

# BEMER PRESENTATION OF MEDICAL CASES

---

1. FUNDAMENTAL RESEARCHES USING THE BEMER TECHNOLOGY

Page 6

**Dr. med Rainer Klopp** (Berlin)

Clinical studies on the physical stimulation of flexible arteriolar wall movement with disturbed autorhythmic and centrally controlled in patients with deficiencies in the regulation of blood circulation of organs

**Dr. Péter Kesserű Ph.D., MSc** (Szeged)

Effect of BEMER applications on the formation of biopolymers of certain bacterial strains

---

2. OTORHINOLARYNGOLOGY

Page 9

**Habil. Géza József Kiss DPHYS, Ph.D., CSC** (Szeged)

Using the BEMER therapy in the otorhinolaryngology departments

**Dr. Krisztina Cséplő** (Budapest)

Using the BEMER therapy in oral surgery – new options in the treatment of jaw bone necrosis caused by bisphosphonate

**Dr. Imre Szilágyi** (Szentes)

My experiences with the BEMER therapy in patients with tinnitus

---

3. ENDOCRINOLOGY AND DIABETOLOGY

Page 14

**Dr. Sándor Iván Bernát Ph.D.** (Budapest)

Efficacy of the BEMER therapy and pentoxifyllin infusion therapy in lower limb obliterative arterial disease

**Dr. István Rozsos Ph.D.** (Pécs)

Lower limb circulatory disorders and efficient supplementary therapy BEMER therapy – experiences of 5 years

**Dr. Margit Miléder** (Veszprém)

Possible application of the BEMER therapy in late diabetes complications

**Dr. Imre Balogh** (Debrecen)

Using BEMER therapy in endocrine and metabolic syndromes

---

4. REHABILITATION AND NEUROLOGY

Page 21

**Dr. Éva Csécsei** (Budapest)

Pain relief using BEMER therapy in neurology

**Dr. Péter Duray** (Kakasszék)

Effect of BEMER therapy on the strength of tensor fascia lata muscle in sclerosis multiplex

**Dr. Roberto Gomez, Dr. Izabella Gomez** (Debrecen)

Experiences on the efficacy of electromagnetic field therapy (BEMER) in some rheumatologic diseases

**Dr. Matild Kovács** (Budapest)

BEMER therapy in rehabilitation

**Dr. Terézia Szemerszki** (Miskolc)

Treating stroke and motor neuron disease using BEMER therapy

## 5. TRAUMATOLOGY

Page 30

**Dr. György Seress** (Vác)

Healing and quality of life – experiences with the BEMER therapy

**Dr. Zoltán Németi** (Debrecen)

Using BEMER therapy in neurosurgical syndromes

## 6. DERMATOLOGY

Page 35

**Dr. Ilona Horváth** (Gödöllő)

Experiences with the BEMER therapy in the treatment of chronic wounds and other dermatologic syndromes

## 7. OPHTHALMOLOGY

Page 37

**Dr. Borbála Garai** (Jászapáti)

Possible uses of the BEMER therapy in ophthalmology

## 8. DENTISTRY

Page 39

**Dr. Annamária Cakó** (Budapest)


Gremlins of dentistry and the BEMER therapy

## 9. VETERINARY MEDICINE

Page 40

**Dr. László Mezősi** (Budapest)

Using BEMER therapy in some domains of veterinary medicine



**FOR YOU :: FOR LIFE :**



## PREFACE //

### HEALTH

Microcirculation is functionally the most important part of the human circulation system, which takes place in the smallest blood vessels and fulfils vital transport functions: it provides the tissues and organs with oxygen and nutrients and removes metabolic waste-products and supports the immune system. A limited or malfunctioning microcirculation is the cause of many conditions of poor health as well as illness, which leads to a faster aging of the cells.

### SUPPORT FOR MALFUNCTIONING MICROCIRCULATION

An expensive research for an effective alternative for the treatment of limited or malfunctioning microcirculation using medicinal products was conducted in the Institute of Microcirculation in Berlin, headed by Dr. Klopp, which resulted in the development of a specific complex signal configuration allowing for a very effective stimulation of the regulatory processes of the malfunctioning microcirculation.

These researches were based on the BEMER devices developed earlier, which applies a particular pulsating electromagnetic field of low intensity. Its effects, already confirmed at that time, were very promising for a targeted development.

New scientific fundamental knowledge gathered during years of intensive research constitutes a new starting point in the optimization of the therapy. This new BEMER system is not only a directly improved version of the earlier system, but it is also a quantitative and qualitative leap which has not been considered possible at the beginning of this research.

**BEMER therapy system is now the most researched and most effective physical treatment method used in limited microcirculation!** (Dr. med. R. Klopp, Institute for Microcirculation, Berlin)

In the case of the new BEMER systems the device improvements have been preceded by a significant gain in scientific knowledge. These discoveries involved the rhythmic processes in the small and big arterioles with different vibration characteristics, local (BEMER 3000 plus) and higher-level regulatory mechanisms of the artery walls, and above all, the distribution of mixture of plasma and blood cell as a result of all these processes in the capillary network.

# : FOR ENERGY

Based on this new knowledge, a complex signal configuration was developed, determined by the biorhythm, to stimulate limited microcirculation, which is called the BEMER technology 2010.

The complex BEMER stimulation signal is represented by a composite waveform with the following particularities: different frequencies of the partial waves (local and higher-level regulation), specific envelope curve of the waveform, defined by the biorhythm, with a low-intensity pulsating electromagnetic field used as carrier.



## FUNDAMENTAL RESEARCH USING THE BEMER TECHNOLOGY

### CLINICAL STUDIES THE PHYSICAL STIMULATION OF FLEXIBLE ARTERIOLAR WALL MOVEMENT WITH DISTURBED AUTORHYTHMIC AND CENTRALLY CONTROLLED IN PATIENTS WITH DEFICIENCIES IN THE REGULATION OF BLOOD CIRCULATION OF ORGANS

**Dr. med Rainer Klopp , Associate Professor**  
**Institute of Microcirculation, Berlin**

#### Objective

Detection of possible therapeutic effects of biorhythm-based physical stimulation in limited or malfunctioning flexible arteriolar wall movement for the therapeutic optimization of recognized preventive, rehabilitation and clinical treatment procedures.

#### Materials and methods

This randomized blind study was conducted on a nearly homogenous sample of a total number of 28 male rehabilitation patients (based on physiotherapeutic conditioning) aged of 55 to 65 years. The participants were randomly assigned to one of 3 subgroups: control group (n=14): treated using physiotherapeutic conditioning according to standard practice, and treatment group (n=14): treated using physiotherapeutic conditioning according to standard practice + supplementary physical stimulation of the flexible arteriolar wall movement.

The BEMER system is used as a study device to stimulate the flexible arteriolar wall movement (a biorhythm-based stimulation signal, which is transmitted by a weak electromagnetic field with a specific flux). The treatment group received supplementary therapy using this device for 2 x 15 minutes per day.

The duration of the treatment was 30 days; the duration of measurement was 40 days (10-days follow-up).

Measurement points at identical intervals of 5 days (specific measurements with boundary conditions).

Non-invasive measurement methods: macrocirculation (RR , Hf), intravital-microscopic examination unit with computer-aided secondary image processing (OLYMPUS, ZEISS, ARRI, and KONTRON systems), vital microscopic reflection spectrometry (SPEX system), combined white light spectroscopy and laser micro-flow measurement (LEA system).

The representative features of the functional status of the microcirculation, and the intracellular and humoral immune response of the subcutaneous and intestinal target tissue were evaluated:

functional status of the flexible arterial wall movement – AVM (area under the curve of the amplitude-frequency spectrum), number of nodes impregnated by blood cells in the microvascular network – nNP, oxygen use on the venule side –  $\Delta pO_2$ , initial lymphatic volume flow – QL, number of leucocytes migrating in a specific tissue volume – nBC/V, ICA M-1 etc. Biometry: WILCOXON rank-sum test ( $\alpha = 5\%$ ).

#### Results

During the 40 days of measurements, the following maximum changes in indicators were determined in two partial samples in the intestinal tissue to be accessed using the treatment:

Features	Control group Typical maximum percentage change compared to the baseline value on Day 0	Treatment group Typical maximum percentage change compared to the baseline value on Day 0
AVM	8,6 (+/- 2,51)	29,7 (+/- 2,36)
nNP	4,4 (+/- 1,80)	32,8 (+/- 2,50)
$\Delta pO_2$	3,1 (+/- 1,03)	29,3 (+/- 1,76)
QL	11,6 (+/- 2,56)	42,1 (+/- 3,61)
nBC/V	4,7 (+/- 1,47)	32,5 (+/- 2,60)

After the treatment is completed on Day 30, in the control group these values have returned to baseline by Day 40 unlike in the treatment group.

### Conclusions

In addition to physiotherapeutic conditioning according to standard practice, using the BEMER system (physical stimulation of limited flexible arteriolar wall movement) in rehabilitation patients suffering from infection and stress leads to a clear increase in the therapeutic outcome (it improves the supply with nutrients of tissues and promotes the immune response).



BEMER B.BOX PRO



## EFFECT OF BEMER APPLICATIONS ON THE FORMATION OF BIOPOLYMERS OF CERTAIN BACTERIAL STRAINS

**Dr. Péter Kesserű, Ph.D., MSc**  
“Bay Zoltán” Foundation of Applied Research  
Director of the Bioremediation Department,  
Institute of Biotechnology (BayBio)

Chronic lung infections with mucoid *Pseudomonas aeruginosa* and the associated inflammation are the main cause of morbidity and mortality in patients with cystic fibrosis.

Removing the mucoid *Pseudomonas aeruginosa* from the lung tissue using classic therapy with antibiotics is rather difficult because the cells in the alginate biofilms have become increasingly insensitive to antibiotics.

There are a few new approaches to break the alginate exopolysaccharide structure to increase the efficiency of the therapy with antibiotics, such as inhalation of alginate lyases and aminoglycosides, or in vitro administration of antibiotics and weak electromagnetic fields (DC, 10-20 V, 20 mA, distance: 2.5 mm).

The 24-48 hours biopolymers of the *Pseudomonas aeruginosa* were evaluated during treatment with electromagnetic field using irradiation with extremely weak BEMER 3000 Signal Plus to examine the effect of the magnetic field on the alginate structure.

Direct application of the BEMER electromagnetic field (without distance) using 50  $\mu\text{T}$  and 100  $\mu\text{T}$  for 8 minutes (24 hours biopolymers) decreased by 55.5% and 58.3% the viscosity of the biopolymers studied, respectively. Setting the field strength to 100  $\mu\text{T}$ , increasing the distance of the irradiation (5 cm) led to an increase of 65% in the destructive effect on the biopolymers. The efficacy of the therapy depends not only on the distance, but also by the duration and the continuously changing field strength (60-100  $\mu\text{T}$ ). Apparent viscosity has dramatically decreased in the case of all biopolymers (48 hours and well structured) treated using a field with a strength of 60-100  $\mu\text{T}$  for 20 minutes.

Although the BEMER magnetic field broke the structure of the biopolymers, it had no negative effect on the viability of *Pseudomonas aeruginosa* cells. Based on this, the live cells (KbE 108) have reorganized the alginate after 24 to 48 hours which led to higher apparent viscosity. After a combination of ciprofloxacin (2  $\mu\text{g}/\text{ml}$ ) and magnetic field (60-100  $\mu\text{T}$ , 20 minutes, distance: 5 cm), the full loss of the regeneration capacity of live cells was observed 24 hours after the irradiation. In such cases, 100% and 89% of the biopolymers examined lost their structure after 24 hours and turned into a Newtonian fluid after 96 hours, respectively. After administering Ciprofloxacin (2  $\mu\text{g}/\text{ml}$ ) alone 57% and 67% of the biopolymers examined 57% lost their structure after 24 hours and turned into a Newtonian fluid, respectively. After these experiments, 102 KbE was measured in the *Pseudomonas aeruginosa* for both treatments.

These results indicate that, in combination with classic antibiotic therapy, the BEMER 3000 Signal Plus electromagnetic field therapy, based on its capacity to destroy biopolymers, constitutes a gentle supplementary therapeutic option for patients with cystic fibrosis.



**OTORHINOLARYNGOLOGY****USING THE BEMER THERAPY IN THE OTORHINOLARYNGOLOGY DEPARTMENTS**

**Habil. Géza József Kiss DPHYS, Ph.D., CSC**  
**Audiology Department, University of Szeged**

Other authors: A. Gáborján\* , Á. Szirmai\* , I. Szilágyi\*\* , J. Jarabin

\* Semmelweis University, Otorhinolaryngology Department, Budapest

\*\* Otorhinolaryngology Department, Szentes Hospital



BEMER therapy was tested for new indications in certain cases of tinnitus, balance disorders and impaired hearing. We continue by summing up the findings of this study conducted at the Otorhinolaryngology Departments of Hungarian hospitals.

There were 67 patients involved in the study (mean age: 61 years). The youngest and the oldest patient were 34 and 86 years old, respectively. Two third of the patients were women, while one third were men. All participants had undergone a full clinical examination in compliance with the relevant guidelines. In many cases, medication was not sufficient, while in some cases medication was refused by the patients due to possible adverse effects. Therefore, BEMER therapy was administered after or instead of medication.

The BEMER impulse is an internationally patented electromagnetic field that improves circulation, especially in the capillaries, activates the metabolism, stimulates the renewal of cells, provides cells with energy, improves oxygen supply and circulation, and relaxes the muscles. Tinnitus, neurosensory hearing impairment or balance disorders are frequently caused by inappropriate circulation, conditions affecting the cervical spine, muscle cramps, or nervousness, and therefore in these cases, good results may be expected using the BEMER therapy. Ten sessions of treatment, 28-minutes each, were performed, which is initiated with a session of eight minutes on the mat applicator (Program P1), followed by a session of 20 minutes using the intensive applicator (Program P4) placed above the back of the neck in the occipital and retro-auricular position.

In our study, 65% of the cases showed an improvement, i.e. a decrease in complaints. In 35% of the cases complaints remained unchanged. No deterioration was observed.

During these treatment sessions, most patients have felt tingling, somnolence and relaxation. Some patients felt that they were being charged with energy. A large proportion of the patients reported an improvement in joint pain, sleeping disorders and vascular problems, and in general, an increased activity.



