repuls®

JUST
PAIN-FREE

repuls®
licht. medizin. technik.

REPULS Lichtmedizintechnik GmbH

The company

The Vienna-based company was founded in 2006 by Brigitte and Konrad Rumpold with the aim of researching and disseminating the therapeutic benefits of light and its wavelengths. Its objective is developing devices for the treatment of musculoskeletal pain and wound healing which improve quality of life.

Company founder
Konrad Rumpold

Company founder/
Management
Brigitte Rumpold

repuls
licht. medizin. technik.

Research and Development

Medical care

Sales and marketing

Training/ service

repuls®

Contents

Research

The development of REPULS Lichtmedizintechnik has only been possible through intensive research. REPULS keeps investing in this field. **Continuous research** and the **development of new products** secures the future and guarantees further expansion of the company.

REPULS Lichtmedizintechnik GmbH has won funding for **two major research and development projects** by the Austrian Research Promotion Agency FFG. Funding is provided within the framework of the FFG's "Bridge Programme and Basic Programmes" programme line. To this end, our company has been evaluated in terms of organization and management and pronounced suitable for carrying out R&D work.

Research Cluster

Ludwig Boltzmann Institut
Experimentelle und Klinische Traumatologie

MEDIZINISCHE UNIVERSITÄT WIEN
UNIVERSITÄTSKLINIK FÜR MUND-, KIEFER- UND GESICHTSCHIRURGIE

UNIVERSITÄT SALZBURG

PLASTISCHE, ÄSTHETISCHE UND REKONSTRUKTIVE CHIRURGIE GRAZ

TU WIEN
TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

Studies on repuls®

- The effect of repuls® on endothelial cells and vasculogenesis
- The repuls® depth radiator as an additional therapy option for patients with shoulder complaints
- Influence of pulsed red light by repuls® on cellular mechanisms in cell culture models
- The influence of pulsed cold red light on oxygen radical formation and release of nitrogen monoxide by means of repuls® deep emitters
- Photobiomodulation of freshly isolated human adipose tissue-derived stromal vascular fraction cells by pulsed light-emitting diodes for direct clinical application
- Use of repuls® in oral surgical procedures
- The impact of wavelengths of LED light therapy on in vitro vasculogenesis
- Red light as a 12-oxo-leukotriene B4 antagonist: an explanation for the efficacy of intensive red light in the therapy of peripheral inflammatory diseases
- Stimulation of angiogenesis by photobiomodulation – preliminary results from a controlled study on the chick chorioallantoic membrane

Current studies

- Wound healing with repuls® in abdominoplasty (Beltlift) Med Uni Graz
- Quantitative pain measurement, Med Uni Graz
- Tendon regeneration, Paracelsus Medical Private University Salzburg. Institute for Tendon and Bone Regeneration

More information:
www.repuls.at

What does repuls® do?

repuls® works with pulsed high-intensity cold red light, deeply permeates the tissue without heat and interrupts the inflammation-controlling leukotriene metabolism.

Pain can thus be **successfully relieved and eliminated without side effects**. Studies at the Ludwig Boltzmann Institute for Experimental and Clinical Traumatology show that treatment with repuls® **activates the mitochondria**, the power stations of the cell. repuls® **increases** mitochondrial respiration and thus **ATP production in the cells**. Through the increased energy metabolism cellular repair mechanisms can be improved. This is reflected in an increased growth rate of muscle, connective tissue and endothelial cells. All in all, these processes **lead to an improved regeneration of damaged tissue structures**.

- No unwanted side effects
- Based on scientific principles: 9 years of research at the Technical University of Vienna
- Patented (Patent No. 505280)
- Class 118 medical device
- Cold red light in the wavelength range of 620-640 nm, that is red light from the visible sunlight spectrum, no infrared light. with high power density up to **280mW/cm³**
- Broad clinical experience
- High therapeutic success rate
- Easy, uncomplicated and mobile use
- Low training and personnel costs

LED – Next generation technology in medicine

Bio stimulation with LED

For a long time only laser light induced bio stimulation has been conducted and researched. By means of high intensity light diodes (LEDs) new sources of light have become available which provide monochromatic light of similar intensity as therapeutic lasers.

Differences between Laser and LED (repuls®)

repuls® can be applied over a longer period of time without negative side effects due to the fact that repuls® has similar effects as a laser with a range of up to 400 mw (significant bio stimulating effects).

Karu T.I., Photobiological Fundamentals of low-power laser therapy | Journal of Quantum Electronics 10, 23 (1987)
Young S et al., Macrophage Responsiveness to Light Therapy | Lasers in Surgery and Medicine | 9:497–505 (1989)
Young S et al., Effect of light on Calcium Uptake by Macrophages | Original ArticlesSupplement 1991 by John Wiley & Sons Ltd

How does repuls® work?

Excerpt from the publication in the magazine Bio Med Tech (DE GRUYTER)

