15 €

The human body is like a small electrical appliance: its biochemical machinery both requires and produces energy. We require an energetically appropriate environment for our energy supply, which, on our Earth, includes magnetic energy. Unfortunately, as one of the "achievements" of technological progress our bodies and environment are coming under increasingly strong electromagnetic effects, which may interfere with our natural resonances and adversely affect our physiological homeostasis. Magnetic therapy aims to counterbalance these effects by mimicking the Earth's magnetism to energize our bodies, thereby preventing the development of diseases or contributing to the elimination of existing pathological processes.

This concise and accessible book summarizes the biological effects of magnetism and the applications of pulsed magnetic therapy. Having read it, I find myself intrigued and ready to try this method.

István Gyurján PhD, biologist,
Austrian Institute of Technology, Vienna

Klára Pentelényi • PULSED MAGNETIC THERAPY

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DRUG-FREE HEALING AND PAIN RELEIF

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"Doctors are men who prescribe medicines of which they know little, to cure diseases of which they know less, in human beings of whom they know nothing." (VOLTAIRE)

To my loved ones and friends, and to people all over the world who are in pain and want to heal… (THE AUTHOR)

FOREWORD

I wrote this book to help the Reader heal him/herself or others, and to provide insight into this wonderful method that has already assisted many people on the road to recovery or pain relief. It is an introduction and guide to the world of pulsed magnetic therapy, which has enabled many cases of drug-free healing. Today we can use magnetic therapy devices in our own homes to compensate for the deficiencies of environmental magnetism. Pulsed magnetic therapy uses a low energy level that is biologically compatible with the Earth's magnetic field, and charges the body with the healing power of nature. Depending on the individual and the illness, it can be used as a preventive tool, or as a complementary or sole therapy. Much has been written about the power of pulsed magnetic therapy, yet there are still many people in need who have never heard of it. I am trying to do my small part to give hope to the despondent, to satisfy the curious, and to convince the skeptics – or at least to give them food for thought. My goal is to provide the most inclusive overview possible, based on the available printed and electronic literature. Numerous clinical tests have been performed with pulsed magnetic therapy, although – to avoid boring my Readers – I will only mention a fraction of them.

INTRODUCTION

The beneficial effects of Earth's magnetic field are taken for granted by most of us, and we never even think about what life would be like to be without them. Astronauts who leave the magnetic field of our planet feel weak and fatigued, and the unfortunate truth is that even those of us who never leave the Earth have less and less of a connection to it. The modern world is filled with electrosmog (the harmful and unnatural electromagnetic frequencies of computers and mobile phones): natural magnetism is attenuated or masked by electrical, radio and radar equipment, and consequently our bodies produce symptoms of this deficiency. Our environment is full of concrete, steel, asphalt, and cars: all these separate us from Nature and deprive us of the necessary dose of the natural vitalizing energy of the Earth. Similar to sunlight, water, air and gravitation, the magnetic field is another basic biological component of our survival. Exposure to natural energy fields is a requirement of human life. These energy fields interact with our cells, and are necessary for homeostasis (the dynamic balance of our internal environment) and maintaining our bodies at an optimal level. According to the published literature on clinical studies, pharmacological therapy can be curtailed or in some cases even eliminated (but naturally only under medical supervision)! **Magnetic therapy should be a part of everyday life, because our bodies are hugely deficient. They must be supplemented, otherwise sooner or later all of us show symptoms of deficiency – the best case scenario is lack of stamina. Fatigue, lethargy and depression are the first**

symptoms of various diseases. As a result of pulsed magnetic therapy fatigue is alleviated and the body attains a higher energy level, potentially improving well-being and achieving more efficient healing.

The commonly used acronym for pulsed electromagnetic field is PEMF. This is identical in meaning to the commonly used expression *"magnetic (field) therapy"*, and to the acronym IMRS (intelligent magnetic resonance stimulation system), which refers to the established name of new generation devices. It must be noted that at least 6 to 8 weeks of conti-

nuous daily therapy is necessary for effective treatment. This drug- and pain-free therapeutic solution belongs to the branch of alternative, complementary medicine.

"We undervalue the things we are born with – such as eyesight – as long as they remain usable. Only a lack of these facilities shocks us into recognizing what a treasure they were. Children still like to play "what if I was unable to see", and even try it for a bit while playing blind man's bluff, but adults rarely imagine it, much less try it." (László Reményik)

Magnet therapy has been used in medicine since very early times. Ancient peoples knew long ago what to use. In 2000 B.C. the Chinese used magnetic stones to assist in restoring balance to the body. The Greek physician Galen described the cleansing effect of magnetism in 200 B.C. in his book entitled *De Simplicum Medicamentorum Temperamentis Ac Facultatibus*. Cleopatra wore a small magnet on her forehead to maintain her beauty. During the Middle Ages the magnetic compasses of the Vikings were used to treat the body. The German physician Hahnemann (the discoverer of homeopathy) was convinced of the healing power of magnets. The electromagnet was patented by the English scientist William Sturgeon in 1825. In 1831 the American scientist Joseph Henry devised a strong electromagnet made using multiple layers of insulated

cables. The works of Faraday and Maxwell include theoretical explanations of the effects of electromagnetic fields. Occasional medical use of electromagnets can also be dated to this time, but the true development of magnetic therapy began only after World War II. In 1959 it was discovered that changes in the magnetic field stimulate frog skeletal muscle (Kolin et al, 1959). Clinical tests of magnet therapy were performed starting in the 1960s in Czechoslovakia, then Germany and other European countries. In Hungary, the first application (for pain relief in rheumatology) can be dated to the 1970s.

PULSED ELECTROMAGNETIC FIELD [PEMF]: THE MECHANISM OF HEALING

MAIN EFFECTS

- ☑ Pain relief (by blocking the propagation of the *"pain signal"*)
- ☑ Alleviates inflammation
- ☑ Improves circulation (through vasodilation)
- ☑ Boosts the immune system
- ☑ Improves oxygenation
- ☑ Increases stress tolerance (by decreasing the sensitivity of stress receptors)
- ☑ Promotes sleep (through an increase in melatonin production)
- ☑ Raises energy levels (by shifting the balance to oxidative processes)
- ☑ Speeds recovery
- ☑ Increases exercise performance (via improved circulation, which warms up the muscles)
- ☑ Antimicrobial effects.

In every single living cell of our bodies there is a potential difference between the two sides of the membrane surrounding the cell. There is a difference between the concentrations of charged ions inside the cell and the extracellular space. This difference in concentration is maintained by the constant activity of ion channels and pumps in the membrane. This phenomenon is called physiological equilibrium or homeostasis (Figure 1).

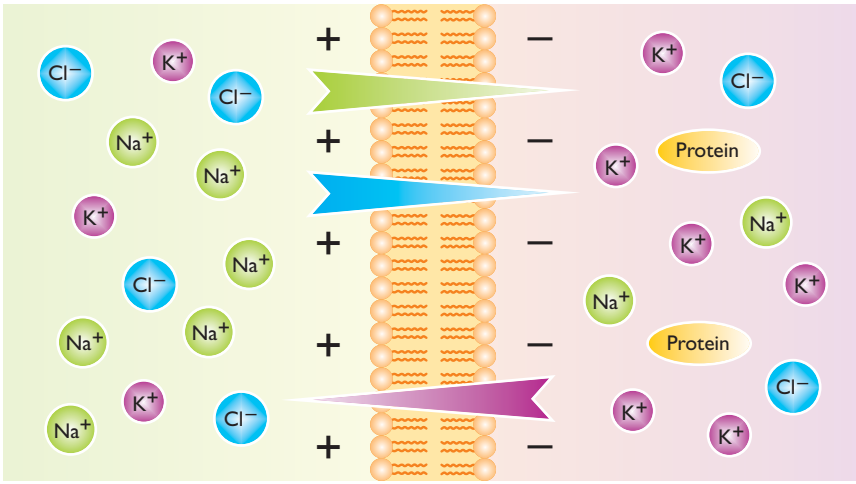

Figure 1 ▪ Physiological equilibrium. Normally there is a potential difference between the two (intracellular and extracellular) sides of the cell membrane.

In response to cellular injury (through trauma or illness) these potentials change, upsetting the equilibrium, and positively charged sodium ions flow into the cell while negatively charged trace elements, water and proteins flow out of the cell. Therefore water accumulates in the extracellular space resulting in swelling or edema.

The primary target of the biological effects of PEMF is the cell membrane: the modification of receptor and channel activities[1] restores the normal function of the damaged cells. **The magnetic field is therefore capable of restoring equilibrium.** PEMF influences the permeability of the membrane by changing the number and functions of membrane receptors[2]. By contributing to the restoration of normal potentials, PEMF promotes wound healing and reduces swelling. Pulsed magnetic field at a frequency of 1 to 5 Hz acts as a vasoconstrictor, similarly to a cold compress. However, the opposite (vasodilator!) effects can be achieved above 6 Hz. Pain propagates in the

form of electric signals traveling through the body. The physiological potential difference between the outside and inside of the membrane is –70 mV. Inside the cell there are positive potassium ions and many negatively charged proteins, while the extracellular space contains positive sodium ions and negative chloride ions. If a *"pain signal"* (a negative stimulus) reaches the cell, the –70 mV resting potential jumps to +30 mV (Figure 2). This phenomenon is called depolarization, and it is the result of sodium ions flowing into the cell in response of the stimulus. Peak potential is followed by repolarization and, after potassium ions flow out, the inside of the cell is negatively charged once again. After the propagation of the stimulus, the equilibrium of charges is restored, and the potential returns to its original level (–70 mV). Before returning to the resting state, the cell briefly assumes a more negative potential (below –70 mV), and therefore does not immediately return to an excitable state. The entry of sodium ions triggers the release of neurotransmitters, substances that propagate the stimulus (in the present example a *"pain signal"*) to the next neuron, see Figure 3. The propagation of the stimulus is made possible by the potential difference, which is found in all cells but is particularly large in nerve and muscle cells since it is a prerequisite of excitability. PEMF maintains the membrane at a low –90 mV potential, thereby blocking the

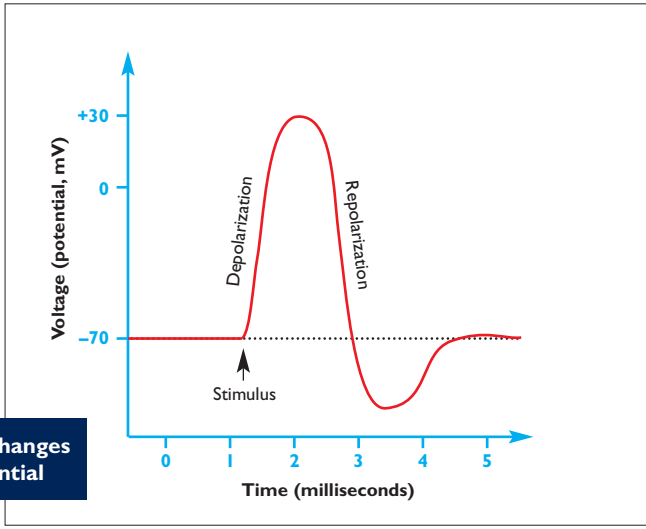

Figure 2 ▪ Stimulus induced changes in membrane potential

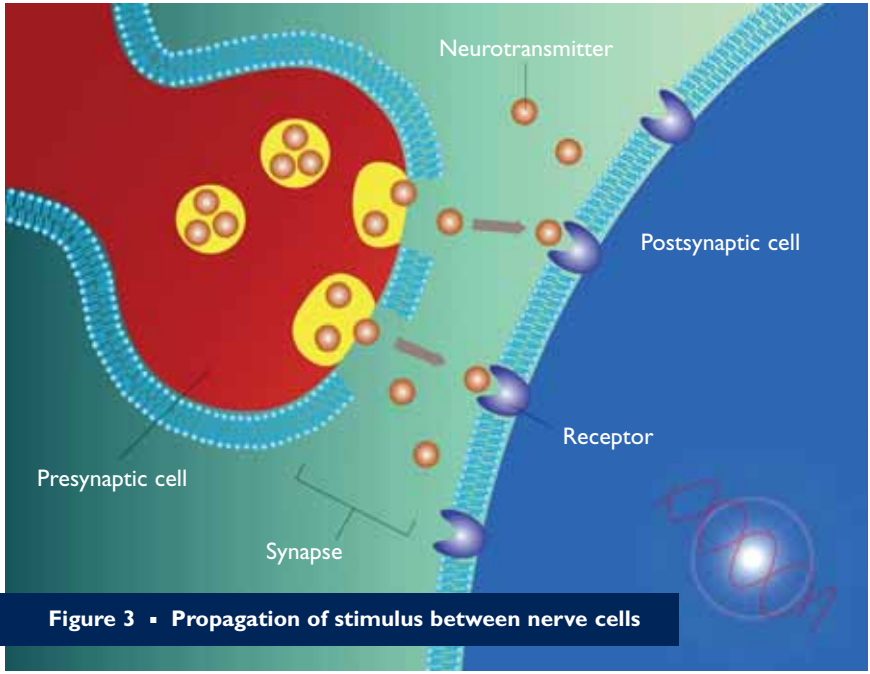

Figure 3 ▪ Propagation of stimulus between nerve cells

propagation of the *"pain signal"*[3], and preventing an increase in the potential that would allow the release of ions and neurotransmitters (the potential is not allowed to exceed +10 mV!).

Based on hundreds of studies the most effective results are produced by low frequency (below 100 Hz) pulsed electromagnetic fields. With their help, damaged tissues can begin to recover. There are no side effects if the device is used at the correct frequency. **The beneficial effect of the magnetic field is non-specific, it regenerates and heals all types of cells and tissues,** therefore phenomenal results are seen in many diseases (decreased inflammation and pain relief = recovery).

Our modern world continually bombards our bodies with toxins, and an unhealthy diet (high fat, high cholesterol foods, sugary drinks, etc.) is harmful

to blood vessels. Inadequate circulation attenuates the natural healing ability of the body. If the body could supply sufficient oxygen and nutrients (via blood circulation) to the affected area, most injuries would heal spontaneously. Magnet therapy can remedy this problem by enhancing circulation – and thus oxygen and nutrient supply – and expediting regeneration. Circulation serves to fulfill one of the basic requirements of regeneration: it removes harmful substances from the body. Clogged capillaries reopen. As a result of these processes, sight, hearing, and renal and hepatic function improve, among others.

In most cases conventional medicine treats the symptoms as opposed to the cause of disease. As is the case with traditional methods, pulsed magnetic therapy returns the body to its basic state so self-healing processes are activated, and it can prevent disease. With existing conditions, many patients can curtail their pharmacological therapy, or in some cases even eliminate it (under medical supervision). **In this way, harmful side effects can be avoided. What is more, there are recorded cases when pharmacological therapy failed but pulsed magnetic therapy resolved the problem** (see chapter *"Miraculous" recoveries due to pulsed magnetic therapy [PEMF]*). In addition to treating diseases, pulsed magnetic therapy has a significant role in general health maintenance and improving fitness. Famous athletes reach their maximum potential with the help of PEMF therapy.