## USING THE BEMER THERAPY IN ORAL SURGERY - NEW OPTIONS IN THE TREATMENT OF THE OSTEONECROSIS OF THE JAW CAUSED BY BISPHOSPHONATES

**Dr. Krisztina Cséplő**  
Military Hospital, Oral Surgery Ambulance

A hardly treatable and commonly therapy-resistant defect in the oral cavity membrane is the osteonecrosis of the jaw caused by medicines containing bisphosphonates (ONJ). The pathomechanisms of this disease, known since 2003, is still not charted in detail and several factors may be involved. Bisphosphonate therapy is widely used in patients with bone metastases from a primary tumor, osteoporosis, myeloma multiplex, or other diseases with loss of bone. Medicines may be intravenous or tablets. In patients with myeloma multiplex and tumor metastasis, intravenous medicine is part of the treatment protocol. Osteonecrosis of the jaw is observed in patients who received long-term oral or intravenous bisphosphonate therapy, and afterwards they suffered some bone trauma in the oral cavity, or underwent a dental intervention or eventually oral surgery.



>> Osteonecrosis of the jaw in Stage 3. A great portion of the lower jaw bone is clearly necrotic and exposed



>> The panoramic X-ray shows the necrotic portion on the lower left jaw

One of the leading symptoms of the bisphosphonate-induced osteonecrosis of the jaw is the development of a defect of the mucous membrane, the exposed jaw bone and the necrosis of the jaw bone. After dental interventions, the disease starts to develop at the place of the tooth extraction with a small and painless wound of the mucous membrane.

The exposed bone (without epithelium) may be a further source of infection that can lead to the extension of the necrosis.

Thus, with the progression of the disease, osteonecrosis may affect an increasing area of the jaw. At this stage, symptoms may include pain, swelling of the face, purulent fistula and pathological fracture. In early stages of the disease, conservative treatment with antibiotics is recommended based on the recommendations and classification of the American Association of Oral and Maxillofacial Surgeons (AAOMS); however, in more advanced stages surgery is unavoidable. After removing the bone sequester or sometimes a larger portion of the necrotic jaw bone, slower healing of the mucous membrane, wound breakdown or dehiscence during healing may frequently occur, eventually associated with a relapse of bone necrosis.

The disease is likely to develop as a result of the fact that the jaw bones are separated from the environment by a very thin mucosa (unlike the other bones in the body) and that the oral cavity, by default, contains a large volume of diverse bacteria.

Any intervention affecting the mucous membrane may directly injure the bone, and therefore the protection of the jaw against bacteria becomes an important task. Bisphosphonates remain in the bone for 5 to 10 years, and although they aim at strengthening the bones (with great success) by inhibiting the functioning of the osteoclasts, they interfere with the dynamics of the bones and make them more prone to infections. BEMER therapy is successfully used in several medical areas in the treatment of chronic inflammation.

Its mechanism is based on a special pulsating magnetic field through which a physical agent, administered to the body, improves microcirculation which consequently also leads to an improvement in the artery metabolism. One of the characteristics of necrotic tissues is that the blood flow is stopped. It is well known that microcirculation is of key importance in wound healing as well. Healing of a tissue with impaired blood supply is very doubtful, often completely hopeless.

It was proposed that if the necrotic bone is surgically removed, post-operative magnetic resonance therapy may play a role in the prevention of the recurrence of jaw osteonecrosis by improving the blood circulation in the remaining healthy bone.

Improper healing of the mucous membrane observed in the osteonecrosis of the jaw (ONJ) is likely to improve as a result of the microcirculation enhancing effect of BEMER therapy.

The efficacy of BEMER therapy was studied after surgical interventions due to bisphosphonate-induced ONJ showing a very poor healing tendency and in patients with ONJ and mucosa defect to be treated with conservative therapy based on the relevant recommendations. Our study showed that BEMER therapy may be efficiently used during post-operative recovery to improve healing and to prevent relapse of the bone necrosis. Further studies are ongoing in initial stage, that is, in patients who do not yet require surgical care, assuming that BEMER therapy may also be useful in their case in the reduction of the progression of the disease.



>> A symptom-free area after multiple surgical interventions necessitated by relapses and treated with the BEMER therapy following the last surgery.



BEMER B.SPOT



## MY EXPERIENCES WITH THE BEMER THERAPY IN PATIENTS WITH TINNITUS

**Dr. Imre Szilágyi, chief physician, head of department**  
**“Dr. Bugyi István” Hospital, Szentes, Otorhinolaryngology Department**

Tinnitus is a symptom that has been observed with increasing frequency in our patients during recent years and decades. According to international figures (based on British and Swedish surveys), this condition causes long-term problems in 8-10% of the population. The number of patients with tinnitus has increased in recent years in Hungary, as well. This symptom can be caused by many diseases, and therefore patients with tinnitus must undergo a thorough examination.

Tinnitus can be either objective, when it can also be heard by the physician observing the patient (very seldom), or subjective, when the symptoms are observed only by the patient.

After the examinations, in case of the majority of the patients the cause of tinnitus cannot be determined. Treatment of this patient group has always been a great challenge for otorhinolaryngology specialists. Over time, many different medicines and treatment methods were used in an attempt to treat tinnitus patients. The table below summarizes the most important medicines and treatment methods used at present:

Medicinal products	Vasodilators, agents to improve brain microcirculation, blood-viscosity reducing agents, anxiolytics, tranquilizers, Lidocain, serotonin antagonists, etc.
Different treatment methods	Tinnitus retraining therapy, hyperbaric oxygen therapy, various physiotherapies.
Different stimulation techniques applied around the ears	Electric stimulation, high frequency ultrasound stimulation, electromagnetic stimulation.

Intravenous administration of brain circulation and microcirculation improving agents (pyracetam, pentoxifyllin, vinpocetine) comprise the most widely used therapies in Hungary. This is also the therapy applied in case of tinnitus patients at our department for years.

About 4 years ago, we started to use BEMER therapy in addition to the above described therapy, as a result of which significant improvement of the therapeutic outcome was observed.

In order to scientifically confirm the positive effects of the BEMER therapy in the treatment of tinnitus, we have conducted a randomized, double-blind, placebo-controlled clinical study.

Patients admitted to our department with tinnitus, who had been previously examined, were divided into two groups. Patients who were given odd and even numbers at admission were included into Group I and Group II, respectively. A number of 108 and 106 patients were included in the first and the second group, respectively. Patients in Group I were administered 200 mg pentoxifyllin in infusion and 2 x 1200 mg piracetam orally. In addition, 1 session of BEMER therapy was administered using BEMER 3000 Signal Plus device. The program used was as follows: mat P2 and intensive applicator P4 placed on the temporal region of the skull. This treatment was continued for 8 days.

Patients in Group II received the same medicines as those in Group I. However, in their case we used placebo BEMER therapy, i.e. during a simulated BEMER treatment session the device was not activated. Each patient treated with real BEMER therapy was followed by a patient treated with placebo BEMER therapy. These sessions were performed by a qualified assistant and the physician assessing the results received the data only after the completion of the treatment.



The study results are summarized in the table below:

Results of Patient Group I (n=108): (receiving real BEMER therapy)			Results of Patient Group II (n=106): (receiving placebo treatment)		
Tinnitus resolved	24	22,20%	Tinnitus resolved	9	8,50%
Tinnitus improved	51	47,30%	Tinnitus improved	39	36,76%
Tinnitus unchanged	33	30,50%	Tinnitus unchanged	57	53,80%
Tinnitus worsened	0	0,00%	Tinnitus worsened	1	0,94%

When comparing the data in the table, it can be determined that a significantly higher number of patients reported that the tinnitus was resolved or had improved in the group receiving real BEMER therapy (Group I) than in the placebo group. The results were evaluated using statistical analyses. The statistical significance of the difference in the distribution of the status change in the two patient groups was checked using the  $\chi^2$  test showing a value of  $p=0.001$ . Based on that, it can be stated that the difference between the results of these two groups is statistically highly significant.

**These statistical analyses therefore confirmed that the BEMER therapy significantly improved the results obtained using medicines only. Our study confirmed our previous clinical experiences that BEMER therapy can be successfully administered in patients with tinnitus.**



BEMER PRO-SET



## ENDOCRINOLOGY AND DIABETOLOGY

### EFFICACY OF THE BEMER THERAPY AND PENTOXYPHYLLIN INFUSION THERAPY IN LOWER LIMB OBLITERATIVE ARTERIAL DISEASE

Sándor Iván Bernát Ph.D..

HM State Health Centre, Department of Internal Medicine I - Angiology

#### Background

It is known that pentoxifyllin therapy and the BEMER physiotherapy have a positive effect on microcirculation. BEMER therapy increases the spontaneous arteriolar vasomotion, the number of open capillaries and local pO<sub>2</sub>. Pentoxifyllin increases the deformability of red and white blood cells and decreases the aggregation of thrombocytes. Our study aimed primarily at determining whether a pulsating magnetic field has a positive effect on the microcirculation of patients with lower limb obliterative arterial disease, and whether consequently the blood circulation of the limb can be improved and the pain-free and/or maximum walking distances can be increased.

#### Patients/method

30 patients with lower limb obliterative arterial disease (Fontaine IIa and Fontaine IIb) were included in the study. The inclusion criteria included dysbasic complaints, abnormal results of physical examination, ABI < 0.9, and arterial circulatory deficit confirmed by an examination using a bidirectional Doppler device. Patients with musculoskeletal disorder, severe heart disease, cardiac decompensation and respiratory insufficiency were excluded.

In the first step (at inclusion), both the pain-free and maximum walking distances were measured using treadmill (speed: 3.6 km/h and a slope of 0%). One week later (placebo period), these values were measured again. The patients received 8 sessions of BEMER therapy (2x8 minutes each session). At the end of this treatment period, the pain-free and maximum walking distances was measured again. Following that, patients were administered eight sessions of treatment (2x200 mg pentoxifyllin daily in 2 infusions of 250 ml), and the pain-free and maximum walking distances were measured again.

#### Results

At the end of the placebo period, the pain-free and maximum walking distances showed a mean increase of 8.7% and 11.6%, respectively. This placebo effect was subsequently omitted. As a result of the BEMER therapy, the pain-free and maximum walking distances increased by 57.4% (p=0.005) and 36.6% (p=0.042), respectively. The subsequent pentoxifyllin-containing infusion therapy further increased these distances by 15.5% and 20.5%, respectively.

In total, the combined therapy (BEMER + rheology) increased the measured values by 81.9% and 84.0%, respectively. This combined therapy significantly increased the walking capacity compared to the pre-treatment status (p=0.000373 and p=0.00741). The Bio-Electro-Magnetic-Regulation lead to good and excellent clinical results in 43% of the patients, while 70% of the patients treated with combined therapy showed good and excellent results.

#### Discussion

BEMER therapy has a positive effect primarily on the arteries of microcirculation (pre-capillary, capillary and post-capillary vessels), while pentoxifyllin infusion therapy improves limb blood circulation by changing the hemorheologic parameters (red blood cells, white blood cells, thrombocytes). These treatments complement each other and lead to good and excellent therapeutic results in 70% of the cases.

## LOWER LIMB CIRCULATORY DISORDERS AND EFFICIENT SUPPLEMENTARY THERAPY BEMER THERAPY - EXPERIENCES OF 5 YEARS

**Dr. István Rozsos Ph.D.,**  
MBA Theta Center, Pécs



Surgical techniques tend to develop towards minimally and optimally invasive methods. In addition, standardized conservative methods provide a well-set base for these treatments.

The pathological processes are based on circulation defects, so any improvement of the circulation leads to reappearance of the conditions required. This, of course, is not sufficient in many pathological events, but it is part of the whole in any case. Angiologists have an easy task since they have to deal not only indirectly, but also directly with circulation insufficiency cases. In everyday practice, efficacy is largely influenced by patient compliance. In addition, the harmful effects of improper healing factors are also permanently present. In this confusing mixture of therapies, there is a stable bastion, a real team player, that is the BEMER therapy. Taking into account that the device currently used it is not a simple magnetic therapeutic unit, but a device that can address several challenges of a sick body. It is clearly a device for conservative treatments, to be used together with the other components of traditional healing such as training, exercises, fluid therapy and drug therapies. The steal effect may be harmful in case of many therapies if we cannot establish the necessity of local treatments. A condition following multistage lower limb amputation with difficult healing.



>> Results can be observed only  
after a long treatment period

A good circulation is essential in the healing of ulcus cruris as well. Ulcus cruris – PTS is almost an epidemic which affects not only an individual but the entire family. It is in the border zone of several specialties, i.e. in "no man's land". Its treatment is expensive and is made even more costly by loss of work. Due to the defined circulatory depletion, the efficiency of the BEMER therapy is indisputable.



Extreme angiospasm may lead to limb amputation that requires prompt and intensive treatment. Inflammatory processes are also problematic in case of inappropriate circulation. The area of the elbow also presents difficulties. Multiple explorations had no effect since these do not necessarily improve circulation.



Diabetic limb complications are caused by microangiopathies and macroangiopathies, but we are the ones who bear the responsibility of treating these conditions.

### **ASO and diabetic neuropathy**

A 79 years old male patient was released home at his own risk; otherwise the limb would have been amputated at the Surgical Department of a municipal hospital.

A story that happened over two years ago (54 years old male patient).



In comparison: nothing special happened, we only wanted to save this leg from amputation!



How?

In our practice, we always combine BEMER therapy with fluid and oxygen therapy in addition to classic drug treatments and local wound care methods. Never alone and never conventionally.

What for?

In addition to the success stories, the lack of adverse effects and other risk-free therapeutic options, it should be emphasized that results can be obtained based on the appropriate indication and well-chosen programs; if the BEMER therapy is used as a "supplement", we lose the efficiency provided by targeted treatments and we jeopardize its validity. Diagnostics, treatment plan, intermediate control, confirmation or correction, and follow-up.

Why?

To illustrate this problem: we can use a screwdriver to hammer a nail into a wall, but it is laborious and the result is doubtful because, although the screwdriver is a really great tool, it was made for a different purpose.