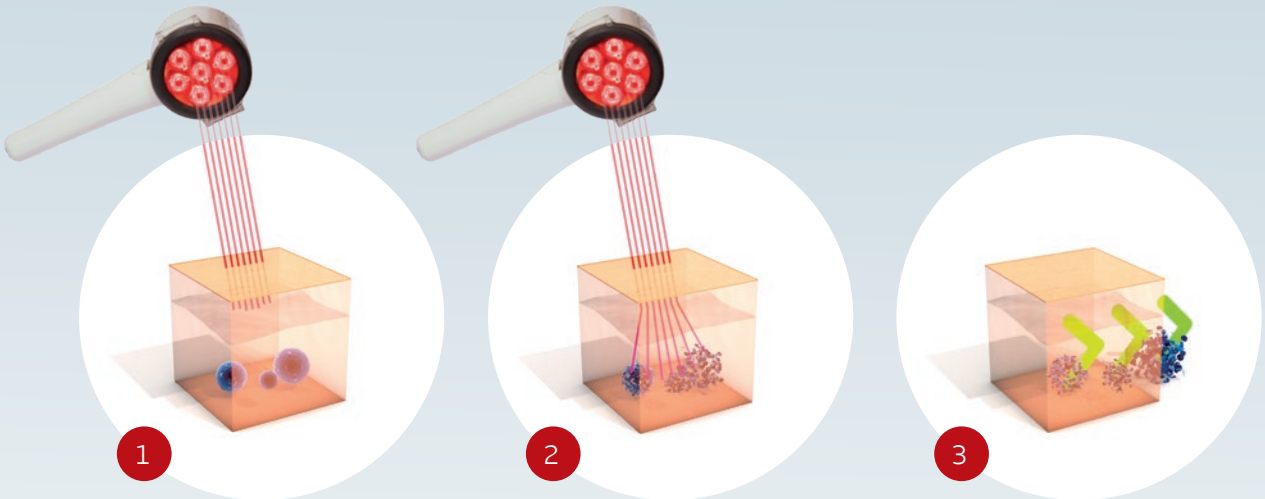
“Red Light as a 12-oxo Leukotriene B4 ANTAGONIST”

On the therapeutic effect of intensive red light, as supplied by repuls®, the work “Red light as a 12-oxo leukotriene B4 antagonist: an explanation from the efficacy of intensive red light in the therapy of peripheral inflammatory diseases” by Fritz Paschke, – Constantin Rabong and Christoph Schuster of de Gruyters journal “Biomedical Engineering” was published on July 16, 2014.

The organic molecule leukotriene B4 (LTB4) plays an important role in inflammatory processes. In successful asthma therapy, the harmful effect of this molecule is chemically hindered by so-called LTB-4 antagonists. Could it be that intense red light has a similar function? Not directly, because with a 632nm source you cannot influence LTB4 with its resonance wavelength in the UV B range.

But there is one molecule, which plays a big role in the metabolism of LTB 4: the 12 Oxo-LTB4. With a 632 nm source of sufficient intensity, the dipole resonance of the 12 Oxo-LTB4 can be excited by a non-linear process. The penetration depth is very large, because in the red light range water practically does not absorb this radiation. The task of the paper is therefore: Is the power density of a source such as repuls® sufficient to destabilize the 12Oxo-LTB4? It can be stated that at normal irradiation times with repuls® the 12 Oxo-LTB4 is destabilized and lost to the metabolism of the LTB4.

The hypothesis “LTB4 metabolism is interrupted by intensive red light due to destabilization of 12 oxo-LTB4” is therefore confirmed as an explanation for the anti-inflammatory effect of repuls®.



Pulsed high-intensity cold red light (620-640nm) from repuls® deeply penetrates the tissue without heat ...

... and influences inflammatory messengers (leukotrienes) there.

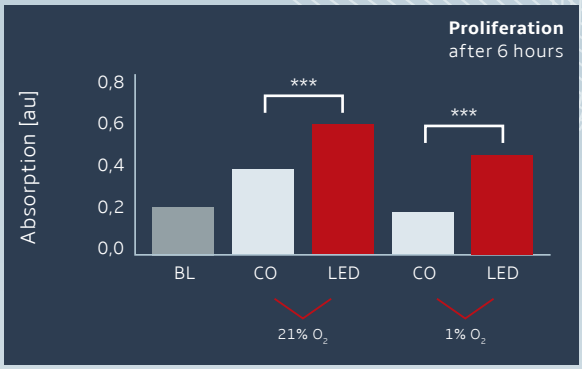
Breaks between light pulses promote removal of reaction products.

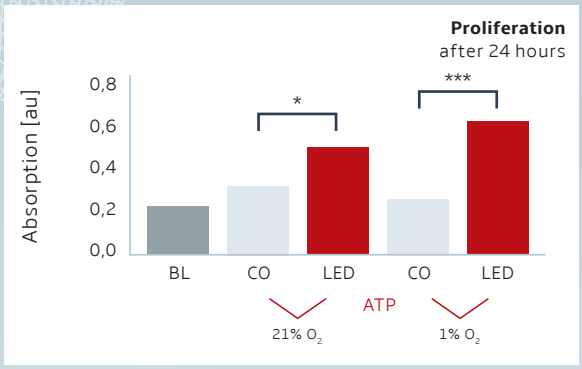
The effect of repuls® on cellular mechanisms

The objective of the present study was research into the effects of repuls® on cellular mechanisms in two different cell culture models. Effects on the mitochondria were determined immediately after treatment by measuring respiratory activity (respirometry) and ATP (adenosine triphosphate) production.

In order to investigate the influence of mitochondria, the power plants of the cell, which are important for the cells, their respiratory activity was determined by means of resprometry and the production of adenosine triphosphate (ATP), the energy carrier of the cell, immediately after treatment. **Fibroplasts** show a significant and **statically significant improvement in cell growth** already 6 hours after repuls® treatment, which was also observed after 24 hours. **Muscle cells** reacted more slowly to the treatment and showed a **significantly higher proliferation only after 24 hours**. In muscle cells, these positive effects were also reflected in significantly increased breathability of the mitochondria. In both cell types the illumination also led to an **increased production of ATP**, i.e. to an increased energy production in the cells.

