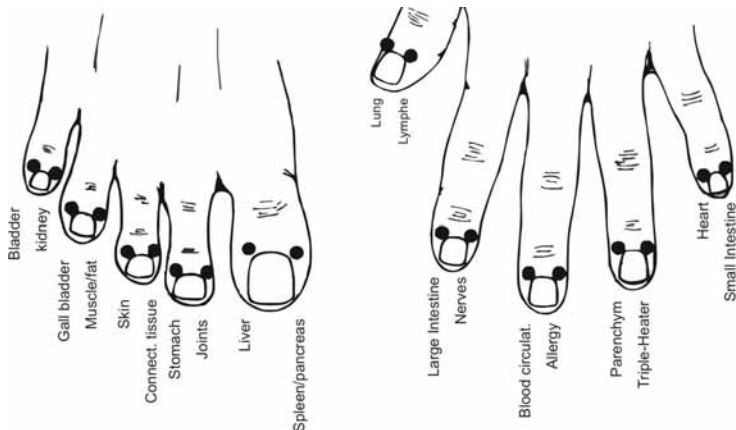
A practical guideline

Terminal points – VOLL diagnosis

The terminal points are easy to treat with the laser and with some routine, even the beginner can balance the meridians with quite good results.

Indication		Joule point	Frequency	Treatments week
Body acupuncture Terminal points		5-7	Meridian Nogier	2-4
	X	Perform the electric diagnosis with the Physiolaser and determine the meridian with too low or too high energy or use the TCM diagnostic.		
				

Terminal points of the meridians according to the TCM and additionally the new meridians according to VOLL, Germany.



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How to measure the acupoints and terminal points?

The electronic measurement of the Physiolaser will produce data that enables an analysis and will provide an overview of the patient's electrical condition of the terminal points of the meridians.

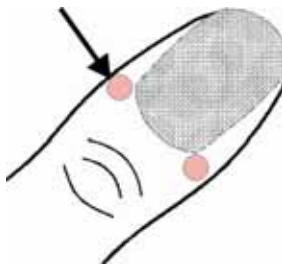
According to the electro acupuncture (VOLL) you can localize and measure the trigger/organ/acupuncture points (ear and body) and also obtain values to assist in prevention and in controlling the progression of therapy.

Results are indicated in three ways:

1. acoustically (rising tone)
2. visually (bar graph)
3. numerically (1-100), sample and hold function.

Terminal points

Put the tip of the diagnostic probe onto the points, use always the same pressure for every point. Perform a gentle measurement, no force. The skin on all points should have the same condition (humidity etc.).

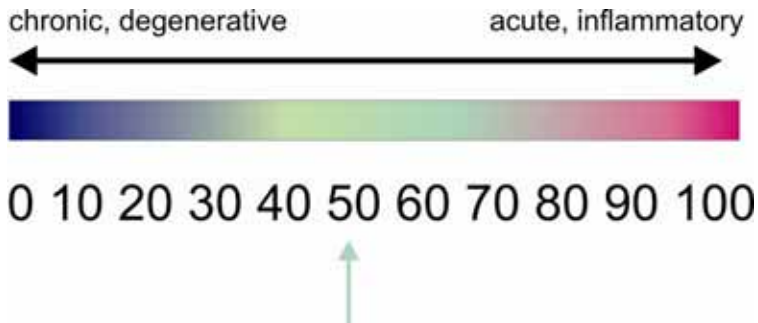


Localisation of the terminal points

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According to the theory of VOLL values around 50 are considered as normal below 40 indicate a lack of energy (chronic and degenerative process) and above 60 a surplus of energy (acute, inflammatory process).



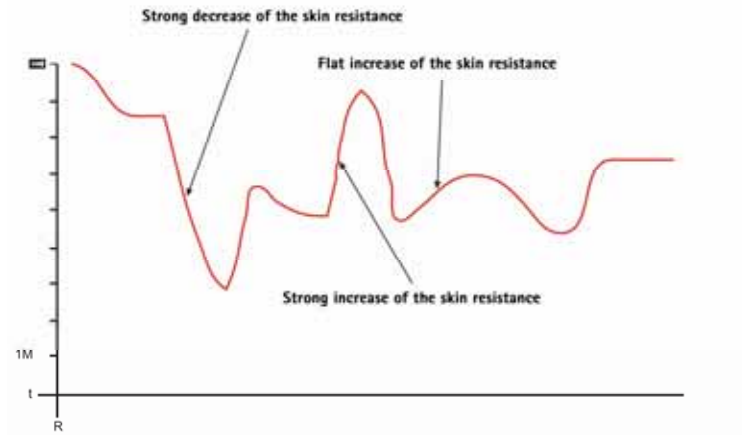
Check the individual skin and energy condition before the final measurement. The values are relative and depend on the patient's individual condition. This means that the "normal" average value could be as well e.g. around 40 or 60.

Begin with a brief pre-test on middle sensitivity and check a few meridian points to get an overview about the reaction and individual level. Thereafter determine the sensitivity, do the measurement and store the data.

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The VOLL diagnosis offers for the advanced practitioner many details for interpretation how the individual point reacts during the measurement e.g. fast/strong or slow increase or decrease of the value.



The data can be stored in the Physiolaser's memory



Ear acupuncture – Auriculo medicine

The laser beam is a perfect tool for ear acupuncture. RJ laser devices are specialized for auriculo diagnosis (RAC, electrical measurement) and therapy of ear points. By means of special bio frequencies which are preprogrammed in the RJ laser devices, all levels of modern ear acupuncture can be performed successfully.

In principal there are two different types of ear points:

1. Organ specific points

The organ points are related to organs and are painful in case of illness. The organ points can be found generally on the side of the affected organ (e.g. liver point on the right side).
Organ points have influence on the local disorder.

2. Functional points

The functional points are related to gold/silver points, hormone points, medicament related points. The functional points can be found on the lateral dominant side (for left-handed persons on the left and for right-handed persons on the right).
Functional points have influence on the local and entire system.

In order to get to know more details about modern ear acupuncture, please refer to the literature of STRITTMATTER, BAHR, NOGIER. Book recommendation (available from RJ or e.g. Amazon):

Ear Acupuncture

Dr. Beate Strittmatter

Publisher: Thieme Verlag, Stuttgart, New York
ISBN: 3131319615

How to apply the laser in ear acupuncture

At first perform the diagnosis:

1. Inspection (spots, vessels), palpation (pain, hardness)
and/or
2. RAC diagnosis via frequencies with low diagnostic power of 5-10 mW (automatic setting in all RJ lasers)
and/or
3. Electric measurement (Handylaser trion, Physiolaser olympic)

How to measure the ear points?

In ear acupuncture specific points represent e.g. inner organs body parts etc.. The value of the points refers to the condition of the organ and can be evaluated with the Physiolaser. You can determine:

- electric active points
- degree of deviation (point to neutral skin)
- most active points.

Put the tip of the diagnostic probe onto the ear and move gently with very low pressure. Signals indicate electric active points/organs. If an organ is in a "normal" condition, it will not differ from the surrounding skin. If it is active it should be considered for the therapy (the higher the value, the more severe the condition).



Check the individual skin and energy condition. The values are relative and depend on the patient's individual condition.

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Thereafter follows stimulation of ear points

1. Put the laser tip directly on the relevant ear points, apply gentle pressure.
2. We recommend to use the NOGIER and BAHR frequencies according to the RAC pulse diagnosis or related to the general zone frequency.
3. Irradiate each point with approx. 2-4 Joule or until the pulse gets back to normal.

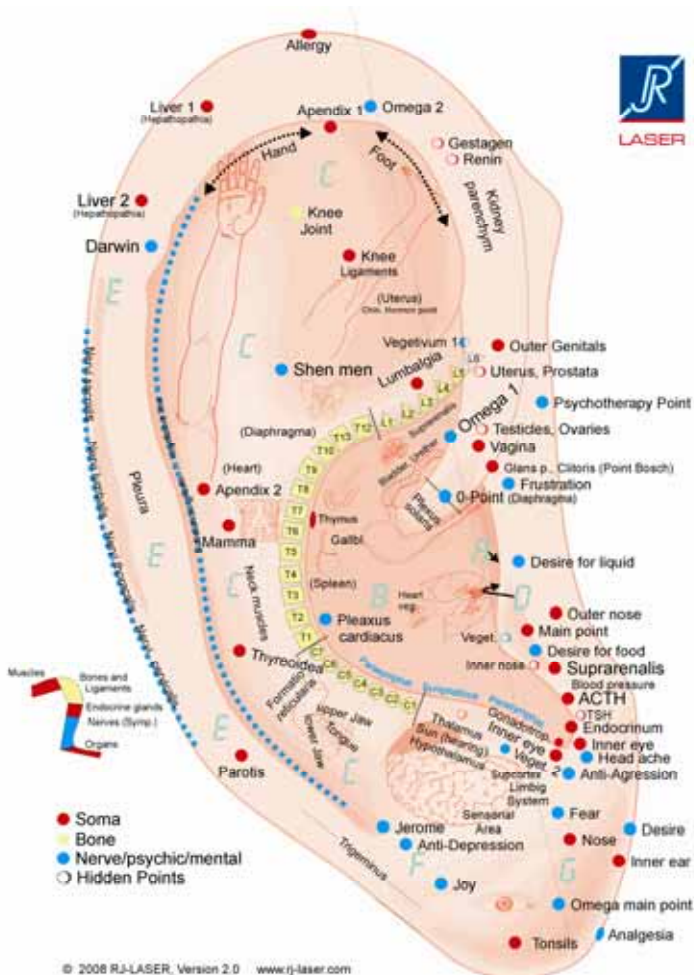
Indication		Joule point	Frequency	Treatments week
Ear acupuncture		2-4	Nogier Bahr	2-3
	X	If possible use RAC diagnosis for point detection and frequency. If not use the zone frequency and electronic diagnosis, inspection, palpation.		
				

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Ear chart

The RJ ear chart displays the most common locations of acupuncture points in the ear. According to the school some can be find on different locations. The ear poster is available from RJ-LASER on customer's request.