## POSSIBLE APPLICATION OF THE BEMER THERAPY IN LATE DIABETES COMPLICATIONS

Dr. Margit Miléder

"Csolnoky Ferenc" Hospital of Veszprém County. Center of Internal Medicine,  
Diabetes and Metabolic Conditions

According to the data published by IDF in 2003, a significant increase in the incidence of diabetes is expected worldwide. Diabetes constitutes a significant burden both for the society and the individual. When analyzing the economic aspect of this social burden, based on a survey in 2009, the health costs related to patients with diabetes account for 13% and 0.65% of the National Health Fund (NHF) and the GDP, respectively.

As regards diabetic patients, their disease leads to a significant decrease in quality of life, the factors of which include the disease and its complications, the diagnostic and therapeutic interventions, the psychological and social problems and the financial burden. These burdens are further increased when subsequently the late diabetic complications occur.

50% of the type 2 diabetes cases are already associated with microvascular and macrovascular complications and risk factors at diagnosis. The cardiovascular and cerebrovascular mortality rates in patients with diabetes also increase despite the fact that social efforts have been made for decades in both healing and prevention. In 1989, the Statement of Saint Vincent established that the incidence of blindness, renal insufficiency and limb amputation caused by diabetes should be decreased by 30% to 50%. Nevertheless, 1 in every 4 patients with T2DM has his or her leg amputated, 1 in every every 5 patients has myocardial infarction and every 6th patient suffers from end-stage renal insufficiency.

From a pathophysiological point of view, the diabetic leg is an autonomous peripheral neuropathy and a condition that develops as a result of lower limb vasoconstriction of different severity and progresses in most cases. It is the main risk factor of non-traumatic lower limb amputations.

Diabetic leg ulcer has a poor prognosis for healing and even if it heals, in 30% to 100% of the cases the wound recurs within one year, which results in 3000-4000 amputations annually in Hungary.



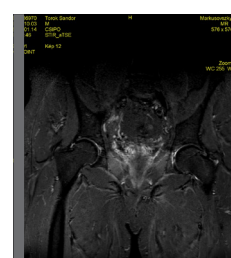
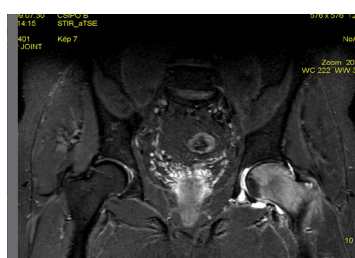
>> Lower extremity amputation is a huge trauma for the patient and involves great expenses for the society. No groundbreaking results have been achieved in the prevention and treatment of diabetes. Subsequently we present the results of BEMER therapy as an alternative method, which has proven to improve microcirculation.

Data were collected retrospectively on the manner BEMER 3000 treatment influences carbohydrate metabolism, the ankle/arm index and the calibrated tuning fork values, the pain based on the VAS scale and the rate of wound healing. HbA1c values decreased from 7.71% to 7.325% ( $p=0.053$ ), without being statistically significant, but a tendency can be observed in the changes. The ankle/arm index (right side:  $p=0.037$ , left side:  $p=0.048$ ) significantly improved. Although the values measured using a calibrated tuning fork also showed an improvement, the change was not significant. The level of pain determined using the VAS scale was reduced.

We also achieved spectacular results in the treatment of diabetic ulcers and stump wounds and none of the patients required further surgical interventions. The BEMER therapy, proven to improve microcirculation, may be used in the primary, secondary and tertiary prevention of late diabetic complications as well.

>> A 57 years old male patient was referred to us by the Rheumatology Department where aseptic necrosis of femoral head was confirmed using MRI.

After 6 weeks of BEMER therapy, the pain was relieved and no abnormality was detected on the femoral head during the control MRI.





## USING BEMER THERAPY IN ENDOCRINE AND METABOLIC SYNDROMES

**Dr. Imre Balogh, Debrecen**  
**Dentofit 2000, professional manager**

Classic endocrine syndromes (hormonal hypostimulation or hyperstimulation) cause changes in the internal balance of the body that are usually associated with visible bodily changes (weight gain, intense growth of body hair, bulging eyes and hair loss). It is the responsibility of the endocrinologist to restore the hormonal balance and, by doing so, to ameliorate and eliminate the patients' complaints. Among the treatments using physical agents, the BEMER device using lower energy pulsating electromagnetic radiation plays an increasing role (affecting motor disorders and vascular syndromes). The following section describes some less known BEMER effects observed in my endocrinology practice.

In addition to its effects that can be used in everyday medical practice, the BEMER therapy has some promising "hot points" as well, which allow for future therapeutic or preventive interventions. It is a common feature of the syndromes concerned that they can be considered "epidemics" as regards their incidence.

### **I. Hypothyroidism**

The vast majority of hypothyroidism cases result from the underactivity of the thyroid gland. This may have two main causes: thyroxin and triiodinetironin deficiency developed as a result of autoimmune chronic thyroiditis (Hashimoto-thyroiditis) and the underactivity caused by the so-called ablative therapeutic interventions (surgery of the thyroid gland, radioactive iodine therapy).

This syndrome occurs mainly in women. Over 40, 5-10% of the women suffer from hypothyroidism.

The proportion of elderly women (above 65) suffering from hypothyroidism is 13%. The most common symptoms include fatigue, progressive weight gain, hair loss, negative mood and infertility and miscarriage in women of childbearing potential. As regards routine laboratory results, a major warning sign can be a high cholesterol level. In establishing the diagnosis, TSH and FT4 values may be indicative. The anti-TPO antibody value, which is indicative of the inflammatory activity of the autoimmune thyroid process, may be used to determine whether it is an active or an inactive disease that is already "burnt out" from an immunological point of view.

BEMER therapy was used in an adjuvant setting in patients previously undergone hormone-replacement therapy, in whom certain complaints (mainly fatigue) still remained despite the permanent euthyreosis (normal TSH level). Naturally, the dose of the hormone treatment was not adjusted during, and for three months after, the BEMER therapy.

The quantitative evaluation of the results was performed using the Rand Vitality Questionnaire (higher scores indicate higher vitality). Our patients filled out this questionnaire before, immediately after and 3 month after the 1-month BEMER therapy. A large proportion of the patients (92%) reported a significant increase of vitality, and a decrease in, or elimination of, fatigue. In the control group (lying on BEMER mats but not receiving effective therapy) the vitality scores showed no or only a limited increase. The scores obtained in the questionnaires, repeatedly filled out three months after the treatment was completed, did not show a significant decrease compared to the results obtained immediately at the end of the treatment. Three months after the BEMER therapy was completed, the anti-TPO antibody, which shows a good correlation with the immune activity, decreased or remained at a level similar to that measured at baseline.

The evaluation of the results showed that in the patient group treated with BEMER therapy subjective fatigue significantly decreased, and the mood of the patients and therapy compliance (positive attitude towards the hormone treatment) improved. The decrease in the serum anti-TPO levels raises the issue whether the BEMER signal (as an immune-modulating physical agent) can be used in the autoimmune conditions of the thyroid.

However, the possibility of influencing immune processes requires further detailed investigations. The fact that during the treatment using a BEMER device TSH level showed no remarkable changes emphasizes the effects on small arteries, skeletal muscles and the immune system in addition to leaving the metabolism and hormonal status unchanged.

## II. Post-partum thyroiditis (PPT)

Post-partum thyroiditis is a less known condition, which however, should be addressed due to its high incidence after birth (affecting 1 in every 15 mothers) and repeated occurrence (relapse).

Autoimmune thyroiditis usually cause transient underactivity of the thyroid ("tired-mother syndrome"); however, cases of transition to hypo-thyreosis requiring a lifelong treatment are not uncommon (25-50%).

Women with normal thyroid function before pregnancy, showing high anti-TPO titer, are at increased risk of developing this disease, just like women with type 1 diabetes. Women with a history of PPT are also predisposed to the recurrence of this disease after birth. The anti-TPO level lowering effect of the BEMER therapy, described above, suggested the possibility of administering this treatment in addition to selenium supplementation (the BEMER therapy may be safely administered during pregnancy). The development or recurrence of PPT was observed in none of our 7 patients (healthy women, but with high anti-TPO titer and with a history of PPT after an earlier pregnancy).

The administration of BEMER therapy in both primary and secondary prevention may play an important role in the reduction of the incidence of this disease. Follow-up studies of several years may clarify whether the BEMER therapy is capable of reducing the risk of transitioning to long-term underactivity in women who had already suffered from PPT.

## III. Graves-Basedow Syndrome (GB) and associated endocrine orbitopathy (EOP)

As regards hyperthyroidism (overactive thyroid), Graves-Basedow syndrome with immunological origin is also an especially important and common disorder. When the immune system is abnormally overactive, specific antibodies are formed which force the thyroid cells to continuously produce hormones (TSHR -Ab or TRA K) at an enhanced rate and independently from feedback regulation.

However, autoimmune inflammation causes changes not only in the thyroid tissue, but also in the connective tissue and the eye muscles in the (so-called retro-bulbar) region behind the eyes.

The typical clinical image of the EOP, associated with the GB syndrome in 10-30% of the cases, is created by the accumulation of substances (pro-inflammatory cytokines: TNF - $\alpha$ , IL -2 and IFN - $\gamma$ ) causing inflammation through local paracrine mechanisms: "bulbous" eyes, stabbing-pushing feeling and "foreign body" feeling in the eyes, lacrimation, photosensitivity and double vision.)

The usefulness of BEMER therapy in this syndrome lies in the anti-inflammatory effect of the Bemer-signal that inhibits TNF- $\alpha$  (similarly to pentoxifyllin used in the treatment of EOP). Therefore, the use of a BEMER device is expected to produce results only in the active, inflammatory phase of the disease.

In mild cases of EOP (CAS<3) the efficacy of BEMER therapy is similar to that obtained with pentoxifyllin infusion therapy. In addition to a significant amelioration of subjective complaints, the orbit MRI and DTPA-SPECT evaluations also confirmed the amelioration of the inflammatory activity affecting the orbit configuration. In the treatment of the EOP BEMER therapy constitutes a very useful supplementary option to reduce the injuries caused by the autoimmune inflammation (secondary prevention).

## IV. Diabetes mellitus (DM) and insulin resistance

Tissue insulin resistance plays a crucial role in the development of type 2 DM associated with the malfunctioning of insulin secreting  $\beta$ -cells. One of the main factors in the development of this disease is the so-called abdominal obesity, i.e. the accumulation of the abdominal fat tissue. One of the parameters that can be used to describe insulin resistance in clinical conditions is the HOMA-index (calculated using the values of plasma glucose and e.g. insulin determination).

During the BEMER therapy of five patients with known insulin resistance, but still not suffering from diabetes (i.e. pre-diabetes, a condition preceding diabetes) the HOMA-index significantly decreased after one month into the therapy, following which it usually returned to the pre-treatment level in some 60-90 days. A similar decrease of the HOMA-index was not observed in the control group. No significant difference was detected in the physical status of the patients, thus no substantial changes were observed regarding body weight and body fat determined using the DEXA method. Further analysis of this phenomenon may provide a theoretical option to influence the tissue insulin resistance which plays a determinant role in the development of type 2 DM.

## V. Polycystic ovary syndrome or disease (PCOS or PCOD)

Based on the so-called "Rotterdam criteria" approved in 2003, the incidence of the PCOS is 26%, affecting half a million (!) women in Hungary. The absence of ovulation renders family planning more difficult (menstruation disorders and fertility), while esthetic problems (enhanced hair growth, obesity etc.) cause grave psychological burden to the patients. Due to associated comorbidities (metabolic syndrome, DM, hypertension and cardiovascular diseases), morbidity and mortality rates are expected to show a substantial increase.

One of the characteristics of this disease is insulin resistance (similarly to type-2 diabetes).

In our ambulatory care facility, BEMER therapy was administered to eight patients who showed no ovulation despite a metformin therapy of at least six-months. Upon the completion of the therapy, 3 patients showed ovulation cycles and one woman had a full-term pregnancy. Two of the five PCOS patients, who had undergone no treatment besides BEMER therapy, also had a successful pregnancy. The observations showed that BEMER therapy, based on a mechanism of action unknown so far, can be used as a therapeutic option to help women with PCOS to get pregnant.

## **VI. Erectile dysfunction (impotence)**

Erectile dysfunction can be caused by endocrinological (testosterone deficiency, high prolactin level), neurogenic (neuropathy caused by alcohol and diabetes or sclerosis multiplex), vascular (diabetes, atherosclerosis and hypertension), urological (congenital abnormalities and injuries), adverse reactions to drugs (blood lowering agents, drugs used in psychiatry) and psychological factors.

Being aware of the positive effects on blood vessels (small vessels and capillaries) of the BEMER therapy, it is not surprising that this therapy should have its place among the currently known therapeutic options. In combination with medicines and psychotherapy or as a stand-alone therapy, the physiological impact of the BEMER-signal shows substantial efficacy.

We used this therapy mainly in desperate patients who fell in the trap of therapeutic nihilism when surgical and hormonal therapy could not be used after proper urological and hormonal examination, and the standard phosphodiesterase-inhibitor drug therapy was not feasible (it was either medically contra-indicated or the patient refused the drug therapy).

BEMER therapy had positive results in 16 out of 19 patients (IIEF > 22 points). The results obtained at the end of the treatment were usually maintained by the patients for 3-4 months, after which the majority of them required a new cycle of BEMER therapy of at least 1 month.

## **VII. Osteoporosis (OP)**

The number of patients with osteoporosis shows an increasing tendency worldwide (at least 1 million patients in Hungary). The cost of treatment represents a continuously increasing financial burden, also due to new therapeutic procedures (intermittent parathormone – teriparatid, monoclonal antibody against RAN KL – denosumab). In terms of its etiology, osteoporosis can be primary (post-menopausal and senile osteoporosis) or secondary (osteoporosis due to other diseases: hormonal, hematopoietic disorders and adverse effects). In addition to the estrogen deficiency, the accumulation of cytokines with local actions (TNF  $\alpha$ , interleukines, RANK ligands) also plays a role in postmenopausal osteoporosis. Senile osteoporosis is mainly associated with the decrease in the activity of the osteoblasts, as well as calcium and vitamin D deficiency.

