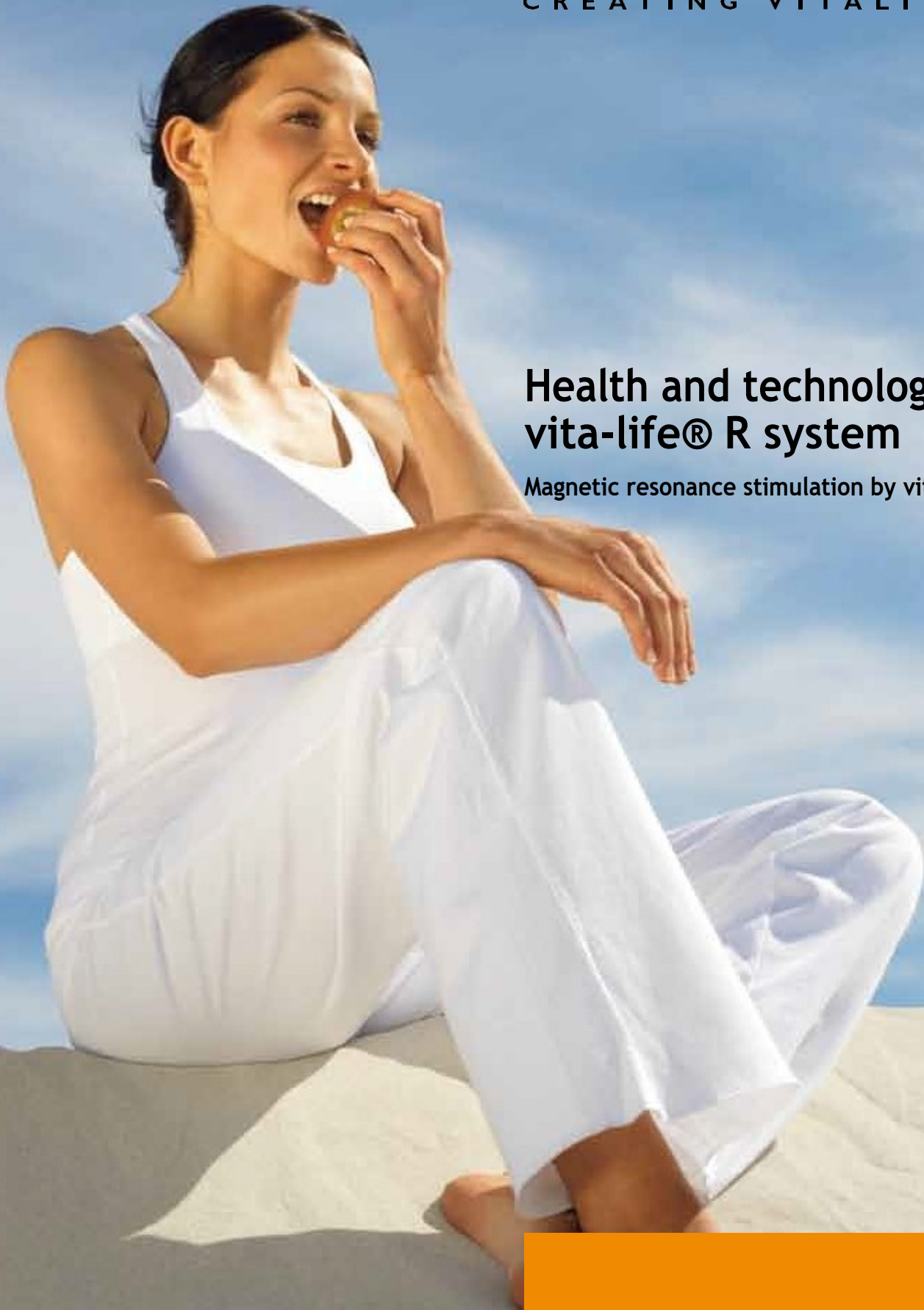


# VITA LIFE<sup>®</sup>

CREATING VITALITY



## Health and technology - the vita-life<sup>®</sup> R system

Magnetic resonance stimulation by vita-life<sup>®</sup>

## The silent healing power

### **Basis of magnetic field therapy**

In recent years, magnetic field therapy has crossed the threshold from a clinical fringe phenomenon to a popular, natural and widespread form of therapy.