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Addiction therapy

Addiction therapy with laser is quite popular today and used in many countries. Below you will find three standard programs.

Indication	Joule point	Frequency	Treatments week
Scull acupuncture	4-6	Nogier	2-4
	X	Use the organ frequency and electronic diagnosis, inspection, palpation. Additional therapy as psychotherapy, life style coaching, diet etc. is helpful.	
			



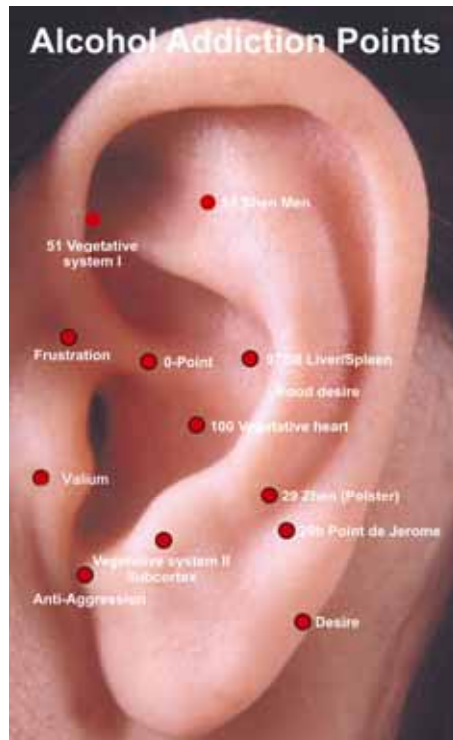
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To improve the result we recommend to include additional acupuncture points on the body.



RJ can provide a complete addiction program on request, including ear and body points and more comprehensive treatment recommendations.

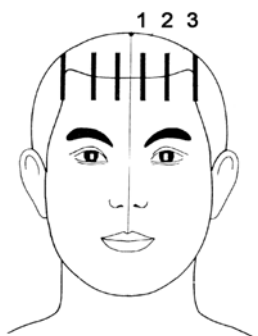
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Scull acupuncture

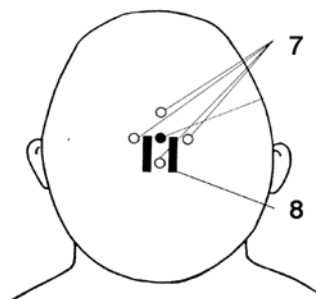
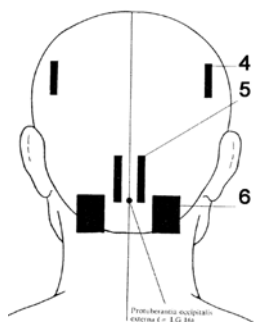
Two main fields of scull are existing, classical Chinese and the modern scull acupuncture according to Yamamoto.

Indication	Joule point	Frequency	Treatments week
Scull acupuncture	4-6	Nogier	2-3
	X	Use the organ frequency and electronic diagnosis, inspection, palpation. Apply energy deposits or stroking.	
			



Some basic zones:

- 1 Thorax zone
- 2 Stomach zone
- 3 Organs lower abdomen
- 4 Language 2
- 5 Zone of visual disorders
- 6 Vertigo
- 7 Sensoric, upper point (*4 deities*)
- 8 Motoric zone, movement (foot/leg)





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Hand acupuncture

The hand acupuncture is ideal for laser therapy. New hand points and organ systems (incl. frequencies) were found from Dr. Bahr as well, contact RJ-LASER for more details.

Indication		Joule point	Frequency	Treatments week
Hand acupuncture		4-6	Nogier	2-3
	X	Use the organ frequency and electronic diagnosis, palpation and the patient's symptoms.		
				





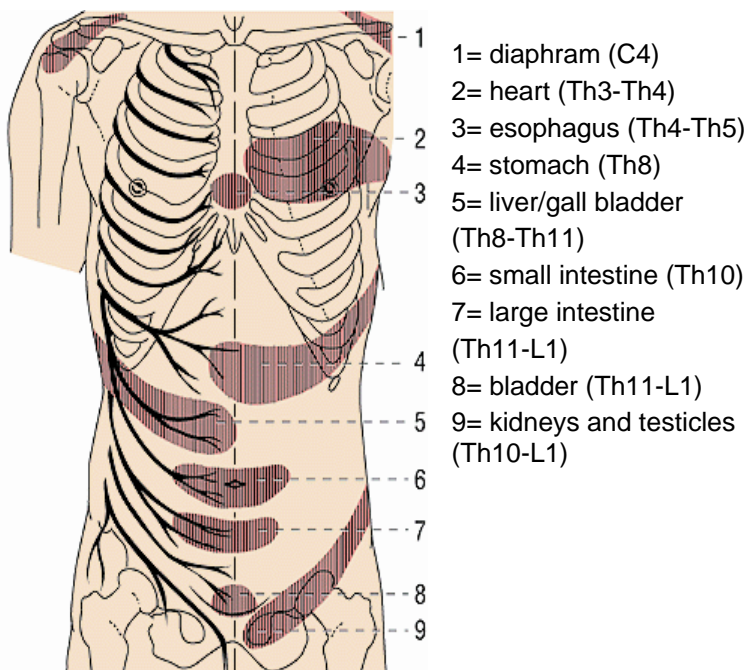
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Head zones

These zones are named to Henry Head and correspond to inner organs.

Indication		Joule zone	Frequency	Treatments week
Head zones		30-40	Nogier Reininger	2-3
	X	Use the organ frequency, inspection, palpation and according to the patient's symptoms.		
	X			





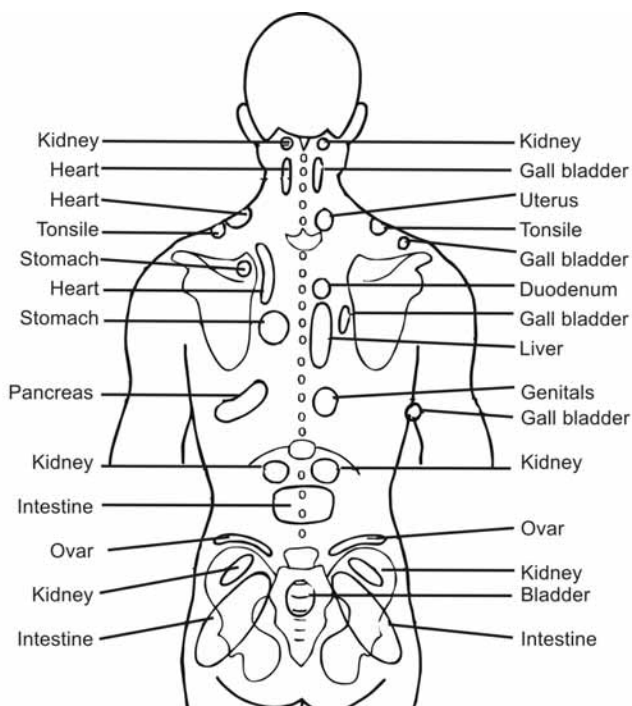
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Organ zones

The organ zones are representation of the inner organs on the back of the body.

Indication	Joule zone	Frequency	Treatments week
Organ zones	30-40	Nogier Reininger	2-3
 X		Use the organ frequency in order to treat the most painful zone/spot found by inspection, palpation.	
 X			





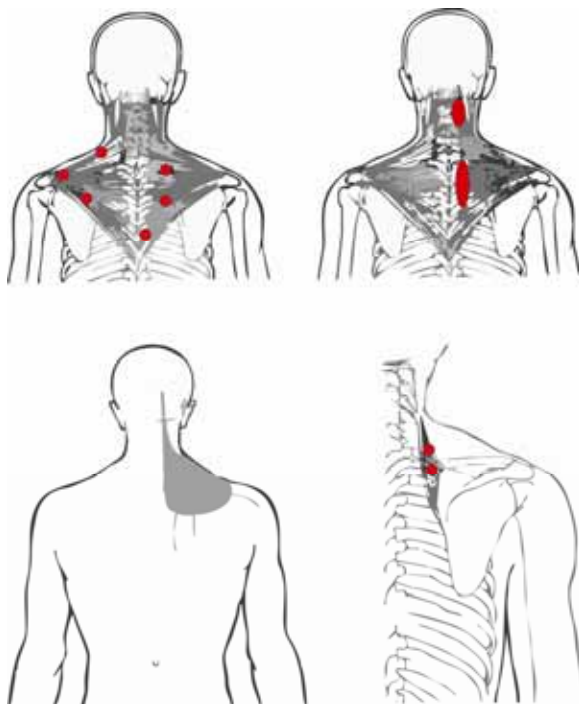
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Trigger points

Trigger points are painful spots on/in muscles. The laser is a perfect tool for the treatment of the trigger points.

Indication		Joule point	Frequency	Treatments week
Trigger points		8-12	Nogier	2-3
	X	Use the organ frequency and electronic diagnosis, palpation.		
				



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The picture shows the laser treatment of a typical triggerpoint on the back. In most case you will find not only painful spots, but as well electric active points using the diagnostic probe of the Physiolaser.





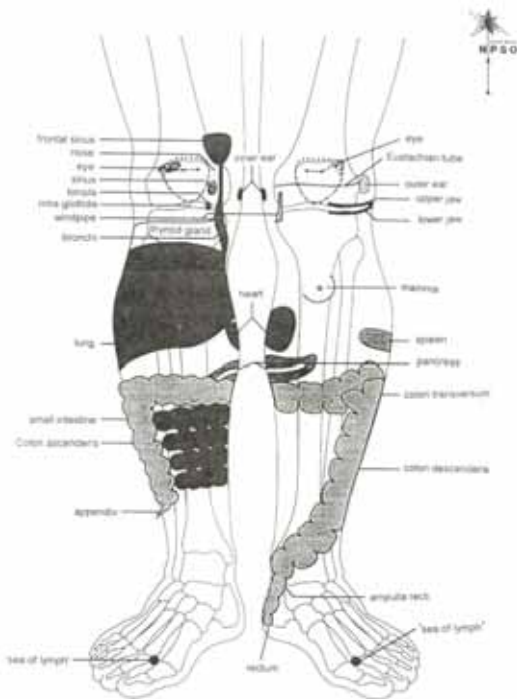
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NPSO zones

The German physician Rudolf Siener detected organ zones on the leg and used it successfully for the first time in therapy (NPSO= **N**euro **P**uncture **S**iener **O**rgan zones).