In addition to the excellent pain relief activity (fractures) of the BEMER therapy in the everyday practice, due to the inhibition of TNF  $\alpha$  and increase of the osteoblast activity, which theoretically can be used, this therapy can become an important supplementary therapeutic option. In patients treated with a widely used, so-called antiresorptive (bisphosphonate) therapy and BEMER therapeutic system, the increase in the bone density is slightly above that measured in the control group; however, another measure of the efficiency of the therapy is the decrease in the fracture risk currently cannot yet be evaluated because of the short follow-up period. In case of vertebral fractures, the pain relief effect was markedly higher compared with the control group.

In addition to this therapy, we should find a place for the BEMER therapy in the prevention of the osteoporosis together with calcium and vitamin D supplementation, and appropriate physical exercises.

Groups at particularly high risk should be identified (positive family history, durable physical exercises, conditions associated with sex hormone deficiency and long-term drug treatment: corticosteroids, heparin and warfarin). In these groups, long-term BEMER therapy may reduce the incidence of diseases associated with substantial burden to both the individual and society.



## REHABILITATION AND NEUROLOGY

### PAIN RELIEF USING BEMER THERAPY IN NEUROLOGY

**Dr. Éva Csécsi, chief physician, practice manager**  
**Belváros-Lipótvárosi Health Service - Budapest**



Pain is one of the most common complaints reported by patients. Every third person on Earth experiences some form of recurring or persistent pain. In Hungary, the large proportion of patients affected by this problem is well shown by the fact that, for example, the life-time prevalence of lower back pain is 60-70%, that is, about 1,000,000 patients. The number of patients with migraine and tension headache is similar.

In addition to the relief of acute pain and postoperative pain, the greatest challenge of pain therapy is the amelioration and relief of chronic pain.

In pain relief, the potential effects of the BEMER therapy on pain are as follows:

- >> dilates blood vessels and improves blood supply by stimulating the nitrogen-monoxide system in the body,
- >> improves microcirculation in damaged tissues and facilitates the excretion of acids and metabolic waste products,
- >> transports more macrophages, lymphocytes and antibodies to the pain center,
- >> reduces swelling and facilitates the optimal regeneration of damaged tissues by activating the anti-inflammatory enzymes,
- >> helps cells to have access to more oxygen by improving microcirculation.

Among the different types of pain, neuropathic pain induced by the primary damage of the nervous system causes the most senseless suffering to our patients. We have processed the data collected over 6 years using the BEMER therapy in our neurology practice in the centre of Budapest. These data were processed retrospectively. In our presentation, we systematized the experiences collected in 165 patients during the treatment of pain according to the protocol configured by us.

85% of the patients suffered of different pain which cannot be sufficiently relieved by drug therapy. Our patients were administered BEMER therapy for sessions of 25-30 minutes, which were financed by the NHF at the neurology outpatient department and could be settled as "magnetotherapy". These sessions were administered over a period of 2.5 weeks.

Treatment was administered using BEMER mat applicator P1 + BEMER 3000 MFA (Multifunctional Applicator) or pillow applicator P4.

We used the Bemer 3000 Signal Plus devices.

Mean age of the patients was 43 years (22-80 years); the proportion of men and women was 32% and 68%, respectively.

In addition to the experiences of 43 patients with different peripheral neuropathic pain (painful polyneuropathy, postherpetic neuralgia, trigeminal neuralgia), we also present the results obtained in 24 patients treated for neurogenic pain of the central nervous system (migraine, SM and post-stroke pain), as well as the improvement and treatment of 82 patients treated for lower back pain of different etiology.

Most laymen and, unfortunately, most physicians believe that pain always has a physical origin and frequently request and perform many unnecessary tests to find a logical explanation.

The dominant view is "There has to be something" which leads to erroneous diagnoses and unnecessary drug treatments.

The experience of pain and reaction to pain largely depend on the current psychological and physical state, education and pain-related beliefs of the patient.

Excluding the above, as a "simple operator" we cannot achieve long-term results in the treatment of patients suffering from pain.

It can be established that in the treatment of pain caused by neurogenic neuropathies, somatization disorders and depression, well-known analgesics (aspirin, NSAIDs and paracetamol) are insufficient, and sometimes severe adverse reactions or drug addictions can occur.

In 30-45% of the patients suffering from pain an improvement is observed after they were given placebo. The treating physician proceeds correctly if he or she tries to make use of the placebo effect and takes into account the recommendations of evidence-based medicine. The most efficient placebo is the competence and reassuring and positive radiance of a good physician.

The “nocebo effect” (the effect of an incompetent, anxious, flustered and frustrated physician) can render ineffective the best agents and methods with confirmed efficacy in the treatment of pain. About 10-15% of the patients have such an encounter.

The same can happen when an incompetent colleague disqualifies a well initiated BEMER therapy administered for pain relief purposes, and hinders or completely interrupts the treatment.

Pain cannot be objectively measured; however, we try to quantify it using different scales. The intensity of pain may be measured using verbal, numerical or visual scales. On such a visual scale (VAS), we observed a decrease in the mean scores of 61% after 2 to 5 weeks of treatment using a BEMER device.

In addition, our patients reported the improvement of the motor performance (25%), elimination of somatic complaints (5%), psychological complaints and the elimination of the associated depression (32%) and a significant improvement in the quality of life (75%).

This therapy resolved tissue damages, trauma-related complaints and pain in 100% of the cases (2 patients with spine trauma).

Acute pain should be promptly and effectively reduced. 3 patients with acute lumbago were locally treated with the BEMER therapy 5-7 times a day. After 2 days, the patients reported a reduction in pain of 60% which allowed for further corrective-gymnastic therapy and supplementary physical therapy.

Pain is a complex phenomenon. Depression, emotional liability and adoption of the “patient role” frequently associated with chronic pain disorder require a complex treatment plan. The combination of the BEMER pain therapy, the adjuvant pharmacotherapy and psychotherapy allows the reduction and/or relief of the pain.



BEMER B.BODY PRO

## EFFECT OF BEMER THERAPY ON THE STRENGTH OF TENSOR FASCIA LATA MUSCLE IN SCLEROSIS MULTIPLEX

**Dr. Péter Duray, , internist, motor rehabilitation specialist, sport physician, medical economist**



In the treatment of sclerosis multiplex, magnetic therapies have always been the most efficient procedures in physiotherapy. This study aimed at measuring the effect of the BEMER therapy on the strength of lower limb extensor muscles in sclerosis multiplex. In the study, 20 patients underwent a physical examination, the EDSS (disease-specific disability test), the FIM (Functional Independence Measurement) to evaluate the disability, and Multicont II computer dynamometric test to measure muscle strength and a video recording to present motor coordination at timepoint 0, regardless of the patients' age, gender, SM type and disease stage. The lower limb muscle strength test was isometrically illustrated by measuring the maximum voluntary torque.

Subsequently, we administered the BEMER therapy over 6 weeks, and then the above measurements and tests were repeated. During these 6 weeks, no adjustments were made in the drug therapy, life style and frequency of physical therapy. The results were compared with the baseline and the opinion of the patients. The beneficial effects of the BEMER therapy can be inferred from the changes in the lower limb muscle strength.

### Results

Overall, according to the objectivized and measured values, all 20 patients showed improvement in muscle strength. On average, compared with the baseline, an increase in muscle strength of 75% and 32% was measured on the weaker and the stronger lower limb, respectively. The difference between the muscle strength of the two lower limbs decreased that lead to the improvement of the walking pattern, balance and coordination. The patients were administered a disease-specific scale, the EDSS, which ranges from 10 (full disability) to 0 (walking without aid).

This test evaluates the relation between the use of aids and walking distance, and their common presence, where an improvement was observed in both measures. Walking distance increased, while the use of aids decreased. On average, the EDSS scores improved from 4.0 to 3.5. The Functional Independence Measurement (FIM) was also used, which illustrates independent activities, including grooming, clothing and use of toilette. This measure also improved. FIM scores increased from 117 to 122.

Therefore, the values correlated with the clinical experiences and the opinion of the patients.

The clear improvement of the clinical symptoms that were not measured included incontinency, fatigue and mood.



## EXPERIENCES ON THE EFFICACY OF ELECTROMAGNETIC FIELD THERAPY (BEMER) IN SOME RHEUMATOLOGIC DISEASES

Dr. Roberto Gomez, Dr. Izabella Gomez

The effects of pulsating magnetic fields on living organisms have been studied for a long time. Recently, the development of the technology allowed us to learn more about their mechanisms of action. Several publications have been issued in this topic; however, the results are not unambiguous and are arguable.

In Hungary the treatment with a BEMER device is an accepted and frequently used therapeutic procedure. Recently, it has been used in an increasing number of domains and with extended indications. The most well-known and important indications of this treatment include inflammatory musculoskeletal disorders. This study presents the results obtained using the BEMER therapy in three categories of diseases: knee arthritis, adhesive shoulder capsulitis associated with diabetes mellitus and bursitis.

Before starting and during the BEMER therapy, the patients were not given anti-inflammatory agents or other anti-inflammatory physiotherapeutic treatment.

The VAS and cumulative WOMAC scores of the patients with knee arthritis, the VAS and ROM results of patients with shoulder capsulitis, as well as the regression of the bursitis also confirmed the efficiency and anti-inflammatory effect of the therapy.



BEMER B.PAD



**BEMER THERAPY IN REHABILITATION****Dr. Matild Kovács, chief physician****“Jahn Ferenc” Hospital in South Pest, “Weiss Manfréd” Department in Csepel**

According to current definition, rehabilitation is a process in the health, mental hygiene, educational, training, retraining, occupational and social systems which aim at developing and maintaining the abilities of disabled persons, facilitating their participation in social life and independent life style (Act XXVI of 1998).

**Objective**

We have been using the first generation BEMER devices at our Rehabilitation Department since 2003. In June 2010 we purchased a BEMER Professional therapeutic system, and we evaluated the efficacy and efficiency of the therapy based on the experiences with this system in patients admitted to our department for multimorbid rehabilitation.

**Patients and methods**

We analyzed the data of patients admitted to the Rehabilitation Department between August 1, 2010 and January 31, 2011, who were treated using the BEMER Pro system. These patient data were retrospectively analyzed.

Status scales (Barthel index, VAS, FIM, FNO) were used at admission and discharge to evaluate the results. 110 patients were included in this study. All patients were admitted to the Rehabilitation Department during the abovementioned period for treatment for their conditions requiring rehabilitation. The Rehabilitation Department is part of a public hospital that ensures care for non-specialized conditions where all diseases are addressed, which cause damages to the musculoskeletal function and disability. Therefore, a wide spectrum of applications could be evaluated such as in post-treatment traumatic injuries, degenerative musculoskeletal disorders, conditions after cerebrovascular lesions and chronic neurological syndromes, internal diseases, immunological syndromes, peripheral vascular diseases, metabolic disorders and tumors.

**Distribution of patients involved in the study**

By gender:	Women: 74	Mean age:	Women: 68,3 years (33 - 98 years)
	Men: 36		Men: 71,5 years (38 - 90 years)

For the purposes of this analysis, patients were stratified based on the disease currently leading to hospitalization, that is, the so-called “main diagnosis”.

The distribution of the patients included is as follows:

Degenerative joint diseases	Total	By gender	
Spondylarthrosis, discopathia:	25 patients	women: 20	men: 5
Primary coxarthrosis, gonarthrosis:	10 patients	women: 8	men: 2
Disc herniation, radiculopathia:	10 patients	women: 7	men: 3
Post-traumatic status:	12 patients		
Hip fracture	7 patients	women: 4	men: 3
Hip and knee prosthesis	5 patients	women: 4	men: 1
Osteoporosis:	5 patients	women: 4	men: 1

Neurological syndromes	Total	By gender	
Post-stroke status with paralysis on one side:	15 patients	women: 10	men: 5
Syndromes associated with dizziness	16 patients		
Vertebrobasilaris insuffitientia, vertigo:	13 patients	women: 7	men: 6
Sclerosis multiplex:	3 patients	women: 2	men: 1
Lower limb vasoconstriction	7 patients	women: 3	men: 4

Characteristics of the patients included in the analysis: multimorbidity – the diagnostic classification was done based on the syndrome currently requiring hospital care and the main symptoms for all patients.

Each patient has more than 3 comorbidities; some of them even had 6-8 conditions.

In 20% of the patients treated the underlying disease was associated with mood disorders requiring moderate and severe medication.

Therapeutic procedures used: medication for the status and condition of the patients, and rehabilitation procedures according to the injuries or disabilities, such as physiotherapy, therapeutic massage, ergotherapy and therapy administered using the BEMER Professional device.

The patients treated with the BEMER Professional device in this analysis were not administered electrotherapeutic treatments.

### Using the BEMER therapy

Individual programs according to each condition: the duration of one treatment session is minimum 16 minutes and maximum 36 minutes.

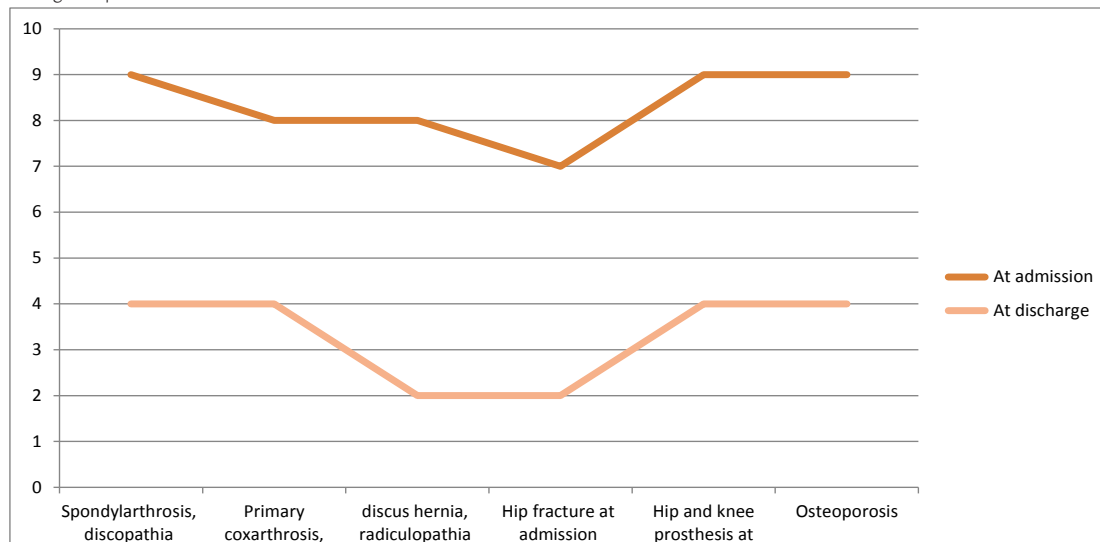
Frequency: once a day, in acute cases twice a day.