What is the reason for the extraordinary versatility of treatment with pulsating electromagnetic fields? How can it be used in orthopaedics, dermatology, neurology and other disciplines, often in a gentle yet effective way, to bring about lasting healing? What may seem unbelievable at first sight has its reason in a mechanism of action that supports the natural cell functions. Every cell in the human body must absorb food and oxygen and eliminate waste products - just like the human body as a whole.

Pulsating electromagnetic fields in the right dosage (i.e. in the right frequency)

(Field strength, frequency and modulation, each depending on the circadian rhythm and condition of the patient) can bring the function of every single cell of the body back to its intended state. This mechanism of action is effective in every part of the body and in almost every disease; therefore, magnetic field therapy can help the body to help itself in so many different diseases. Further effects of the magnetic field therapy are derived from this basic mechanism of action: the increase of the blood circulation and the oxygen supply, the influencing of the nerve pathways in the conduction of pain, the balancing effect on the vegetative system and many others.

### **Technical structure**

Devices for magnetic field therapy generally consist of the control unit, which generates electrical pulses according to certain specifications, and various applicators, which convert these electrical pulses into magnetic fields.



## From magnetic field therapy for magnetic resonance stimulation vita-life® R-system

### Advantage through own research and development

Since the middle of the nineties, the company vita-life® has made a further development of magnetic field therapy extremely popular and more than

100,000 systems have been delivered to home users, doctors and health professionals: the Magnetic Resonance System MRS 2000. This therapy system uses pulsating electromagnetic fields in the low-energy and low-frequency range and uses resonance effects in the body that can be triggered with very little energy expenditure.

Due to the great success of the MRS 2000 System, vita-life® has developed a further system in recent years which combines the latest possibilities of electronics and information technology as well as the latest findings of bioenergetic medicine: the vita-life® R-System (until 2006: eMRS).

The magnetic fields of the vita-life® systems are un- dangerously as strong as the natural magnetic field of the earth.

### vita-life® R-System - always up to date

The vita-life® R system is completely new: it is not based on a construction of electrical components ("hardware") which is fixed once and for all, but these only serve as a carrier medium for the programs which are stored on an exchangeable chip card ("software"). By simply inserting a new chip card at low cost, new features and improvements of the system can be used at any time, so that the user has a device that hardly becomes obsolete.

The chip card also stores the treatments carried out with the settings and measurement results, so that a doctor or therapist can evaluate and check the settings and measurement results afterwards.

The "wellness" chip card is intended for home use.



*Attaching the sensors for a conventional biofeedback measurement*

### Even more effective and gentle through organ clock and biofeedback

Another revolutionary innovation of the vita-life® R system is the individual adaptation of the treatment by recording and processing the user's bio-data in real time. For this purpose, an (optional) finger sensor is connected, which evaluates the smallest fluctuations in the heart rhythm. In this way and depending on the time of day, the vita-life® R-system can adapt to the specifications of the

"Organ Clock" from Traditional Chinese Medicine and provide meaningful defaults for setting the system without user intervention.

A USB port enables data transfer to a PC, so that professional expansion options are open for the entire system. Thanks to an (optional) battery pack integrated in the carrying handle, the vita-life® R system can be used anywhere. In normal operation, a full battery lasts for approx. 2 weeks!

With all these possibilities, the vita-life® R system is nevertheless extremely easy to operate: switch on, put on the finger sensor, press "Start" - the vita-life® R system takes care of everything else!

which, in addition to the automatic program (with automatic adjustment to the time of day and user reaction), also has programs for "warming up", "capillarisation" (blood circulation) and "heating".

"Relaxation" can use.

In addition to these programs, the "fitness" chip card offers six other specialized programs. The "light50" chip card is designed for the wellness and fitness application of particularly sensitive people.