Indication		Joule point	Frequency	Treatments week
NPSO zones		4-6	Nogier Reiningger	2-3
	X	Use the organ frequency and electronic diagnosis, inspection, palpation and according to the patients symptoms.		
				





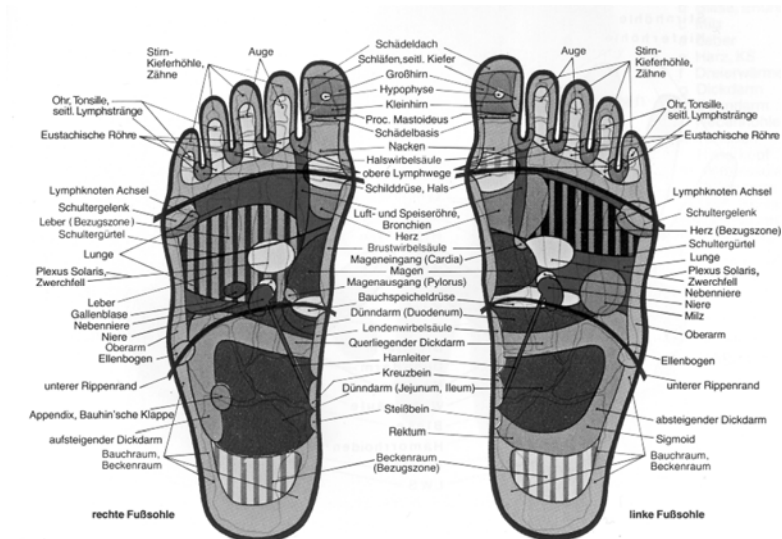
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Foot reflex zones

The foot reflex zones are a complex mirror of the body. We recommend to use the zone chart according to MARQUARDT.

Indication	Joule point	Frequency	Treatments week
Foot reflex zones	4-8	Nogier Reininger	2-3
	X	Use the organ frequency in order to treat the most painful zone/spot found by inspection, palpation.	
			



Macro system, local therapy

Beside the RJ recommendations, we attached abstracts from the international research. RJ can supply the complete research data on demand.

According to our experience, it is useful to do a combination of local therapy and reflectory therapy. Especially for the treatment of chronic conditions a holistic view covering the whole patient is crucial.

With the help of the reflectory therapy, may it be acupuncture or reflex zone therapy, the central system of the body will be regulated and with local therapy the infected or damaged cells will receive more energy to recover and perform the metabolism.

The following pages give a brief overview how to treat:

Skin

Tissue

Vessels

Inflammation

Bones/joints,

Nerves

Pain management

Oral application



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Skin

Dermatosis, herpes (herpes simplex labiales, zoster), acne, hordoleum, erythema, eczema, inflammation, warts.

Herpes simplex, hordoleum, inflammations

Indication		Joule cm ²	Frequency	Treatments daily
Herpes simplex inflammations		10-15	Nogier A Reininger RJ-Program	1-2
	X	Apply the laser at very short distance. Pay attention to the immune system, digestion, psychic disorder.		
				

Treatment day one to three (refer to the abstract)



Laser Therapy of Human Herpes Simplex Lesions

Arturo Guerra Alfonso, Pedro José MuZoz
Clinic "Leonardo Fernández Sánchez", Cienfuegos, Cuba

Introduction: Herpes Simplex is an illness caused by the human herpes virus types 1 and 2 that generally present a primary lesion,

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with periods of latency and a tendency to relapse. It is also known as *Button of fever* or *Bladder of fever*. According to the World Health Organisation (WHO) an international prevalence of about 60 % is observed (1, 2).

An experimental study was carried out, where 232 patients affected by the Herpes Simplex type 1 virus were treated. All patients attended the clinic „Leonardo Fernández“ in Cienfuegos during the period of January 2001 to January 2003, with the objective of determining the time of recurrence of labial herpes in the groups, studied before and after treatment, and to evaluate the effectiveness of low power laser in the treatment of the infection of the virus.

Materials and methods: Two groups were selected (study and control) with 116 patients in each group, distributed and classified according to the clinical stage in which they went to consultation. In the study group the patients were offered treatment with a GaAlAs diode laser (670 nm / 30 mW - 40 sec) in the prodromal stage and the stage of vesicles; or (670 nm /20 mW - 2 min) in the crust stage and in infections infected secondarily. To all these patients radiation among vertebrae C2 - C3, where the resident ganglion of the virus is located during the latent periods (670 nm / 30 mW - 30 sec), was also applied.

Control group was offered indicated treatment with antivirals (Aciclovir in cream and in pills) and other paliative therapies.

Conclusions: Periods of annual recurrence in the study group were prolonged considerably after having received treatment, whilst in the control group such evident changes were not shown. In the prodromal period the patients treated with laser all healed up in the first 48 hours, whilst those treated conventionally needed from 3 to 4 days to cure.



In the vesicular period and the period of crust, those of the study group cured in majority in the first 48 hours, whilst those of the control group needed more than 5 days.

In infected lesions those treated with laser cured mainly in 3 to 4 days, whilst those treated with medication needed more than 7 days to cure.

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Acne

Indication		Joule cm ²	Frequency	Treatments weekly
Acne vulgaris		10-15	Nogier A/C/F Reininger RJ-Program	2-3
		Apply the laser at short distance. Pay attention to the digestion, psychic disorder. Red and infrared works well, but regarding latest research a combination with blue light is recommended for acne		
	X			

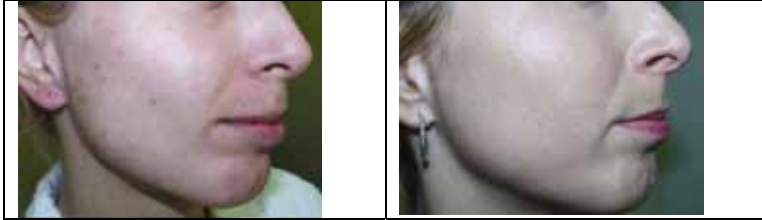


Therapy with the Photonic 500

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Treatment day 1 to 20



Before

After

British Journal of Dermatology 2000; 142: 973±978

Phototherapy with blue (415 nm) and red (660 nm) light in the treatment of acne vulgaris

P.PAPAGEORGIOU, A.KATSAMBAS* AND A.CHU

Unit of Dermatology, Imperial College of Science, Technology and Medicine, Hammersmith Hospital, DuCane Road, London W12 0NN, U.K.

*Adreas Sygros Hospital, Athens, Greece

Accepted for publication 7 December 1999

Summary: In this study we have evaluated the use of blue light (peak at 415 nm) and a mixed blue and red light (peaks at 415 and 660 nm) in the treatment of acne vulgaris. One hundred and seven patients with mild to moderate acne vulgaris were randomized into four treatment groups: blue light, mixed blue and red light, cool white light and 5% benzoyl peroxide cream.

Subjects in the phototherapy groups used portable light sources and irradiation was carried out daily for 15 min. Comparative assessment between the three light sources was made in an observer-blinded fashion, but this could not be achieved for the use of benzoyl peroxide. Assessments were performed every 4 weeks.

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After 12 weeks of active treatment a mean improvement of 76% (95% confidence interval 66 ± 87) in inflammatory lesions was achieved by the combined blue±red light phototherapy; this was significantly superior to that achieved by blue light (at weeks 4 and 8 but not week 12), benzoyl peroxide (at weeks 8 and 12) or white light (at each assessment). The final mean improvement in comedones by using blue±red light was 58% (95% confidence interval 45 ± 71), again better than that achieved by the other active treatments used, although the differences did not reach significant levels.

Results: We have found that phototherapy with mixed blue±red light, probably by combining antibacterial and anti-inflammatory action, is an effective means of treating acne vulgaris of mild to moderate severity, with no significant short-term adverse effects.

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Laser device recommendation for acne therapy:

Polylaser trion with mix of blue UV light + laser





Physiolaser olympic + multi-cluster (mix of blue UV light + laser), point applicator and diagnostic probe



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Warts, fibroma

Indication		Joule cm ²	Frequency	Treatments week
Warts, fibroma		12-16	Nogier A	3-4
	X	Apply the RJ laser at short distance.		
				




Treatment table – Therapy example with the RJ laser

The male patient (age 62 years) complained about a wart on the right side of his temple, resistant for several years.

Time	5 minutes per wart, 3 x week, thereafter 2 x daily, total 2 weeks.
Frequency	Continuous beam
Power	500 mW/810 nm
Device	Physiolaser olympic
Additional	
Date	September 2006
Clinic	Aktiv Helse Nina Svendsen/Hartmut Wehmeier Vibevej 16, Bremdal, 7600 Struer, Danmark Tel. 75 25 65 35 / 22 95 78 12 e-mail info@aktiv-helse.com

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	After 2 days laser therapy. 30.10.2006
	After 7 days laser therapy. 06.11.2006
	After 14 days laser therapy. 14.11.2006

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Anti-aging

Combination therapy of laser and hyaluronic acid in order to saturate the body's hyaluronan deposits of elderly skin.

Indication		Joule cm ²	Frequency	Treatments weekly
Anti-aging		10-15	cw	Start x 2 thereafter 1x monthly
		Apply the laser at short distance. Follow strictly additional therapy information for the Polylaser derma or Physiolaser.		
	X			



Treatment before and long term result with one monthly treatment, age 64. RJ data 2006



Treatment before and short term result after one treatment, age 53. RJ data 2007

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The anti-aging therapy with the Polylaser derma/Physiolaser consists of: **1. RJ-Hyaluronan gel + 2. Laser stimulation.**

Hyaluronan is a glycosaminoglycan distributed widely throughout connective, epithelial, and neural tissues. It is one of the chief components of the extra cellular matrix. While it is found in large numbers in extra cellular matrices, hyaluronan also contributes to tissue hydrodynamics.