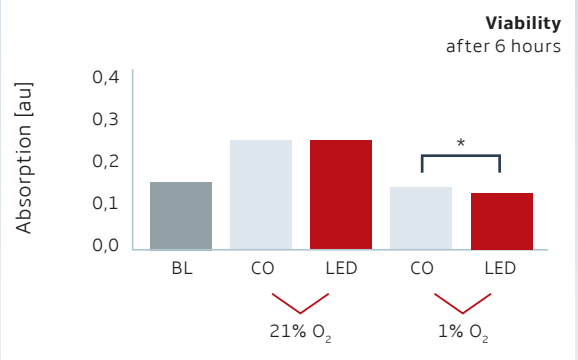
Results

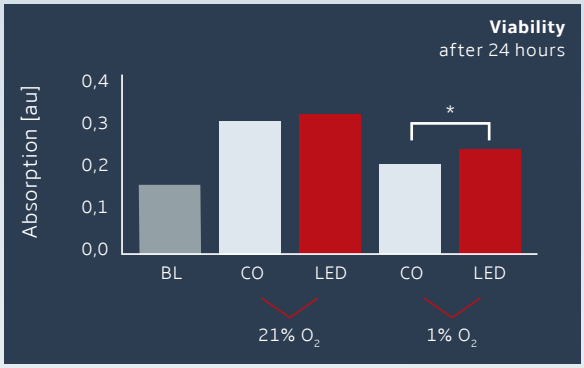




Proliferation

was significantly affected by repuls® light treatment. 6 hours post-illumination the proliferation rate was significantly lower in cells challenged by hypoxia, but in both groups illumination showed a significant stimulatory effect. This effect was even more pronounced 24h post-illumination, leading to a significant 2-fold increase compared to the control group under both culture conditions.



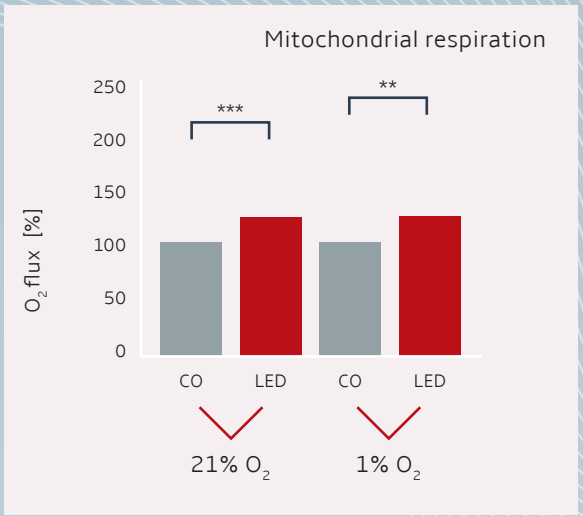


Viability

under normoxic conditions viability did not change 6 hours after treatment, neither in the irradiated nor in the control group. Hypoxia significantly decreased viability in comparison to normoxic conditions. Viability slightly increased in fibroblasts under normoxic conditions, but significantly increased under hypoxic conditions.

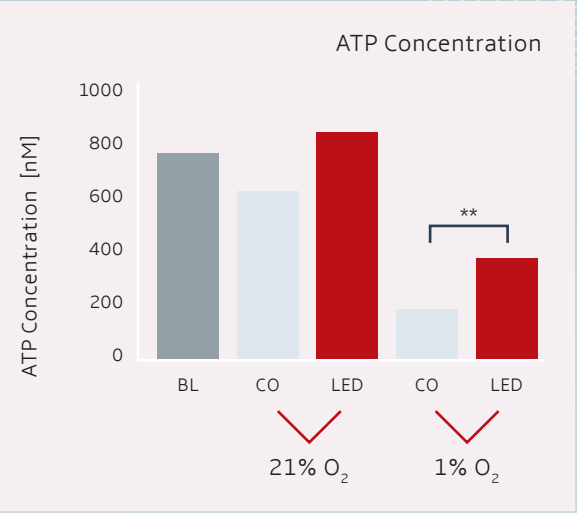
Mitochondrial respiration

was affected significantly after irradiation. Both fibroblasts with normal oxygen concentration and fibroblasts subject to hypoxia exhibited elevated oxygen consumption of up to 25% compared to the non-exposed control group.



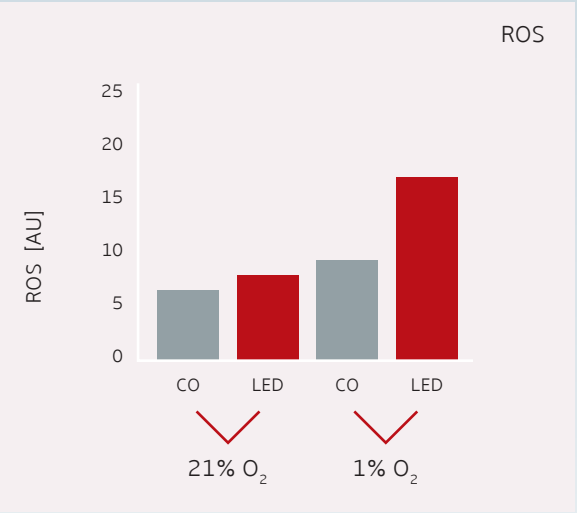
ATP Concentration

in normoxic fibroblasts was elevated by 34% immediately after exposure. Hypoxia induced a significant decrease in ATP concentration but was profoundly recovered after irradiation.



Reactive oxygen species (ROS)

were produced immediately after exposure. Normal cells hardly released more ROS compared to the control group. In cells stressed by hypoxia, however, irradiation triggered a 2-fold increase in ROS synthesis.