## Listening to the body: Biofeedback

The term "biofeedback" refers to the measurement of bodily functions and their feedback. Already in 1906 C.

G. Jung, one of the fathers of psychoanalysis, used a device in his practice with which he could measure the skin condition of his patients. However, it was not until the 1960s that the technique of biofeedback attracted further attention.

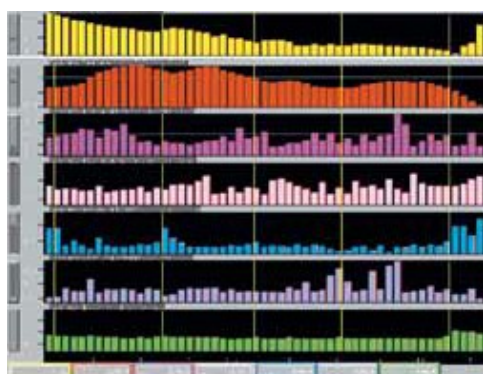
Depending on the stage of development and the medical field of application, in the last years

Various techniques in the field of bio-feedback have been developed: Skin resistance measurement, electromyogram (EMG), skin temperature, electroencephalogram (EEG), oxygen partial pressure measurement, heart rate variability (HRV).

According to the current understanding, bio-feedback means the feedback of measurement data to the patient in order to influence his unconscious body functions. The future lies above all in another way: the feedback of the measurement data not to the patient, but to therapy devices, which can automatically adjust the course and dose of the therapy to achieve the maximum effect by means of the information thus obtained.

The vita-life® R system is one of the first therapy devices worldwide to contain such a bio-feedback component for automatic control of the treatment process. The variance of the heartbeats (HRV) is continuously measured via a finger sensor; the measurement data causes a continuous adjustment of the dose in real time.

*Visualization of biofeedback data*



*The finger biofeedback sensor measures the biodata and transmits them to the control unit.*

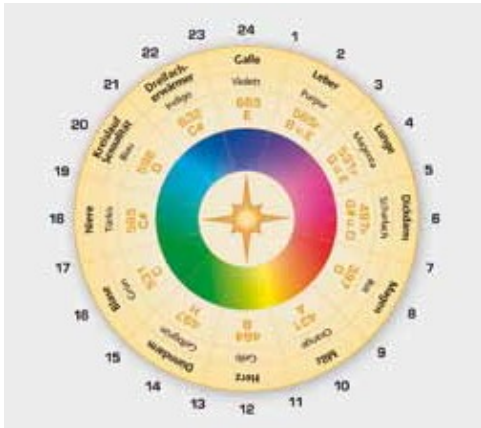
## HRV: Heart Rhythm Variance Analysis

Medical laymen believe that it is a sign of health if the heart always beats at the same rate under constant stress. This is absolutely not the case: on the contrary, in healthy people the pulse rate constantly varies by a certain percentage above and below the normal value. This is because our heart reacts flexibly to external influences and can thus prepare itself for changes. Low or completely missing variability of the heart rate is a sign of a lack of adaptability or reaction rigidity and can be an indication of an existing or impending serious illness, even before other signs of it are present.

HRV (heart rate variability) as an energetic diagnostic method is of particular interest because it measures a parameter that is

provides information about the whole organism and not only a snapshot at a certain point. As a control medium for bioenergetic therapy methods, which also primarily affect the whole body, it has hardly appeared so far; but this will certainly change in the future. In 1980 only about 200 studies and papers on this subject could be found in the leading scientific databases, 20 years later there were already more than 5.000 studies.

In the vita-life® R system, HRV measurement is used as an integral part of dose determination when the (optional) finger sensor is applied to the patient. The adjustment of the treatment is continuously displayed on the system screen.



## Biological daily rhythm

### Traditional Chinese Medicine and Biorhythms

Humans are part of nature and are therefore subject to natural rhythms: everyone knows how they react to the changing times of day and year. In winter we have a different need for sleep and a different pace of work than in summer. Some things are better done in the morning, some in the evening.