Hyaluronan injections for filling soft tissue defects such as facial wrinkles are commonly used, but have side effects and are not recommended for every patient. The result of RJ-Hyaluronan gel is analogous to injections and has additional advantages of longer lasting effects, large area application and decreased risk of allergic reaction.

Wrinkle reduction

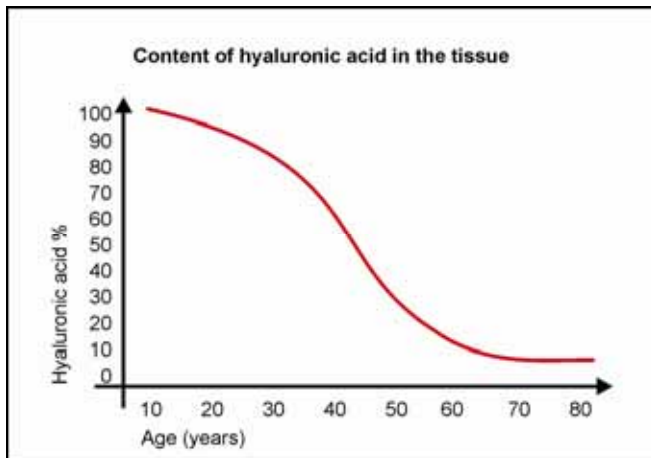
Skin vitalization and firming, refining of pores

Step 1. Skin preparation: cleaning, open the pores with a hot towel (vaporiser).

Step 2. massage: apply the warm RJ-Hyaluronan gel.

Step 3. therapy: irradiation for 10-20 minutes

Step 4. deepening: aftercare





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Tissue

Healing and alleviation of ulcerations, aftercare of operation wounds, aftercare of scars, burns, sunburns, frost bite, decubitus, necrosis.

Diabetic ulceration, gangraen/necrosis, wounds

Indication		Joule cm ²	Frequency	Treatments week
Diabetic ulceration		6-10	Nogier B/C Reininger	2-4
	X	Apply the RJ laser at short distance.		
	X			

Treatment table – Therapy example with the RJ laser

Gangrena of the third toe of the left foot. The conventional therapy did not lead to healing of the tissue and an amputation was carried out. After amputation new gangrena occurred.

Time	5 minutes daily for the first 14 days, thereafter 3-4/week
Frequency	A/B
Power	500 mW/810 nm
Device	Physiolaser olympic
Additional	Lavasept, Dline Cooling Creme
Date	March-April 2004
Clinic	Center of Wound Competence (Wundkompetenz-Center WFI) Linz, Austria / www.wfi.ch , 2004

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 A photograph of a human foot, specifically the toes, showing a lesion on the second toe. A small white label is placed on the skin between the first and second toes. The lesion appears as a small, dark, irregular area.	Before laser therapy. 05.3.2004
 A photograph of the same foot, showing the second toe. The lesion is now a small, dark, circular crater, indicating the removal of the tissue. The white label remains in the same position.	After two weeks laser therapy.
 A photograph of the same foot, showing the second toe. The lesion has completely healed, leaving a smooth, normal-looking skin surface. The white label remains in the same position.	After one month laser therapy complete healing.

**Low-Level Laser Therapy (LLLT) Efficacy in
Post-operative Wounds, 2005**

NICOLETA HERASCU,¹ BOGDAN VELCIU,² MIHAELA
CALIN,¹ DAN SAVASTRU,¹ and
CAMELIA TALIANU¹

Objective: The aim of this paper was to investigate the efficacy of low-level laser radiation (LLLR) with wavelength of 904 nm on the stimulation of the healing process of postoperative aseptic wounds (early scar).

Background Data: Low-level laser therapy (LLLT) has been increasingly used to treat many disorders, including wounds. However, despite such increased clinical usage, there is still controversy regarding the efficacy of this wound treatment in current clinical practice.

Methods: LLLT has been used to treat cutting plaque in the right instep and on the left foot. Both resulted from sutured wounds. The clinical evaluation by semiquantitative methods is presented.

Results: Clinical evaluation showed that the healing process of these postoperatively treated wounds has occurred and that the functional recovery of the patients (i.e., return to their ordinary life) was faster than without treatment.

Conclusion: LLLR with wavelength of 904 nm to stimulate postoperative aseptic wounds (early scar) is efficient in both cases of cutting plaque.

Nicoleta Herascu

*National Institute of Research and Development for Optoelectronics
INOE 2000 1 Atomistilor St.*

PO Box MG5, 077125, Magurele–Bucharest, Romania

Histological Assessment of the Effect of Laser Irradiation on Skin Wound Healing in Rats, 2005

PETER GÁL,¹ BORIS VIDINSKY´,¹ TOMÁŠ TOPORCER,¹
MICHAL MOKRY´,¹ STEFAN MOZES´, D.V.M., Ph.D.,²
FRANTISEK LONGAUER, M.D., Ph.D.,³ and JÁN SABO

Objective: The purpose of this study was to evaluate, from the histological point of view, the effect of diode laser irradiation on skin wound healing in Sprague-Dawley rats. Background Data: Various biological effects have been described in different studies after low-level laser therapy (LLLT). Methods: Two parallel full thickness

skin incisions were performed on the back of each rat (n = 49) and immediately sutured. After surgery, one wound of each rat was exposed to laser irradiation (continuous mode, 670 nm, daily dose 30 J/cm²), whereas the parallel wound was not irradiated and served as control. Both wounds were removed 24, 48, 72, 96, 120, 144, and 168 h after surgery and routinely fixed and embedded in paraffin sections, stained with hematoxylin and eosin, van Gieson, periodic acid Schiff + periodic acid Schiff diastase, Mallory's phosphotungstic hematoxylin, and azur and eosin, and histopathologically evaluated. Results: As compared to nonirradiated control wounds, laser stimulation shortened the inflammatory phase as well as accelerated the proliferative and maturation phase, and positively stimulated the regeneration of injured epidermis and the reparation of injured striated muscle.



Conclusion: LLLT at 670 nm positively influences all phases of rat skin wound healing.

*Peter Gál, Department of Medical Biophysics
Prof. Jan Sabo, Ph.D., Department of Forensic Medicine
Faculty of Medicine
Pavol Jozef Šafárik University in Košice
Trieda SNP 1 040 66 Košice, Slovak Republic*

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Burns

Indication		Joule cm ²	Frequency	Treatments week
Burns		6-8	Nogier B/C Reininger	3-4
		Apply the RJ laser at short distance.		
	X			

Treatment table – Therapy example with the RJ laser

The female patient (age 25 years) suffered under acute burns (2nd and 3rd degree) caused by gas explosion at home. She was admitted to the hospital for first aid three days after the accident. Already after the first day the patient was almost pain free and regeneration of the skin started (the patient felt soft healing sensations in the skin) and she was able to start to move her arm freely. The therapy was gentle and fast and led to complete healing.

Time	10 minutes per area, 3x daily for the first 3 days, thereafter 2 x daily for the next 3 days, thereafter 1 x daily
Frequency	A, continuous beam
Power	4x55 mW/785 nm+4x40 mW/655 nm+4x5 mW/655 nm, 400 mW/810 nm
Device	Polylaser trion, Physiolaser olympic
Additional	Contratubex gel
Date	June 2005
Clinic	Ben Hayan Medical Center, Dr. Abdel Tawil Amman 11194, Jordan, Shmaisani dr_tawil@yahoo.com , www.clients.johealth.com/tawil

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	<p>Before laser therapy, arrival in the hospital. The skin was red, swollen and painful.</p> <p>30.06.2005</p>
	<p>After 12 days laser therapy even deep parts where covered completely but still needed some more days to normalize.</p> <p>10.07.2005</p>

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Effectiveness of Laser Photobiomodulation at 660 or 780 Nanometers on the Repair of Third-Degree Burns in Diabetic Rats

GYSELLE C.S. MEIRELES, Ph.D.¹ JEAN N. SANTOS, Ph.D.¹

PRISCILA O. CHAGAS, D.D.S.,¹

ADRIANA P. MOURA, D.S.¹ and ANTONIO L.B. PINHEIRO,

Objective: The aim of this investigation was to compare by light microscopy the effects of laser photobiomodulation (LPBM) at 660 nm and 780 nm on third-degree burns in diabetic Wistar rats.

Background Data: Burns are severe injuries that result in fluid loss, tissue destruction, infection, and shock, that may result in death. Diabetes is a disease that reduces the body's ability to heal properly. LPBM has been suggested as an effective method of improving wound healing.

Materials and Methods: A third-degree burn measuring 1.5 x 1.5 cm was created in the dorsum of each of 55 animals, and they were divided into three groups that were or were not treated with LPBM (660 nm or 780 nm, 35 mW, 2 mm, 20 J/cm²). The treatments were started immediately post-burn at four points within the burned area (5 J/cm²) and were repeated at 24-hour intervals over 21 d. The animals were humanely killed after 3, 5, 7, 14, and 21 and by an overdose of intraperitoneal general anesthetic. The specimens were routinely cut and stained and analyzed by light microscopy.

Results: We found that healing in the animals receiving 660-nm laser energy was more apparent at early stages, with positive effects on inflammation, the amount and quality of granulation tissue, fibroblast proliferation, and on collagen deposition and organization. Epithelialization and local microcirculation were also positively affected by the treatment.

Conclusion: The use of 780-nm laser energy was not as effective as 660-nm energy, but it had positive effects at early stages on the onset and development of inflammation. At the end of the experimental period the primary effect seen was on the amount and quality of the granulation tissue. The 660-nm laser at 20 J/cm², when used on a daily basis, was more effective than the 780-nm laser for improving the healing of third-degree burns in the diabetic rats beginning at the early stages post-burn.

*Prof. Antonio Luiz Barbosa Pinheiro
Laser Center*



*Faculdade de Odontologia, Universidade Federal da Bahia
Av. Araújo Pinho, 62, Canela Salvador, BA CEP 40140-110, Brazil*

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Vessel system, lymphatic system

Improvement of blood circulation by means of collateral vessel regeneration (wound healing), improvement of lymphatic system, reduction of edema.