* p<0.05
** p<0.01
*** p<0.001

Sidrah Chaudray, Stefan Rieger, Carina Wagner, Heinz Redl, Peter Dungel,
Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Vienna-Austria,
Austrian Cluster for Tissue Regeneration

Where repuls® works

Examples of application

Knee

Shoulder

Neck

Elbow

Back/lumbar spine

Hand

Forearm

Hip

Foot

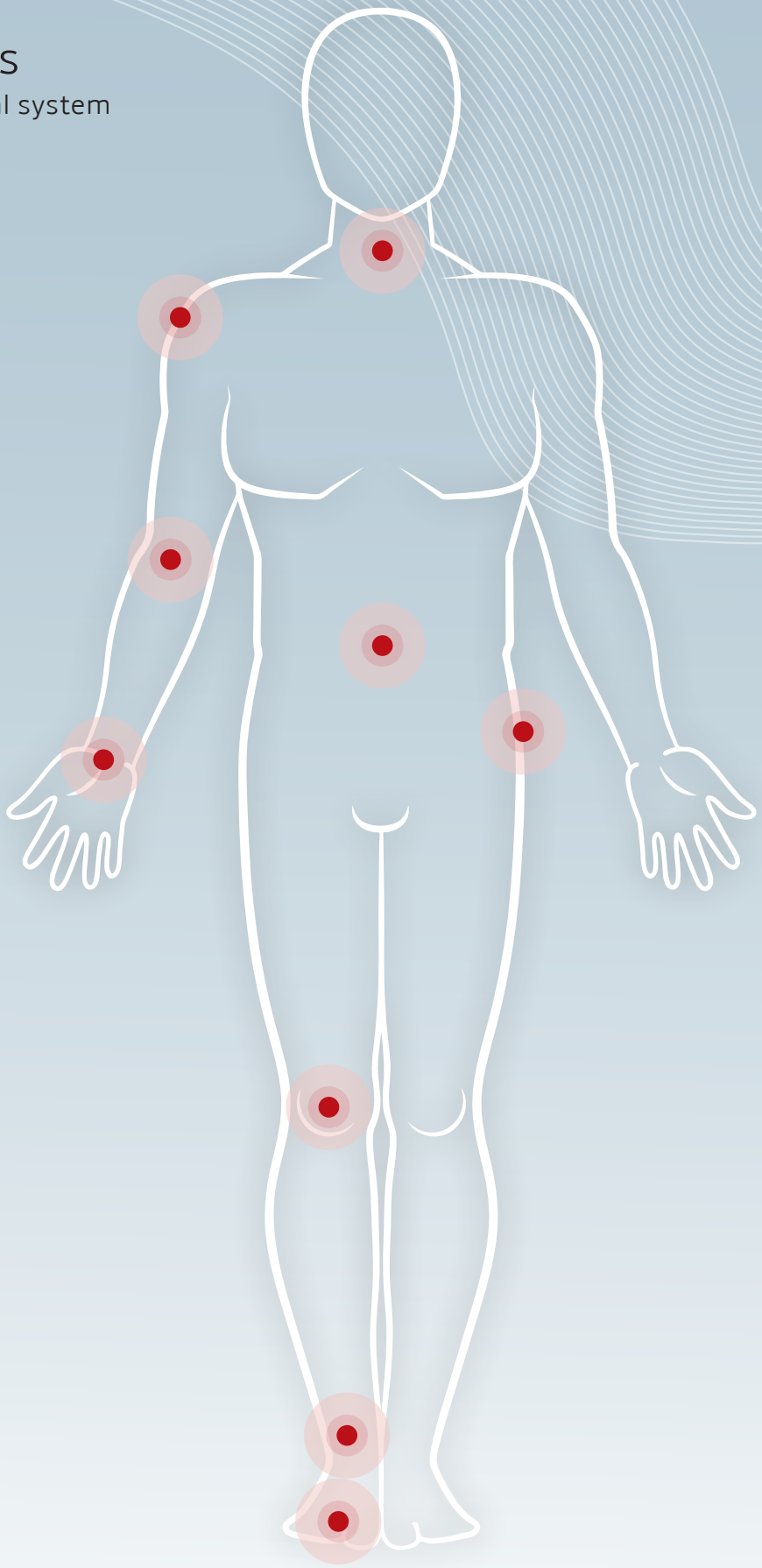
With spacer ring

Ankle

Where repuls® works

Disorders in the musculoskeletal system

- Neck
- Shoulder
- Elbow
- Hand and fingers
- Back
- Hip
- Knee
- Lower leg
- Foot



The repuls® models

Products

repuls® 7

The device for the medical practice –
7 LEDs of the latest generation allow
a significant increase in light energy

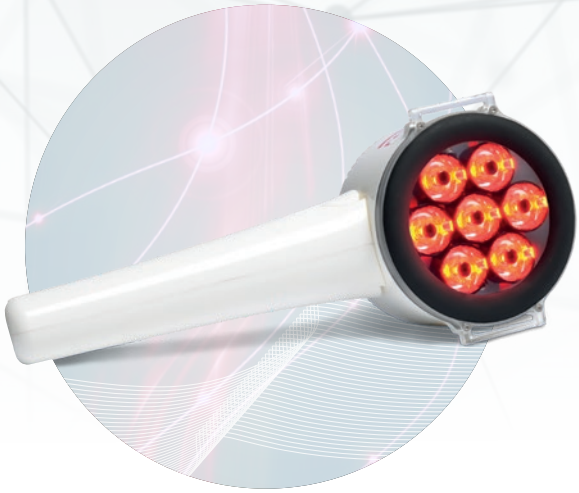
Optimized for use in medical practices and clinics, repuls®7 offers maximum efficacy with a minimum of time and good tolerability.

» repuls® 7 relieves pain

» repuls® 7 promotes wound healing

» More efficient treatment of the back due to new arrangement of LEDs

» Improved effect on chronic complaints



Wavelength	620–640 nm
Light intensity	4100 mW total output
Pulse frequency	2.5 hz
Duration of treatment	6–12 min
Medical device	IIb
Safety	goggles

» Intensive and extensive repuls® depth effect that sets in quickly

» 7 high-performance medical LEDs of the latest generation

» Short application time of maximum 12 minutes

» Spacer ring included in purchase package

» Can be combined with other therapeutic measures

repuls® 4

The new modern device for medical practice and home use

Due to its bio-compatible metal hull and the significantly lower power consumption of the latest LED generation, repuls® 4 needs no cooling fan despite its high light intensity. repuls® 4 is a high-tech device used mainly for the treatment of symptoms in the musculoskeletal system.