THE MAGNETIC FIELD AFFECTS

- ☑ the permeability of cell membranes,
- ☑ production of ATP (cellular energy source!),
- ☑ stimulates circulation (separates adherent red blood cells, restoring their original oxygen binding capacity), therefore increases cellular oxygen and nutrient supplies,
- ☑ promotes the clearing of waste material via the lymphatic system,
- ☑ helps to restore the ionic equilibrium between the two sides of the cell membrane,
- ☑ stimulates the production of growth factors,
- ☑ stimulates DNA synthesis and cell division, and finally, activates gene expression.

1 *Brighton C.T., Wang W., Seldes R., Zhang G., Pollack S. R.: Signal transduction in electrically stimulated bone cells. J Bone Joint Surg Am, 2001, 83:1514-23.*

2 *Varani K., Vincenzi F., Targa M., Conrciulo C., Fini M., Setti S., Cadossi R., Borea P.A.: Effect of pulsed electromagnetic field exposure on adenosine receptors in rat brain. Bioelectromagnetics, 2011 [Epub]*

3 *Warnke U.: The possible role of pulsating magnetic fields in the reduction of pain. Elsevier Biomedical Press, Pain Therapy, 1983.*

OTHER MAGNETIC THERAPIES

Static magnetic therapy

Static magnetic therapy must not be confused with pulsed magnetic therapy. The former provides a constant, complementary magnetic field; the latter uses a dynamic, fluctuating frequency, and provides the body with a larger quantity of energy, thus facilitating hugely more efficient healing. Compared to pulsed magnets whose healing power is described by thousands of published articles, there is much less scientifically sound proof of efficacy for static magnets.

In many cases static magnets decrease the resting potential of cells, thereby inhibiting cellular activity and providing pain relief. They may increase energy levels and the oxygen uptake of red blood cells. They may enhance oxidative processes and thus increase the energy levels of the body. Thermographic studies have proven that static magnets boost metabolism. Capillary circulation is increased, potentially resulting in accelerated transport of nutrients and faster clearance of waste materials.

Magnetism is not solely a characteristic of metal objects. Living organisms also generate a magnetic field. Cellular damage results in weakened magnetic field and impaired metabolism; since regeneration is slower, there is less chance of self-healing. However, *"supplementing"* the magnetic field can be helpful.

Magnetism and electricity are the result of an organized flow of electrons between atoms. Living organisms generate pulsed, as opposed to static, mag-

netic fields: for example, the frequency of the brain is 8-12 Hz, which changes to 2 Hz during sleep. The magnetic field of the Earth is pulsating at 7.5 Hz. Animal studies have proven that in demagnetized environments mice only survive for a few weeks.

In the case of milder complaints, wearing magnetic watches, bracelets, necklaces, small bandages, or insoles providing a static magnetic environment can be effective. There are also collars and pillows available for dogs and other domestic animals.

www.univill.hu

www.hoopers.org

Repetitive transcranial magnetic stimulation [rTMS]

Transcranial magnetic stimulation was first introduced in neurological diagnosis, and is currently used as a therapy. Pulsed magnetic therapy should be used under medical supervision. This method stimulates the brain and the spinal cord through the skull (hence the name transcranial), and can improve the condition of patients. During rTMS, the pulsed magnetic field generates electrical impulses in the central nervous system. The number of dendrites (the projections providing interconnections between neurons) increases, and new neural pathways and connections may be generated (Figure 4).

rTMS has been proven to be effective in neurological disorders, such as Parkinson's disease, stroke, spinal cord injuries, cranial trauma, epilepsy, perinatal hypoxia, and depression. Orthopedic target groups: lumbago, joint pain, orthopedic/trauma surgery, and rehabilitation after injury.

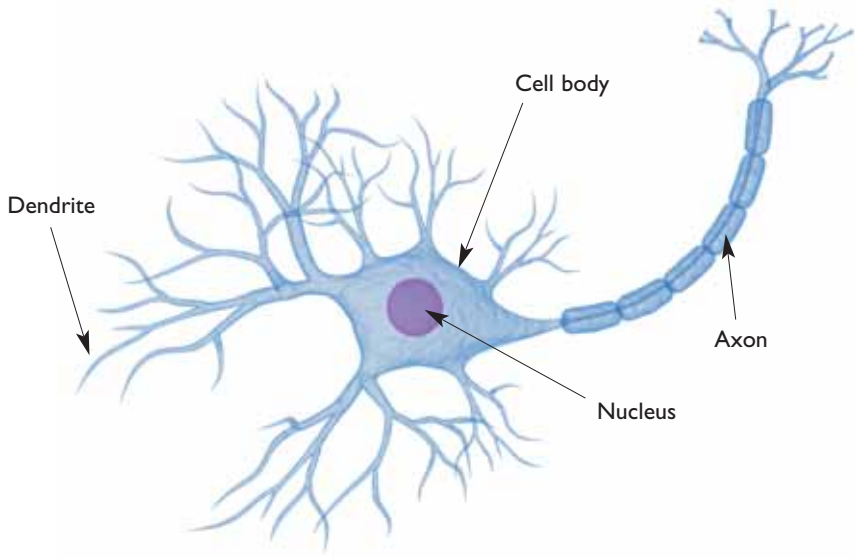

Figure 4 ▪ General structure of a neuron

This therapy is pain-free and virtually without side effects (in very rare cases, a ringing in the ears or headache may develop after treatment). rTMS should not be used on patients with pacemakers or implanted magnetic valve devices or metal plates, and should be avoided in patients with drug-resistant epilepsy. Magnetic stimulation can be administered safely for 30 minutes at a frequency of 1 Hz, or for 0.08 seconds at 25 Hz.

Its mechanism of action is based on current induction: the dynamically pulsed magnetic field generates a surrounding electric field. The intensity of the electromagnetic field decreases exponentially in tissues. Maximal electric current can be generated within a sphere of approximately 1 inch diameter beneath the skull bone.

Treatment: Neurological disorders can be treated in week-long sessions. Even after up to 10 years, movement can be induced in paralyzed limbs. In

Parkinson's disease, repeated treatments significantly delay progression (reduce tremors, decrease muscle stiffness, ease cramps, and improve movement).

Neural pathways regenerate, and active movement is restarted. A detailed description of this method is available in Dr. Judit Málly's book: *A repetitive transcranialis mágnes stimuláció [rTMS] hatása a központi idegrendszeri betegségek kezelésében és rehabilitációjában* (Repetitive Transcranial Magnetic Stimulation [rTMS] in the Treatment and Rehabilitation of Central Nervous Diseases) (Eurobridge Co., Publisher).

	Static magnet	rTMS	PEMF
Easy to use in your home	✓	Must be used in clinical environment, by a doctor	✓
Pulsed (high efficiency)	Not pulsed	✓	✓
Scientifically proven background	Few articles	✓	✓

www.rtms.hu

http://www.orvoscentrum.hu/15449-Dr_Mally_Judit/

ADVICE ON USING PULSED MAGNETIC THERAPY DEVICES

"Putting a useful solution into practice frequently takes too long because the fear of change exceeds the discomfort of the current situation. In other words: Instead of making a timely switch in their diet, people would rather wait until they get a heart attack or become diabetic." (SETH GODIN)

Countless articles have been published about the beneficial effects of pulsed magnetic field therapy. Unfortunately, due to size limitations it has been impossible to include all published articles and case reports in this book. However, every effort has been made to provide the Reader with a list of all diseases where treatment with pulsed magnetic therapy is feasible (published clinical trials are referenced). As mentioned earlier, the therapy has a wide spectrum of effects, so this chapter is quite lengthy. The relevant sections are, nevertheless, easy to locate.

The sections describing various diseases serve as background information, and are not a substitute for medical diagnosis.

The descriptions also contain suggestions (frequency, duration, and in the case of small devices, proper positioning) included in the operating instructions recommended by the manufacturers. At the end of each section, test results of clinical treatments are shown, followed by a list of references and publications. Many of these published articles describe double-blind, placebo-

controlled studies. These are rigorously designed, reliable studies. The patients, all of whom receive treatment, are divided into two groups, but neither the patient, nor the doctor knows (hence the study is *"double-blind"*) who gets active magnetic therapy, and who gets "pretend treatment" (placebo). This method can eliminate the subjective power of the "trust" (expectation) placed in the treatment, and the doctor also remains free of bias during the evaluation.

In case of complications the device is used to provide specific treatment for the associated symptoms (specific location, duration and frequency).

Whole body treatment – with a mattress – has a beneficial and relaxing effect on the entire body.

Pharmacological treatment should not be arbitrarily suspended even if dramatic improvement is seen! Please, consult your doctor in all cases!

General advice on the use of pulsed magnetic therapeutic devices

Drink 1 glass of water both before and after treatment. Healing (removal of toxic waste materials) requires the consumption of large amounts (2.5-3 liters daily) of water. Smoking should be avoided 1 hour prior to and after treatment, because nicotine is a vasoconstrictor. Radical diets should be avoided. In 15-20% of patients (especially in case of chronic ailments) the first reaction is an intensification of the pain (which may be avoided with proper water intake, or will clear up after the first 2-4 treatments).

Improvement can be expected after 5 weeks at the latest. The operating range of the devices is 30 cm. Clothing does not interfere with the devices,

but metals must be removed from the magnetic field! 10 minutes of relaxation is recommended before treatment (particularly when treating sleep disorders or stress). Low frequencies are recommended for treatments applied in the evening, because they promote sleep. In case of stress or depression the devices should be used at 3 Hz for 10 minutes, applied to the back of the neck and repeated throughout the day as many times as possible.

The pulsed magnetic device can also be used by children and the elderly. The whole family can be treated with the same device making this home therapy very cost effective.

Boosting the immune system

Treatment is carried out once daily (in the morning) for 10 minutes at 20 Hz, placing the pad over the navel. It boosts the immune system and increases energy levels.

Frequency ranges

Low frequencies: 1-10 Hz

Effects: analgesic, muscle relaxant, anti-inflammatory (during the daytime: 7-8 Hz, in the evening: 3 Hz is recommended).

Intermediate frequencies: 10-15 Hz

Effects: anti-inflammatory, vasodilation (in case of chronic and degenerative conditions), improves blood and lymphatic circulation, reduces swelling.

High frequencies: up to 25 Hz

Effects: promotes bone healing. Healing after accidents, burns and acute illness, also detoxifies.

Frequencies above 25 Hz (26-81 Hz) – medical applications

More robust support of recovery. Before using high frequencies, please consult a physician specializing in pulsed magnetic therapy.

Musculoskeletal system

Rheumatoid arthritis

A chronic inflammatory disease primarily affecting the joints. The body recognizes elements of its own connective tissue as foreign, and protects itself with an inflammatory response. Found in about 1% of the population, more frequent in women. Begins with fever and weight loss. As a result of inflammation, membranes within the joint thicken and the amount of synovial fluid increases. These impede the movement of the joint, eventually resulting in deformity. Advanced disease is characterized by stiff and deformed joints.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 10-20 Hz, on the painful areas. The first symptoms usually affect the hands, therefore treatment should typically commence there.

Published literature ▪ 7-14 year old children with rheumatoid arthritis were treated with low frequency magnetic field. Divided into three different groups, they experienced 37, 58, and 76% improvement[1].

[1] *Shlyapok E.A., Gabidova N.T., Evseeva S. N., Apanasevich Z. K., Shvedunova L. N.: Use of alternating low-frequency magnetic fields in combination with radon baths for treatment of juvenile rheumatoid arthritis. Vopr Kurortol Fizioter Lech Fiz Kult, 1992, 4:13-17.*

Herniated disc

Intervertebral discs, consisting of an outer fibrous ring and an inner gel-like substance, can be found between the vertebrae. They provide a flexible connection between the vertebrae, ensuring the flexibility of the spine. In case of a

herniated disc, the fibrous disc ruptures and the gel-like substance protrudes into the vertebral or spinal canal (Figure 5). This can result in nerve compression leading to unilateral pain or loss of sensation. If the spinal canal is affected, it can result in indiscriminately radiating pain, or even paralysis.

Recommended treatment

2-3 times daily, 20-30 minutes at 16-20 Hz or 30 Hz, placing the device on the affected area of the spine.

Published literature ▪ Following surgery 52% and 30% of patients receiving magnet therapy or no treatment, respectively, were discharged from hospital in a pain-free state[1].

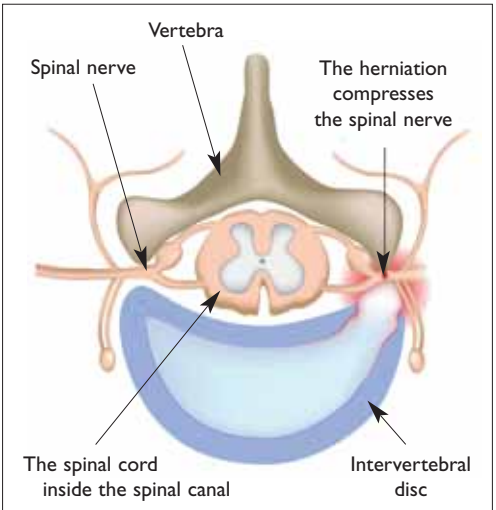

Figure 5 ▪ Schematic illustration of herniated disc

[1] *Perjes K., et al.: Effect of magnetotherapy on recovery after herniated disk surgery. Hungarian Symposium on Magnetotherapy, 2nd Symposium, May 16-17, 1987, Szekesfehervar, Hungary, p. 159-162.*

Osteoarthrosis (osteoarthritis)

A degenerative disease of the musculoskeletal system affecting 20-30% of people. Mostly affects the hips, the knees and the small joints of the hands. A pathological breakdown erodes the thickness of the cartilage, reducing its flexibility, load bearing capacity and ability to decrease friction. There are changes in the

Figure 6
Joint disease

bone under the cartilage layer: due to inadequate circulation and altered loads the bone thickens in some places and cavities develop in others (Figure 6). Primary arthrosis is caused by alterations in bone metabolism due to advanced age. Secondary arthrosis is due to congenital or acquired structural deformity or injury. Symptoms: pain – at the beginning only *"start-up pain"*, later the pain increases, especially in response to physical activity. The joint cracks and creaks, its range of motion becomes increasingly narrow, then deformation sets in, followed by muscular atrophy. Treatment: physical therapy (!) and cartilage protecting/regenerating agents.

Recommended treatment ▪ 2-3 times daily, 20 minutes at a frequency of 8-12 or 18 Hz, with the device placed on the painful joint.

Published literature ▪ 75 patients with arthrosis of the knee joint were treated with low frequency pulsed electromagnetic therapy or placebo. Patients treated with PEMF therapy showed significant pain relief and improved condition. The conclusion of a large study conducted in 3014 patients over 11 years: *"magnetic therapy is an excellent treatment for joint diseases"*[2].