Indication		Joule cm ²	Frequency	Treatments week
Vessel, lymph formation		4-8	Nogier B/C Reininger	2-4
	X	Apply the RJ laser at short distance or directly on the edema after e.g. injury.		
	X			



Edema, which is the swelling or natural splinting process of the body, has two basic components. The first is a liquid part which can be evacuated by the blood system and the second is comprised of the proteins which have to be evacuated by the lymphatic system. Research has shown that the lymph vessel diameter and the flow of the lymph system can be doubled with the use of LLLT.

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The venous diameter and the arterial diameters can also be increased. This means that both parts of edema (liquid and protein) can be evacuated at a much faster rate to relieve swelling.

Especially after injuries, traumata, plastic surgery, the laser irradiation will help to reduce the swelling and speed up the healing process.

Mirsky N, Krispel Y, Shoshany Y, Maltz L, Oron U.

Promotion of angiogenesis by low energy laser irradiation. Antioxid Redox Signal. 2002; 4 (5): 785-790.

The effect of HeNe irradiation on the process of angiogenesis in the infarcted rat heart and in the chick chorioallantoic membrane (CAM), as well as the proliferation of endothelial cells in tissue culture, was investigated by Mirsky. Formation of new blood vessels in the infarcted rat heart was monitored by counting proliferating endothelial cells in blood vessels. In the CAM model, defined areas were laser-irradiated or non-irradiated and blood vessel density was recorded in each site in the CAM at various time intervals.



Laser irradiation caused a 3.1-fold significant increase in newly formed blood vessels 6 days post infarction, as compared with non-irradiated rats. In the CAM model, a slight inhibition of angiogenesis up to 2 days post irradiation and a significant enhancement of angiogenesis in the laser-irradiated foci as compared with control non-irradiated spots were evident. The laser irradiation caused a 1.8-fold significant increase in the rate of proliferation in endothelial cells in culture over non-irradiated cells.

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Inflammation

Alleviation of inflammation, rheumatism.



Indication		Joule cm ²	Frequency	Treatments week
Inflammation		4-8	Nogier A Reininger	2-4
	X	Apply the RJ laser at short distance or directly on the inflamed body parts or rheumatic joints.		
	X			



Bones, joints, tendons, sports injuries

Traumata, carpal tunnel syndrome, joint pain, fracture healing, improved callus formation and mineralization, bone necrosis.

Carpal tunnel syndrome

Indication		Joule cm ²	Frequency	Treatments week
Carpaltunnel syndrome		7-10	Nogier A/C Reininger	2-4
	X	Apply the laser with skin contact and if not possible, at short distance.		
				

The treatment of Carpal tunnel syndrome was the first registered indication by the FDA, for a handheld laser with 3x50 mW/785 nm, treatment with continuous beam.

Low – Level- Laser Therapy In Mild And Moderate CTS – A

Double Blind, Randomised Study

Th. Rappl, Ch. Laback, St Quasthoff, M. Auer-Grumbach, R. Gumpert, E. Scharnagl

The aim was to evaluate the LLLT in CTS (ENG: < 6,9 ms) monitored by EMG and VAS (Visual Analogous Scale) recordings. 72 hands with CTS treated by LLLT (15 sessions/30 min, over a period of 5 weeks) were evaluated by a double blind – randomised study. ENG and VAS (visual analogous scale) were performed prior to and after LLLT. LLLT (wavelength 830 nm, 400 mW) with an energy of 3J per point focused on the Carpal – tunnel, on trigger and acupuncture – points was performed in 38 cases, in 38 cases (control – group) we used a red light pen.

Follow-up ranged from 8 to 12 months. ENG and VAS improved in 66%, didn't change in 8% and got worse in 26% in

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the LLLT group after a 12 month period. No improvement was recorded in the control group.

The results suggest that LLLT can be recommended in mild or average CTS (ENG < 4,9 ms) especially if a conservative treatment is required.

Successful management of female office workers with "repetitive stress injury" or "carpal tunnel syndrome" by a new treatment modality- application of low level laser

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Western Heart Institute and St. Mary's Spine Center St. Mary's Medical Center. San Francisco. CA. USA and Head and Neck Pain Center, Honolulu HL. USA

Abstract: Female office workers with desk jobs who are incapacitated by pain and tingling in the hands and fingers are often diagnosed by physicians as "repetitive stress injury" (RSI) or "carpal tunnel syndrome" (CTS). These patients usually have poor posture with their head and neck stooped forward and shoulders rounded; upon palpation. they have pain and tenderness at the spinous processes C5 - T1 and the medial angle of the scapula. In 35 such patients we focused the treatment primarily at the posterior neck area and not the wrists and hands. A low level laser (100 mW) was used and directed at the tips of the spinous processes C5 - T1.



The laser rapidly alleviated the pain and tingling in the arms, hands and fingers and diminished tenderness at the involved spinous processes. Thereby, it has become apparent that many patients labeled as having RSI or CTS have predominantly cervical radicular dysfunction resulting in pain to the upper extremities which can be managed by low level laser. Successful long-term management involves treating the soft tissue lesions in the neck combined with correcting the abnormal head, neck and shoulder posture by taping. Cervical collars, and clavicle harnesses as well as improved work ergonomics.

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Sports injuries, traumata

The laser therapy is perfect for sports injuries. Use the Multi-cluster probe or single probe, depending on the size if the injury.

Indication		Joule cm ²	Frequency	Treatments week
Sports injuries		10-15	Nogier A/B/C	2-4
	X	Apply the laser with skin contact and if not possible, at short distance.		
	X			



Irradiation of the patella

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The picture shows the physiotherapist of the German sports team during the treatment of the lumbar region. Using the Physiolaser olympic, multi-cluster probe

Universade Bangkok 2007.

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Fracture healing

Indication		Joule cm ²	Frequency	Treatments week
Bone, fracture healing		10-20	Nogier B/C Reininger	2-4
	X	Apply the laser with skin contact and if not possible, at short distance.		
	X			

Biomodulatory effects of LLLT on bone regeneration

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Tissue healing is a complex process that involves local and systemic responses. The use of Low Level Laser Therapy (LLLT) for wound healing has been shown to be effective in modulating both local and systemic response. Usually the healing process of bone is slower than that of soft tissues. The effects of LLLT on bone are still controversial as previous reports show different results. This paper reports recent observations on the effect of LLLT on bone healing.

The amount of newly formed bone after 830nm laser irradiation of surgical wounds created in the femur of rats was evaluated morphometrically. Forty Wistar rats were divided into four groups: group A (12 sessions, 4.8J/cm² per session, 28 days); group C (three sessions, 4.8J/cm² per session, seven

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days). Groups B and D acted as non-irradiated controls. Forty eight hours after the surgery, the defects of the laser groups were irradiated transcutaneously with a CW 40mW 830nm diode laser, ($f \sim 1\text{mm}$) with a total dose of $4.8\text{J}/\text{cm}^2$. Irradiation was performed three times a week.

Computerized morphometry showed a statistically significant difference between the areas of mineralized bone in groups C and D ($p=0.017$). There was no significant difference between groups A and B (28 days) ($p=0.383$). In a second investigation, we determined the effects of LLLT on bone healing after the insertion of implants. It is known that dental implants need four and six months period for fixation on the maxillae and on the mandible before receiving loading. Ten male and female dogs were divided into two groups of five animals that received the implant. Two animals of each group acted as controls. The animals were sacrificed 45 and 60 days after surgery. The animals were irradiated three times a week for two weeks in a contact mode with a CW 40mW 830nm diode laser, ($f \sim 1\text{mm}$) with a total dose per session of $4.8\text{J}/\text{cm}^2$ and a dose per point of $1.2\text{J}/\text{cm}^2$. The results of the SEM study showed better bone healing after irradiation with the 830nm diode laser. These findings suggest that, under the experimental conditions of the investigation, the use of LLLT at 830nm significantly improves bone healing at early stages. It is concluded that LLLT may increase bone repair at early stages of healing.



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Nerve system

Improvement of nerve healing (injuries), nerve pain, lesions, ruptures, paresis, neuritis, neuralgia, apoplexia.

Nerve injury

Indication		Joule mm ²	Frequency	Treatments week
Nerve healing injury		300	Nogier B/E/F Reininger	2-4
	X	Apply the laser with skin contact.		
	X			

For nerve healing in the spinal cord a long therapy duration is required in order to administer sufficient energy to the deeper layers and nerve cells.

The long treatment duration for the spinal cord can only be performed with the tripod holding the point probe or scanning system (Photonic).



Laser Phototherapy (780 nm), a New Modality in Treatment of Long-Term Incomplete Peripheral Nerve Injury: A Randomized Double-Blind Placebo-Controlled Study

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MALVINA ALON, M.D.,³ MOSHE NISSAN, Ph.D.,⁴ and
GEORGES E. OUAKNINE, M.D.⁵

Objective: The authors conducted this pilot study to prospectively investigate the effectiveness of low-power laser irradiation (780 nm) in the treatment of patients suffering from incomplete peripheral nerve and brachial plexus injuries for 6 months up to several years.

Background Data: Injury of a major nerve trunk frequently results in considerable disability associated with loss of sensory and motor functions. Spontaneous recovery of long-term severe incomplete peripheral nerve injury is often unsatisfactory.

Methods: A randomized, double-blind, placebo-controlled trial was performed on 18 patients who were randomly assigned placebo (non-active light: diffused LED lamp) or low-power laser irradiation (wavelength, 780 nm; power, 250 mW). Twenty-one consecutive daily sessions of laser or placebo irradiation were applied transcutaneously for 3 h to the injured peripheral nerve (energy density, 450 J/mm²) and for 2 h to the corresponding segments of the spinal cord (energy density, 300 J/mm²). Clinical and electrophysiological assessments were done at baseline, at the end of the 21 days of treatment, and 3 and 6 months thereafter.

Results: The laser-irradiated and placebo groups were in clinically similar conditions at baseline. The analysis of motor function during the 6-month follow-up period compared to baseline showed statistically significant improvement ($p \leq 0.0001$) in the laser treated group compared to the placebo group. No statistically significant difference was found in sensory function.