» 4 high-performance medical LEDs
» Proven repuls® depth effect
» Max. application time 20 minutes
» Approved medical device (IIa)

Wavelength	620–640 nm
Light intensity	2700 mW total output
Pulse frequency	2.5 hz
Duration of treatment	20 min
Medical device	IIa

» 4 high-performance medical LEDs of the latest generation
» Proven repuls® depth effect
» can be combined with other therapeutic measures

repuls® rolling tripod

The CE-certified repuls® roll stand ensures flexible and safe use in your surgery and is particularly made for use with treatment couches.

» Solid rollable stand
» Flexible metal gooseneck
» Simple construction
» Weight 9 kg

Who has been convinced by repuls®?

repuls® is already being used successfully in many hospitals, clinics, health resorts and walk-in clinics of public health insurances.

- A. ö. Bezirkskrankenhaus Kufstein
- AUVA Rehabilitationszentrum Weißer Hof
- AUVA Unfallkrankenhaus Kalwang
- Barmherzige Brüder, St. Veit
- Betriebskrankenkasse Kapfenberg
- BKH Reutte
- BGKK, Eisenstadt
- BVA Bad Schallerbach
- Geriatriezentrum Baumgarten, Wien
- Gesundheitszentrum Bad Sauerbrunn
- Kepler Universitätsklinikum, Neuromed Campus
- Kinderonkologische Fachklinik Sylt
- Klinikum Peterhof, Baden
- Klinik für Dermatologie, Thüringen
- Klinikum Wels-Grieskirchen
- Krankenanstalt Rudolfstiftung, Wien
- Krankenhaus Hietzing, Wien
- Krankenhaus St. Josef Braunau
- Kurzentrum Bad Goisern
- Kurzentrum Bad Häring
- Kurzentrum Bad Vöslau
- Kurzentrum Bad Traunstein
- Kurzentrum Bad Schönau
- Kurzentrum Umhausen
- Landesklinikum Amstetten
- Landesklinikum Gmünd
- Landesklinkum Korneuburg
- Landesklinikum Lilienfeld
- Landesklinkum Mödling
- Landesklinikum Zwettl
- Landeskrankenhaus Bad Ischl
- Landeskrankenhaus Bad Radkersburg
- Landeskrankenhaus Wolfsberg
- NÖGKK, Physikoambulatorium Baden
- NÖGKK, Physikoambulatorium St. Pölten
  NÖGKK, Physikoambulatorium Wr. Neustadt
- ÖOGKK, Fachambulatorium Vöcklabruck
- ÖOGKK, Fachambulatorium Wels
- Orthopädisches Krankenhaus Gersthof, Wien
- Pflegewohnhaus Meidling, Wien
- Pflegewohnhaus Rudolfsheim-Fünfhaus, Wien
- Revital Aspach Institut für Prävention, Regeneration, Reha-bilitation und Sportmedizin
- SMZ Floridsdorf, Wien SMZ Ost, Wien
- SMZ Sophienspital, Wien
- SMZ Süd, Kaiser Franz Joseph Spital, Wien
- Unfallkrankenhaus Lorenz Böhler, Wien
- Universitätsklinikum St. Pölten

Hospitals & Clinics

Doctors & Therapists

Sports Clubs

SK RAPID WIEN

WOLFGANG FREY, ON BEHALF OF THE MEDICAL DEPARTMENT

We are fortunate to have access to three repuls® 7 devices in the medical department of the soccer team of SK Rapid Vienna. It has a wide range of use, is hassle-free and has no side effects and thus gladly accepted by our players.

In particular we use it for:

- *Overuse symptoms of the entire musculo-skeletal system (muscles, tendons, fasciae)*
- *After traumatic events*
- *Open wounds and scar treatment*

DOZ. DR. BERNHARD ZWICK & DR. ROBERT KOCHER

SPECIALIST FOR ORTHOPAEDICS AND PEDIATRIC ORTHOPAEDICS, SPECIALIST FOR SURGERY AND TRAUMA SURGERY

The leukotriene metabolism has long been neglected in sports medicine. Good old incense was often the only way to address this spectrum of the inflammatory process in cases of overuse damage or in postoperative follow-up treatment. With the repuls® deep radiator we now have a highly effective physical therapy that works in the important leukotriene metabolism. We apply the repuls® depth radiator to all patients (non-athletes), hobby athletes and high-performance athletes from currently 14 national teams. The successes of the therapy are amazing and our athletes are enthusiastic. The repuls® depth radiator impresses with its simple and safe application and easy transportability.

DR. MARTHA SCHMID

SPECIALIST IN TRAUMA SURGERY AND GENERAL MEDICINE

Many of my patients suffer from secondary damage and pain after surgery or injuries or from wear and tear-related and chronic pain. The simple but highly effective treatment with repuls® can rapidly improve or relief entirely both chronic and acute pain conditions. Also, physical-therapeutic measures work much better after such pain relief.

Clinical experience with repuls®

Shoulder complaints

The repuls® depth radiator as an additional therapy option for patients with shoulder complaints

Acute and chronic shoulder complaints are particularly common in elderly people. The complaints usually stem from injuries of the rotator cuff, impingement syndromes and calcifications.

Conservative therapy is usually the first choice for older patients. The base of conservative therapy is physiotherapy.

Other complimentary therapy options such as shock wave, ultrasound, laser or electrotherapy in many cases do not achieve the desired results. Research into repuls® as an alternative treatment has demonstrated its positive effects.

Participating patients were **randomly divided into a treatment group and a control group**.

Right at the onset and four and eight weeks after start of treatment, respectively, clinical examinations were performed in which the DASH score (12), the Constant score (9,10,11), the Oxford score (13) and the VAS score were determined.

The study shows that above all, subjective criteria were improved by additional therapy with repuls®, regardless of whether symptoms were acute or chronic.