Traditional Chinese Medicine (TCM) has systematized the organic functional rhythms: it assumes that the twelve main body functional currents are assigned to certain organs. During the course of the day one of these functional currents is always energetically active for two hours. This activity can be used for therapeutic as well as for diagnostic purposes. This period of time in which an organ shows the maximum energy flow is also called the maximum time; 12 hours after the maximum time the organ is in its minimum time.

The distribution of energy maxima over the clock times is generally referred to as the "organ clock" and is often displayed on circular tables in the form of a clock.

In automatic mode, the vita-life® R-system takes into account the time of day of the start of treatment by means of a built-in battery-buffered clock and adjusts itself to the current sector of the organ clock, which is displayed on the screen.



Each vita-life® R system is carefully tested before delivery.

## Technology, production, quality assurance

A core team of 11 people worked on the development of the vita-life® R system for more than 5 years. Parts of the development were outsourced to specialized subcontractors in several countries.

The vita-life® R system is manufactured in our European production facilities in Germany, Switzerland, Liechtenstein and Austria. This guarantees a consistent and high product quality that our customers can rely on.

The most modern technology is used for quality assurance and quality control; the testing of such a complex system is not possible with conventional means, therefore there are five test systems, the development of which was just as costly as the development of the actual vita-life® R system. One test system each is located at the developer group of the hardware and the software and two are in the production for testing the devices. One test system is used before delivery.

The test system can simulate the complete vita-life® R system in the computer, display it on the screen and compare the functions with the connected vita-life® R system. The test systems in production are always connected to the developers via data lines. A comprehensive quality management system shortens the paths from our customers to development and production. This allows customer wishes to be incorporated directly and improvements to be made immediately.

# Electromagnetic interactions - the basis of all life

Physiology after the turn of the millennium is facing a revolution through life sciences. The fundamental importance of electromagnetic forces for living systems is becoming increasingly clear. The view of the organism as a self-regulating complex system with its own communication and control possibilities leads to an ever deeper understanding of life and to completely new therapeutic approaches. Life is characterized by metabolism, growth and reproduction. In the meantime, it has become standard physio-logical knowledge that the metabolism

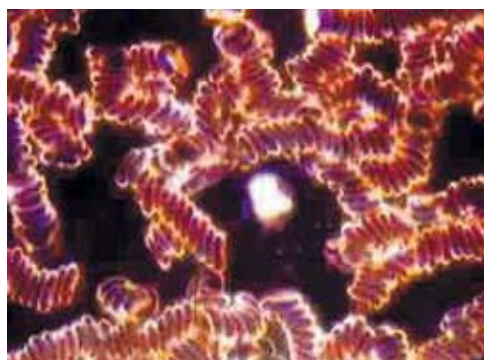
is controlled via electromagnetic processes: e.g. ions are "pumped" via electrical potentials at the cell membrane even against concentration gradients (active metabolism). The importance of the water and electrolyte balance of the body is well known. The communication with the outside world, the transmission of information, the activity and coordination of the inner organs as well as every muscle contraction, including that of the heart muscle (ECG), is based on electrical excitation (NS). Likewise, the higher nervous activity and the functional ability of the brain are based on bioelectricity (EEG).

## Bioelectromagnetic phenomena

The vita-life® R system generates magnetic fields which cause changes in the body similar to those occurring during movement activities and thus support normal biological processes. The biological effectiveness of the generated electromagnetic alternating field arises as a result of:

- Electromagnetic field effects on ionic currents in the body (e.g. sodium and potassium pumps, Ca cascade)
- Magnetomechanical effect of the magnetic field on the oscillation amplitude of cells and organs (resonance)
- Ionic-cyclotronic resonance of anions and cations of the body fluids for the amplification of the intrinsic angular momentum
- Nuclear Magnetic Resonance (NMR)
- Electron Spin Resonance (ESR)

*The dark field microscopy proves the effectiveness of the vita-life® R-system in a comparison before and after the application: the blood cells which have clumped together to form "money rolls" are loosened and can transport far more oxygen.*