[1] *Pipitone N., Scott D. L.: Magnetic pulse treatment for knee osteoarthritis: a randomised, double-blind, placebo-controlled study. Curr Med Res Opin, 2001, 17(3):190-6.*

[2] *Riva Sanseverino E., Vannini A., Castellacci P.: Therapeutic effects of pulsed magnetic fields on joint diseases. Panminerva Med, 1992, 34(4):187-96.*

Osteoporosis

One out of every two women over the age of 50 years sustains a fracture due to osteoporosis. It is caused by age-related calcium deficiency, or a postmenopausal decline in estrogen levels (the hormone estrogen controls the incorporation of calcium into the bones). The most frequently occurring fractures due to osteoporosis are those of the hips, the wrists, the spine, and the pelvis. Above the age of 35 bone resorption outpaces bone formation, so the risk of osteoporosis depends on bone density built up until that point. Bone formation requires vitamin D and calcium, therefore everyone should ensure an adequate intake of these nutrients. Natural vitamin D sources include sea fish, liver, eggs, milk, dairy products, and fish oil. Our skin synthesizes vitamin D from its precursors in response to sunlight, but it is important to note that artificial light (e.g. tanning beds) does not have the same effect. Significant sources of calcium include milk, dairy products, broccoli, tofu, almonds, and peanuts.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 8-10, or 15 or 19 Hz. Since all bones are involved in osteoporosis, whole body treatment is recommended.

Published literature ▪ As a complementary therapy it has been proven to be very effective in the prevention of complications[1]. In response to 10 hours of PEMF treatment (72 Hz) for 12 weeks, bone mineral density (BMD) values significantly increased, then decreased over the 36 weeks following the cessation of therapy[2].

[1] *Saveriano G., Ricci S.: Treatment of senile osteoporosis caused brachialgia with low-frequency PEMFs. Journal of Bioelectr, 1989, 8(2):321.*

[1] *Bilotta T. W.: The use of low-frequency low magnitude PEMFs in treatment of osteoporosis. Journal of Bioelectr, 1989, 8(2):316.*

[2] *Tabrah F., Hoffmeier M., Gilbert F. Jr, Batkin S., Bassett C. A.: Bone density changes in osteoporosis-prone women exposed to pulsed EMFs (PEMFs). J Bone Miner Res, 1990, 5(5):437-42*

Bone fracture

TYPES OF BONE FRACTURES

- **Traumatic:** Due to a single, sudden, direct impact (accident). The flexibility of the bone no longer compensates for the force of the impact.
- **Fatigue fracture:** Bone tissue normally regenerates continuously as a result of the concerted activity of osteoblasts (cells that build new bone) and osteoclasts (cells that break bone down). The trabeculae (the small *"beams"* inside bones) are remodeled according to the stresses affecting the bone. If there is repeated stress, microscopic injuries result in a partial or complete fracture. In such a case, osteoclast activity is increased. Fatigue fractures occur mostly in the legs, for example in elite athletes after an intensive workout. These fractures are hard to diagnose, and sometimes it takes several months to recognize the fracture. A typical symptom is pain that occurs in response to exercise, and goes away during periods of rest. The pain returns on resumed activity and worsens with the increasing intensity of the physical stress, eventually persisting even during inactivity.
- **Pathologic fracture:** Due to a concurrent condition (immune-deficient conditions, osteoporosis, hormone treatment, radiation, malignant tumor, vitamin deficiency), the bone weakens, becomes thinner, and fractures spontaneously.
- **Greenstick fracture:** This is a partial fracture that affects children. Only one side of the bone fractures, similar to what happens when a young branch of a tree is broken (Figure 7).

Figure 7
Greenstick fracture

Can be open or closed. Closed fracture means that the skin tissue does not break, and the bone does not protrude. From the outside the only indication is a hematoma caused by internal bleeding. This type of fracture normally heals in 6-8 weeks. Slow-healing fractures may not completely heal even after a 50-100% longer time period (3 months). For non-healing fractures (nonunion) not even 4 months suffice, and the broken bone does not bind.

Possible causes of non-healing fractures:

- infection,
- insufficient blood supply to/inside the bone,
- the broken ends of the bone are too far from each other,
- inadequate stabilization of the fracture.

Prevention: Do not smoke, and follow a healthy diet! Our body can only take up the basic materials necessary for bone healing in the form of food and vitamin complexes.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 10 or 20 Hz. The device must be placed over the broken bone; a plaster cast does not impede magnetic fields.

Published literature

Animal studies and experiments carried out on cell cultures have demonstrated that PEMF treatment increases the production of growth factors in non-healing tissues (stimulates the growth and differentiation of cells)[1].

139 non-healing fractures were treated with PEMF therapy:

- Patients who used the device for less than 3 hours per day showed an improvement of 35.5%.
- Patients who used the device for more than 3 hours per day achieved an improvement of 80%[2].

56 patients with nonunion of tibial fracture were treated with low frequency magnetic field:

- 100% of 10 patients with slow-healing fracture achieved healing.
- 84% of 44 patients with non-healing fracture achieved healing.
- 2 patients with pseudoarthrosis (see below) did not react to treatment[3].

In other studies 67.7% and 82.5% of nonunion fractures progressed to complete healing with PEMF treatment[4].

The successful healing of stubborn nonunion fractures is due to the increased calcification of the extracellular matrix (ECM). PEMF treatment increases the production of growth factors, and enhances the synthesis of ECM molecules, as well as promoting calcification. PEMF treatment also increases the production of cartilage, and stimulates the longitudinal growth of long bones[5]. Bone formation increased in experimental animals with tibial osteotomy (cutting of the tibia)[6]. Studies on cultures of chicken ligament and rabbit bone marrow cells showed that collagen production increased in response to PEMF treatment[7]. Collagen is a structural protein of connective tissues that provides both flexibility and support to tissues. It can be found in skin, bones, muscles, joints, ligaments, cartilage, and hair. As we age the collagen content of body decreases resulting in tiredness, fatigue, and aches and pains. Our skin develops wrinkles, our joints start to ache, running and jumping become difficult, and first our muscle tissues, then our skeleton weakens![8]

1 *Guerkov H. H., Lohmann C. H., Liu Y., Dean D. D., Simon B. J., Heckman J. D., Schwartz Z., Boyan B. D.: Pulsed electromagnetic fields increase growth factor release by nonunion cells. Clin Orthop Relat Res, 2001, (384):265-79.*

2 *Garland D. E., Moses B., Salyer W.: Long-term follow-up of fracture non-unions treated with PEMFs. Contemp Orthop, 1991, 22(3):295-302.*

3 *de Haas W. G., Beaupré A., Cameron H., English E.: The Canadian experience with pulsed magnetic fields in the treament of ununited tibial fractures. Clin Orthop Relat Res, 1986, (208):55-8.*

4 *Meskens M. W., Stuyck J. A., Feys H., Mulier J. C.: Treatment of nonunion using pulsed electromagnetic fields: a retrospective follow-up study. Acta Orthop Belg, 1990, 56(2):483-8.*

4 *Delima D. F., Tanna D. D.: Role of pulsed electromagnetic fields in recalcitrant non-unions. J Postgrad Med, 1989, 35(1):43-8.*

5 *Aaron R. K., Ciombor D. M., Jolly G.: Stimulation of experimental endochondral ossification by low-energy pulsing electromagnetic fields. J Bone Miner Res, 1989, 4(2):227-33.*

6 *Ottani V., De Pasquale V., Govoni P., Castellani P. P., Ripani M., Gaudio E., Morocutti M.: Augmentation of bone repair by pulsed ELF magnetic fields in rats. Anat Anz, 1991, 172(2):143-7.*

7 *Murray J. C., Farndale R. W.: Modulation of collagen production in cultured fibroblasts by a low-frequency, pulsed magnetic field. Biochim Biophys Acta, 1985, 838(1):98-105.*

7 *Farndale R. W., Murray J. C.: Pulsed electromagnetic fields promote collagen production in bone marrow fibroblasts via athermal mechanisms. Calcif Tissue Int, 1985, 37(2):178-82.*

8 *Gossling H. R., Bernstein R. A., Abbott J.: Treatment of ununited tibial fractures: a comparison of surgery and pulsed electromagnetic fields [PEMF]. Orthopedics. 1992, 15(6):711-9.*

Pseudoarthrosis

May develop when bone healing is delayed or absent. The two ends of the fractured bone produce a connective tissue bridge (fibrous cartilage) instead of bone tissue. Pseudoarthrosis is the final result when the fracture does not complete the healing process. Possible causes: problems with fixation, complication of medical treatment, or a congenital defect.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes using the general programs or the 10 or 20 Hz frequencies recommended for fractures. Place the device over the affected bone.

Published literature ▪ 19 out of 21 patients were successfully treated with pulsed electromagnetic therapy[1]. Results were achieved in 76% of 92 cases involving patients with congenital pseudoarthrosis[2]. A study covering 8 years reported that 92% of 271 patients (91 infectious pseudoarthrosis) were successfully treated[3].

1 *Cakirgil G. S., Saplakoglu A., Yazar T.: The compared effect of a four-coiled system in pulsed EMF stimulation. Orthopedics, 1989, 12(11):1481-4.*

2 *Kort J. S., Schink M. M., Mitchell S. N., Bassett C. A.: Congenital pseudoarthrosis of the tibia: treatment with pulsing electromagnetic fields. Clin Orthop, 1982, 165:124-137.*

3 *Lechner F., Oeller G., Ascherl R.: Treatment of infected pseudoarthroses with electrodynamic field therapy. Fortschr Med, 1997, (20):943-9.*

Dislocations and sprains

Joint capsules and ligaments may sustain injuries as a result of accidents. In case of a dislocation, the two articular surfaces move apart. The joint becomes painful and swollen, and entirely incapable of movement. In the case of a knee dislocation the patient may sustain arterial injury as well. When a joint is sprained, the ends of the bones do not move apart, but the ligaments are stretched. The range of movement decreases, and the joint is painful but capable of movement.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at 10 Hz; place the device on the affected area.

Published literature ▪ In patients with ankle sprains, two 30-minute treatments significantly decreased the time until the resolution of edema[1].

1 *Pilla A. A., Kloth L.: Effect of pulsed radio frequency therapy on oedema in ankle sprains: A multisite double-blind clinical study. Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy, p. 300.*

Musculoskeletal pain

Such problems can be caused by overuse, injury or accident, but also include temporary or permanent neck, shoulder and/or back pain, which result from an inactive lifestyle and long periods of sitting during the workday, and can make life difficult for a lot of people.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 10 Hz; place the device on the affected area.

Published literature ▪ 50 patients with joint or muscle pain were examined in a double-blind study. Decrease in pain was reported by 76% of patients receiving active magnetic therapy, and 19% of patients receiving placebo treatment[1]. Of 107 patients with back or joint pain, 61.7% reported a decrease in pain one month after treatment, of which 16.7% experienced immediate pain relief, 37.9% within a week, 16.7% within two weeks, and 28.8% saw improvement within two to four weeks (Professor Alan Bennett).

[1] *Dr. Andrew Weil: Self-Healing, 1998, Study at Baylor College of Medicine on Magnet Therapy Physical Medicine & Rehabilitation 11/1997*

Tendinitis

Most often caused by overuse, but can also be triggered by an infection. Movement of the affected joint is inhibited by the pain.

Recommended treatment ▪ 2-3 times daily, 10 minutes at 8 Hz, treating the affected area.

Published literature ▪ 65% and 18%, respectively, of patients with tendinitis

resistant to steroid injections and other conventional treatments became symptom-free, or experienced significant improvement after PEMF treatment (Dr. Laycock, Addenbrookes Hospital).

Ligament injuries

Ligaments anchor muscles to joints and play an important role in joint stability. Ligaments can partially or completely tear due to various accidents. Ligament structure can also be damaged by excessive stretching. Healing may take up to a year, because ligaments are composed of compact fibers (there are few blood vessels, but many fibers in great proximity), therefore blood supply is weak, and regeneration is slow.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 10-15 Hz, on the affected area.

Published literature ▪ Following surgery for torn knee ligament, PEMF treatment was found effective, and promoted regeneration.[1]

[1] *Currier D. P., Ray J. M., Nyland J., Rooney J. G., Noteboom J. T., Kellogg R.: Effects of electrical and electromagnetic stimulation after anterior cruciate ligament reconstruction. J Orthop Sports Phys Ther. 1993, 17(4):177-84*

Frozen shoulder (periarthritis of the shoulder)

Stiff, painful shoulder (including immobilization of the joint) caused by contracture or inflammation of the joint capsule. May be caused by injury from overuse, primarily in conjunction with sports or physical activity (work) involving holding the arms above shoulder level for extended periods of time.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at 7-8 Hz; place the device on the shoulder.

Published literature ▪ 40 patients experienced pain relief and improvement of joint movement[1].

[1] *Battisti E., Bianciardi L., Albanese A., Piazza E., Rigato M., Galassi G., Giordano N.: The new magnetic therapy TAMMEF in the treatment of simple shoulder pain. Clin Ter, 2007, 158(5):397-401*

Tennis elbow

Caused by overuse of the extensor muscles of the forearm. The outer aspect of the elbow is sensitive, inflamed. In many cases tennis elbow is not exercise induced, but a result of other activities such as typing. Found primarily in middle aged women. The patient is unable to hold objects due to muscle strain and severe pain.

Recommended treatment ▪ 2-3 times daily, 10 minutes at 8 Hz; place the device on the inner side of the elbow.

Published literature ▪ Pain and inflammation decreased in response to pulsed magnetic therapy[1].

[1] *Uzunca K., Birtane M., Taştekin N.: Effectiveness of pulsed electromagnetic field therapy in lateral epicondylitis. Clin Rheumatol. 2007, 26(1):69-74*

Psoriatic arthritis

This is a joint inflammation found in patients with psoriasis. It affects 5-10% of individuals living with psoriasis. It is similar to rheumatoid arthritis (see above). In most cases joint inflammation begins before dermatological symptoms develop (psoriasis is a reddish skin rash that erupts periodically causing skin peeling, it may be treated with light therapy, and another important aspect is diet: alcohol and red meat should be avoided). Nails become thickened and blotchy, suggesting a fungal infection. Psoriatic arthritis mostly affects the fingers and toes.

Recommended treatment ▪ 2-3 times daily, 20 minutes using the general programs; place the device on the painful area.

Published literature ▪ Twenty days of pulsed magnetic therapy improved the condition of the joints in patients with psoriatic arthritis[1].

[1] *Grigoreva V. D., Badalov N. G., Guliaeva E. N.: The therapeutic use of physical factors in the combined therapy of patients with psoriatic arthritis. Vopr Kurortol Fizioter Lech Fiz Kult. 1995, (6):48-52.*

Fibromyalgia

Chronic tendon, muscle and soft tissue pain that may affect different areas of the body at different times. Nodules develop in the muscles of the back, shoulder, and arm. Fibromyalgia is difficult to identify and many years can go by

without diagnosis because the patient's complaints are many, varied, and individual. There are no inflammatory changes, and X-ray and laboratory investigations return no findings. Fibromyalgia is accompanied by muscle stiffness and pain, presumably caused by the enhanced sensitivity of pain-sensing nerves, although very little is known about it. It is characterized by exhaustion and constant fatigue.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 18 Hz; place the device on the painful area.