Treatment with repuls® is a side-effect-free and pain-free therapy for shoulder disorders and, after four weeks on average, leads to a significant improvement in subjective results and tendential improvement in objective results.

Accident hospital of AUVA Lorenz Böhler, Vienna
Dr. Christoph Busch, Dr. Pierre Raeven, Dr. Georg Bezard, Dr. Shady El-Marto,
Dr. Daniel Busch,Dr. Jürgen Reichetseder,
Univ.-Prof. DDr. Martijn van GriensvenUniv.-Prof. Dr. Harald Hertz

Orthopaedics

Use of the repuls® depth radiator in 120 patients for 2.5 months

Application for

- All localizable pain
- in the trunk and extremities
- Very positive for all myalgias,
- periosteosis,
- congestion and
- metabolic problems of the soft tissues

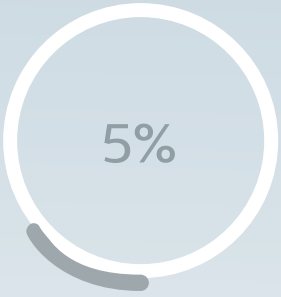
Handling the repuls® depth radiator was easy for our staff and pleasant for patients. There were no side-effects and the treatment was widely accepted by the patients, thus a success on both sides.

Pain-free

70% of patients experience strong relief after only 3 treatments or are completely pain-free.

Positive results

25% of patients report positive results after approx. 7 treatments.



Therapy failure

In 5% of all patients (with 9 treatments per patient in average) therapy does not achieve the desired results.

Dr. med. Manfred Wobig
about the application in the group practice
Dr. med. Fritz Backhus, Rabih Comati, Dr. med. Manfred Wobig

Pain Statistics of the Musculoskeletal System

Applications at the repuls® Center Vienna (2014-2016)

107 persons with chronic conditions of the musculoskeletal system were examined.

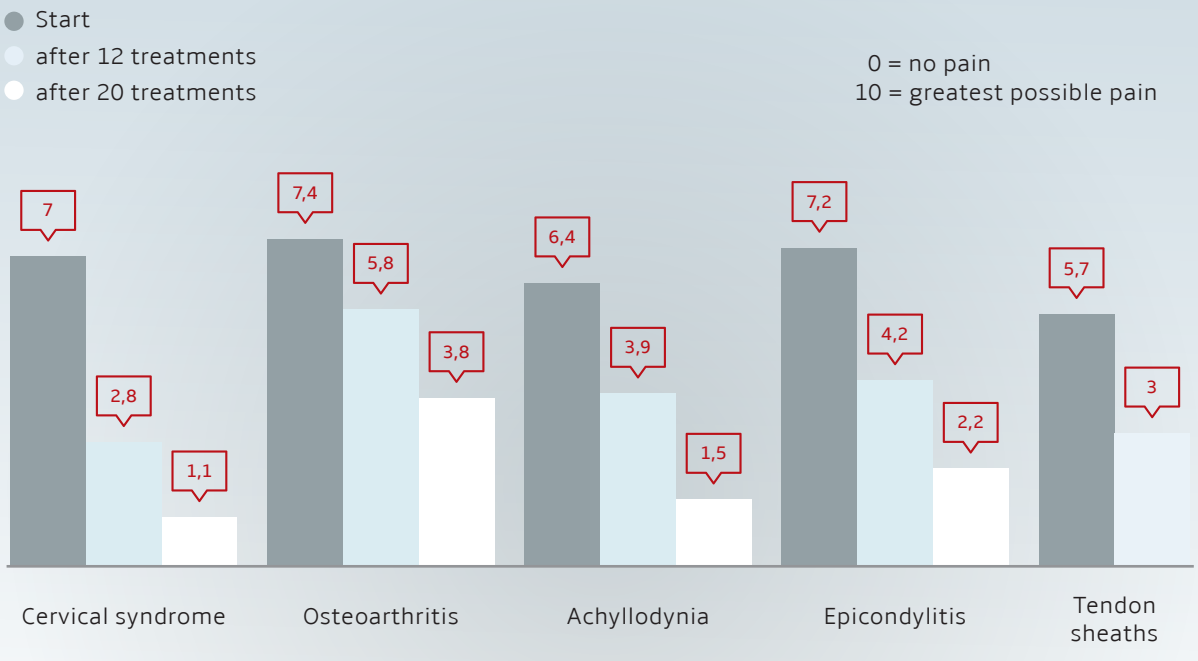
The following indications were treated:

- Arthrosis in the knee, shoulder and hip area
- Epicondylitis
- Cervical syndrome
- Tendon sheat inflammation
- Achyllodynia

Duration of complaint	longer than 6 months
Duration of treatment	30 minutes
Number of treatments	10–12, 20–25

Dr. med. Martha Schmid,
FÄ Unfallchirurgie und Sporttraumatologie

Average pain improvement



repuls® in Wound Therapy

The Application of repuls® in Wound Therapy

LLLT (Photobiomodulation) – established and scientifically proven:

Over the past decade, low-level light therapy (LLLT), also known as photobiomodulation, has become increasingly common. Clinical studies have been carried out in numerous medical fields of application and a large number of specialist articles have been published.

Fields

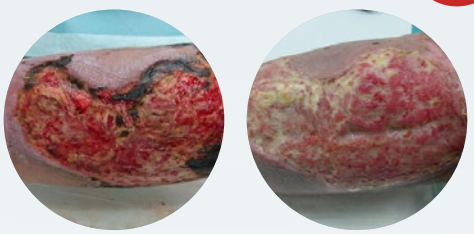
- Diabetic foot
- Syndrome bedsores (decubitus)
- Ulcers (ulcers) of different causes (“open leg”)
- Poorly healing surgical wounds
- Infected wounds
- Small area burns
- Very painful wounds

repuls® – a leader in research

REPULS has succeeded in establishing an internationally competitive scientific consortium with, among others, the Medical Universities of Graz and Vienna, the Ludwig Boltzmann Institute for Experimental and Clinical Traumatology and the University of Salzburg. Supported by the Austrian Research Promotion Agency FFG, research on photobiomodulation is carried out here in accordance with highest scientific standards in order to maintain this lead in the future.