## Biophysiological effects

### The bioelectric effect

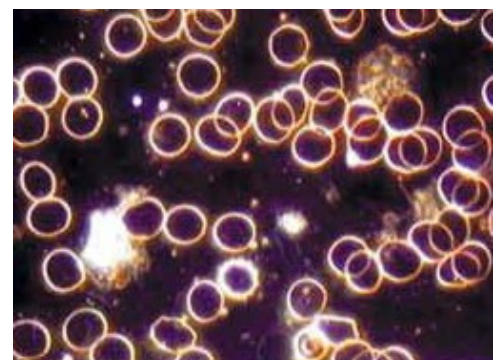
causes the normalization of the cell membrane. In pathological cases, the potential drops as a result of plus ions entering the cell interior, e.g. Na<sup>+</sup>. In order to reverse this process, energy is required by the cell, which the cell can draw from ATP hydrolysis.

### The biochemical effect

is based on the increase of the enzyme activity as well as the activation of the oxidoreductive processes, which are connected with ATP. The effective ion is the Ca<sup>++</sup> produced from the Ca cascade.

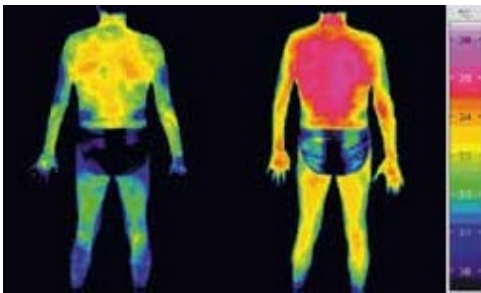
### The bioenergetic effect

is a factor that stimulates nutrition and cell growth. It also controls intracellular processes that lead to the regeneration of the body.



## Scientific evidence

In many different ways, the effectiveness of pulsating magnetic resonance stimulation has been proven and made visible in recent years.



*Infrared thermography measurements show an increase in temperature as an individual indicator of increased blood flow.*

- By means of dark field microscopy, the dissolution of the money roll formation of the erythrocytes can be demonstrated. This leads to an improvement of the blood viscosity, improvement of the blood flow properties, enlargement of the surface, increased oxygen content, reduced risk of thrombosis.
- Bone density measurements show a significant increase in bone density after treatment over a longer period of time.
- Infrared thermography measurements prove improved blood circulation.
- The measurement of the skin conduction potential at acu- puncture meridian endpoints (PROGNOS method) documents the regulation of the body's energy.
- A combined biofeedback measurement shows the optimization of a multitude of body functions after only a few minutes of application of pulsating magnetic fields.
- Photoplethysmography measurements show improvements in blood flow of 45% on average in the area of microcirculation and an increase in oxygen saturation in the blood of 25% on average.

## The vita-life® R system as a complementary treatment

### Regenerative function - bone system:

- Osteoporosis, especially after menopause (concerns both prophylaxis and therapy) ■ Sudeck's disease ■ Conditions following bone fractures ■ bone tears; conditions following operations on the skeletal system in which, for example, bones have been united with the aid of screws or nails ■ Conditions following implantation of endoprostheses (to prevent loosening)
- Pseudoarthrosis formation (false joint) after unstable bone fractures

### Regenerative function - soft tissue:

- Accident wounds with and without injury to the skin ■ Burn wounds ■ Decubital ulcers

### Relaxation function - vegetative calming:

- Vegetative dystonia (imbalance of the nervous system, e.g. sweating) ■ Sleep disorders ■ Prophylactic relaxation effect, counteracting everyday stress ■ Stress in the general meaning of this term and especially after prolonged mental exertion (dysstress) ■ Concentration disorders ■ Neuroses

### Increased oxygen supply:

- In aerobic cell respiration (increase of endurance performance in sports) ■ In anaerobic cell respiration (faster regeneration by flushing out lactates and by faster incorporation of glycogen into the muscle cells)
- General increase in metabolism by increasing the combustion processes in the cells (mitochondria)