Number of treatment sessions – mean number: 15 sessions – 5 times a week, the shortest: 10 sessions – 3-5 times a week, the longest: 30 sessions – 5 times a week.

### Results: Changes in pain based on the VAS 10 Scale

Degenerative joint diseases	
Spondylarthrosis, discopathia	
AT ADMISSION	9 (6-10)
AT DISCHARGE	4 (1-5)
Primary coxarthrosis, gonarthrosis	
AT ADMISSION	8 (5-10)
AT DISCHARGE	4 (1-5)
Disc herniation, radiculopathia	
AT ADMISSION	8 (5-10)
AT DISCHARGE	2 (1-5)
Post-traumatic status	
Hip fracture	7 (6-10)
AT DISCHARGE	2 (1-5)
Hip and knee prosthesis	9 (6-10)
AT DISCHARGE	4 (1-5)
Osteoporosis	
AT ADMISSION	9 (6-10)
AT DISCHARGE	4 (1-5)
Lower limb vasoconstriction	
AT ADMISSION	9 (6-10) walking distance 50 m (10-100 m)
AT DISCHARGE	walking distance: 400 m (60 – 1000 m )

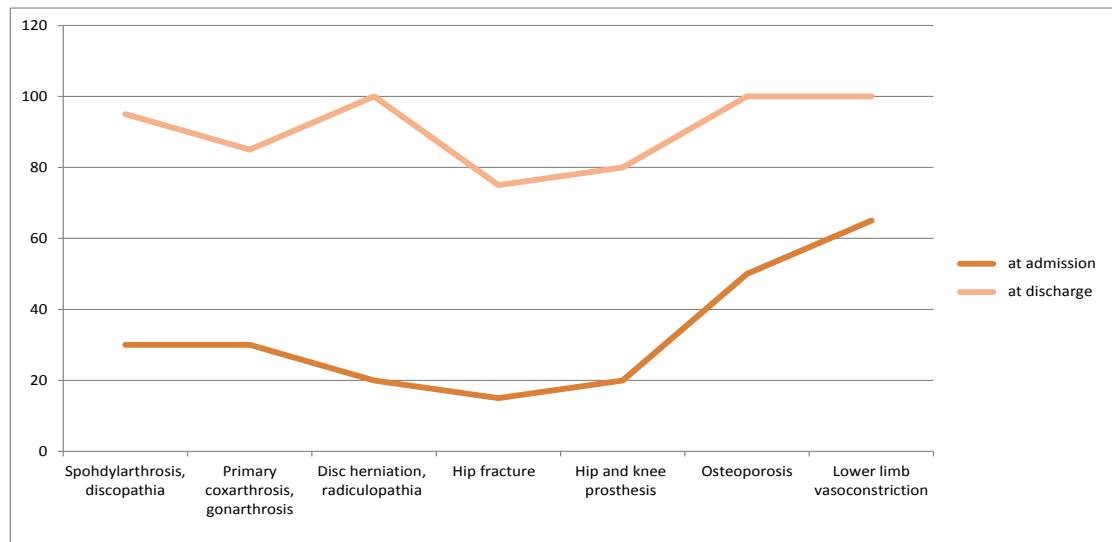
Changes in pain based on the VAS Scale



Changes in the Barthel-index

Degenerative joint diseases	
Spondylarthrosis, discopathia	
AT ADMISSION	30
AT DISCHARGE	95
Primary coxarthrosis, gonarthrosis	
AT ADMISSION	30
AT DISCHARGE	85
Disc herniation, radiculopathia	
AT ADMISSION	20
AT DISCHARGE	100
Post-traumatic status	
Hip fracture	
AT ADMISSION	15
AT DISCHARGE	75
Hip and knee prosthesis	
AT ADMISSION	20
AT DISCHARGE	80
Osteoporosis	
AT ADMISSION	50
AT DISCHARGE	100
Lower limb vasoconstriction	
AT ADMISSION	65
AT DISCHARGE	100
Neurological disorders	
Post-stroke status with paralysis on one side:	
AT ADMISSION	20
AT DISCHARGE	80
Syndromes associated with dizziness	
Veretebrobasillaris insufficientia, vertigo	
AT ADMISSION	60
AT DISCHARGE	100
Sclerosis multiplex	
AT ADMISSION	15
AT DISCHARGE	55

Changes in the Barthel-index - Figure 3



Changes in the FIM and FNO scores that measures self-sufficiency: these scales quantify how much assistance is needed in personal hygiene, eating and self care.

The BEMER therapy provides support in becoming self-sufficient in case of deficiencies in self care associated with all conditions as follows:

Degenerative joint diseases	
AT ADMISSION	requires help to a moderate extent
AT DISCHARGE	self-sufficient
Post-traumatic status	
AT ADMISSION	requires help
AT DISCHARGE	self-sufficient
Neurological disorders	
AT ADMISSION	requires help to a great extent
AT DISCHARGE	requires help to a limited extent
Post-traumatic status	
AT ADMISSION	requires help
AT DISCHARGE	self-sufficient

### Summary

Similarly to the previous first and second generation therapeutic systems, the BEMER Professional device can be used in rehabilitation with good results as an independent therapy. It can improve the efficacy of the health care.

### Effects used in therapy

Analgesic effect: increased production of endorphins; anti-inflammatory effect: harmonization of the vegetative nervous system, improvement of the oxygen supply of cells, dilatation of capillaries, increasing the permeability of blood vessels and promoting the absorption of different fluid accumulation by increasing the permeability. It helps the integration of calcium into the bones by improving circulation. It improves the metabolic processes, increases the reactivity of the conduction of peripheral motor nerves, promotes the regeneration of neurons and improves the intensity of muscle contractions. It accelerates wound healing, and stimulates melatonin secretion, and thus helps physiological sleep and regulates the sleep-wake cycle.

### Benefits of the therapy

It is a non invasive procedure. There is no age limit: it can be used both in elderly and children. There are no known adverse effects so far. It can be well combined with traditional and alternative treatments. A patient-friendly treatment. It allows achieving a symptom-free (complaint-free) state, improves patient compliance, self-sufficiency, improves the quality of life and accelerates rehabilitation. The treatment can be easily repeated and is simple to maintain the state achieved. It is cost-efficient and shortens hospitalization. It does not expose the body to chemicals. When the body reacts, the energy delivered solves not only the symptoms of the diseases, but also influences or improves the changes of other organ systems.



## TREATINGS STROKE AND MOTOR NEURON DISEASE USING BEMER THERAPY

**Dr. Terézia Szemerszki**  
Neurologist



Stroke is the third most common cause of death worldwide, even in developed countries, and causes the vast majority of the disabilities. Brain damage is caused by vascular spasm and bleeding in 90% and 10% of the cases, respectively. When it occurs, the brain area fully lost does not immediately die off, and the “penumbra” or “sleeping” areas can be saved using appropriate methods. The efficiency of traditional therapy can be greatly improved by the BEMER therapy. Using it in the acute phase, the optimal metabolism of neurons can be improved and the secondary lesions caused by the brain pressure can be mitigated by reducing the transient diffuse or circumscribed edema induced by the disease. As a neurologist who performs carotid ultrasound imaging, I meet and ensure care for many acute and chronic patients. I use the BEMER therapy efficiently and with conviction to treat my patients.

**D.A. A 15 years old boy**, transported by the NAS (National Ambulance Service) to the Traumatology Department after collapsing at home because of alcohol consumption after a midnight party, intubated and with a peripheral catheter in his right arm. He had no external injuries with contracted pupils. The limbs on the left side were paralyzed limply; on the right side only limited movement could be elicited by painful stimulus. Emergency head CT scan showed only brain edema, so he was admitted to the Neurology and Toxicology Department. Brain stem symptoms were observed in the evening. The head CT scan done the next day showed a large softening was observed in the brain stem and a softening of 10 mm in the cerebellum. The carotid ultrasound showed no changes. In addition to the abovementioned change, the head MRI and MRI angiography showed the occlusion of an 8 mm segment of the basilar artery before the stem. I was contacted by the mother of the patient on the 3rd day of treatment to request the administration of the BEMER therapy. This treatment was started the next day for 3 times a day. First, the patient became more alert, opened his eyes spontaneously and upon request, after which the patient was able to voluntarily move his right upper and lower limbs, followed by the left lower limb. By the end of Week 4 swallowing gradually improved; the comprehension ability of the patient was good even in the presence of motor aphasia. On Day 6 of the BEMER therapy the follow-up head MRI found an improvement in the refilling of the basilar artery.

**S-C.Gy. A 46 years old man** was admitted to the neurology with acute headache that did not react to analgesics for 1 week and vomiting after visual impairment. An emergency head CT scan showed no changes, but the bloody liquor taken with lumbar puncture suggested subarachnoid bleeding. The head MRI and MRI angiography showed two small aneurysms of the anterior communicant artery. These changes were treated using the endovascular method at the Neurology Department. Subsequently, neck stiffness and increasingly impaired consciousness occurred, and limited limb movement could be elicited only by pain stimulus. The head CT scan found no bleeding, but circulatory depression was described in the region of the anterior cerebral artery on both sides. The patient’s status further worsened by MRSA infection and pressure sores developed. As a result of the rehabilitation treatments, the patient’s status improved and was able to move his lower limbs at discharge, but was not able to hold urine or stool. The BEMER therapy was started in the 7th month after his disease appeared using the BEMER Classic device. By Week 2 of the treatment, he was able to hold urine or stool during daytime. By Week 3, the patient was able to flex his legs at the knee. By Week 4, he became able to lift his legs from the hip.

**Amyotrophic lateral sclerosis** is a rare and progressive disease that is incurable according to the present state of scientific knowledge and is caused by the destruction of the central motor neurons. Its symptoms include muscle atrophy and weakness, first in specific areas, then bodywide, involuntary muscle spasms, and later swallowing and respiration difficulties. **Z.I. A 55 years old** male patient has been treated for schizophrenia and Parkinson’s disease since young adulthood. Approximately 1 year earlier, his mother observed that he holds the pen and the spoon in a strange position. A couple of months earlier he started to ask for help more frequently when clothing. Perception status: lax muscles bodywide. Muscle atrophy between two fingers (I and II) and the pectoral girdle on both sides. Frequent spontaneous fine muscle spasm in the pectoral girdle muscles. The gripping and ring forming strength of the hand is weakened. Head and cervical spine MRI showed no changes. The ENG test confirmed motor neuron disease. The treatment was started using the BEMER Professional device 3-4 times a week. After two weeks of treatment, the patient’s mother reported that the patient had no more night-time incontinence problems. After 2 months of treatment the gripping power in the right hand improved, the patient needed help less frequently, his appetite was better and his anxiety was ameliorated.



## TRAUMATOLOGY

### HEALING AND QUALITY OF LIFE - EXPERIENCES WITH THE BEMER THERAPY

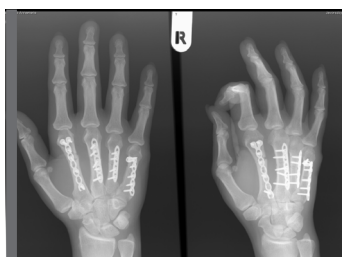
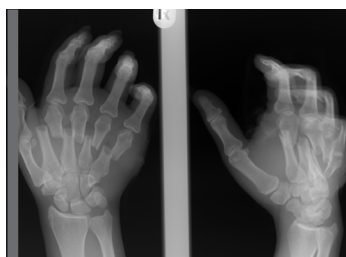
**Dr. György Seress**  
Traumatologist

Our House of Health was opened in April 2009. The below section describes our experiences: the advantage of a house of health is that we attempt to examine patients (who contact us either spontaneously or on referral) as a whole or, using a fashionable term, holistically. Therefore,

- >> bco-morbidities and the somato-psychological constitution can be considered when patient history is recorded,
- >> the BEMER program can be customized taking into account all these conditions,
- >> using this program, we may and should monitor changes in the current disease and the underlying disease,
- >> these changes are unique and may differ even where the injuries are of identical type; there is no single manual for this,
- >> it is advantage if a qualified physician takes part in the therapy and it is a serious disadvantage if a half-educated specialist uses this therapy because it affects the credibility of the procedure,
- >> by examining and treating a patient as a whole, an entire team can undertake the organization of the work in the House of Health, and thus this procedure is not an alternative to the classic academic medicine, but a supplementary tool.

It is our view that the BEMER therapy can change the understanding of health and disease by supporting our regeneration capacity coded in our body. Its use can improve the quality of life even in apparently healthy people. It opens wide the possibilities of conservative therapy. After surgery, results are achieved not only quicker, but it also allows for better final outcomes. In addition, it is a new therapeutic option that can be used in chronic diseases such as pain syndrome (Sudeck syndrome).

Our experiences so far show that the use of the BEMER therapy fundamentally changed the possibilities of medicine.



## USING BEMER THERAPY IN NEUROSURGICAL SYNDROMES

**Dr. Zoltán Némethi**  
Neurosurgeon

**Kenézy Hospital, Department of Trauma and Arm Surgery, Neurosurgery Ward,  
Debrecen**



The majority of the central nervous system syndromes are basically non-surgical conditions. Generally speaking, surgery is required only in well circumscribed focal diseases which, by their very nature, destroy, injure or hinder the functioning of the normal neural tissue, and due to their volume, they can displace normal tissue elements (brain tissue, blood or brain fluid), otherwise in a closed space, which sooner or later will cause local symptoms and, subsequently, can create life-threatening overpressure in the skull. The same applies to spine diseases, as well. These syndromes require surgical intervention depending on their type, place and rate of progression, the timing of which also differs within a wide range. For example, 70-80% of disc herniation cases do not require surgery or can be postponed for years, while traumatic intracranial bleeding, acute hydrocephalia or tumors that cause herniation must be immediately operated.