Current research in international peer-review top journals has demonstrated the effect of repuls® in controlled studies. Numerous and long-standing experiences from the clinical application of repuls® are thus also traceable in laboratory studies and are based on a solid scientific foundation.

Post-traumatic ulcus cruris in severe circulatory disorder (before/after several weeks of repuls® LLLT). repuls® LLLT offers significant improvements in wound management support for chronic wounds. repuls® LLLT can be a way of achieving more stable wound conditions, especially for patients who are not suitable for surgery.



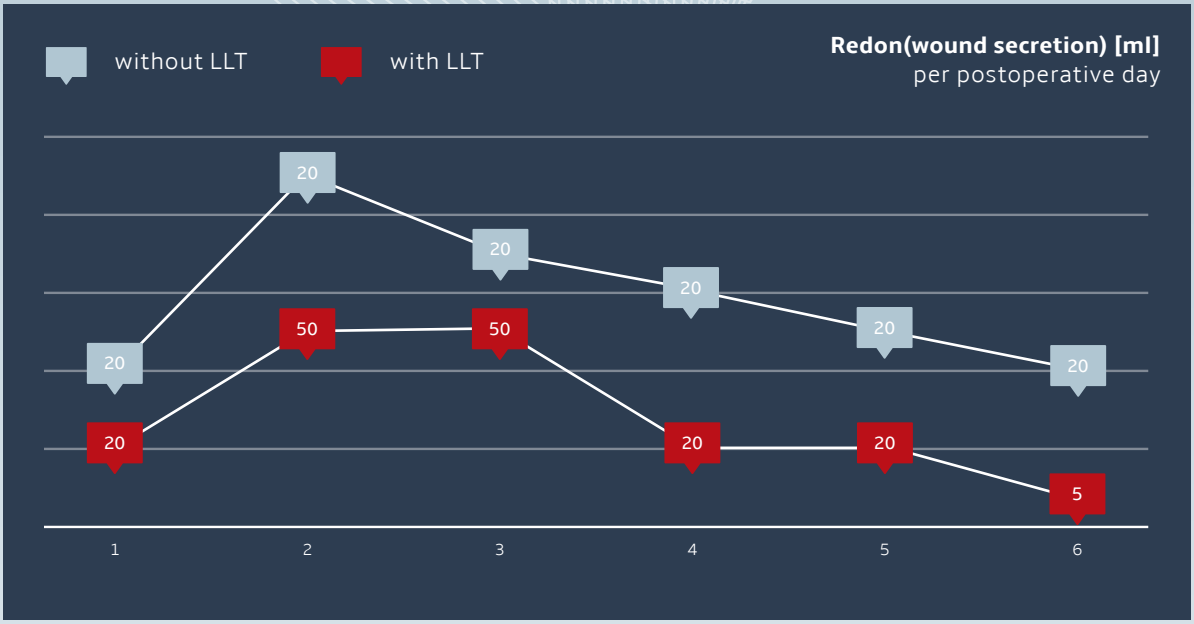
repuls® in a patient with diabetic ULCUS on the sole of the foot after several frustrating surgical therapy attempts including split skin transplantation. After repuls® substantial improvement of the local situation was achieved in a short time.

Progress in wound healing

repuls® in plastic, esthetic and reconstructive surgery

repuls® LLLT has proven to be efficient in the field of plastic, esthetic and reconstructive surgery, particularly to support the therapy of chronic soft-tissue defects as well as to improve the wound healing after extensive reconstructive surgery such as abdominoplasty/lower body lift, breast surgery and various kinds of flaps. Patients suffering from chronic wounds or wound healing disorders can benefit from repuls® LLLT. Frequently there is also a colonisation or infection with germs impeding the healing, and many of these patients present with relevant co-morbidities such as diabetes or reduced blood circulation. repuls® LLLT can optimize the healing under adverse conditions and improve the scar formation.

Treatment of burn victims is another challenging task in plastic surgery. Large wounds are typically at high risk regarding infections. With repuls® LLLT the surgical treatment can be ideally complemented.



a.o. Univ.-Prof. DDr. Kurt Schicho (Medical University of Graz)

Painless light therapy has proven to enhance wound healing in its various stages. Among others, it stimulates local micro-circulation, has an anti-inflammatory effect and activates cells in the affected area.

For a chronic inflammation for instance it takes only a few treatments and pain significantly subsides. Phototherapy with repuls® for me has become a valued additional option for holistic treatment of wounds and is widely accepeted by patients.

OÄ Dr. Elisabeth Lahnsteiner
Head of Department, Tissue Viability, Orthopaedic Hospital Vienna-Speising

Basic principles of treatment

in medical practice

Duration, times and frequency of treatment

For the first treatment, half the treatment time is recommended in order to avoid or attenuate a possible first deterioration. This is particularly important in the treatment of musculoskeletal disorders when the following diseases are present:

- Arthrosis/Arthritis
- Neuropathies
- Rheumatic diseases
- Gout
- Fibromyalgia

Treatment does not lead to a habituation effect or resistance to therapy.

Tip

In some cases it is possible and reasonable to exceed the specified times. Especially if there is a large area of pain.

Treatment time per treatment

repuls® 7	max. 12 minutes per indication
repuls® 4	max. 20 minutes per indication

Treatment time

Chronic pain	approx. 8 -12 treatments
Acute pain	approx. 3 -6 treatments

Indication of the musculoskeletal system

The application is carried out with direct skin contact. The skin should be dry and free of grease to achieve the full depth effect.