### Circulatory function:

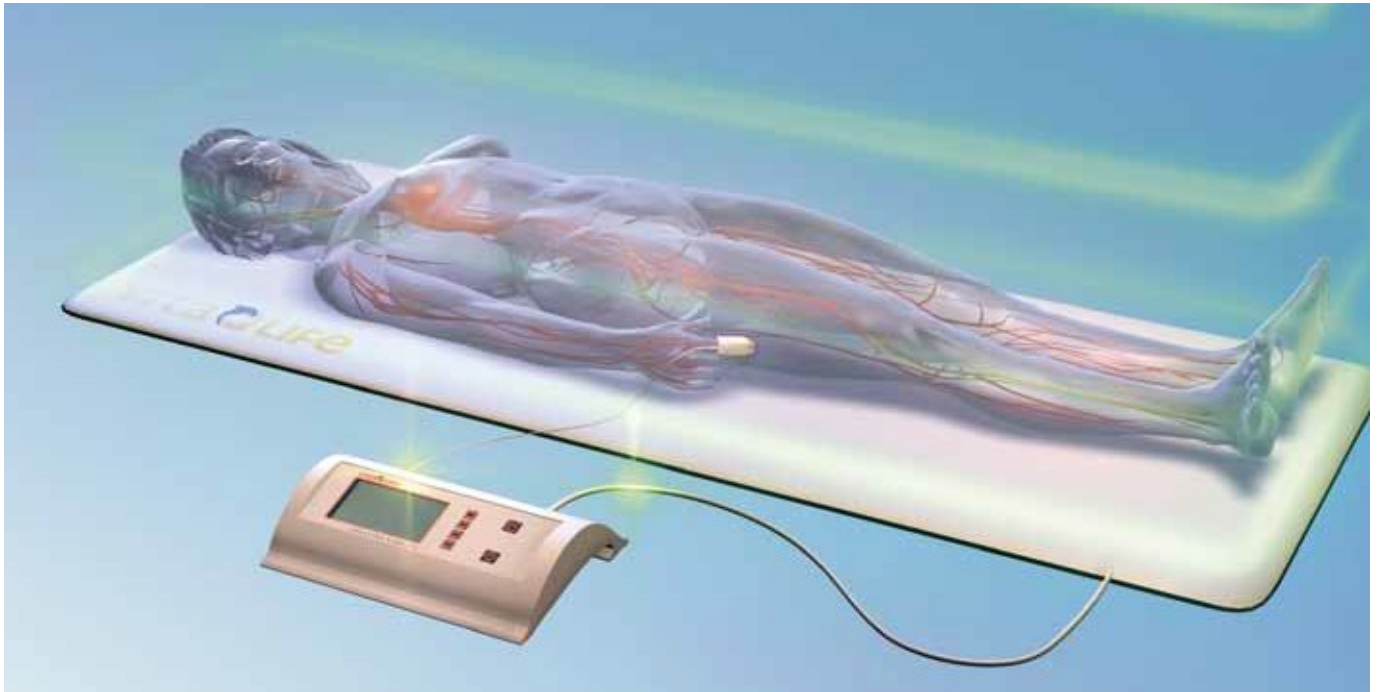
- circulatory disorders: in diabetes-related and sclerosis-related vascular diseases (arteriosclerosis), in varicose veins with ulcers
- Accelerated resorption of haematomas ■ Flushing out of lymphoedema

### Analgesic function - bone and joint system:

- Degeneration of the spinal column and the bone and joint system of the arms and legs (knee, hip, elbow, shoulder ...) ■ Rheumatic joint inflammations (e.g. polyarthritis) ■ Stiffening inflammations of the spinal joints (e.g. Bekhterev's disease) ■ Joint injuries (e.g. during sport)

### Analgesic function - connective tissue:

- Soft tissue rheumatism (so-called fibromyalgia) ■ Injuries to connective tissue (e.g. condition after operations, scar pain) ■ Migraine pain



## Certification

Only certified and regularly monitored companies are authorised to manufacture medical devices.

biomedis international AG is certified according to DIN EN ISO 13485:2003 and thus qualified to manufacture the vita-life® R system. Further certification data can be found on page 10.