Published literature ▪ In a double-blind, placebo-controlled study of 17 patients PEMF treatment resulted in a significant decrease in pain.[1]

[1] *Thomas A.W., Graham K., Prato F. S., McKay J., Forster P. M., Moulin D. E., Chari S.: A randomized, double-blind, placebo-controlled clinical trial using a low-frequency magnetic field in the treatment of musculoskeletal chronic pain. Pain Res Manag. 2007, 12(4):249-58.*

Circulation

Problems of blood pressure

High blood pressure (hypertension) is defined as an average blood pressure in excess of 140/90 mmHg, measured over two days and at three different time points (the upper and lower values stand for systolic and diastolic pressure, that is pressure values measured during the contraction and relaxation of the heart, based on the recommendation of the World Health Organization, WHO). The second, diastolic value is relevant in hypertension. A diastolic value of 90-105 mmHg indicates mild hypertension, while values exceeding 115 mmHg are defined as very severe disease. While hypertension itself would not be problematic, there is a causal relationship with a wide variety of diseases, such as cerebral hemorrhage, stroke, blindness,

and cardiac and renal disorders. The greater the narrowing of blood vessels and the rigidity of vessel walls, the harder the heart must pump. Possible causes of hypertension: excessive intake of salt, alcohol, smoking, stress, obesity, lack of physical activity, genetic factors, and even some medications (such as contraceptive tablets).

Recommended treatment ▪ 2-3 times daily, 20-30 minutes (in case of chronic hypertension: 40 minutes), at 1-5 Hz. The device should be placed on the upper part of the sternum, or the mattress can be used. Treatment decreases blood pressure, heart rate, and the levels of hormones that increase blood pressure.

Published literature ▪ 21 out of 49 patients with hypertension received concomitant magnet therapy. These patients experienced milder symptoms, and their circulation became more stable and balanced[1].

[1] *Efremushkin G. G., Duruda N.V.: Effect of complex sanatorium treatment including magnetotherapy on hemodynamics in patients with arterial hypertension. Vopr Kurortol Fizioter Lech Fiz Kult. 2003, 3:9-12*

IMPORTANT! A sudden drop in blood pressure may occur at the beginning of treatment. In such a case the number of treatments should be lowered to one per day, and the duration to 5-10 minutes, then both the number and duration may be gradually increased to the recommended level. Treatment should be followed by an additional 10 minutes of rest.

Note: Patients reported an increase in the frequency of urination, suggesting that the heart is pumping an optimal amount of blood.

Arrhythmia

A change in the rhythm of heartbeat. **Tachycardia:** faster heartbeat (symptoms: palpitations, shortness of breath, chest pain, dizziness, and loss of consciousness).

Bradycardia: slow heartbeat (symptoms: fatigue, dizziness, confusion, and loss of consciousness).

Atrial fibrillation: disorganized electrical impulses are generated at several points of the atrium. The risk of cerebral embolism and stroke is five times higher.

Ventricular fibrillation: a life-threatening state, normal heartbeat must be restored with a defibrillator.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at 7-8 Hz. Place the device over the heart. Experience shows that medicines can be completely replaced by magnet therapy (without side effects), but check with your doctor before starting treatment!

Published literature ▪ There was an identical decrease in tachycardia in patients using magnet therapy or heart drugs.[1]

[1] *Dudchenko M. A., Vesel'ski Ish, Shtompel'Viu: The effect of combined treatment with the use of magnetotherapy on the systemic hemodynamics of patients with ischemic heart disease and spinal osteochondrosis. Lik Sprava, 1992, 5:40-43.*

Angina (angina pectoris)

A crushing, gripping pain on the left side of the chest, behind the sternum. The pain can also radiate into the shoulder, arm or back. It is caused by cardiac hypoxia (low oxygen level) due to the narrowing or calcification of one or more coronary arteries supplying blood to the heart. It can be precipitated by physical exertion, stress, cold weather, or a large meal. Angina attacks last for several minutes. Myocardial infarction is diagnosed if the angina lasts more than 20 minutes. This is caused by a complete blockage of the coronary artery leading to damage of the cardiac muscle. It is important to note that similar symptoms can be produced by a panic attack (in this case, a cardiac ECG will give a negative result).

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at a frequency of 2-8 Hz. Place the device on the left side of the chest or the back, at the level of the heart. Improvement can be expected in 6 to 12 months. Medical supervision is advised.

Published literature ▪ The heart rate decreases, and capacity to exercise increases in response to pulsed magnetic therapy[1]. Pain is decreased, the duration of diastole is extended, and cardiac output is increased. The improvement is also detected by ECG. With ongoing treatments the risk of blood clots decreases.[2]

1 *Orlov L. L., Makoeva L. D., Glezer M. G., Titov SIu, Arzhanenko O. M., Margarian A. G., Musev V. A., Memetov K. A., Belinskaia T. F. Evaluation of antianginal effects of running pulse magnetic field and drug therapy on the pysical working capacity and hemodynamics in patients with stable angina pectoris. Kardiologiia, 1992, 32(2):23-6.*

2 *Orlov L. L., Makoeva L. D., Pochechueva G. A., Arzhanenko O. M., Belinskaia T. F. „Running" pulse magnetic field in treating stenocardia. Biofizika, 1996, 41(4):949-52.*

Arteriosclerosis

The diameter of arteries decreases due to fatty deposits. Further narrowing of blood vessels occurs if platelets adhere to these plaques. Arteriosclerosis can cause strokes, myocardial infarction, and circulatory problems in the legs. Risk factors: a diet high in fats, obesity, high cholesterol levels, hypertension, diabetes, physical inactivity, and smoking.

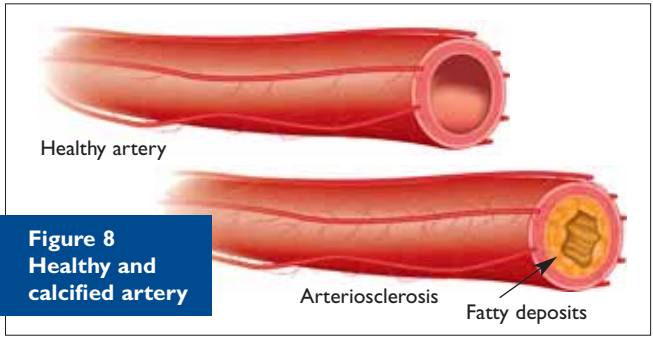

Figure 8
Healthy and calcified artery

Recommended treatment ▪ 2-3 times daily, 15 minutes at a frequency of 7-10 Hz; place the device on the affected area, or use the mattress.

Published literature ▪ There are two articles describing the beneficial effects of magnetic therapy in arteriosclerosis[1].

[1] *Gordon R. T., Gordon D.: Selective resolution of plaques and treatment of atherosclerosis biophysical alteration of cellular and intracellular properties. Medical Hypothesis, 1981, 7(2):217-29.*

[1] *Kakulia A. G.: The use of sonic band magnetic fields in various diseases. Vopr Kurortol Fizioter Lech Fiz Kult, 1982, 3:18-21.*

Varicose veins

Dilated, tortuous veins, mostly in the legs (but also including hemorrhoids). Swelling, pain and cramps in the foot and knee. A sensation of heavy legs after standing for long periods of time. A fraction of the blood flows backwards to the lower part of the leg due to valvular incompetency (valves of in the leg veins do not work properly, which can be due to heredity). The veins become dilated and tortuous due to the increased pressure. An inactive lifestyle (too much sitting and resting, too little physical activity), regularly lifting heavy objects, and pregnancy may also contribute to the development of varicose veins. Its incidence is higher among tall and overweight people. Circulation improves and congestion is cleared up in response to the magnetic field.

Recommended treatment ▪ 2-3 times daily, 15 minutes at 7-10 Hz; place the device on the affected area.

Published literature ▪ Pulsed magnetic therapy shortened recovery after varicose vein surgery[1]. Among patients with venous problems and varicose veins, 236 out of 271 patients showed significant improvement, while satisfactory improvement was found in another 34. Only one patient did not respond to treatment.[2]

[1] *Galimzianov F.V.: Electromagnetic therapy after phlebectomy. Khirurgiia, 1990, 5:108-10.*

[2] *Pasynkov E. I., Konstantinova G. D., Vlasova E. I.: Therapeutic use of alternating magnetic field in chronic diseases of the veins of the lower limbs. Vopr Kurortol Fizioter Lech Fiz Kult, 1976, 5:16-9.*

Leg ulcers

Ulceration of the affected area. These wounds are slow to heal and recur frequently. Leg ulcers are not a distinct disease condition, but are most frequently caused by vascular disease: venous insufficiency (90% of cases), arteriosclerosis (6%), hypertension, heart failure; it may also be a co-morbidity of diabetes or a consequence of other diseases (such as renal failure or clotting disorders). The healing power of PEMF therapy is based on the ability of magnetic fields to improve circulation. In response to venous insufficiency the skin and underlying connective tissues around the ankle shrink and become pale and dry, accompanied by peeling. Red blood cells released from blood vessels due to capillary damage cause dark red blotches on the surface of the skin. Necrotic tissue is replaced by granulation tissue, and the ulcer may reach the tibia. These wounds are not always painful, but chronic ulcers may lead to the need for amputation.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 2-6 or 20 Hz; place the device on the affected area.

Published literature ▪ Cases of significant healing have been reported in conjunction with treating ulcerated wounds. It has been demonstrated that the beneficial effect of magnetic therapy is maintained even after cessation of active treatment[1].

[1] *Alekseenko A.V., Gusak V.V., Stoliar V. F., Iftodi A. G., Tarabanchuk V.V., Shcherban N. G., Naumets A. A.: Use of magnetic therapy combined with galvanization and tissue electrophoresis in the treatment of trophic ulcers. Klin Khir. 1993, (7-8):31-4.*

- *Alekseenko A. V., Gusak V. V.: Treatment of trophic ulcers of the lower extremities using a magnetic field. Klin Khir. 1991, (7):60-3.*
- *Ieran M., Zaffuto S., Bagnacani M., Annovi M., Moratti A., Cadossi R.: Effect of low frequency pulsing electromagnetic fields on skin ulcers of venous origin in humans: a double-blind study. J Orthop Res. 1990, 8(2):276-82.*

Raynaud's syndrome

The limbs are always cold, independently of the environmental temperature. This syndrome is caused by circulatory or neurological problems. The body tries to maintain proper blood supply (nutrients and oxygen) of the essential organs, thus the blood supply of less important peripheral areas decreases. This is also a well-established reaction to stress. The contraction of blood vessels is controlled by the autonomic nervous system, but the narrowing of peripheral vessels may also occur concomitantly with many diseases (arteriosclerosis, diabetes, and hypotension). People with Raynaud's syndrome are more likely to catch respiratory infections, because the blood supply of the mucous membranes of the nasal and sinus cavities is also frequently compromised (and unable to perform its protective function).

Recommended treatment ▪ 2-3 times daily, 20 minutes at 15 Hz; place the device on the affected limbs.

Gastrointestinal system

Diabetes and its complications

Type I diabetes mellitus, also known as juvenile diabetes, is a metabolic disease that develops due to a lack of insulin, and it already causes symptoms during childhood. In Hungary, one out of every 1,500 children has diabetes. Early diag-

nosis and treatment is essential. Symptoms: frequent urination (urine contains glucose), constant thirst, strong appetite, fatigue, and blurred vision. Sudden weight loss and abdominal pain may also occur. Wounds are slow to heal, the immune system is weak, and the patients catch infections easily.

The other type, Type II diabetes mellitus, or adult onset diabetes is preceded by insulin resistance. Since our bodies are capable of compensating this state, it may not be recognized for quite a while: the pancreas produces excess insulin therefore blood sugar levels remain normal. Insulin decreases blood sugar levels, and assists in the cellular uptake of glucose. This function is less effective in the presence of insulin resistance. Symptoms usually appear after age 30, and are similar to those of Type I diabetes. Brownish colored hyperpigmentation (acanthosis nigricans) may develop in the armpit and inside the elbow due to insulin resistance. It is caused by obesity and physical inactivity (in addition to genetic predisposing factors). It is incurable, but treatment consisting of weight loss and lots of exercise (and possibly insulin treatment) and diet can maintain a normal level, which is very important in order to avoid the development of complications.

Recommended treatment ▪ Whole body treatment with the mattress 2-3 times daily, 15-20 minutes using the basic programs. Additional treatment of affected areas is recommended if complications have developed. In case of insulin deficiency, do not stop drug treatment!

Published literature

Diabetic angiopathy. Symptoms decreased significantly, and all the assessable parameters of peripheral circulation were shown to improve[1]. Among individuals with macroangiopathy (affecting major blood vessels), 74% of those treated with both conventional and magnetic therapy, but only 28% of patients treated with conventional therapy alone, showed significant improvement[2].

1 *Vesovic-Potic V., Conic S.: Use of pulsating high-frequency EMFs in patients with diabetic neuropathies and angiopathies. Srp Arh Celok Lek, 1993, 121(8-12):124-6.*

2 *Kirillov I. B., Suchkova Z. V., Lastushkin A. V., Sigaev A. A., Nekhaeva T. I.: Magnetotherapy in the comprehensive treatment of vascular complications of diabetes mellitus. Klin Med (Mosk), 1996, 74(5):39-41.*

Neuropathy (nerve cell damage). Magnet therapy was successfully used in the treatment of peripheral neuropathy due to juvenile diabetes[1]. However, one of the studies did not show any significant improvement[2].

1 *Khudoshina S. V., Bolotova N. V., Nikolaeva N. V., Manukian Viu: Efficacy of magnetotherapy in diabetic peripheral neuropathy in children.Vopr Kurortol Fizioter Lech Fiz Kult.2006, (6):24-6.*

2 *Vesovic-Potic V., Conic S.: Use of pulsating high-frequency EMFs in patients with diabetic neuropathies and angiopathies. Srp Arh Celok Lek, 1993, 121(8-12):124-6.*

Suppurative wounds. In 119 patients, treatment quickly stabilized the immune system and accelerated healing[1].

1 *Kuliev R. A., Babaev R. F.: A magnetic field in the combined treatment of suppurative wounds in diabetes mellitus. Vestn Khir Im I I Grek, 1992, 148(1): 33-6.*

1 *Kuliev R. A., Babaev R. F., Akhmedova L. M., Ragimova A. I.: Treatment of suppurative wounds in patients with diabetes mellitus by magnetic field and laser irradiation. Khirurgiia (Mosk), 1992, 7-8:30-3.*

Diabetic retinopathy (degenerative illness of the retina). After 6 weeks of treatment, all patients experienced pain relief and 66% of patients reported complete absence of pain. 76% of the treated patients also experienced a decrease in tinnitus and numbness (based on the work of Lau, School of Medicine, Loma Linda University, USA).

Inflammation of pancreas (pancreatitis)

Pancreatitis is accompanied by abdominal pain and digestive problems. The pancreas does not produce sufficient quantities of digestive enzymes and insulin. Symptoms may develop suddenly or over a long period of time (accompanied by weight loss and unremitting diarrhea). The pancreas and the gall bladder empty their products via a common duct into the intestine, and if this duct is damaged or obstructed, digestive enzymes may end up in the peritoneal cavity, or the pancreas may begin to digest itself.