Regardless of the algorithm used to establish or project the indication of surgery, the fact of a surgery is not the same as healing, because the latter is often just T0 time point of that process, where the actual regeneration begins. It is not uncommon that this process is hindered by serious factors, and the more efficient circulation and metabolism induced by the BEMER therapy can eliminate several of these factors.

Neurosurgery showed a huge development in the last years. The diagnostic equipment gathering image and functional data (through rapid leaps in the development of IT and precision instruments) provide the treating physicians with detailed information never seen before. The current performance of computers allows for the integration and simultaneous and spectacular presentation of data in real time and in several dimensions. All these data can be precisely adapted to a specific patient. The same improvement renders the surgical interventions and instruments more precise. Based on these improvements, a neurosurgeon can remove possibly the entire pathological process using the best approach and with as less destruction as possible. Although the scale of development is huge, we are still only able to “take”, and the things we can “give” are very limited. This is explained by the very limited regeneration capacity of the highly differentiated neural tissue, as well as the complexity and uniqueness of the functional connection system.

The abovementioned options are all aimed at removing the pathological process WHILE DAMAGING AS LITTLE HEALTHY TISSUE AS POSSIBLE AND PRESERVING AS MUCH INJURED BUT FUNCTIONAL TISSUE AS POSSIBLE IN FUNCTIONAL STATE.

After the surgeon has done his or her job, the brain is “left alone” during healing. The battle for the penumbra starts, that is, the healthy tissue surrounding the areas permanently lost, and the reorganization of the useful neural connection system.

One of the key steps in this process is to ensure the appropriate metabolism and efficient circulation. The rest is the job of the brain. In this process, it is relevant whether it is a disease requiring surgery or not. Non-surgical healing methods before and after or instead of the intervention, as well as complex rehabilitation is and will always be maximally justified. However, we can use the amazing effects of the professionally created pulsating magnetic field to improve microcirculation which plays a key role in healing.

Nonetheless, the spine is not only the “home” of the spinal marrow, but also one of the most important locomotor organ and therefore all changes typical to this disease category can frequently occur: arthritis, inflammation, herniation, swelling, fracture, other injuries, osteoporosis, instability or stenosis. A neurosurgeon spends much of his or her time with patients who have these complaints.

According to the professional guidelines, surgical cases are identified from this considerable patient group. The proportion of surgical cases does not exceed 30% at international level, as well, which means that 2/3 of the patients has to solve their spine pain using non-surgical means. Therefore, it is not irrelevant which methods can be used to relieve pain without surgical solutions, to achieve the most optimal healing, to prevent complaints and to slow down progression.

During my 15 years of work, I have met a great number of patients for whom I was not able to recommend any neurosurgical intervention, or for whom there was no appropriate efficient medicine or method for the problems before and after surgeries, and the extent of residual symptoms and complaints did not allow for normalizing the patient's lifestyle. I started to use the BEMER magnetotherapy based on these cases to extend and supplement the existing neurosurgical treatment options.

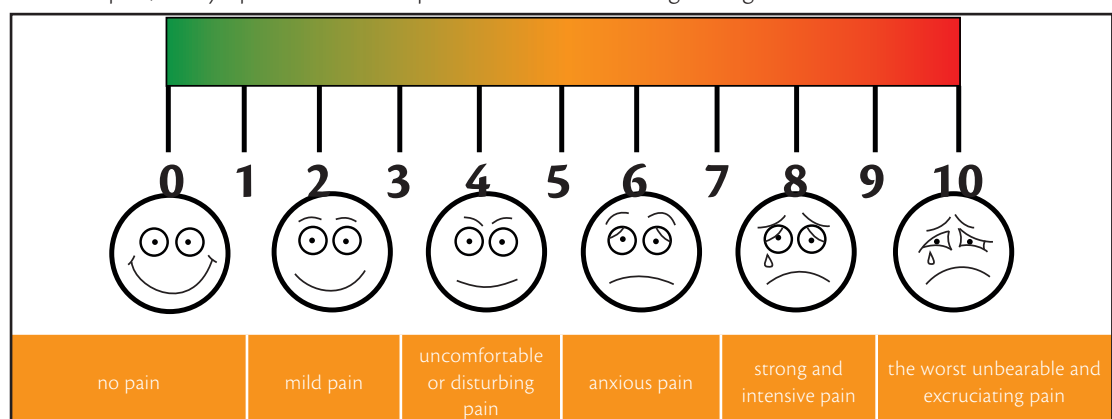
It is important to note that diseases affecting the central nervous system, the head and the spine frequently have a serious impact on the entire body and therefore should not be considered taken out from this context. For example, a brain disease or injury associated with severe impairment of consciousness, immobility and modified hormonal status can have so many complications that these cause permanent damages or we lose the patient because of them, although the underlying disease alone would have healed. We can provide qualitative support in the recovery of the patient by using the beneficial effect of a pulsating magnetic field to reduce the risk and severity of these complications.

#### And now, let's see the numbers!

In 3 years, more than 200 patients (232) received BEMER therapy. 50% of them suffered from cervical and lumbar spine disease; 10% of these patients underwent surgery in the first step or later due to unsuccessful conservative treatment. A large proportion of patients (14%) were injured in accidents; another large group of patients (12%) suffered from neural complications related to other diseases. Some patients have completely lost their faith in classic medical care because they have not experienced improvement for a long period of time and believed that their case is hopeless. The following section describes a couple of instructive examples. However, there were cases where no substantial results were obtained (8%).

Case		Patient (N)		Percentage distribution (%)	
Spine disease (10% underwent surgery (12))	Lumbar	82	115	71	50
	Cervical	33		29	
Trauma	Spine injury	21	32	65	14
	Head injury	11		35	
Nervous system complications		28		12	
Other diseases		85		24	
Total:		232		100	

Competent medical examination and the necessary care were provided for all patients. The recommended magnetotherapy was administered alone or as part of a complex treatment. In addition to monitoring the objective symptoms, the extent of the change in the symptoms and complaints was evaluated based on the patients' opinion and experiences, and documented using the popular Visual Analog Scale (VAS) which measures the initial pain, the symptoms and the improvement obtained using a ten-grade scale.



Based on practical considerations, 4 classes of efficiency were established. At the beginning, the VAS value exceeded 7 in all cases (1 indicates the best state, free of pain, while 10 is the worst state with intolerable symptoms).

- >> 40% of the patients became complaint-free or recovered.
- >> 36% of the patients reported significant improvement with residual complaints that only minimally hindered their further life.
- >> 16% of the patients reported that their complaints were reduced to more than half, which included, among others, reduced need for drugs, better manageability, longer resistance and less sick pay for our patients.

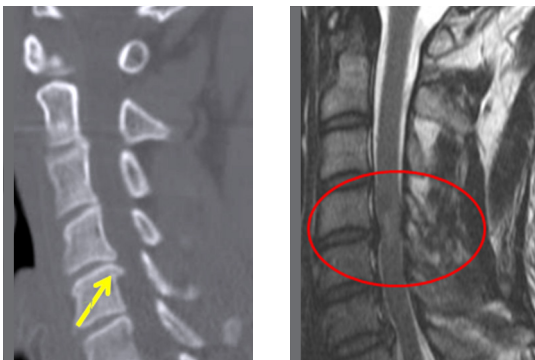
- >> 10 cases (8%) showed no improvement mainly because of sacroiliac arthritis or repeatedly operated severe spine disease where the serious mechanical harm could not be eliminated not even after the administration of therapy.
- >> Negative effects were observed in 2 cases. After myocarditis, tachycardia occurred that caused complaints as a result of the therapy. In the case of another patient, itching skin rash appeared all over the body, as a result of which the otherwise efficient treatment had to be discontinued.

### Case studies

Let me begin by saying that I could describe the case of almost any of my patients as regards the successes obtained in degenerative spine diseases. Sometimes statistics can be more eloquent than concrete examples. However, the following cases tell a more special story. Notwithstanding this, they have in common that they are not unique cases in my practice and the BEMER therapy showed the same efficiency in other cases, as well.

#### Case 1

46 years old male patient: negative history without known cervical injuries. He felt from his bike, fractured his nasal bone and sprained his neck. After a couple of hours, numbness in all four limbs started to appear, followed by tetraparesis; he was paralyzed with limited movement in his hands. The emergency CT scan was negative, only the cervical vertebrae IV and V showed a calcified beak. However, the MRI showed that there was a disc hernia that did not caused symptoms, but during the accident it hit the spinal marrow and caused the symptoms. Subsequently, steroid therapy and surgical decompression was applied, followed by acute rehabilitation. He was discharged from our department with spastic-ataxic gait and clumsy hands, but in improving condition; 2 weeks later he started the BEMER therapy. The patient showed an exceptionally rapid improvement and was able to start working again after 6 weeks, in symptom-free condition, although in such cases the healing process can last for months with uncertain final outcome.



#### Case 2

64 years old male patient: after a couple of days of physical fatigue observed that his right arm is weaker which rapidly resulted in severe paralysis and muscle loss. He was not able to lift his shoulder, bend or partially stretch his elbow. In 10 months the upper limb became contracted, which further reduced its function. The ENG showed the lesion of the upper brachial plexus that remained unchanged after several months of treatment and physical therapy. At this point, the patient started the BEMER therapy and continued the physical therapy. After two weeks a subjective and objective improvement was observed, the numbness ceased, the movement range improved and the circumference of the arm increased by 2 cm in 5 weeks due to the increase in the muscle mass.





### Case 3

The 44 years old male patient was taken by surprise by a storm in August in a forested area and he was hit by a broken branch. He suffered an impression skull fracture and multiple cheekbone fractures associated with severe open brain injury and leakage of cerebrospinal fluid.

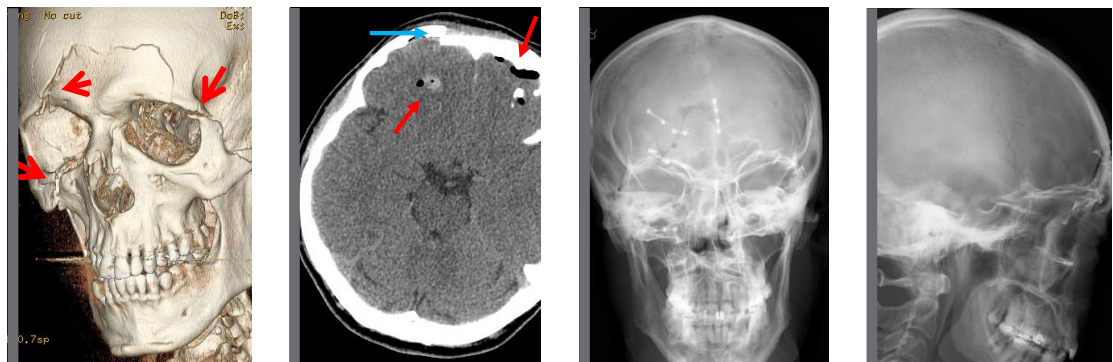
He was not able to either open his mouth or talk. He was at risk of vision impairment, meningitis and permanent brain damage.

Together with an oral surgeon we performed a surgery. The skull bone was raised, the brain damage was treated, plastic surgery of dura mater, and reconstruction of the cheekbone was performed.

After the surgery, the leakage of cerebrospinal fluid and the brain contusion temporarily worsened, and edema occurred, the patient's thinking slowed down associated with irritability and symptoms of memory disorders. His mouth movement was resolved, but he had serious pain during chewing. The leakage of cerebrospinal fluid was stopped and meningitis did not develop. He was discharged home.

During convalescence the patient experienced headache, painful chewing, permanent and disturbing memory impairment, depression, vertigo and weakness. As his wife put it, "he was a half-zombie".

The patient started the BEMER therapy with little hope. However, after 6 weeks of treatment, gradually ALL COMPLAINTS were resolved. First the headache and the vertigo disappeared; the last complaint was the pain during chewing. At the present, the patient is able to work, solves crosswords and has no pain. So, the "zombie is gone".



In all three cases, the BEMER therapy efficiently broke the impasse in the healing process and resulted in clinically and subjectively significant qualitative improvement and recovery within a fraction of the average healing time.

### Summary and evaluation

Beyond these figures, based on my experiences so far, I have reached some relevant practical conclusions.

As regards the spine as a locomotor organ, it can be established that for the BEMER therapy it is almost irrelevant which region is affected. What is more important is the nature of the disease, its duration, the extent of the degeneration and progression, and the proportion of the primary mechanical and secondary symptoms. If this is taken into account during the administration of the treatment, it can be very efficient and efficacy and the patient can be prepared for the changes expected, the improvement and the time required.

In my opinion, in case of diseases or injuries that affect the brain and the spine, the greatest advantage of the BEMER is that it reaches even the most vulnerable areas without complications or adverse effects and eliminates the auto-destructive vicious circles that hinder recovery, which increases the efficiency of other medical treatments and auto-healing processes.

Today, I use the BEMER therapy in my everyday work and it became part of my thinking. Based on my increasing experiences and with full confidence I recommend this therapy to both surgical and non-surgical patients to their and my greatest satisfaction.

## DERMATOLOGY

### EXPERIENCES WITH THE BEMER THERAPY IN TREATMENT OF CHRONIC WOUNDS AND OTHER DERMATOLOGIC SYNDROMES

**Dr. Ilona Horváth**  
Dermatologist, BIO-MED private practice, Gödöllő



BEMER therapy improves microcirculation and modulates the immune activity and positively influences the self-regulatory mechanisms of the body that provides a supplementary therapeutic option in the treatment of several skin diseases. One of the most important effects of this therapy is helping the healing of acute and chronic wounds.

The efficient treatment of chronic wounds with different etiologies has an exceptionally important role in terms of epidemiology since these wounds occur in 2-3% of the population. When complications appear, these can lead to life-threatening conditions (thrombosis, sepsis or limb amputation). The medical care of these complications constitute an exceptionally heavy burden for both the health care system and the patient.

75% of the chronic leg wounds are caused by chronic venous circulatory insufficiency. Other etiological factors: diabetes mellitus, vasoconstriction, chronic lymph edema, neuropathy, vasculitis and so on. These causes can be present simultaneously in many patients. A correct diagnosis and an adequate complex treatment are essential for the faith of the patient. In patients not eligible for angiosurgical reconstruction, improving the circulation is usually an extremely difficult task. An efficient therapy is typically hindered by the metabolic condition of the patients (diabetes mellitus), impaired movement (age, overweight or eventually previous amputation) and the lack of patient compliance (resistance to the use of a compression bandage in patients with chronic venous insufficiency).