Joints

Slow movement in the joint changes the angle of irradiation and can positively influence the effect. When using 2 devices at the same time, place them at an angle of approx. 90 degrees and not opposite each other.

Fingers

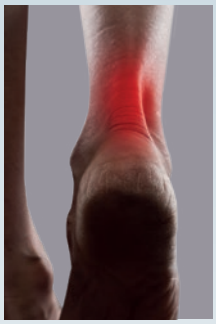
Keep fingers closed so that there is no radiation loss.

Important

If necessary, apply creams, lotions and oils AFTER the Repuls treatment.

Application

		repuls® 4	repuls® 7	
Preparation via the spinal column (optional) » Indications upper extremities Directly to the cervical spine » Indications lower extremities Directly to the lumbar spine	1 point	6 minutes	3 minutes	
	up to 3 points	/	/	
Neck – cervical spine area » Complete treatment time directly at point of pain » Alternative: Split treatment time at up to 3 points	1 point	20 minutes	12 minutes	
	up to 3 points	6-9 minutes	6 minutes	
Back – lumbar spine area » Complete treatment time directly at point of pain » Alternative: Split treatment time at up to 3 points	1 point	20 minutes	12 minutes	
	up to 3 points	6-9 minutes	6 minutes	
Shoulder – shoulder belt » Complete treatment time directly at point of pain » Alternative: Split treatment time at up to 3 points	1 point	20 minutes	12 minutes	
	up to 3 points	6-9 minutes	6 minutes	

		repuls® 4	repuls® 7	
Elbow » Complete treatment time directly at point of pain » Alternative: Split treatment time at up to 3 points	1 point	**20 minutes**	12 minutes	
	up to 3 points	6-9 minutes	6 minutes	
Hand and fingers » Complete treatment time directly at point of pain » Alternative: Split treatment time between inside and outside	1 point	**12 minutes**	**6-9 minutes**	
	up to 3 points	**6 minutes**	**3-6 minutes**	
Hip » Complete treatment time directly at point of pain » Alternative: Split treatment time at up to 3 points	1 point	**20 minutes**	**12 minutes**	
	up to 3 points	6-9 minutes	6 minutes	
Foot and ankle » Complete treatment time directly at point of pain » Alternative: Split treatment time between 2 points	1 point	**20 minutes**	**12 minutes**	
	2 points	6-9 minutes	6 minutes	
Knee » Complete treatment time directly at point of pain » Alternative: Split treatment time between 2 points	1 point	**20 minutes**	**12 minutes**	
	2 points	6-9 minutes	6 minutes	

Recommendation
Treatment procedure

Pre-treatment via the spine (optional)

By treating certain points along the spinal column, sensitization of the corresponding body regions via the nerve tracts is achieved.

The upper half of the body is pre-treated along the cervical spine. The lower half of the body is pre-treated along the lumbar spine.

Pre-treatment is particularly suitable for cases of high pain intensity and for the indications mentioned in point 1/ treatment times.

Treatment of the painful body region

The treatment takes place directly at the pain point and on the surrounding tissue. If the pain radiates, treat at several points in the pain area.

Important

Sufficient liquid intake promotes the removal of reaction products from the tissue via the lymphatic system.

Possible reactions

Pain reaction

An initial deterioration, that is, increase of pain indicates increased processing in the tissue and occurs above all in chronic conditions. If that's the case take a break from treatment until the pain level has returned to normal and choose half the treatment time for the subsequent treatment.

Tip

Take a break from treatment until the pain level has returned to normal and choose half the treatment time for the subsequent treatment.

Possible reactions

Fatigue

Increased fatigue in the initial phase indicates increased processing in the body. Relaxation fatigue may occur when the pain subsides.

Delayed reaction

A noticeable improvement only occurs a few days after the end of treatment.

Tip

In order to avoid a recurrence of symptoms it is recommended to avoid overly stressing the affected body area and to carry out further treatment.

Important

Due to the fact that repuls® increases ATP production especially in oxygen-depleted tissue, there will always be improvent even if currently not perceived subjectively as the energy level may not have built up sufficiently yet.

Wounds

Application with a spacer ring. If the affected skin area is completely enclosed by the spacer ring, the spacer ring may be placed on the skin. For hygienic reasons, larger skin areas are treated from a distance.

Tip

Pre-treatment of the spine can be an accompanying measure. To do this, treat the spine at the level of the dermatome for 6 minutes (R4) or 3 minutes (R7) without a spacer ring.

repuls® and other physical therapies

repuls® can be ideally combined with other therapeutic measures. Due to its mode of operation cold red light leads to synergies of therapies.

The following combinations are particularly recommended

» repuls® and physiotherapy
» repuls® and massage
» repuls® and lymph drainage (for indications with possible lymph congestion)

Tip

The venous angle of v jugularis/v. subclavia can be treated with repuls®
in order to support lymph flow

» repuls® and fascia treatments
» Cryotherapy

In order to effectively combine cold treatments or therapies with Repuls, it is recommended to first perform the local cold treatment, let it work for some time and, after a break of 30 to 40 minutes, carry out the repuls® treatment in the usual manner.

Supplementary information

Obesity

Increased fat tissue influences depth effect.

Tip

Select higher treatment times and stretch the body part to be treated (e.g. flexion of the hip)

Implants

Metallic or ceramic implants (endoprostheses, plates, screws, nails, stents, etc.) are no obstacle to treatment.

Important

repuls® treatments must not be carried out on patients with electronic implants (pacemakers).

Post-surgery treatment

repuls® supports the postoperative healing process. Treatment can be started after removal of drains and non-absorbable sutures.

Depot injections and plasters

Important

Treatment must not be carried out at the area of a depot plaster. After a depot injection, a treatment break of 3 days is recommended at the area of the injection site.

» Kinesiotapes

Before any repuls® treatment all adhesive residues must be removed from the skin to avoid a possible skin reaction.

June 2019

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