Acute pancreatitis can be caused by gall stones, alcoholism, injury, or viral infection. The cause of chronic pancreatitis is alcoholism!

Recommended treatment ▪ 2-3 times daily, 20-30 minutes using the basic programs. Place the device on the upper left side of the abdomen.

Published literature ▪ Based on the treatment of 195 patients, magnetic therapy has a beneficial effect[1].

[1] *Fedorov A. A., Postnikova T. N., Konovalova E. V., Evstiugina IuV: The use of a low-frequency magnetic field in the combined therapy of chronic pancreatitis. Vopr Kurortol Fizioter Lech Fiz Kult. 1990, (5):28-30*

Crohn's disease

This is an inflammatory disease of the intestinal mucosa that ulcerates into the deeper layers. Characteristics include diarrhea, acute or gradually developing abdominal pain, with symptom-free periods. It is incurable, but the symptoms can be alleviated. The inflamed intestinal cells excrete large amounts of water and salt, resulting in continuous diarrhea. Intestinal peristalsis causes pain due to the inflamed and swollen intestinal wall; the disease can be accompanied by cramps and bloody

stools. It primarily affects the last section of the small intestine, and the colon, but may be present in the esophagus and stomach. Multiple inflamed areas are present in the intestinal system simultaneously, interspersed with healthy gut sections. Its cause is presently unknown, but there are multiple theories as to its origin:

- Following *Mycobacterium avium paratuberculosis* infection the intestines are damaged by the immunological reactions against the bacteria,
- an autoimmune process,
- an abnormal immune reaction to a normal member of the intestinal flora,
- and there might be a genetic component in 20% of the cases, because there are family clusters.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes using the basic programs. Place the device on the lower or middle of the abdomen, or sit on the device.

Published literature ▪ Cell culture studies showed that pulsed electromagnetic fields alter the production of certain cytokines: the production of inflammatory IFN-gamma decreases, and the production of anti-inflammatory IL-10 increases[1].

[1] *Kaszuba-Zwoińska J., Ciećko-Michalskal, Madroszkiewicz D., Mach T., Słodowska Hajduk Z., Rokita E., Zaraska W., Thor P.: Magnetic field anti-inflammatory effects in Crohn's disease depends upon viability and cytokine profile of the immune competent cells. J Physiol Pharmacol, 2008,59(1):177-87*

Dental and oral diseases

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at a frequency of 30 Hz, place the device on the affected area.

Published literature ▪ Used as a complementary treatment, PEMF accelerates the healing process[1].

[1] *Hillier-Kolarov V., Pekaric-Nadj N.: PEMF therapy as an additional therapy for oral diseases. European Bioelectromagnetics Association, 1st Congress, 23-25 January 1992, Brussels, Belgium*

Respiratory system

Bronchitis

An inflammation of the airways (bronchi), accompanied by increased mucus production. Mostly of viral or bacterial origin, usually develops as a complication of the common cold, and if not treated in a timely manner, it may progress to pneumonia. Symptoms last for 1 to 2 weeks.

Chronic bronchitis is present when the patient has a constant cough and expectoration (white colored phlegm, as opposed to the purulent, greenish-yellowish sputum caused by infection) for three months over two consecutive years.

This can progress to **chronic obstructive bronchitis,** when the cilia that usually remove harmful materials with the help of mucus are destroyed. The increasingly thick mucus cannot be removed, eventually obstructing the airways.

Chronic obstructive pulmonary disease (COPD) is a slow, progressive and irreversible disease of the lungs, and 90% of COPD cases are seen in smokers aged 40 years or older. The disease is associated with the narrowing of the bronchi, and emphysema (the alveoli fuse, decreasing the respiratory surface), and 15% of smokers develop it. Over time this disease is accompanied by increasingly severe

dyspnea, coughing, and expectoration. COPD may affect miners and chemical workers, and there is also a genetic predisposing factor, namely alpha-l-antitrypsin (ATT) deficiency. Normally ATT inhibits the elastase enzyme in charge of breaking down elastin found in the walls of the alveoli.

Recommended treatment ▪ 2-3 times daily, 12 minutes at 4 Hz; place the device on the sternum. In the case of chronic disease, the recommended frequency is 12 Hz.

Published literature ▪ Fewer and easier to treat complications, and faster symptomatic relief was seen among individuals treated with PEMF. Therapy was also successful in the treatment of chronic bronchitis when used in addition to conventional drug therapy[1].

[1] *Mozhaev G. A., Tikhonovskiĭ Ilu: The prevention and treatment of suppurative-inflammatory complications in the bronchopulmonary system during prolonged artificial ventilation. Anesteziol Reanimatol. 1992, (4):47-51.*

[1] *Iurlov V. M., Eksareva T. A., Dolodarenko V. F.: The efficacy of the use of low-frequency electromagnetic fields in chronic bronchitis. Voen Med Zh, 1989, 3:35-6.*

Pneumonia

Caused by an infectious agent, most frequently a virus or bacterium. Since its symptoms are identical to those of a cold or the flu (in many cases chest pain and shortness of breath may be warning signs), pneumonia is often not recognized in time.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes; place the device over the sternum, and use the general programs.

Published literature ▪ Animal and clinical studies have shown that the combi-

nation of magnet therapy and conventional treatment is much more efficient that conventional treatment alone[1].

[1] *Iashchenko L. V., Chistiakov I. V., Gakh L. M., Ostapiak Z. N., Siurin S. A.: Low-frequency magnetic fields in the combined therapy of inflammatory lung diseases. Probl Tuberk, 1988,3:53-6.*

Asthma

The spasm of the bronchi, occurring in the form of attacks, causing dyspnea and a suffocating sensation. Due to hypersensitivity or allergy, the bronchi react abnormally to certain physical or chemical stimuli, such as allergens, physical exertion, viral infection, psychological factors, and medications. Magnetic therapy supports the normal function of the immune system. Inflammation and increased mucus secretion is observed in the bronchi, and the smooth muscle of the airways contracts. During an asthma attack, dyspnea is often accompanied by coughing, perspiration, and palpitations, and wheezing can be heard from the lungs during expiration.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 7-10 or 12-15 Hz; place the device on the sternum.

Published literature ▪ There are several articles describing the beneficial effects of magnetic therapy in asthma[1].

[1] *Klopp R.: Magnetfeldtherapie: Komplementär-therapeutisch sinnvoll oder Unsinn? Institut für Mikrozirkulation, Berlin, 2005*

[1] *Michaelis H.: Ärztliche Anwenderstudie 09/03. Akademie für Bioenergetik, 2003*

Tuberculosis (TB)

Tuberculosis is an airborne disease caused by *Mycobacterium tuberculosis* bacteria. In Hungary all newborns receive the compulsory BCG shot, which is followed by a booster dose at 6 months. However, immunity only lasts 10-15 years, and protects only against juvenile tuberculosis. This infection spreads mostly among the homeless, and is transmitted through coughing. Unfortunately only about 30-40% of the population participates in compulsory pulmonary screening (chest X-ray). About 1,500 new cases are registered annually in Hungary. Patients on drug therapy (whose infection is inactive) are not infectious; however, strict adherence to the protocol is imperative throughout the entire duration (several months) of the treatment! TB drugs can lose their effectiveness and drug-resistant illness can develop if the treatment is stopped when symptoms improve.

Recommended treatment ▪ 2-3 times daily, 12 minutes at a frequency of 4 Hz; place the device on the sternum. Do not treat an active TB infection with magnet therapy! Wait until drug treatment is started, and then use PEMF as a complementary treatment!

Published literature ▪ Several articles report that the efficacy of pharmacological treatment is appreciably enhanced by both pulsed and static magnetic therapy, although they do not kill the infectious bacteria[1].

[1] *Khomenko A.: Use of millimeter-range electromagnetic radiation in complex therapy for pulmonary tuberculosis. Millimetrovie Volniv Biologiil Meditcine, 1994,3:53-61.*

[1] *Solov'ena A. S., Samtsov V. S., Gorbach I. N.: Use of constant magnetic field for increasing the effectiveness of chemotherapy in patients with pulmonary tuberculosis. Probl Tuberk, 1987,8:53-56.*

Nervous system

Headaches, migraines

Migraine: According to estimates approximately one million Hungarians suffer from migraines. Migraines are recurrent severe headaches that occur in the form of attacks that usually affect only one side of the head; sufferers prefer quiet and darkness during the attacks. The attacks can last anywhere from a few hours to a few days. They may be accompanied by nausea, vomiting, and sensitivity to light and sound.

Tension headaches: the most frequent type. They may affect any region of the head, and are accompanied by a vice like pain.

Cluster headaches: the most painful, but also the rarest type. Men are more likely to be affected than women. They occur in cycles, and the cluster attacks may last from several weeks to several months, followed by a symptom-free period. The unilateral, sharp, burning pain is frequently described like a red hot poker inserted into the eye.

Recommended treatment ▪ 2-3 times daily, 15 minutes at a frequency of 3 or 6-10 Hz. Place the device on the side or back of the head, or the back of the neck. Tension headaches: Place the device on the front of the neck (above the collar bones).

Published literature ▪ Various studies report success rates exceeding 60%. Migraine sufferers: 60%[1], 66%[2], and 73%[3]; tension headache patients: 88%[1]. There are conflicting reports on the success of treatment for cluster headaches[4].

1 *Prusinski A.: Pulsating electromagnetic field in the therapy of headache. Hungarian Symposium on Magnetotherapy 2nd Symposium May16-17,1987 Szekesfehervar, Hungary, p163-6.*

2 *Lazar L., Farago A.: Experiences of patients suffering from migraine-type headache treated with magnetotherapy. Hungarian Symposium on Magnetotherapy 2nd Symposium, May16-17, 1987 Szekesfehervar, Hungary, p137-40.*

3 *Sherman R.A., Acosta N. M., Robson L.: Treatment of migraine with pulsing electromagnetic fields: a double-blind, placebo-controlled study. Headache, 1999, 39(8):567-75.*

4 *Sandyk R.: Weak magnetic fields in the treatment of Parkinson's disease with the "on-off" phenomenon. International Journal of Neurosci, 1992,66(1-2):97-106.*

4 *Prusinski A., Wielka J., Durko A.: Pulsating electromagnetic field in the therapy of headache. Journal of Bioelectr, 1988, 7(1):127-8.*

Sleep disorders

It may constitute a symptom, a disease, or even a side effect of a given medicine. It should be treated if it adversely affects activities in day-to-day life. Sleep is a basic physiological requirement that is essential for regeneration – especially that of the nervous system. The need for sleep varies from one individual to another and can be different at different ages; however, quality and quantity of sleep is very important, in other words one should feel *"refreshed"* when waking. Sleep disorders decrease survival and adaptability. They also adversely affect attention, performance, and patience, and increase irritability. Chronic exhaustion increases the risk of other diseases and mental decline.

Hyposomnia or insomnia is defined as difficulty falling asleep, or sleep disrupted by many waking cycles, or waking abnormally early.

Hypersomnia means that the need for sleep is abnormally high – including daytime sleep.

Parasomnia is a disorder of the quality, as opposed to quantity of sleep. In parasomnia the process of falling asleep/waking is disordered (an example is sleep-walking).

Recommended treatment ▪ 2-3 times daily, 10-20 minutes at a frequency of 1-5 Hz; place the device on the back of the neck. The mattress is even more effective, and should be combined with relaxation. Ten minutes of rest is recommended before treatment.

Published literature ▪ According to the reference article, 101 patients with insomnia were treated with PEMF or *"given placebo"*. 70% of the active treatment group reported a complete cessation of the complaint, 24% experienced major improvement, and 6% had a small but significant improvement.[1] The use of a magnetic pillow promotes the production of melatonin, is a hormone required for falling asleep.[2]

1 *Pelka R. B., Jaenicke C., Gruenwald J.: Impulse magnetic-field therapy for insomnia: A double-blind, placebo-controlled study. Advences in Therapy, 2001, 18(4):174-80.*

2 *Guilleminault C.: Clinical effects of low energy therapy. Bioelectromagnetics Society, 15th Annual Meeting, 13-17 June 1993, Los Angeles, CA, p84*

Tinnitus

Ringing, clattering, chirping, humming, rumbling, or whistling noise that may also resemble the noise of a car or airplane engine, or rushing water, occurring in the

absence of outside stimuli. The patient hears the noise inside his or her head. Its incidence in Hungary is approximately 4%.

Objective tinnitus: The physician can also detect it, because it is caused by turbulent blood flow or rhythmic muscle contractions.

Subjective tinnitus: The more frequent type, it is only heard by the patient, and cannot be measured through physical means. It is frequently accompanied by hearing loss. A functional disorder of the auditory circuit of the inner ear or the auditory cortex. It can be caused by psychological problems, solidified ear wax, inflammation of the middle ear, inner ear damage due to strong noises, or even a tumor. It may also be the symptom of various diseases.

Recommended treatment ▪ 2-3 times daily, 20 minutes at a frequency of 10 Hz. Place the device on the side or back of the head.

Published literature ▪ 60% of patients with subjective tinnitus experienced symptomatic relief in response to treatment, and in some cases the tinnitus completely resolved. Several patients reported a change in the tone of noise[1].

[1] *Patiakina O. K., Antonian R. G., Zagorskaia E. E.: Treatment of subjective noise in the ear by impulse low-frequency electromagnetic field. Vestn Otorinolaringol, 1998, (1):59-60*

Back pain (lumbago, sciatica)

Lumbago develops in response to sudden movement or lifting a heavy object. The muscles of the back contract in response to severe pain at the lumbar vertebrae, making movement impossible. As we age the intervertebral discs lose their flexibility and may shift, exerting pressure on certain nerves. If the pain radiates into the legs and/or buttocks, it is called sciatica (the compressed nerve is the sciatic nerve).

Recommended treatment ▪ 2-3 times daily, placing the device on the lower back; lumbago: 15 minutes at 10/20 Hz; sciatica: 20 minutes at 16-20 Hz.

Published literature ▪ According to the cited study, 61 patients were selected in a randomized manner from a group of patients who have undergone lumbar fusion due to lumbago between 1987 and 1994. Postoperative PEMF treatment was given to 42 patients (while 19 patients did not receive any electrical stimulation). The rate of successful outcome and recovery was 97.6% and 52.6% in the PEMF-treated and control groups, respectively[1].

[1] *Marks R. A.: Spine fusion for discogenic low back pain: outcomes in patients treated with or without pulsed electromagnetic field stimulation. Adv Ther, 2000, 17(2):57-67.*

Stroke

Stroke is the third most frequent cause of mortality (cardiac disease and cancer are first and second, respectively). In order to minimize the degree of brain damage and compromise to quality of life, stroke requires immediate treatment. Stroke is an infarction of the brain tissue, meaning that cells in a certain cerebral region die due to inadequate blood supply. It may be caused by various gene mutations. Risk factors: high cholesterol levels, smoking, hypertension, genetic polymorphisms (variations in genes).