Regardless of the etiology, the development of the wound is ultimately caused by the circulation problems in the affected region and the deficiencies in tissue metabolism and immune response.

The effects of the BEMER therapy confirmed by clinical studies (unique vasomotion effect, improving microcirculation and tissue oxygenation, increasing the quantity of bioavailable energy and stimulating protein synthesis) play a beneficial role in every stage of wound healing.

We have been using the BEMER therapy in our practice as supplementary therapy in the treatment of various dermatological syndromes for 5 years. The main fields of application:

- >> treatment of chronic leg wounds, diabetes feet ulcers, pressure sores and amputation stubs,
- >> facilitating the healing of acute traumas that affect the skin and the soft parts,
- >> supplementary treatment of post-herpetic neuralgia,
- >> reducing skin redness, swelling and itching in allergies.

Our patients received the BEMER therapy 2-3 times a week on average for 60 minutes in outpatient care. Our patients with limited movement or bedridden patients (due to their general condition) were treated by our specialized assistant in their home. If requested, we also provide BEMER devices for long-term home use.

Summing up the experiences of these 5 years, it can be stated that the systematic use of the BEMER magnetotherapy as supplementary therapy had a positive influence on the healing and quality of life of our patients with ulcers in all cases. We illustrate our therapeutic results with the following clinical images.

Patients with chronic ulcers typically "wait for a miracle" and try for years to find a "miracle doctor", "magic ointment" or "miracle treatment".

Of course, the BEMER therapy is not a miracle treatment in itself. However, it is efficacy, it can be used without pain or adverse effects, it is suitable for use at home, and may be an efficient supplementary therapy to the complex health care of these patients.

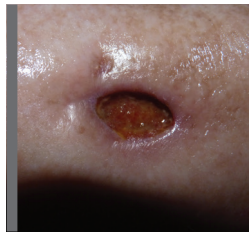
#### Case study 1 (82 years old woman)

The patient had a leg ulcer that appeared 6 months (after erysipelas developed in relation with chronic venous circulatory insufficiency) earlier above the external side of the right ankle and continued to deepen and extend

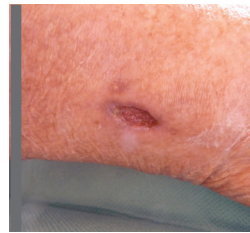
despite adequate dermatological treatment. Accompanying diseases: treated type 2 diabetes mellitus, treated hypertension, severe degenerative musculoskeletal complaints. Due to the largely limited movement capacity, the patient was treated at home twice a week (basic therapy + intensive application on the leg and lower back + SLA phototherapy applied on the ulcer). After 30 sessions of treatment the leg ulcer was resolved, the musculoskeletal status significantly improved and the patient is able to walk on the street with an attendant though she was confined to her higher-floor apartment up until that moment.



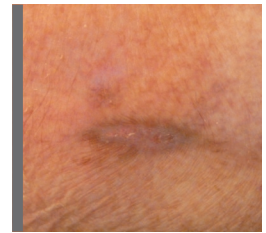
>> Leg ulcer (extending for the last 6 months) above the external side of the right ankle



>> After 10 sessions of treatment



>> After 20 sessions of treatment



>> Healed after 30 sessions of treatment

### Case study 2 (58 years old woman)

After an appendectomy at 40, deep vein thrombosis and a small ulcer developed on the left leg.

After a couple of years, the thrombosis recurred on the same leg.

This leg ulcer recurred 1.5 year after the BEMER therapy. The wound on the external side of the left ankle did not heal despite hospital care and periodic dermatological care; moreover, after 18 months it grew to several inches.

Accompanying diseases: hypertension treated 5 years earlier.

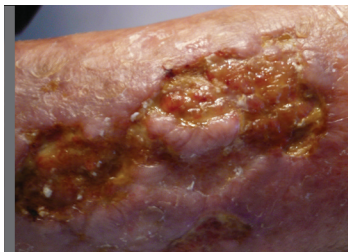
After 9 months of treatment (at the beginning 3 times, then 2 times a week) with the BEMER therapy, her ulcers completely healed. At the present, the patient is symptom and complaint free with only 1 session a week and with the use compression stocking.

### Case study 3 (72 years old woman)

A couple of months before the BEMER therapy, multiple (in total 9) deep, coated and necrotic ulcers appeared on both legs.

Accompanying diseases: largely limited movement of both hip joints, hardly controlled hypertension for 30 years, type 2 DM for 8 years, deep vein thrombosis in the left leg for 5 years, ischaemic heart disease (IHD) and vasoconstriction in both legs.

The BEMER therapy was administered twice a week at her home. As a result of the accompanying diseases, the epithelization of the ulcers took almost 3 years because of their extremely low healing potential. Despite the ulcers recurring repeatedly over these years, the patient's quality of life significantly improved, is self-sufficient in her home and has a chance to eventually undergo a hip replacement surgery.



>> The lateral side of the left leg at the beginning of the BEMER therapy



>> After the 30 BEMER therapy



>> Current state with two maintenance sessions a week

### Case study 4 (16 years old boy)

The BEMER therapy was administered for seven days immediately after a corrective surgery for the traumatic cheek injuries associated with nasal bone fracture. As a result of the intensive treatment with a B.PAD applicator once a day, the average 2-3 weeks healing time significantly decreased, his hematomas completely absorbed by Day 7 and the pain ceased.



## OPHTHALMOLOGY

### POSSIBLE USES OF THE BEMER THERAPY IN OPHTHALMOLOGY

**Dr. Borbála Garai**  
Ophthalmologist, private practice



The vast majority of the information from the environment is perceived by vision. In a study, the following theoretical question was asked: what would one rather choose for his or her old age – vision impairment or limited movement capacity? A substantial proportion of the respondents preferred to preserve their vision. According to the WHO, there are approx. 314 million visually impaired persons worldwide with about 45 million blind persons. In welfare societies 3 persons in 1000 go blind. In Africa this value is 10 persons in 1000. The two most common causes of blindness (in welfare societies) are the ophthalmological complications of DM (diabetic retinopathy) and the age-related macular degeneration (Degeneratio maculae luteae). The anatomical unit responsible for central vision is extremely small. It has a diameter of approx. 2 mm with a mean thickness of 185 microns in the region of the fovea and 250 microns on average in an area of 2 mm. In many cases we do not know the primary reason of the diseases affecting the macula lutea, but it is sure that the second factor is oxygen deprivation, which can be influenced by improving the circulation. I will present three cases to illustrate the therapeutic effect of the BEMER therapy as physical agent.

#### Case 1, Ms. B. Gy. 66 years old woman

The vision of the patient was 0.7 in the right eye, while on left side she could count the fingers right before her eye. The patient feels that her vision deteriorates every day, especially in the left eye. Vision correction did not help. Peaceful bulbs and clear refractory media. Fundus: pale pupils with clear delimitation; arteries narrower than average and moderately filled veins; the retina is tightened on both sides in the region of the central vision; uneven regions and drusens at the level of the pigment epithelium. Exudation was not found. Following basic mat therapy and daily use of the intensive applicator in the temporal region, after three months the patient's vision improved to 0.9 and 0.15 on the right and left, respectively. The OCT (Optical Coherence Tomography) revealed that the thickness of the retina remained the same. The functions improved. A secondary result was that the patient was able to interrupt a part of the medications used to improve her circulation. Her condition remained unchanged for 8 months.

#### Case 2, Ms. Sz. G. 79 years old woman

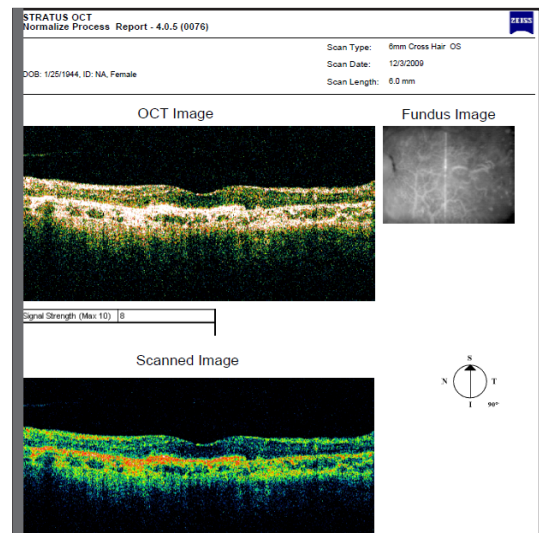
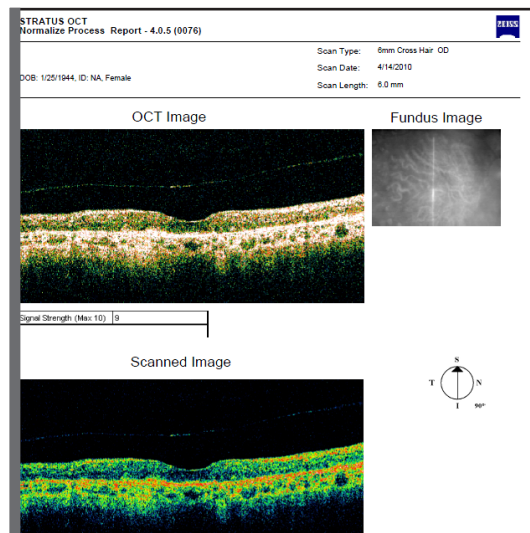
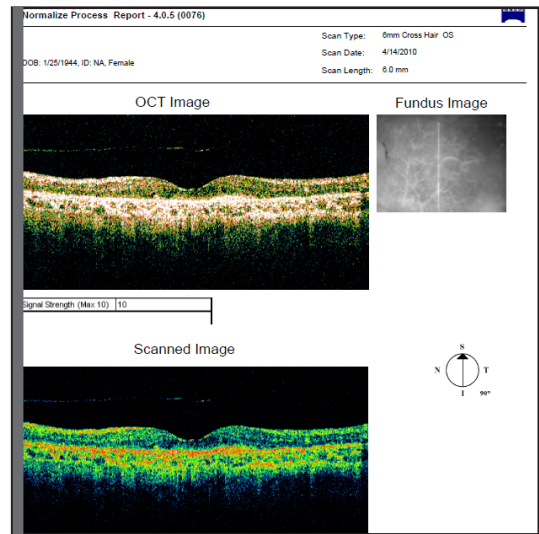
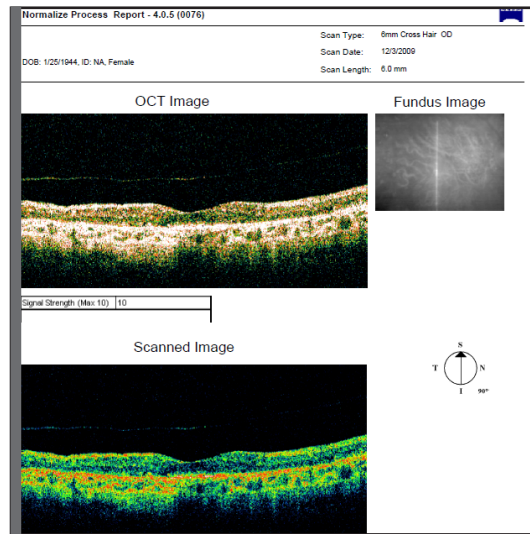
The vision of the patient was 0.4 in the right eye with correction, while on left side she could count the fingers right before her eye. Peaceful bulbs, mild phacosclerosis in the lens on both sides. Fundus: pale pupils with clear delimitation on both sides; arteries narrower than average; drusens on the right side in and around the macula and scattered at the periphery; an unevenly pigmented atrophic scar on the left side in the region of the macula with a couple of choroideal artery below this; the periphery seems to be intact. The patient's most important complaint was that reading is becoming increasingly difficult. Following basic mat therapy and daily use of the intensive applicator in the temporal region, after six weeks the patient's vision improved to 0.6 and 2 m o.u. on the right and left, respectively, with correction. During this period, the fundus seemed to remain unchanged. The functions improved and the patient feels that she reads more easily and her spatial sense of security is improved. A secondary result was that her prior obstipation complaints resolved.

#### Case 3, B. M. 50 years old man

The vision of the patient was 0.4 in the right eye with correction, while on left side it was uncertain 1.0. His complaint was that he is almost unable to see colors in his right eye and feels that his vision started to deteriorate in his left eye, as well, and the weak right eye bothers him in binocular sight. According to him, this condition appeared during the last six months. During the two weeks after the first examination, his vision in the right eye further deteriorated to 4 m finger counting. Peaceful bulbs and clear refractory media. Fundus: intact pupils with clear delimitation; phys. arteries. On the right side, uneven pigmentation in the macula and plate neuroretinal detachment was found. On the left side, a small detachment can be seen under the fovea. Following basic mat therapy and the use of the intensive applicator in the temporal region three times a week, after three months the



patient's vision improved to 0.4 and 0 on the right and left, respectively. To his great joy, he can see colors again. Fundus: the uneven pigmentation on the right side remained unchanged and no detachment could be observed. On the left side, the biomicroscopy showed no PE unevenness. A secondary result was that her arrhythmia resolved. His condition has not deteriorated since March 2009.



## Summary

The precise cause of the vision impairment described in these case studies is not clarified. The functions improved (visual acuity, color vision and peripheral vision) as a result of the circulation improving effect of the BEMER therapy.



## DENTISTRY

### GREMLINS OF DENTISTRY AND THE BEMER THERAPY

**Dr. Annamária Cakó**  
Dentist



This term is a widely used umbrella concept which refers to a series of changes affecting the temporomandibular joint and the surrounding structures. It is a very common phenomenon which causes symptoms in almost every third person. However, clinical tests could show positive symptoms in up to 40-50% of the population. Due to the very limited systematic information available, it is clear that physicians working in different areas know very little about the effect of the mandible on the general health status of the patients.

#### Temporomandibular joint

The temporomandibular joint is perhaps one of the most complex joint in our body. Its complexity is explained by its complicated movement and the fact that the two separated joints formed by the mandibular heads and joint cavity form a paired joint with the interposition of the mandible. Therefore, every movement in one of the joints influences the processes in the other joint.