## Inventions

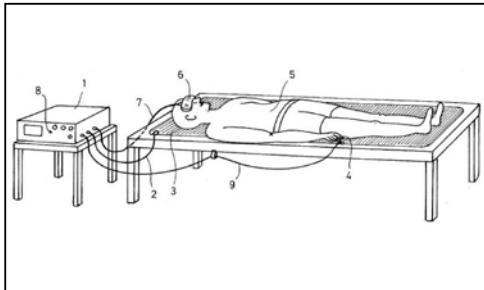
The development of the vita-life® R system led quasi "incidentally" to the filing of four patent applications for inventions which were made for the realization of the system.

The following vita-life® R-system elements have been registered for patent:



- **the connection and control of magnetic resonance stimulation and biofeedback**
- **uniform magnetic field due to equifield® applicators**
- **the rod applicator with targeted forward action**
- **the glasses with digital colour lenses for light and colour therapy**

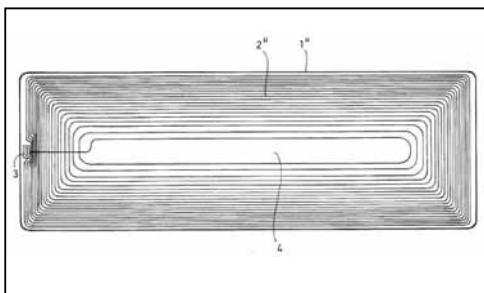




Drawing of the patent application

## Connection of magnetic Resonance stimulation and biofeedback

Vegetative and motor functions are recorded during the treatment of the user by means of a finger biofeedback sensor and evaluated in the vita-life® R-system control unit. The therapy parameters are continuously adjusted in "real time".



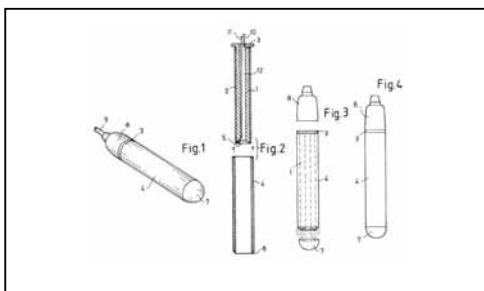
Drawing of the patent application

## equifield® applicators

### Uniform magnetic field for a balanced organism

In magnetic resonance stimulation, magnetic field mats with individual circular conductor loops distributed over the entire surface of the mat applicator have usually been used up to now. The resulting field strength distribution of the magnetic field is very irregular (inhomogeneous) over the entire area of the applicator: a pronounced maximum of the magnetic field strength is found in the area of each conductor loop. Between the conductor loops, on the other hand, the magnetic field is very weak, so that no sufficient therapeutic effect can be expected in these areas.

In the equifield® applicators there is only one coil, which is spirally wound. The distance between two adjacent conductive tracks in different sections of the carrier is different, thus a uniform (homogeneous) magnetic field is achieved over the entire surface of the mat applicator.

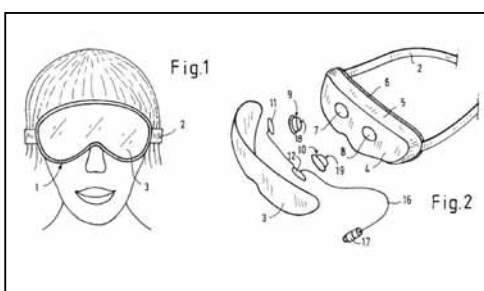


Drawing of the patent application

## Rod Applicator with targeted effect

The problem with conventional rod applicators in magnetic resonance stimulation was the fact that a magnetic field with a similar field strength was created at the rear end as at the front end. Thus, the user of the device was exposed to the same magnetic field as the patient being treated.

vita-life® solved this problem with the new R-system rod applicator in that the core has a radial section extending behind the coil and an outer core section adjoining it and surrounding the coil. This achieves a concentration of the magnetic field on the area to be treated.