Stroke develops suddenly, therefore early diagnosis is very important! Symptoms: sudden, unilateral paralysis, weakness or numbness of the face, arm, or leg; aphasia (sudden difficulty remembering words or losing the ability to speak); blurred vision; confusion; memory impairment. Characteristics of subarachnoid hemorrhage (bleeding between the arachnoid membrane and the innermost layer of the membrane surrounding the brain) described below: vomiting; impaired consciousness; sudden strong pain in the head, neck, or face.

TIA – transient ischemic attack (transient circulatory impairment): may signal an oncoming stroke, their symptoms are identical, but the duration of TIA is

shorter (a few minutes up to a maximum of 24 hours). TIA may be recurrent. Due to its fast course there is no cell death.

TYPES OF STROKES

- **Ischemic stroke:** there is no bleeding. Represents 80% of stroke cases. Caused by a blood clot obstructing one of the arteries of the brain. Due to a lack of nutrients and oxygen, the brain cells supplied by the artery die.
  - **Thrombotic stroke:** caused by a locally developing blood clot (thrombus) – areas of greatest risk are those affected by arteriosclerosis (plaques).
  - **Embolic stroke:** caused by a blood clot originating from a different part of the body and transported via the blood circulation. It can include any type of tissue debris, such as blood clots developed in response to atrial fibrillation (arrhythmia).
- **Hemorrhagic stroke (bleeding in the brain):** bleeding caused by the rupture of a blood vessel inside the brain.
  - **Intracerebral hemorrhage:** bleeding that occurs within the brain tissue itself.
  - **Subarachnoid hemorrhage:** bleeding due to the rupture of one of the arteries found in the membranes surrounding the brain, the released blood gets into the cerebrospinal fluid.

Recommended treatment ▪ In order to avoid excessive magnetic stimulation, treatment should be carried out with great care and in consultation with a physician. In very rare cases, incorrectly applied treatment may cause stroke. 2-3 times daily, 15 minutes at a frequency of 7-10 or 20 Hz; place the device on the side of the back of the head.

Published literature ▪ Pulsed magnetic field can heal tissue damage secondary to ischemia. In a rabbit model, a 65% decrease of edema detectable by MRI was

demonstrated. Treatment decreased ischemic neuronal damage by 43%, or 69%.[1] An 84% success rate was found during treatment of partial paralysis after stroke[2].

[1] *Grant G., Cadossi R., Steinberg G.: Protection against focal cerebral ischemia following exposure to a pulsed electromagnetic field. Bioelectromagnetics. 1994, 15(3):205-16.*

[2] *Sieroń A., Biniszkiewicz T., Sieroń K., Glowacka M., Biniszkiewicz K.: Subiektywna ocena efektów leczniczych słabych pól magnetycznych. Acta Bio-Opt Inf Med, 1998, 4:133-7*

Alzheimer's disease

Mental decline (dementia) that completely compromises activities of daily living. First, brain regions responsible for *"thinking and planning"* and *"learning and memory"* are affected by this progressive degeneration; later the *"language"* and motor centers also become affected.

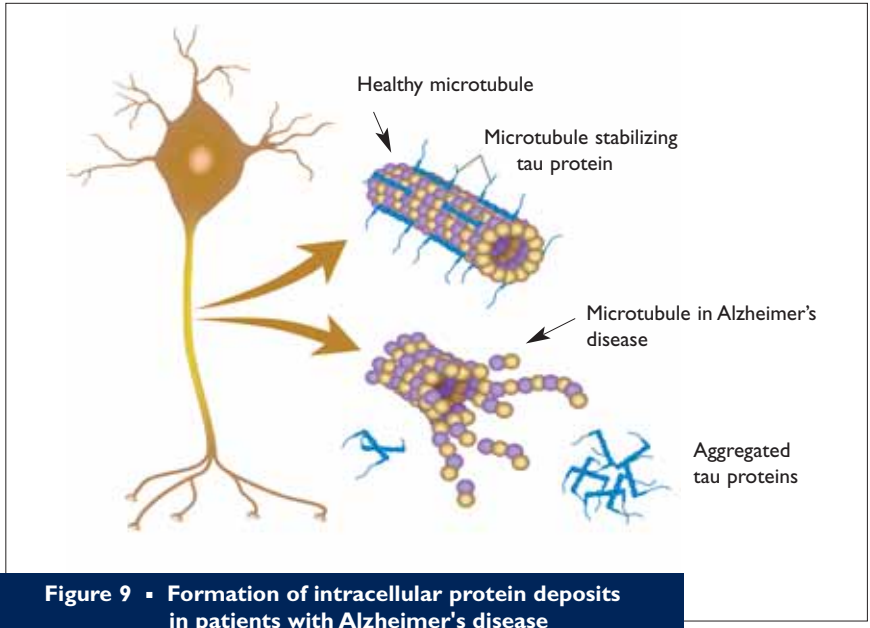

Figure 9 ▪ Formation of intracellular protein deposits in patients with Alzheimer's disease

Early stage symptoms: impairment of short term memory, difficulty in finding the correct words. Later the patient forgets his/her own name, fails to recognize relatives, goes through personality changes, and loses sense of time. Advanced stage (the last few years of the patient's life): inability to assimilate information, even basic functions (eating, walking, control over bodily functions) become impossible.

Minor trauma, hypoxia (low oxygen level), or certain genetic factors lead to overproduction of APP (amyloid precursor protein). Additionally, the activity of proteolytic enzymes (enzymes in charge of breaking down proteins) decreases after a certain age, leading to the formation of amyloid plaques (aggregates). Due to degeneration of the axons connected to these plaques, nerve cells first assume a rounded shape, and later die. The presumed cause of the disease is the mutation of amyloid precursor protein (APP), mutations of presenilin-I, and presenilin-2 genes may exist, for which screening tests are available. Additionally, mutation of the tau protein can also lead to Alzheimer' disease (Figure 9).

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at a frequency of 2-8 Hz. Place the device on the forehead or on the side of the head.

Published literature ▪ Dr. Reuven Sandyk described the improvement of movement, mood, cognitive function and memory in patients with Alzheimer's disease. This is of enormous significance, since it can improve the daily lives of patients. The magnetic field resets the biological clock (an internal clock determining the rhythm of our lives) – this may be the presumable cause of memory improvement[1].

[1] *Sandyk R:. Alzheimer's disease: improvement of visual memory and visuoconstructive performance by treatment with picoTesla range magnetic fields. International Journal of Neurosci, 1994, 76(3-4):185-225.*

[1] *Sandyk R., Anninos P. A., Tsagas N.: Age-related disruption of circadian rhythms: possible relationship to memory impairment and implications for therapy with magnetic fields. International Journal of Neurosci, 1991, 59(4):259-62*

Parkinson's disease

This syndrome, caused by damage to dopamine producing neurons, is accompanied by tremor (dopamine is responsible for voluntary movement of skeletal muscles). One out of 1,000 Hungarians are affected. Symptoms: constant hand tremor, stooped posture, balance disorder, sudden rigidity, and a waddling gait. In the course of physiological aging, the number of dopamine producing cells decreases, and once it falls below the critical 50% threshold, symptoms appear. It may be caused by the mutation of Parkin, LRRK2, Pink 1, and synuclein-alpha genes, all of which can now be screened for.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at a frequency of 20 Hz. Place the device on the side and back of the head.

Published literature ▪ Dr. Reuven Sandyk published several articles a year between 1994 and 1996 on this subject; used as a complementary therapy, magnet therapy was hugely successful. Improvement was seen in motor functions (facial expression, tremor, voluntary, complex movements, and micrographia), behavior, visual perception, memory, cognition, and autonomic functions. The mood of the patients improved too. Their speech became more fluent, and visual and olfactory functions were shown to improve[1]. According to Shimamoto the beneficial effect of magnetic therapy is based on the inhibition of the dopaminergic system[2]. Improvement is also apparent on the EEG curve. Parkinson's disease can be effectively treated with transcranial magnetic stimulation[3]. In Hungary, in the city of Sopron, Dr. Judit Málly, a neurology specialist pioneered this therapy, and has been using it successfully ever since (see chapter on rTMS).

1 *Sandyk R.: Electromagnetic fields improve visuospatial performance and reverse agraphia in a parkinsonian patient. (Brief Communication) International Journal of Neurosci, 1996, 87(3-4):209-217.*

[1] *Sandyk R.: Improvement in short-term visual memory by weak electromagnetic fields in Parkinson's disease. International Journal of Neurosci, 1995, 81(1-2):67-82.*

[1] *Sandyk R.: Reversal of a visuoconstructional deficit in Parkinson's disease by application of external magnetic fields: a report of five cases. International Journal of Neurosci, 1994, 75(3-4):213-228.*

[1] *Sandyk R., Iacono R. P.: Rapid improvement of visuoperceptive functions by picoTesla range magnetic fields in patients with Parkinson's disease. International Journal of Neurosci, 1993, 70(3-4):233-54.*

[1] *Sandyk R: Magnetic fields in the therapy of Parkinsonism. International Journal of Neurosci, 1992, 66(3-4):209-35*

[1] *Sandyk R.: Magnetic fields in the treatment of Parkinson's disease. Int. Journal of Neurosci, 1992, 63(1-2):141-50.*

[1] *Sandyk R.: Parkinsonian micrographia reversed by treatment with weak electromagnetic fields. International Journal of Neurosci, 1995,81(1-2):83-93.*

[1] *Sandyk R., Derpapas K.: The effects of external picoTesla range magnetic fields on the EEG in Parkinson's disease. International Journal of Neurosci, 1993, 70(1-2):85-96.*

[1] *Sandyk R.: Improvement in word-fluency performance in Parkinson's disease administration of electromagnetic fields. International Journal of Neurosci, 1994, 77(1-2):23-46.*

[1] *Sandyk R.: Treatment of Parkinson's disease with magnetic fields reduces the requirement for anti-parkinsonian medications. International Journal of Neurosci, 1994, 74(1-4):191-201.*

[1] *Sandyk R.: Treatment with AC pulsed electromagnetic fields improves olfactory function in Parkinson's disease. International Journal of Neurosci, 1999, 97(3-4):225-33.*

[1] *Sandyk R.: Speech impairment in Parkinson's disease is improved by transcranial application of electromagnetic fields. International Journal of Neurosci, 1997, 92(1-2):63-72.*

[1] *Sandyk R.: A drug naive parkinsonian patient successfully treated with weak electromagnetic fields. International Journal of Neurosci, 1994, 79(1-2):99-110.*

[2] *Shimamoto H., Takasaki K., Shigemori M., Imaizumi T., Ayabe M., Shoji H.: Therapeutic effect and mechanism of repetitive transcranial magnetic stimulation in Parkinson's disease. J Neurol, 2001, 248(3):48-52.*

[3] *George M. S., Wassermann E. M., Post R. M.: Transcranial magnetic stimulation: a neuropsychiatric tool for the 21st century. J Neuropsychiatry Clin Neurosci, 1996, 8(4):373-82.*

[3] *Mally J., Stone T. W.: Improvement in Parkinsonian symptoms after repetitive transcranial magnetic stimulation. J Neurol Sci., 1999, 162(2):179-84*

Multiple sclerosis (MS)

An autoimmune disease affecting approximately one million people worldwide. The body recognizes as foreign material and attacks its own tissue. Antibodies

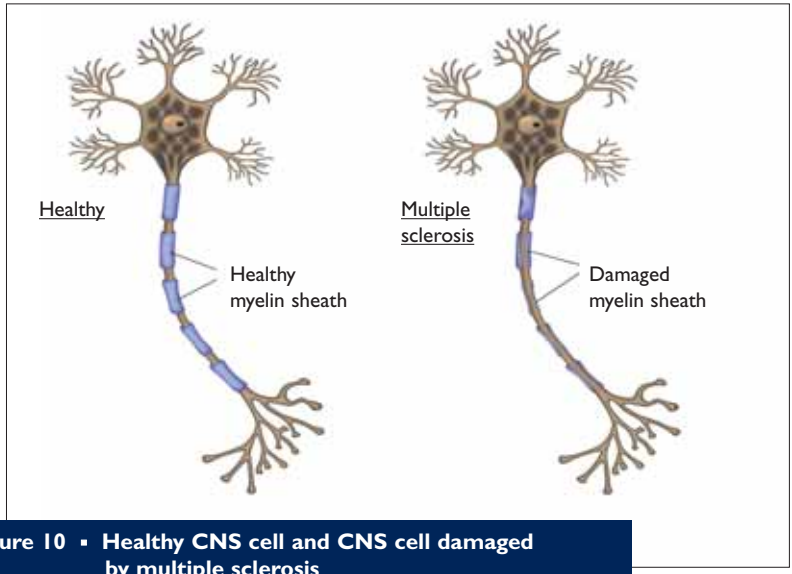

Figure 10 ▪ Healthy CNS cell and CNS cell damaged by multiple sclerosis

produced against the myelin sheath of nerve cells in the central nervous system (CNS) cause inflammatory damage and scarring (sclerosis) in multiple areas, hence the name (Figure 10). These lead to nerve conduction problems. Symptoms: numbness, visual problems, tremor (involuntary tremor or shaking of the hands or the head), problems with coordination, muscle rigidity, and paralysis.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes at 5/13/20 Hz. Use of the mattress is strongly recommended, because it treats the whole body.

Published literature ▪ PEMF treatment improves vision, sensory function, movement, coordination, speech, speech recognition, cognitive abilities, and mood. It improves sleep problems, tremor, and spasticity (muscle rigidity, involuntary muscular cramps)[1]. Suicidality also seemed to decrease with treatment[2].

[1] *Sandyk R., Dann L. C.: Weak electromagnetic fields attenuate tremor in multiple sclerosis. International Journal of Neurosci, 1994, 79(3-4):199-212.*

- *Sandyk R.: Rapid normalization of visual evoked potentials by picoTesla range magnetic fields in chronic progressive multiple sclerosis. International Journal of Neurosci, 1994,77(3-4):243-59.*
- *Sandyk R., Iacono R. P.: Multiple sclerosis: improvement of visuoperceptive functions by picoTesla range magnetic fields. International Journal of Neurosci, 1994, 74(1-4):177-89.*
- *Sandyk R.: Reversal of visuospatial hemi-inattention in patients with chronic progressive multiple sclerosis by treatment with weak electromagnetic fields. International Journal of Neurosci, 1994,79(3-4):169-84.*
- *Sandyk R.: Progressive cognitive improvement in multiple sclerosis from treatment with electromagnetic fields. International Journal of Neurosci, 1997,89(1-2):39-51.*
- *Sandyk R.: Improvement in word-fluency performance in patients with multiple sclerosis by electromagnetic fields. International Journal of Neurosci, 1994,79(1-2):75-90.*
- *Sandyk R.: Reversal of alexia in multiple sclerosis by weak electromagnetic fields. International Journal of Neurosci, 1995,83(1-2):69-79.*
- *Sandyk R.: Application of weak electromagnetic fields facilitates sensory-motor integration in patients with multiple sclerosis. International Journal of Neurosci, 1996,85(1-2):101-10.*
- *Sandyk R.: Resolution of dysarthria in multiple sclerosis by treatment with weak electromagnetic fields. International Journal of Neurosci, 1995,83(1-2):81-92.*
- *Richards T. L., Lappin M. S., Acosta-Urquidi J., Kraft G. H., Heide A. C., Lawrie F. W., Merrill T. E., Melton G. B., Cunningham C. A.: Double-blind study of pulsing magnetic field effects on multiple sclerosis. The Journal of Alternative and Complementary Medicine, 1997, (3)1:21-29.*
- *Sandyk R.: Suicidal behavior is attenuated in patients with multiple sclerosis by treatment with electromagnetic fields. International Journal of Neurosci, 1996,87(1-2):5-15*

Amyotrophic lateral sclerosis (ALS)

Also called Lou Gehrig's disease. Muscular atrophy caused by the gradual destruction of motor neurons. Muscle weakness, starting on the underside of the limbs (hand, sole, ankle), progresses gradually. Patients often have difficulty swallowing, and the final stage of the disease is characterized by muscle weakness progressing to respiratory failure. Patients die within 3 to 8 years. The annual rate of this rare disease is approximately 2 people out of 100,000. It may be caused by the mutation of the gene encoding the superoxide dismutase enzyme (SOD1).