Electrophysiological analysis also showed statistically significant improvement in recruitment of voluntary muscle activity in the laser-irradiated group ($p \leq 0.006$), compared to the placebo group.

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Conclusion: This pilot study suggests that in patients with long-term peripheral nerve injury noninvasive 780-nm laser phototherapy can progressively improve nerve function, which leads to significant functional recovery.

Paralysis

Murakami F. et al.

**Laser Therapy 5; 131-135, 1993 © John Wiley & Sons, Ltd.
"Diode low reactive level laser therapy and stellate ganglion block compared in the treatment of facial palsy"**

In 52 patients who presented with peripheral facial paralysis, 26 received stellate ganglion block therapy, 11 received infrared diode laser low reactive level laser therapy, and 15 received a combination of both of the above. The data were analyzed to compare the effectiveness of the three regimens.

Result: Those patients who received only LLLT or the combination of LLLT with SGB showed a similar overall recovery from the paralysis compared to those treated with SGB alone.

The group who received LLLT only also demonstrated a slightly better initial improvement in paralysis scores. No serious side effects were reported in the LLLT group. Taking the above data into consideration, the authors recommend diode laser therapy as a suitable single or adjunctive therapy for facial paralysis which is relatively easy and painless to apply, requires less technical skill, compared with SGB, and has no side-effects.

Dentistry - Oral Application

Analgetic and anti inflammatory, trophic effect especially after surgery, necrosis.

Beside the local therapy reflectory therapy is recommended using NOGIER frequencies and RAC diagnosis. Please refer to the research and books of Dr. Mastalier, Germany.

For the dental therapy RJ offers various applicators and fiber optics, which can be attached to the laser probes.





RJ dental applicator with conical and flat tip.

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Fracture healing, bone repair, implant healing

Indication		Joule cm ²	Frequency	Treatments week
Implant healing Bone repair		10-15	Nogier A/B/F Reininger	2-3
	X	Apply the laser with skin contact and dental applicator.		
				

The regenerative effect of laser therapy is proved in soft and hard tissue. Laser therapy is recommended after tooth extraction and for implant healing.

Infrared Laser Light Reduces Loading Time of Dental Implants: A Raman Spectroscopic Study

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Objective: The aim of this study was to assess, through near-infrared Raman spectroscopy (NIRS), the incorporation of hydroxyapatite of calcium (CHA; $\sim 960 \text{ cm}^{-1}$) on the healing bone around dental implants submitted or not to low-level laser therapy (LLLT) (830 nm).

Background Data: The process of maturation of the bone is important for the success of dental implants, as it improves the fixation of the implant to the bone, allowing the wearing of a prosthesis. LLLT has been suggested as a mean of improving bone healing because of its biomodulatory capabilities.

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Methods: Fourteen rabbits received a titanium implant on the tibia; eight of them were irradiated with 830-nm laser (seven sessions at 48-h intervals, 21.5 J/cm² per session, 10 mW, ~0.0028 cm², 85 J/cm² treatment dose), and six acted as control. The animals were sacrificed at 15, 30, and 45 days after surgery. Specimens were routinely prepared for Raman spectroscopy. Twelve readings were taken on the bone around the implant. Results: The results showed significant differences in the concentration of CHA on irradiated and control specimens at both 30 and 45 days after surgery ($p < 0.001$).

Conclusion: It is concluded that LLLT does improve bone healing, and this can be safely assessed by Raman spectroscopy.

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Bone necrosis (bisphosphonate associated)

Indication		Joule cm ²	Frequency	Treatments week
Bone necrosis		4-6	Nogier B/F Reininger	2-3
	X	Apply the laser directly on the necrosis with dental applicator.		
				

Dr. S. Hafner, Germany, was the first who treated the bone necrosis successfully using the Physiolaser olympic with power of 200 mW/670 nm and as well 500 mW/810 nm.

The laser therapy according to Dr. Hafner is currently the only known method to cure the necrosis following the cancer therapy.

A new effective treatment protocol for bisphosphonate associated osteonecrosis of the jaws by using Low-level-laser therapy combined with conservative dentoalveolar surgery

Hafner, S., Schiel, S., Breinfeld, M, Otto, S., Mast, G. Ehrenfeld, M.

Objectives: Osteonecrosis of the jaws is a well known issue adverse side effect of bisphosphonate therapy. Bisphosphonates are used to treat osteoporosis, Paget's disease of bone, hypercalcemia syndrom, multiple myeloma and other patients with osteolytic bone metastasis. Their

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primary mechanism of action is inhibition of osteoclastic resorption of bone. Within the past 4 years many papers reported that bisphosphonate use, especially intravenous nitrogen-containing preparations, may be associated with osteonecrosis of the jaws. Oversuppression of bone turnover is probably the primary mechanism for the development of this condition, although there may be contributing comorbid factors. There are no sufficient current treatment strategies to manage these osteonecrosis. Extensive resection has not consistently resulted in wound closure and may lead to worsening or progression of disease.

Methods: In our study we performed a treatment protocol by preferring a conservative débridement of necrotic bone combined with Low-level laser therapy (diodesoftlaser/ 200mW/670 nm, Physiolaser Olympic) including n=42 patients (49-83a, 32 female, 10 male) with bisphosphonate associated osteonecrosis of the jaws. We used softlaser application before and after surgery at the locations of osteonecrosis directly on the bone and the environing tissue.

Bisphosphonate-treatment was discontinued if it was medically sustainable and supported our therapy by prescribing antibiotics (amoxicillin/clavulanic acid or clindamycin). Low-level laser therapy was started in short intervals (2-3 a week, 4-6 Joule/cm²). If we saw a good progress in healing we reduced the treatment to once a week until healing was completed.

Results: This new regenerative therapy concept – used in 42 cases with one or more sites of osteonecrosis - showed good clinical results with an effective infection management (no major complications such as mandibulectomy, abscess or systemic inflammation although some of the patients were in chemotherapeutical treatment during the LLLT, occurred). In addition an effective pain control was reported by the patients. Healing or significant improve of the local condition could be seen in 20 patients within the first weeks after starting the treatment. The other n=22 patients are still in therapy while a major part of these patients shows continuing progress in wound healing. Low-level laser therapy seemed to be most effective if the treatment is carried out immediately after surgery.

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Conclusions: In our study we determined a effective treatment protocol for bisphosphonate associated osteonecrosis of the jaws by using softlaser combined with dentoalveolar surgery. The key of therapy could be the local reduction of oversuppression of bone turnover by stimulating osteoclasts using Low-level laser therapy (LLLT). The removal of the antiangiogenic effects of the drug on the soft tissues and periosteum combined with the angiogenetic and osteogenetic effect of the softlaser therapy may play a role in healing (3, 4, 6). Some studies indicate that bone irradiated with softlaser shows increased osteoclastic and osteoblastic proliferation, collagen deposition, and bone neoformation (3, 6). Vascular responses to softlaser phototherapy were also suggested as one of the possible mechanisms responsible for the positive clinical results observed following LLLT (6). More clinical studies are needed to evaluate and optimize the mode of softlaser application and to improve the success of this regenerative therapy concept.

Abstract Osteology Monaco Poster Session 05/2007





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	<p>Sequestrotomy after one week of Low-level laser therapy.</p>
	<p>Softlaser application after surgery (4-6 J/cm²) on the environing tissue.</p>

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	<p>Wound dehiscence 6 days after surgery, healing by granulation.</p>
	<p>Wound healing is completed 4 weeks after surgery and in a stable condition 10 weeks after surgery.</p>

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Gingiva healing

Indication		Joule cm ²	Frequency	Treatments week
Gingiva healing		4-8	Nogier A/B/F Reininger	2-3
	X	Apply the laser with skin contact and dental applicator.		
				

Clinical Study of the Gingiva Healing after Gingivectomy and Low-Level Laser Therapy

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SILVEIRA, M.Sc.,¹ RENATO ARAÚJO PRATES, M.Sc.,²
MARCOS PINOTTI, Ph.D.,¹ and MARTHA SIMÕES RIBEIRO,
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Objective: The purpose of this study was to investigate gingival healing after gingival ectomy and adjunctive use of low-level laser therapy (LLLT).

Background Data: LLLT has been used in animal experiments to examine the influence of laser radiation on the wound healing process since the 1960s. However, clinical trials in dentistry are scarce, and most of them refer to treatment after extraction of the third molars, with only a few reports in the area of periodontics.

Methods: Twenty patients with periodontal disease were selected, and treatment was planned for gingivectomy to bilateral maxillary and mandibular premolar teeth. After surgery, one side was submitted to LLLT using a 685-nm wavelength, output power of 50 mW, and energy density of 4 J/cm². The other side was used as the control and did not receive laser irradiation. Healing was evaluated, clinically and

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biometrically, immediately post-surgery and at days 3, 7, 14, 21, 28, and 35. Results were submitted to statistical analysis.



Results: Biometrical evaluation indicated a significant improvement in healing for the laser group at 21 and 28 days. Clinical evaluation showed better repair for the laser group, mainly after the third day.

Conclusion: LLLT was an effective adjunctive treatment that appeared to promote healing following gingivectomy.

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Pain management, hypersensitivity

Indication		Joule cm ²	Frequency	Treatments week
Pain management		6-15	Nogier A/E/F Reininger	2-3
	X	Apply the laser with skin contact and dental applicator.		
				

Low intensity Laser Therapy to treat Dentin Hypersensitivity

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Dentin hypersensitivity is the most common patient's complain related to pain. In fact, this is a challenge to treat specially if conventional techniques are used. The possibility to treat pain through a low intensity laser give us an opportunity to solve this important clinical problem without promote a discomfort to patient. The main point here is not if this kind of treatment is anti-inflammatory to pulp and/or biostimulatory to production of irregular secondary dentin. The most important point here is to understand how much energy is necessary to reach conditions where to tooth become insensible to external stimulus. Our double-blinded study compared a group without laser (Placebo) with five other groups where different doses at 660 nm low intensity laser were employed. The final conclusion is that for 660 nm laser therapy, the doses from 0.13 to 2.0 J/cm² were more effective than the others. The follow up care in this study was of 45 days.