Drawing of the patent application

## Glasses for light therapy

The housing of the coloured light goggles of the vita-life® B system contains three different coloured light sources, whose light intensities can be regulated separately, and at least one luminescent screen consisting of diffuse translucent material. The intensity and colour of the light can vary in a predefined rhythm.

Such light therapies and colour therapies can be combined very well with magnetic resonance stimulation, electrostimulation therapies or sound therapies and generally serve to relax and promote the well-being of the patient.

## Technical data

### Control unit

Type of device: Electro-magnetic resonance system  
 Type designation: vita-life® R system  
 Nominal voltage: 15 V AC  
 Rated frequency: 50 Hz  
 Rated input: 30 VA RF  
 frequency: none  
 Operating mode:  
 continuous operation  
 Type of construction:  
 portable unit Degree of protection: Type BF ( )  
 Separating measure between mains and secondary circuit: plug-in power supply unit type PA66150-200-23 Thermal fuse cannot be reset  
 Output voltage at applicator socket:  
 max. 30 V DC voltage  
 Applicator sockets: XLR connector system  
 Application duration: program-dependent  
 Dimensions (W x D x H): 30.0 x 23.5 x 9.0 cm  
 Weight: 1.25 kg without battery block  
 Operating temperature: +10° C to +40° C  
 Storage temperature: 0° C to +70° C

**Version A:** Medical device  
 according to Directive 93/42/EEC - CE 0482  
 vita-life® R-System wellness MED, fitness MED

**Version B:** Wellness product - CE  
 vita-life® R-System wellness SOFT, fitness SOFT

Frequencies: Frequency spectrum from approx. 0.01Hz to approx. 20,000 Hz  
 Signal: program-dependent signal bundle (preferably sawtooth-shaped) Field characteristics: Zero lines asymmetric (na), pulsating alternating field  
 Performance: flux densities at the applicator (3 cm distance) between 2 µT and 200µT (400µT) +/- 10%.

### Certification

The vita-life® R-System is produced in Germany, Austria, Liechtenstein and Switzerland and is certified according to DIN EN ISO 13485:2003. It is designed and manufactured in accordance with the European Directives 89/336/EEC on electromagnetic compatibility and 93/42/EEC of the Council on medical devices. Harmonized standards such as EN 61000-4-ff and EN 60601-1-2 were applied. Internationally, it meets the strict requirements of the IECCE CB SCHEME. It is UL approved and approved for the USA and Canada.



**vita-life® E-Smog Protector**  
 intermediate switching device for the significant reduction or avoidance of exposure to alternating electric fields.  
 Enables an almost "E-smog"-free magnetic resonance stimulation with the vita-life® R-System.



## Software:



### vita-life® R-System wellness chip card

The ChipCard vita-life® R-System wellness is ideally suited for home use and simple application at the doctor's office as well as for every animal lover. It offers 3 special programs. Intensity up to 200

### vita-life® R-System fitness Chip Card

The vita-life® R-System fitness chip card is used in the sports and fitness sector, both for human and animal applications. It offers 9 special programs. Intensity up to 400

### vita-life® R-System wellness/ fitness light50 chip card

Based on the wellness or fitness chip card as a "light50" version. Software for very sensitive or older users.

Flux density is 50 % of the set value in each case.

#### vita-life® Software: wellness - wellness light50

Applicator	Program		Time [min]												Intensity [%]							
	available	∞	1	2	6	8	12	16	20	24	28	36	40	48	SENS	10	25	50	100	200	400	
Body																						
	AUTO																					
Local																						
	P 13																					
	P 14																					
N/A*)	P 15																					
Special																						
	P 16																					
	P 21																					
	P 24																					

#### vita-life® Software: fitness - fitness light50

Applicator	Program		Time [min]												Intensity [%]							
	available	∞	1	2	6	8	12	16	20	24	28	36	40	48	SENS	10	25	50	100	200	400	
Body																						
	AUTO																					
Local																						
	P 13																					
	P 14																					
N/A*)	P 15																					
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