Recommended treatment ▪ 2-3 times daily, using the general programs; use of the mattress is recommended.

Published literature ▪ According to the cited article all 3 patients treated with pulsed magnetic therapy experienced symptomatic relief[1].

[1] *Bellosi A., Berget R.: Pulsed Magnetic Fields: A glimmer of hope for patients suffering from Amyotrophic Lateral Sclerosis. Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy*

Carpal tunnel syndrome

Caused by compression of the nerve running through the carpal tunnel on the inner side of the wrist (cause: the tunnel becomes narrowed due to edema, or the nerve becomes inflamed and swollen) (Figure 11). Symptoms: loss of feeling, numbness or pain in the thumb, index finger or middle finger. Hand muscles in the affected area atrophy over time.

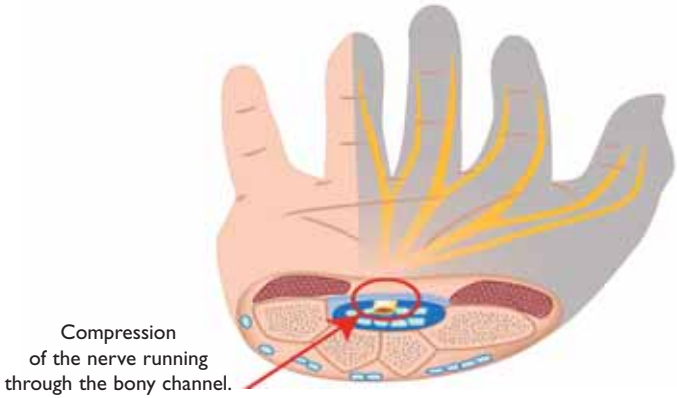

Figure 11 ▪ Carpal tunnel syndrome

Recommended treatment ▪ 2-3 times daily, 10 minutes at a frequency of 6 or 20 Hz; place the device on the wrist.

Published literature ▪ According to the cited article, significant short- and long-term pain relief was demonstrated in a randomized, double-blind, placebo-controlled study of 36 patients[1].

[1] *Weintraub M. I., Cole S. P.: A randomized controlled trial of the effects of a combination of static and dynamic magnetic fields on carpal tunnel syndrome. Pain Med, 2008, 9(5):493-504.*

Spinal cord injuries

Caused by trauma. The spinal cord sustains injury or can even tear due to movement or fracture of the vertebrae. Due to damaged neural pathways partial or complete, temporary or permanent sensory and motor defects (even paralysis) may develop.

Recommended treatment ▪ 2-3 times daily, 20 minutes using the general programs. The device should be placed on the back, or the mattress can be used.

Published literature ▪ Successful treatment with magnetic therapy of 7 male patients whose spinal cord injury had led to detrusor (the muscle responsible for emptying the bladder) hyperreflexia (overactive reflexes)[1].

[1] *Sheriff M. K., Shah P. J., Fowler C., Mundy A. R., Craggs M. D.: Neuromodulation of detrusor hyper-reflexia by functional magnetic stimulation of the sacral roots. British Journal of Urology, 1996, 78(1):39-46.*

Hyperactivity, attention deficit syndrome

Unfortunately, many parents are confronted with this very common syndrome in the course of raising their children. Characteristics: hyperactive, frequently purposeless movements, decreased concentration, impulsive behavior, lack of

perseverance, the child is easily distracted and displays mood swings. Little is known about the background of this disorder. It is thought to be caused by metabolic disturbances of messenger molecules in the brain, but there may be associations with alcohol, nicotine or drugs consumed during pregnancy. Pharmacological (drug) treatment has its own dangers, because it frequently results in depression, and symptoms can increase after stopping the treatment.

Recommended treatment ▪ Strictly structured daily activities; avoiding television and computer games is recommended; the child should be kept in a low-stimulus environment. Use the mattress 1-2 times a day at a frequency of 20 Hz (in the evening before bedtime, or when the child is under elevated stress).

Published literature ▪ **Children like using the mattress, they feel lighter, and their symptoms decrease**[1].

[1] *Klopp R:. Magnetfeldtherapie: Komplementärtherapeutisch sinnvoll oder Unsinn? Institut für Mikrozirkulation, Berlin, 2005*

[1] *Michaelis H.:Ärztliche Anwenderstudie 09/03. Akademie für Bioenergetik, 2003*

Other problems of the nervous system, where magnetic therapy has proven to be effective

Lumbar radiculopathy (injury of nerve roots) and **whiplash** induced back or neck pain was significantly relieved by both pulsed and static electromagnetic therapy (pulsed therapy was more effective). Whiplash injury is an acquired damage of the cervical vertebrae caused mainly by car accidents, when the head whips back and forth in response to collision. It can result in the rupture of muscles and ligaments, and pinched nerves.

Thuile Ch., Wlazl M.: Evaluation of electromagnetic fields in the treatment of pain in patients with lumbar radiculopathy or the whiplash syndrome. NeuroRehabilitation, 2002, 17(1):63-7.

Foley-Nolan D., Moore K., Codd M., Barry C., O'Connor P., Coughlan R. J.: Low energy high frequency pulsed electromagnetic therapy for acute whiplash injuries. A double blind randomized controlled study. Scand J Rehabil Med. 1992, 24(1):51-9.

Neuropathy, neuritis, nerve inflammation: Children with auditory nerve inflammation have been successfully treated with magnetic therapy.

Zaslavski Alu, Sapozhnikov IaM, Markarov G. S., Gelis IuS: ELEMAGS apparatus and clinical experience in its use in the treatment of children with hypoacusis and otalgia.Med Tekh. 1995, (2):40-1.

Optic atrophy: Magnetic therapy improves visual acuity, and stimulates circulation in the eye.

Zobina L. V., Orlovskaia L. S., Sokov S. L., Sabaeva G. F., Kondé L. A., Iakovlev A. A.: Effectiveness of magnetotherapy in optic nerve atrophy. A Preliminary Study, Vestn Oftalmol, 1990, 106(5):54-7.

Neurofibromatosis: caused by an overgrowth of connective tissue cells surrounding nerve fibers, this disease causes multiple subcutaneous tumors.

Crawford A. H.: Neurofibromatosis in children. Acta Orthop Scand Suppl, 1986, 218:1-60.

Neuralgia (post-herpetic): shooting pain, occurring more than once a day and lasting for a few seconds at a time, in an area supplied by a peripheral nerve.

Kusaka T. C.: Pulse magnetic treatment and whole-body, alternating current magnetic treatment for post-herpetic neuralgia. Journal of Japanese Biomagnetism Bioelectromagnetics Society, 1995, 8(2):29-38.

Tourette's syndrome: characterized by involuntary movements and uncontrollable vocalizations, also called *"tics"*.

Sandyk R.: Improvement of right hemispheric functions in a child with Gilles de la Tourette's syndrome by weak electromagnetic fields. International Journal of Neurosci, 1995, 81(3-4):199-213.

Cancer

There is controversy over the effectiveness of pulsed magnetic field in the treatment of cancer.

In certain cases, this therapy is not recommended for malignancies (since it increases circulation, it can potentially promote tumor growth due to improved metabolism of tumor cells), and should be discontinued during the administration of chemotherapy, but has proved to be very useful during recovery. Many studies have been published on the healing effects of pulsed magnetic therapy, which has been successfully used in the treatment of cancer patients (see section entitled *"Miraculous" recoveries due to pulsed magnetic therapy [PEMF]*). To optimize treatment, please consult an oncologist and a physician specializing in pulsed magnetic therapy.

Concomitant treatment (at 200 Hz) with the chemotherapeutic agent mitomycin-C was carried out for one hour on experimental tumors (fibrosarcoma, liver cancer) in rats. Survival rates after three months were measured as follows: 34% survival in animals treated with mitomycin-C alone, 47% (!) survival in rats

treated with magnetic therapy alone, and 77% of animals survived when treated with the combination therapy (none of the untreated animals survived). Therefore, pulsed magnetic field augmented the effect of mitomycin-C. Moreover, magnetic therapy was proven to be more effective than chemotherapy.[1] Pulsed magnetic field promotes the uptake of anti-tumor agents by the cells, acting in synergy with chemotherapeutic agents.[2]

Whole body treatment of patients with various cancers showed a beneficial effect, especially in boosting the immune system and supporting post-surgical recovery.[3]

20-30 preoperative treatments demonstrated an antitumor effect in lung cancer patients.[4]

Tongue cancer was successfully treated with pulsed electromagnetic therapy plus antioxidants (see chapter entitled *"Miraculous" recoveries due to pulsed magnetic therapy [PEMF]*), resulting in decreased pain, improved speech, and better tolerance of chemotherapy[5].

Brain tumor patients were also successfully treated with magnetic therapy.[6] The pulsed magnetic field induces the death of tumor cells, and inhibits the growth of blood vessels and tumor cells.[7]

According to Dr. Willner (a physician in Florida specializing in alternative medicine)[8] patients who do not choose conventional therapy as their first line treatment have much better outcomes. Unfortunately, the majority of patients still choose therapeutic options that destroy the immune system as their first line therapy. The world famous Mexican cardiologist, Demetrio Sodi Pallares, has achieved truly remarkable results in cancer treatment by combining the power of magnetic field with metabolic therapy. The condition of one 40-year-old woman with breast cancer – who received numerous chemotherapeutic and radiation treatments over the course of 3 years - kept getting worse and worse, and her metastatic ovaries had to be removed. Dr. Sodi achieved fantastic results

with a low sodium/high potassium diet and 4 hours of magnetic therapy (which stimulates cell division) per day. X-rays taken five weeks later showed huge changes: the pubic and ischial bones had reformed!

[1] *Dr. Ralph W. Moss: Cancer Therapy: The Independent Consumer`s Guide To Non-Toxic Treatment & Prevention. p385. (Ref.: Omote Y., Hosokawa M., Komatsumoto M., Namieno T., Nakajima S., Kubo Y., Kobayashi H.: Treatment of experimental tumors with a combination of a pulsing magnetic field and an anti-tumor drug. Jpn J Cancer Res, 1990, 81:956-61.)*

[2] *Omote Y.: An experimental attempt to potentiate therapeutic effects of combined use of pulsing magnetic fields and antitumor agents. Nippon Geka Gakkai Zasshi, 1988, 89(8):1155-66.*

[2] *Hannan C. J., Liang Y., Allison J. D. and Searle J. R.: Synergistic effect between magnetic fields and commonly used chemotherapeutic agents. Anticancer Research, 1994, 14(4):1517-20.*

[2] *Liang Y., Hannan C. J., Chang B. K. and Shoenlein P.V.: Enhanced potency of Daunorubicin against multidrug resistant subline KB-ChR-8-5-11 by a pulsed magnetic field. Anticancer Research, 1997, 17(3):2083-8.*

[3] *Lubennikov V. A., Lazarev A. F., Golubtsov V. T.: First experience in using a whole-body magnetic field exposure in treating cancer patients. Vopr Onkol, 1995, 41(2):140-1.*

[4] *Ogorodnikova L. S., Gaĭrabed'iants N. G., Ratner O. N., Chirvina E. D., Sém L. D.: Morphological criteria of lung cancer regression under the effect of magnetotherapy. Vopr Onkol, 1980, 26(1):28-34.*

[5] *Randol U., Pangan R. M.: The role of complex biophysical-chemical therapies for cancer. Bioelectrochem Bioenerg, 1992, 27(3):341-6.*

[6] *Dr. Robert Willner: The Cancer Solution (Ref.: Robbins H. I., Semin Oncol, 1991, Harari P. M., Int J Radiat Oncol Biol Phys, 1991)*

[7] *Berg H., Günther B., Hilger I., Radeva M., Traitcheva N., Wollweber L.: Bioelectromagnetic field effects on cancer cells and mice tumors. Electromagn Biol Med. 2010, 29(4):132-43.*

[8] *Dr. Robert Willner: The Cancer Solution, 1993, Astounding Future Therapy – Now! chapter 20, p291-3*

Hepatitis

An acute or chronic inflammatory disease of the liver. Caused by a viral infection, it is characterized by jaundice. Hepatitis A and E spread via infected food, hepatitis B, C and D spread via blood and body fluids (Figure 12).

Recommended treatment ▪ 2-3 times daily, 20-30 minutes using the general programs; place the device on the right upper part of the abdomen.

Published literature ▪ Studies reported that hepatitis infections resistant to conventional treatments were positively affected by magnet therapy. With the device placed close to the liver, treatment over 10-15 days also resulted in fast improvement in children[1].

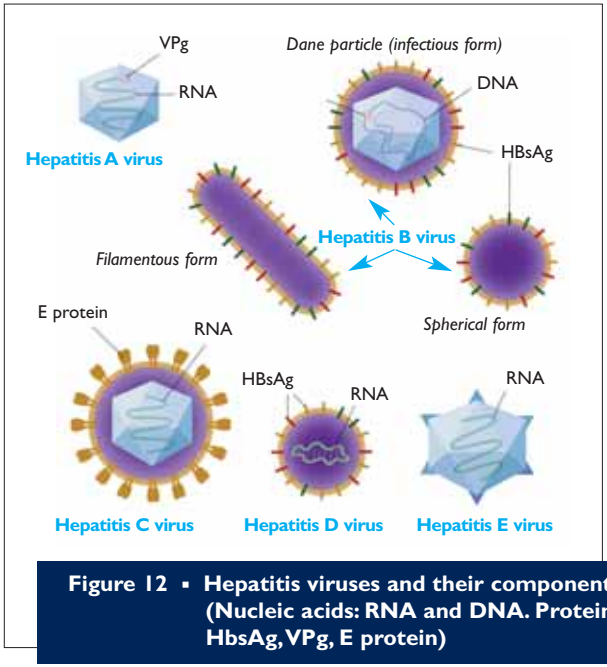

Figure 12 ▪ Hepatitis viruses and their components (Nucleic acids: RNA and DNA. Proteins: HbsAg, VPg, E protein)

[1] *Il'inskii IuA, Syzdykov M.S., Zhumanbaev KA., Shvedova A. I., Kuz'min A. I: Experience with the use of gluco-corticosteroids and magnetic fields in the intensive therapy of severe forms of viral hepatitis. Soviet Medicine, 1978, 9:72-4.*

[1] *Krasnov VV, Shilenok AI: Magnetotherapy of hepatitis A and B in children. Pediatriia, 1991, 10:54-7.*

Systemic lupus erythematosus (SLE)

An autoimmune disease affecting multiple organs (primarily the kidneys, skin, and heart), its symptoms come and go. Its development and progression vary, and occasionally a life-threatening situation can emerge in just a few weeks. More than 90% of SLE patients are women. Currently there is no cure.