Arthralgia of the Temporomandibular Joint and Low-Level Laser Therapy

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M.D., Ph.D.,⁴ L. NAVRÁTIL, M.D., Ph.D.,^{1,5} and J. LESÁK⁶

Objective: This case report describes the treatment of a patient with arthralgia of the temporomandibular joint (TMJ) caused by disc displacement. *Background Data:* The goal of the treatment of TMJ arthralgia is to decrease pain by promotion of the musculoskeletal system's natural healing ability.

Methods: This report describes the complex treatment of TMJ arthralgia. Low-level laser therapy (LLLT) was chosen for its anti-inflammatory and analgesic effects. Laser therapy was carried out using the GaAlAs diode laser with an output power of 400 mW, emitting radiation with a wavelength of 830 nm, and having energy density of 15 J/cm²; the laser radiation was applied by contact mode on four targeted spots in 10 sessions. Physiotherapy was recommended to this patient to prevent the injury of intraarticular tissue caused by incorrect movement during opening of the mouth. Splint stabilization and prosthetic treatment were used to reduce overloading of the TMJ, resulting from unstable occlusion and to help repositioning of the dislocated disc.

Results: Five applications of LLLT led to decrease of pain in the area of the TMJ on the Visual Analog Scale, from 20 to 5 mm. The anti-inflammatory effect of the laser was confirmed by thermographic examination. Before treatment, the temperature differences between the areas of the normal TMJ and TMJ with arthralgia was higher than 0.5°C. However, at the conclusion of LLLT, temperatures in the areas surrounding the TMJ were equalized.



Conclusion: This study showed the effectiveness of complex non-invasive treatment in patients with arthralgia of the TMJ. The analgesic and anti-inflammatory effects of LLLT were confirmed by infrared thermography.

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Oral mucositis, aphtae

Treatment of mucositis and aphtae etc. is very promising, it is as well recommended as a standard treatment during chemo therapy.

Indication		Joule cm ²	Frequency	Treatments week
Oral mucositis aphtae		2-6	Nogier A/F	2-3
	X	Apply the laser with skin contact and dental applicator.		
				

In order find the cause of the oral disorder, always include the condition of the digestion system (stomach, small and large intestine) in your diagnostic evaluations.

The immune system of the patient must be supported as well.

The use of low energy lasertherapy in oral mucositis

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Purpose: Oral mucositis is a severe and therapy limiting stomatotoxic side effect caused by systemic high-dose chemotherapy (CT) and by conditioning regimen for Bone Marrow Transplantation (BMT). This initial clinical observational study evaluated the possible efficacy of low energy lasertherapy in the treatment of oral mucositis.

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Material and Methods: Eleven patients from the Oncology Center of the Hospital Sirio Libanes in São Paulo - Brazil, with a variety of oncological diseases, and who were going to receive either CT (2) or BMT (9) were treated with the Mucolaser™ (GaAlAs laser - MM Optics São Carlos - Brazil). All patients had the oral cavity examined by an oral medicine expert before the beginning of the oncological treatment. On the first day of the CT of Conditioning Regimen, the entire oral mucosa was laser-treated with continuous emission of the infrared light, which had 780nm wavelength, and output power of 60 mW, resulting in a final energy density of 2J/cm². The tip of the laser device lightly touched the oral mucosa for about 35 minutes. Daily sessions were performed for an average of 10 applications for each patient. Mucositis was clinically evaluated based on the WHO scale and pain was measured by using a visual analogue scale.

Results: In general the patients tolerated the procedure well. In some cases days of application were missed because of nausea or vomiting, but there were no toxic effects related with the laser. Ten of the 11 patients developed mucositis varying from grade I -IV of the WHO classification. None of the patients had maximum pain score (10). Patients requested that lasertherapy was performed because of the immediate pain relief.



Conclusion: The authors of the present paper believe that low energy lasertherapy may play a role in the control of pain in oral mucositis. In order to evaluate prevention of mucositis and acceleration of the healing we have initiated a randomized controlled study.

Congress for Oral laser Therapy, Vienna 2001

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A practical guideline

Destruction of bacteria, periimplantitis, infections, root channel infections – Photo Dynamic Therapy

Indication		Joule cm ²	Frequency	Treatments
Destruction of bacteria		8-10	cw	1
	X	Apply methylen blue (670 nm) or tolonium chloride (635-640 nm) and irradiate the cavity/root channel directly with the laser using a special dental applicator, fiber optic.		
				

For disinfection, the laser is used in combination with special drugs, for the so called **Photo Dynamic Therapy** (PDT) or in this case **Photo Dynamic Disinfection** (PDD).

The PDT became available for use in both caries and infections of the soft tissue, endodontics.

Principle of function:

- a) The photosensitizer molecules attach to the membrane of the bacteria.
- b) Irradiation with light at a specific wavelength matched to the peak absorption of the photosensitizer leads to the production of singlet oxygen, which causes the bacterial cell wall to rupture, killing the bacteria.

Laboratory studies have shown that an important aspect of this system is that the two components when used independently of one another produce no effect on bacteria or on normal tissue. **It is only the combination of photosensitizer and light which produces the effect on the bacteria.**

How to perform the PDT/PDD

The PDT is fast, secure and easy to perform:

- a) Connect the tip of the laser probe to a thin optical fiber, this can be a reusable or disposable hand piece.
- b) After completion of canal preparation, the canal is inoculated with the photosensitizer solution which is left for a fixed period of time (60 seconds). Apply a 12.7mg/l solution of the Tolonium chloride or Methylen blue to the prepared tooth.
- c) Irradiate with the laser the root canal for 120 seconds.

Aftercare: Place a non-setting calcium hydroxide paste (e.g. UltraCal) into the canal, cotton wool pledget (Roeko, Germany) in the pulp chamber and dress the tooth with IRM (Dentsply, DeTrey) in the case of posterior teeth or Chemfil Superior (Dentsply, DeTrey) in the case of anterior teeth.

This PDT system has been evaluated in the laboratory and destruction rate of bacterial is in the order of 10^9 , achieved under conditions comparable to those found clinically

PDT will destroy common bacteria associated with endodontic infections such as:

Fusobacterium nucleatum

Prevotella intermedi

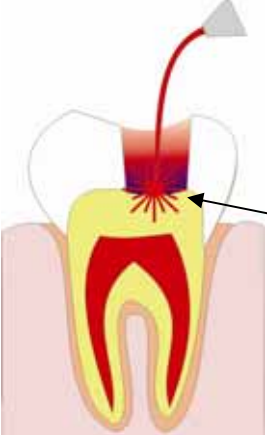
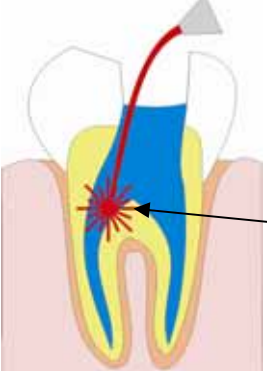

Streptococcus intermedius

Peptostreptococcus micros.

Enterococcus faecalis which is regarded as one of the contaminants associated with canals which have recurrent infections.

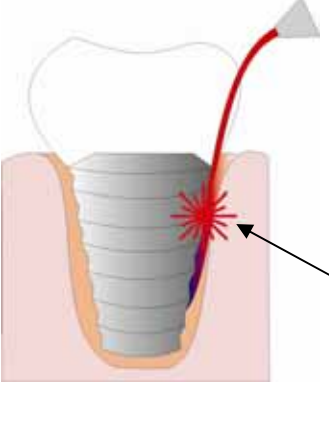
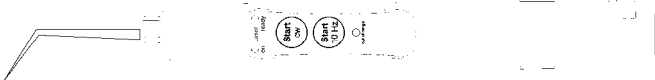
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 <p>A cross-sectional diagram of a tooth with a yellow crown and red root canal. A red laser tip is shown entering the crown cavity from the top. A red starburst indicates the laser's effect on the cavity surface. A circular inset shows a microscopic view of the cavity surface with red and white particles.</p>	<p>Apply the photosensitizer and insert the laser tip into the centre of the cavity, directly on the surface.</p>
 <p>A cross-sectional diagram of a tooth with a yellow crown and blue root canal. A red laser tip is shown entering the root canal from the crown. A red starburst indicates the laser's effect on the root canal wall. A circular inset shows a microscopic view of the root canal wall with red and white particles.</p>	<p>Apply the photosensitizer and inserting the laser tip into the centre of the root channel.</p>
 <p>A cross-sectional diagram of a tooth with a yellow crown and red root canal. A red laser tip is shown entering the periodontal pocket from the side. A red starburst indicates the laser's effect on the pocket wall. A circular inset shows a microscopic view of the pocket wall with red and white particles.</p>	<p>Apply the photosensitizer and insert the laser tip into the centre of the pocket.</p>

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A practical guideline

	<p>Remove the mucosa around the implant (micro surgery) and clean the wound. Apply the photosensitizer internal and external, let it take effect for 60 seconds and irradiate with laser 150 seconds.</p>
 <p>Handylaser sprint with dental fibre for PDT</p>	

Treatment of Periodontal and Periimplant Diseases with the Photodynamic Therapy: an New Method

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Bacteria, bacterial substances and their metabolites are considered the main cause of periodontal and periimplant diseases. The supplementary administration of a suitable antibiotic is an effective aid in the treatment of these diseases. However, it involves disadvantages such as bacterial resistance or side effects.

A new treatment possibility has been found experimentally by applying a photodynamic therapy, combining soft laser irradiation and treatment with toluidine blue "O" dye. This study examined the clinical effectiveness of this combination in reducing these pathogens such as *Actinobacillus actinomycetemcomitans*, *Porphyromonas gingivalis* and *Prevotella intermedia*. Following application of toluidine blue "O", samples were lased with a diode laser (75mW) with a wavelength of 690 nm for one minute. Before and after lasing, bacterial samples were obtained from dental and periimplant pockets and were analysed microbiologically. The initial value was compared with a control value. This combined treatment resulted in a significant bacterial reduction by up to 4 log steps ($p < 0.001$). However, a complete elimination of all three microorganisms was achieved in none of the cases. However, it was found that this treatment seems to be more effective in reducing black pigmented microorganisms - *Porphyromonas gingivalis* and *Prevotella intermedia*. First results of this study allow the conclusion that photodynamic treatment is a valuable additional method without any side effects in the treatment of patients with periodontal and periimplant diseases.