#### Temporomandibular dysfunction

There is no specific, generally accepted etiological factor. Today, the most popular view is the biopsychosocial model, in which the dysfunction is the common result of multilevel physiological, psychological and social factors. Problems include the following:

- >> Impaired chewing capacity.
- >> Cranio-mandibular pain and muscle pain related to posture (headache, face and neck pain), the pain is typical to the myofascial pain syndrome. The pain often irradiates and worsens when chewing or moving the mandible.
- >> Limited movement of the mandible and asymmetric movement form.
- >> Joint sounds (popping, crackles and crepitation).
- >> Parafunctions (grinding and teeth clenching) smooth, shining or matt cassettes on the teeth, cervical abrasion, recession of the tight gum from the dental neck. Grinding and bruxism (teeth clenching) are the gremlins of dentistry which are relatively contraindicated in many dental interventions.
- >> High stress levels: chewing and grinding have a significant effect on the activity of the central nervous system, behavior, stress and somatic symptoms. We have known for decades that the stress may play a role in relapsing herpes, certain forms of gingivitis and the recurrence of sores. In these cases, the dentist cannot be only a teeth manufacturer craftsman. One of our most important tasks is to manage, elicit or restore the correct grinding activity of the patients (stress management).

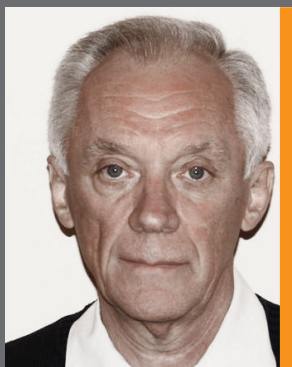
The BEMER therapy can be effectively used to this end.

The effects of the BEMER therapy:

- >> vegetative tension relief,
- >> reducing excessive irritability, improving mobility, mood and vitality,
- >> improving sleep,
- >> eliminating or reducing psychological and physical fatigue,
- >> relieving, reducing or eliminating pain and muscle spasms.

The treatment sessions were often administered as monotherapy or in combination with other dental or homeopathic therapies each day, in different times of day, complemented with the basic mat program MFA therapy. A full treatment cycle included 6, 12 or 18 sessions. Improvement was observed after 5-6 sessions in almost each patient, although a clear improvement required 10-12 treatment sessions. Their condition (more restful and calmer sleep, reduction of grinding during the day and the night, muscle spasms and pain disappeared, improvement of stress resistance, relief or elimination of remote joint complaints) stabilized by the end of Week 3 and was maintained for at least 3 months in almost all patients. Long-term stabilization requires maintenance treatment with a frequency depending on the individual needs of the patients.

Taking into account the multi-causality of the disease and the principle of psychosomatic circular causality, and treating the person as a whole, efficient healing may be obtained using a combination of treatment methods acting at different levels.



## VETERINARY MEDICINE

### USING BEMER THERAPY IN SOME DOMAINS OF VETERINARY MEDICINE

**Dr. László Mezősi**  
Veterinarian

I have been using the BEMER 3000 Vet device for more than 4 years. This is a classic first generation device. The vast majority of the animals treated (in total 117) were dogs (91). The rest were cats, horses and 3 other animals. Although this number of cases cannot be compared with the rehabilitation department of a hospital using this method, it allows for a statistical evaluation of the procedure. Based on this, it can be unequivocally stated that the BEMER therapy (as a procedure free of adverse effects) can be successfully used in veterinary medicine. At this Conference I want to talk not about the most common indication (late posterior weakness in dogs which usually occurs at an advanced age), but about a condition that is very rare and is a curiosity because of the species it affects or the form of the diseases.

#### **Siberian chipmunk (Boeroendoek) – posterior paralysis**

Siberian chipmunks are becoming increasingly popular among pet owners because they can be kept in apartments. A 3 years old female was brought to the practice because she had 6 puppies and suddenly she was unable to use her hind legs. The owner is an experienced breeder, so the animal was provided everything she needed. Her rearing conditions were very professional, as well. The animal was extremely agile and corky so it was impossible to perform a thorough examination. These animals are highly sensitive to stress.

We decided against performing the examination with the animal put to sleep.

Based on experiences in other animals, I administered BEMER therapy for 12 minutes at intensity level 2. After the third session she drew her legs beneath her and started to walk a little. I treated the animal 5 times in total when her control over her limbs normalized, the only change being that she was a bit slower than before.

#### **Berni, the watch-dog with elbow bursitis**

A three-month old puppy was brought by the owner because of the inflammation of the bursa of the elbow. This is a relatively rare condition usually caused by a mechanical impact (mainly a blow) on the elbow. As a result there is a fluid accumulation in the enlarged sac of the bursa which can lead to swelling to the size of an egg. The enlarged bursa is not painful and is only an esthetic problem.

Surgical removal of the bursa is recommended. Reading the materials of previous BEMER Conferences, I found the lecture of dr. Elvira Babindák on sport medicine, in which she reported the successful use of the BEMER therapy in athletes for olecranon bursitis.

The owner of the dog consented to the treatment. I started the treatment using an intensive applicator; however, after a couple of days, the bursa on the other side became inflamed, as well. Subsequently, I used the pillow so as to administer the therapy to both sides at the same time. In addition to this treatment, I have drained the bursa and injected Aloe First or dexamethasone on several occasions.

After drainage, I tried to apply a flexible bandage on the elbow, but the distal limb swelled every time and the bandage had to be removed. The owner had the possibility to treat the dog at home for 2x1 weeks for 3x20 minutes at intensity level 2. After all, the success rate was 50% since the first bursitis completely disappeared, but the second one remained. As a matter of fact, I did not succeed to determine why the other side did not heal after the same therapy was administered. But I think it is success that the problem was solved with a single surgery instead of two.

#### **German Shepherd – bilateral masseter muscle atrophy, mouth disorder**

Both masseters of a 2.5 years old dog were completely atrophied. The animal was able to eat, but his or her appetite was decreased and was unable to open his or her mouth to take his ball.

The history showed that a tick was found on the animal so it was supposed that these symptoms indicative of head nerve injury might be caused by Lyme disease. The positive serology test confirmed this hypothesis.

At the beginning, the dog was very agitated, but as the treatment progressed the animal became calmer and his/her mood was improved, as well.

In total, the treatment was administered 6 times for 20 minutes.

After the treatment, the animal's appetite and mood was good. The function of the mouth fully normalized and now the dog can continue his/her passionate ball game. I believe that in all three cases the cause was the Lyme disease based on the fact that the head nerves were affected. In one case the big masseter muscles of a 1 year old Hovawart dog atrophied one after the other. Although the animal was able to eat, but his or her appetite was decreased. After the administration of the BEMER therapy, the animal's appetite was normalized and was able to fully open his/her mouth.

In two other cases (a 6 years old Belgian Shepherd and a 14 years old hybrid dog) salivation and the interesting movement of the tongue was observed. The eating and drinking functions were not perfect. The Lyme test was negative for the older hybrid dog, while this test was not performed for the other two dogs. After the BEMER therapy, the mouth function and appetite of all three animals were normalized.

### 5 years old rabbit – posterior paralysis

According to the owner, the rabbit has not used properly his/her posterior part of the body and finally the animal was completely paralyzed. When the animal was examined no pain sensation was observed in the hind legs. The X-ray confirmed spondylosis of the lumbar and thoracic spine.

The owner brought the pet twice a day for three consecutive days for treatment sessions of 20 minutes at intensity level 2.

After the third day, the leg of the animal regained pain perception. The animal almost jumped out from the box and his/her movement was reestablished. The human aspect in this story is remarkable because the owner brought the rabbit from a village near Győr and spent several days in Budapest for the animal. There was no other veterinary practice closer to the owner's residence that provides the BEMER therapy.



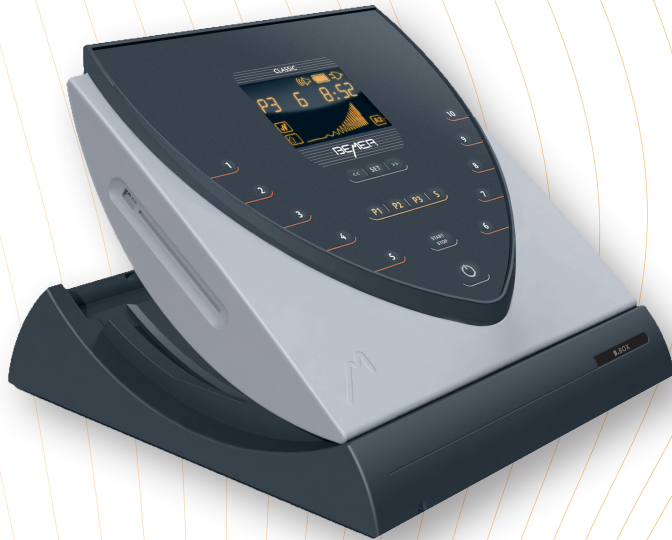
BEMER 3000 VET



# BEMER CLASSIC-SET

Physical angiotherapy (electromagnetic field therapy)

The BEMER (pronounce: BEMER) system improves microcirculation to an extreme extent using a special physical agent:



## BEMER CLASSIC CONTROL DEVICE (B.BOX)

THE CONTROL DEVICE OPERATES THE OPERATING UNITS CONNECTED TO IT.  
SIMULTANEOUS OPERATION OF 2 MAT OPERATING UNITS IS ALSO POSSIBLE (FOR THE SAME TREATMENT).

MAGNETIC CONNECTORS FOR EASY AND SIMPLE USE.

## IMPULSE FORMS::

THIRD GENERATION BEMER  
SIGNAL PLUS (VAZOMOTION)  
SIGNAL CONFIGURATION FOR NIGHT

## FEATURES

10 INTENSITY LEVELS  
3 PRE-DEFINED PROGRAMS  
DAYTIME OPERATING MODE  
NIGHT-TIME OPERATING MODE  
CHIP CARD MODULE (TO EXPAND THE PROGRAM)  
POSSIBILITY TO UPDATE THE SOFTWARE

## MAT OPERATING UNIT (B.BODY)

TO TREAT THE ENTIRE BODY SURFACE,  
FLEXIBLE AND RECOILABLE.

$B_{\text{MEDIUM}} \approx \text{MAX. } 35 \mu\text{T}$

DIMENSION: 180 X 60 X 2 CM

CONNECTOR: MAGNETIC



## INTENSIVE SPOT OPERATING UNIT (B.SPOT)

$B_{\text{MEDIUM}} \approx \text{MAX. } 100 \mu\text{T}$

DIMENSION: 13 X 13 X 3 CM

CONNECTOR: MAGNETIC



## ACCESSORIES

CONTROL DEVICE (B.BOX CLASSIC), MAT OPERATING UNIT (B.BODY), OPERATING UNIT FOR SPOT-LIKE TREATMENTS (B.SPOT), SCANNING UNIT (B.SCAN), GRIP MODULE FOR THE B.SPOT (B.GRIP), CLAMPING STRIP FOR B.BODY AND B.GRIP, NETWORK ADAPTER.

FOR YOU :: FOR LIFE :: FOR ENERGY

# BEMER PROFESSIONAL-SET

Physical angiotherapy (electromagnetic field therapy)



## BEMER PROFESSIONAL CONTROL DEVICE (B.BOX)

THE CONTROL DEVICE OPERATES THE OPERATING UNITS CONNECTED TO IT.  
DOUBLE CONTROL – CONTROL OF 2 OPERATING UNITS INDEPENDENT OF EACH OTHER. MAGNETIC CONNECTORS FOR EASY AND SIMPLE USE. DISPLAY OF VALUES AND COLOR PICTOGRAMS FOR EASY USE.

## IMPULSE FORMS::

THIRD GENERATION BEMER  
SIGNAL PLUS (VAZOMOTION)  
SIGNAL CONFIGURATION FOR NIGHT

## FEATURES::

10 INTENSITY LEVELS  
3 PRE-DEFINED PROGRAMS  
DAYTIME OPERATING MODE  
NIGHT-TIME OPERATING MODE  
CHIP CARD MODULE (TO EXPAND THE PROGRAM)  
POSSIBILITY TO UPDATE THE SOFTWARE

## MAT OPERATING UNIT (B.BODY Y)

TO TREAT THE ENTIRE BODY SURFACE, WITH EXCLUSIVE COVER, RECOILABLE. PREMIUM VERSION.

$B_{\text{MEDIUM}} \approx \text{MAX. } 35 \mu\text{T}$

DIMENSION: 180 x 60 x 2 cm

CONNECTOR: MAGNETIC



## INTENSIVE SPOT OPERATING UNIT (B.SPOT )

$B_{\text{MEDIUM}} \approx \text{MAX. } 100 \mu\text{T}$

DIMENSION: 13 X 13 X 3 CM

CONNECTOR: MAGNETIC



## OPERATING UNIT FOR PHOTOTHERAPY (B.LIGHT)

$\lambda = 660 \text{ nm}$

INTENSITY = 4000 mcd

DIMENSION: 13 x 13 x 3 cm

CONNECTOR: MAGNETIC



## INTENSIVE OPERATING UNIT FOR SMALL SURFACES (B.PAD )

$B_{\text{MEDIUM}} \approx \text{MAX. } 100 \mu\text{T}$

DIMENSION: 111 x 13 x 1,5 cm

CONNECTOR: MAGNETIC



## ACCESSORIES

CONTROL DEVICE (B.BOX PROFESSIONAL), MAT OPERATING UNIT (B.BODY), OPERATING UNIT FOR SPOT-LIKE TREATMENTS (B.SPOT), OPERATING UNIT FOR PHOTOTHERAPY (B.LIGHT), FLEXIBLE OPERATING UNIT FOR SMALL-AREA TREATMENTS (B.PAD), SCANNING UNIT (B.SCAN), GRIP MODULE FOR B.SPOT AND B.LIGHT (B.GRIP), CLAMPING STRIP FOR B.BODY AND B.GRIP, NETWORK ADAPTER, ADAPTER FOR MOTOR VEHICLES, WALL HOLDER, LEG PROTECTION, PROTECTIVE GOGGLES.



© BEMER Medicintechnika Kft.  
1152 Budapest // Szentmihályi út 137.  
Hungary  
[www.bemer-east.eu](http://www.bemer-east.eu)

FOR YOU :: FOR LIFE :: FOR ENERGY