Congress for Oral laser Therapy, Vienna 2001

Periimplantitis - The Goettingen Conception for Lasersupported Treatment

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Progressive bone loss around functioning dental implants is of special concern for the long term predictability.

Some procedures reported for dealing with periimplant bone defects resulting from periimplant infections are antimicrobial, resective and regenerative therapies. Guided bone regeneration, when applied to peri-implantitis defects, has resulted in some success, however, results of studies are inconclusive.

The Goettingen conception for the therapy of periimplantitis prefers lasersupported antimicrobial therapy before and during the operative procedure in combination with defect filling (beta TCP) and GBR (ePTFE - membrane).

The diode laser -system with a wave length of 805nm.

We decontaminate implant surfaces using the Implant-program of the laser (1.0 watts / cw for 20sec.).

Following the decontamination procedure the periimplant defects are filled with BIORESORB - a beta TCP- and covered with CYTOPLAST - non resorbable membran- / ORALTRONICS.

The results show total absence of inflammation and clinical and radiological reduction of pocket - depth from average 7 mm to 3 mm.

We show cases to demonstrate the pre - and intraoperative procedure and the clinical and radiological results.

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Repairing Process in Infected Wounds Dental Extraction, Treated with Photosensitizer Drug, Associated or no to the Low Intensity Laser: Histological Study in Mice

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The objective of the present work was to study, histologically in mice, the repairing process in infected wounds of dental extraction treated with photosensitizer drug associated or not to the low intensity laser. 48 mice were used to submitted to the extraction of the under right incisor and induction of the of the clinical picture of experimental alveolites.

The mices were separated in 4 groups of 12 animals each, whose alveolus wounds received the following treatments: In Group I (n=12) also called Control, no treatments was realized intra or extra-alveolar; in those of the Group II (n=12) an alveolus irrigation with photosensitizer drug (methylene blue solution) took place; in the Group III (n=12, the alveolus were submitted at application of low intensity laser (635 nm, contact, 4 mW, 3 mm² (area), 0.96 J/cm², 0.132 J/cm²/s, 240s); in wounds of Group IV (n=12) had treatment similar to those of the group II, and 60 seconds after the intra-alveolar irrigation, a single application of low intensity laser with similar conditions to those of group III were accomplished. Three mices for each group were sacrificed on days 7, 15, 21 28. The results of the histological analyses allowed to conclude that: Group I wounds demonstrated delay in the chronology of the alveolar repairing; the use of the photosensitizer drug didn't provoke undesirable effects in the alveolar repair; the wounds treated with laser demonstrated a more developed and differentiated repair process than those of the control Group; the association of the photosensitizer drug and laser demonstrated a more developed and differentiated repair process that verified in wounds treated only with laser, with photosensitizer and control characterized by bone news formation in more extensions and more ossification.

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Alternative Therapy – Medicament applicator

1. **Homeopathic remedy** or other medicament in liquid state.
Start the laser on cw mode and irradiate through the medicament to the body/organ (points or larger surfaces).

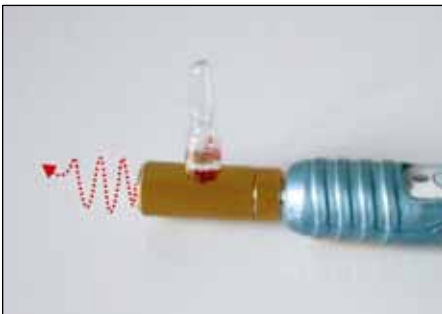
Theory: *The laser beam shall transmit the information of the medicament to the organ.*

2. **Irradiate a medicament with the laser and bio-frequency.** Thereafter the patient should take the energized medicament e.g. drops 3 x daily or as an injection.

3. **Irradiate water with the laser and bio-frequency.**
Thereafter the patient should take the activated water e.g. drops 3 x daily.

Theory: *The laser beam energizes the medicament or water with the photon energy and “prints” the bio-frequency information to the water molecules (energized water with cluster information).*

Note: This is an alternative therapy method and scientifically not recognized. It is based on practical experience as an additional treatment in holistic medicine to improve the well being of the patient.



Attach the medicament applicator to the laser probe and insert the medicament or water into the opening. The laser beam can now penetrate through the liquid.

Book recommendation

Laser Therapy and Laser Acupuncture
Wolfgang Brinkmann, Anja Füchtenbusch
Laser Therapy and Laser Acupuncture on Horses
Anja Füchtenbusch
Lasers in Medicine and Dentistry
Z. Simunovic, Vitagraf 2000
Lasertherapie in der Allgemeinmedizin
G. Danhof, WBV-Verlag, 1992, ISBN 3-921988-50-0
Lasertherapie in der Sportmedizin und Orthopädie
G. Danhof, WBV-Verlag
Lasertherapie in der Zahnheilkunde
G. Danhof, H. Breugel, J. Hesselink, H. Oudhof WBV-Verlag,
1995
Akupunktur und Lasertherapie für die Praxis
J. Elias, Sommer-Verlag, 1989, ISBN 3 925367 53 5
Laserakupunktur
J. Elias, Urban & Schwarzenberg Verlag, 1996
Soft-Laser in der Dermatologie
E. Iliev, Edition Svesa, München, 1988, ISBN 3 927406 00 7
Laserakupunktur
R. Pothmann, Poentinen
Reflextherapie in der Zahn-, Mund-, und Kieferheilkunde
O. Mastalier, Quintessenz-Verlag, 1987, ISBN 3 87652 624 8
Low Level Laser Therapy - A practical Introduction
T. Oshiro, R.G. Calderhead
John Wiley & Sons Ltd., Chichester, GB, ISBN 0 471 9156 X
Progress in Laser Therapy
T. Oshiro, R.G. Calderhead
John Wiley & Sons Ltd., Chichester, GB, ISBN 0 471 93154 3
Therapeutic Lasers Theory & Practice, Baxter G. D.
L'énergie douce face à la douleur, Coche P.
Photobiology of Low-Level-Laser Therapy, Karu T.I.
Scientific of Low-Power Laser-Tharpy, Karu T. I.
Laser-Therapie, Lievens P. C.
Low Level Laser Therapy as a med.Treatment Modality
Pöntinen P.
Soft Laser-Therapy

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A practical guideline

Trelles M.

Laser para la salud y la estetica

Trelles / Mayayo

Laser Y Terapeutica En Medicina Y Cirurgia Cutanea

Trelles / Cisneros

Lasertherapy in dentistry & medicine

Tunér / Hode

Low Level Laser Therapy, Clinical Practice & Scientific

Background

Tunér / Hode

The Laser Therapy Handbook,

Tunér / Hode

Lasertherapie in de medische Praktijk,

van Breugel H.H.F.I.

Tinnitus lindern durch Laserlicht

Wilden L.

Laser Associations

WALT (World Association for Laser Therapy)

www.walt.nu

NAALT (North American Association for Laser Therapy)

www.naalt.org

SALT (Swiss Association for Laser Therapy)

www.salt-laser.ch

EMLA (European Medical Laser Association)

www.emla-laser.com

WALA (World Association for Laser Application)


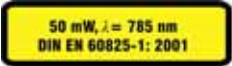


www.laser-wala.com

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A practical guideline

Laser warning signs

The following signs are placed on the laser device:

	<p>Laser symbol Must be attached as well on the door of the treatment room</p>
	<p>Laser power and wave length and laser norm</p>
	<p>Laser warning sign, laser class and laser norm</p>
	<p>Beam direction</p>




RJ laser devices

Scanning laser and multi-functional laser devices

 A blue, handheld scanning laser device with a yellow warning triangle on the front and a red laser line visible at the bottom.	<p>Photonic 500</p> <p>Universal scanning system for the therapy of larger body parts.</p>
 A blue rectangular device with a digital display, buttons, and two blue laser pens. A pair of green safety goggles and several small metal attachments are also shown.	<p>Physiolaser olympic</p> <p>Most advanced laser system for all indications of LLLT and modern acupuncture body/ear, energy medicine.</p>
 A black carry bag with red trim, containing a blue rectangular device with a digital display and buttons.	<p>Physiolaser bag</p> <p>The Physiolaser comes in a carry bag runs with rechargeable batteries for mobile use.</p>

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A practical guideline





Handheld laser devices

	<p>Handylaser trion</p> <p>Compact handheld laser for acupuncture and auriculo medicine.</p>
	<p>Handylaser sprint</p> <p>Compact handheld laser for classical acupuncture and physiotherapy</p>
	<p>LaserPen Expert</p> <p>Compact handheld laser, programmable, for acupuncture, auriculo medicine and physiotherapy.</p>

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A practical guideline

Polylaser family, multi-cluster probes (Physiolaser)

	<p>Polylaser trion</p> <p>Multi-cluster stand alone laser for treatment of larger surfaces.</p> <p>Available as a probe for the Physiolaser.</p>
	<p>Polylaser derma</p> <p>Multi-cluster stand alone laser for treatment of larger surfaces.</p> <p>Available as a probe for the Physiolaser.</p>
	<p>Polylaser brush</p> <p>Multi-cluster stand alone laser for treatment of larger surfaces.</p> <p>Available as a probe for the Physiolaser.</p>
	<p>Multi-cluster</p> <p>Multi-cluster stand alone laser for treatment of larger surfaces.</p> <p>Available as a probe for the Physiolaser.</p>

RJ Service & Support

RJ-Lasers put you in the forefront -giving you all the options and have been proven thousands of times over, enjoy 25 years of full confidence in laser therapy and diagnosis.

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RJ offers a comprehensive customer service. Please visit our website: www.rj-laser.com to get the latest therapy and product information. You can download research data, clinical data, manuals.

You will find satisfied customers and distributors worldwide. Please visit our website: www.rj-laser.com to get in contact.

Our customer service in your area is ready to help at any time.



Quality Management
EN ISO 14385:2003