SYMPTOMS (THE PRESENCE OF ANY 4 OF THE LISTED SYMPTOMS IS SUFFICIENT FOR DIAGNOSIS)

- general: fever, weight loss, fatigue,
- cutaneous:
  - butterfly shaped rash: a red rash over the nose and cheeks that worsens in response to sun exposure (the body of the butterfly is represented by the nose, the wings are represented by the cheeks),
  - discoid lupus: round, red colored, scaly skin lesions anywhere on the skin,
  - red discoloration of the skin around the nails,
  - whole body light sensitivity,
- hair loss,
- ulcers of the nasal and oral mucosa,
- conjunctivitis, sensitivity to light (temporary or permanent blindness is possible),
- acute, very painful joint inflammation (an early symptom), that does not persist but decreases over time,
- occurrence in 50% of the cases of pneumonia, pleurisy, or pericarditis, and in some cases pulmonary hemorrhage,
- may affect the intestines and the kidneys,
- impaired consciousness, epileptic fits, depression.

Recommended treatment ▪ 2-3 times daily, 20 minutes using the basic programs. Whole body treatment, use of the mattress is recommended.

Published literature ▪ Efficacy of treatment may be explained by beneficial anti-inflammatory, analgesic, immune boosting, and microcirculatory effects[1].

[1] *Khamaganova I.V., Berlin IuV, Volkov V. E., Voïnich Z.V., Arutiunova ES: The use of a pulsed magnetic field in the treatment of Lupus Erythematosus. Ter Arkh, 1995, 67(10):84-7.*

Psoriasis

A varied illness causing different types of skin problems: itching, peeling, pinpoint hemorrhages, and a scaly or inflamed skin surface. Mostly affects the hairy scalp, knee, elbow, and nails, but it may occur on any area of the body.

Recommended treatment ▪ 2-3 times daily, 20-30 minutes using the general programs with the mattress; or place the device on the affected area.

Published literature ▪ According to the cited article, 110 patients were very successfully treated with magnetic therapy. The hairy scalp healed in 100% of the cases[1].

[1] *Castelpietra R., DalConteG.: Initial experiences in the treatment of psoriasis with pulsating magnetic fields. Minerva Med, 1984,75(40):2381-7*

Glaucoma

An incurable but treatable disease. In order to prevent vision loss and blindness, early diagnosis is of great importance. This disease is characterized by an imbalance between the production and draining of the aqueous humor, raising the intraocular pressure (pressure inside the eye), which in turn impairs the blood supply of the optic nerve. Cells of the retina and optic nerve die (Figure 13).

Recommended treatment

2-3 times daily, 20-30 minutes using the general programs; place the device on the forehead.

Published literature ▪

Vision improved, and intraocular pressure normalized in response to PEMF treatment[1].

[1] *Bisvas S. K., Listopadova N. A.: Possibilities of magnetotherapy in stabilitation of visual function in patients with Glaucoma. Vestn-Oftalmol, 1996, 112(1):35-9.*

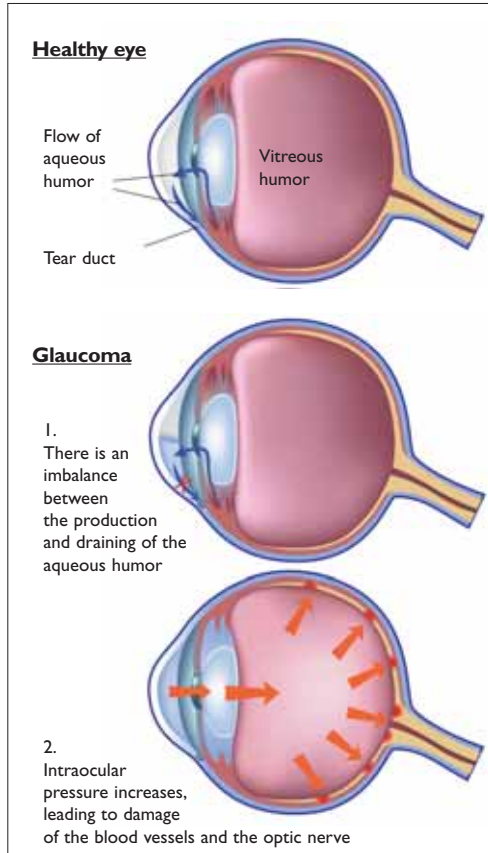

Figure 13 ▪ Development of glaucoma

Chronic pelvic pain

A complex disease that affects mainly women, without an established cause. It can be caused by gynecological problems, such as endometriosis (endometrial tissue found outside the uterus, it reacts to hormonal changes just like normal endometrial tissue, that is first it thickens, then is removed accompanied by bleeding, and causes a variety of problems), pelvic inflammation, or post-surgical adhesions, but also by gastrointestinal, urogenital, musculoskeletal, neurological, and many other disorders. The actual tissue damage is not always proportionate with the level of pain (the experience of pain varies with the emotional state).

Endometriosis is suggested by pain that lasts over six months, can be localized to the pelvis, and is not associated with menstruation or sexual intercourse.

Recommended treatment ▪ 2-3 times daily, 20 minutes at 5-7 Hz; place the device on the painful area.

Published literature ▪ Pain relief in response to magnetic therapy was demonstrated in the following study: 64 female patients with chronic pelvic pain were treated for 2 hours twice a day over the course of one month. Three months after the treatment 60% (39 patients) reported complete pain relief.

23% (15 patients) reported relief during treatment, followed by mild tension in the pelvis. 16% (10 patients) reported temporary relief during treatment, followed by unchanged symptoms.[1] Unusually effective and long-lasting relief was found in response to magnetic therapy of pelvic pain of gynecological origin (painful menstruation, endometriosis, infections, post-surgical hematoma, and chronic dyspareunia – that is, pain during sexual intercourse). Even though in the majority of cases magnetic therapy was not supported by analgesics, almost all patients reported a dramatic decrease of pain.[2]

1 *Varcaccio-Garofalo G., Carriero C., Loizzo M. R., Amoruso S., Loizzi P.: Analgesic properties of EMF therapy in patients with chronic pelvic pain. Clin Exp Obstet Gynecol, 1995, 22(4):350-4.*

2 *Jorgensen W. A., Frome B. M., Wallach C.: Electrochemical therapy of pelvic pain: effects of pulsed EMFs [PEMF] on tissue trauma. Eur J Surg Suppl, 1994, 574:83-6.*

Erectile dysfunction

Recommended treatment ▪ 2-3 times daily, 20 minutes at a frequency of 6 Hz.

Published literature ▪ Magnetic field promotes the proper blood supply of sexual organs because it increases circulation[1]. Pulsed magnetic therapy can also be useful in the treatment of problems with a psychological background due to its known beneficial effects on stress-induced and neurological problems.

1 *Gorpinchenko I. I.: The use of magnetic devices in treating sexual disorders in men. Lik Sprava, 1995, (3-4):95-7*

Further studies reporting beneficial effects of pulsed magnetic therapy

Epilepsy: Treatment decreased the frequency of attacks, and improved the patient's condition.

Sandyk R., Anninos P. A.: Attenuation of epilepsy with application of external magnetic fields: a case report. Int J Neurosci, 1992, 66(1-2):75-85.

Blepharitis (infection of the eyelid)

Machekhin V. A., Sheludchenko V. M., Iablokova N. V., Zvegintseva G. B., Kapranova N. E.: A new method for treating chronic blepharitis using magnetic compounds and an alternating magnetic field. Vestn Oftalmol, 1993, 109(4):16-18.

Disorders of the female internal genital organs

Mel'nikova M. M., Kunitsyna G. A., Toroptsev N. D.: Use of a weak acoustic-frequency magnetic field in the complex treatment of diseases of the internal genital organs of women. Akush Ginekol (Mosk), 1983, 9:55-7.

Kidney stones

Zaslavskii AOi, Markarov G. S., Gelis IuS: Electromagnetic urological stimulator. Med Tekh, 1997, 3:42-3.

Chronic pyelonephritis

Kiyatkin V. A.: Pulsed magnetic field in therapy of patients with secondary chronic pyelonephritis. Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy.

Chronic renal insufficiency: Patients were given a 12-minute magnetic treatment after every dialysis (three times a week) over a period of three months. Joint, muscular, and bone pain decreased, and in many cases there was complete resolution of itching, insomnia, and *"restless legs"*.

Leslaw Bąk, Hanna Należyty-Kozak, Krzysztof Dziewanowski: Mágnesterápia alkalmazása az előrehaladott krónikus veseelégtelenségben szenvedő betegeknél az ismétlődő hemodialízis kezelési programban. Szczecini Közszolgálati Önálló Kórház Dialízis Központ, Grificei Dialízis Állomás.

Athletes' performance improved by 15% in response to treatment. Magnet therapy improves circulation and the blood supply of muscles, increases the production of ATP, increases performance, and decreases the risk of sports injuries. Paralytic complaints were also successfully treated.

Malomsoki J., Babindák E.: Mágneses kezelés hatása sportolók teljesítőképességére és egyes teljesítmény-élettani mutatóira. Sportorvosi Szemle 2006, 2-3.

Dr. Lángfy György főorvos, Országos Sportegészségügyi Intézet, Élet és tudomány 2002/15

Based on several studies with positive outcomes, magnetic therapy is recommended for the treatment of **Sudeck's atrophy, and for the alleviation of symptoms caused by loose endoprosthesis.**

Dr. Czeglédy Károly: A sportorvoslás alapjai című könyv 1998, 6.2.2.4. fejezet, Rehabilitáció és sport, p297

Wrinkles may also be successfully treated with pulsed magnetic field therapy. As we age, our hyaluronic acid levels decline, and wrinkles can be explained as a consequence of the reduced capacity of the skin to retain water.

Ghersetich I., Teofoli P., Benci M., Lotti T.: Ultrastructural study of hyaluronic acid before and after the use of a pulsed electromagnetic field, electrorydesis, in the treatment of wrinkles. Int J Dermatol. 1994, 33(9):661-3.

After amputation: magnetic therapy reduces phantom pain.

Dr. Gary Null: Healing with Magnets, Publ. Robinson, London, 1998

Laryngitis

Tarasov D. I., Nikolaev M. P., Aliev M. A.: Effectiveness of local magnetic field of the acoustic frequency in the treatment of patients with acute inflammatory diseases of the larynx. Vestn Otorinolaringol, 1995, (6):11-5.

CONTRAINDICATIONS AND SIDE EFFECTS

Since magnetic therapy restores normal cellular function, it has no side effects. After normal function has been restored, there are no further effects, since this therapy cannot further enhance or cause a deterioration of normal function. It is a safe, non-invasive treatment. In Hungary pulsed magnetic therapy has been used since the 1970s, including ongoing development and testing in placebo-controlled human and animal studies. No adverse effects have been seen over this lengthy period.

Cases requiring extra caution (device must be used under medical supervision)

- Epilepsy, psychosis
- Nervous system (on very rare occasions stroke may occur)
- Tumors (treatment can theoretically increase the blood supply, and thus the metabolism of tumor cells, but its healing effects can exceed those of chemotherapeutic agents, and it has been successful in the treatment of cancer patients)

Contraindications

- ✖ In case of hemorrhage (magnetic treatment increases blood supply), during menstruation, on damaged skin
- ✖ During pregnancy (there are no data on its effects, therefore it should not be used!)

- ✖ Pacemakers, electronic implants
- ✖ Hearing aid (magnetic field may damage it)
- ✖ Pain of unknown origin, in the absence of diagnosis
- ✖ In case of fever and infection, active TB, or if bacterial or fungal infections are present in the area to be treated
- ✖ Overactive hormones
- ✖ Individuals treated with immunesuppressive therapy
- ✖ Myasthenia gravis (a rare autoimmune disease associated with muscle weakness)
- ✖ Adrenal, hypothalamic, or hypophyseal dysfunction (due to the risk of over-stimulation, it may exhaust the endocrine glands)

ACUPRESSURE POINTS ON THE BODY

Placing the pulsed magnetic device over the listed acupressure points the following direct effects can be achieved:

1. **Back of hand:** anti-inflammatory point, pain relief for the whole body, but especially the hand, shoulder, elbow, and wrist (plus tooth-, neck- and headache, and neuralgia)
2. **On the palm:** relief for hand pain and carpal tunnel syndrome
3. **On the back of the wrist:** pain relief for the shoulder and tennis elbow
4. **Lower part of the crook of the arm:** anti-inflammatory point, pain relief for the hand, elbow, and wrist
5. **Upper part of the crook of the arm:** decreases joint inflammation, especially those of the elbow and shoulder joints
6. **On the shoulder** (where the shoulder blade and the upper arm connect): healing arthritis (joint inflammation), rheumatism, and bursitis, relieves shoulder and upper back pain

7-8. **On the neck:** relieves stiffness and pain of the neck and shoulder

9. **On the nape of the neck:** relieves head- and backache
10. **On the lower back:** relieves lower back pain
11. **On the knee:** relieves knee pain
12. **On the foot:** relieves hip and shoulder pain, and headaches, and alleviates the symptoms of sciatica and psoriasis

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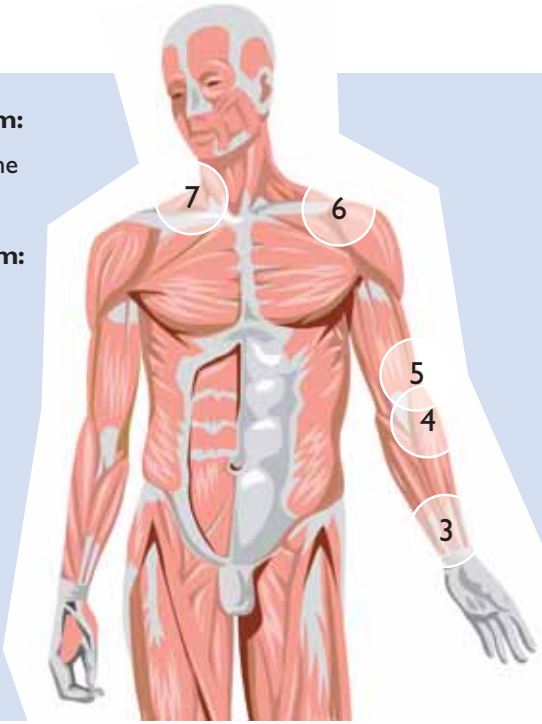

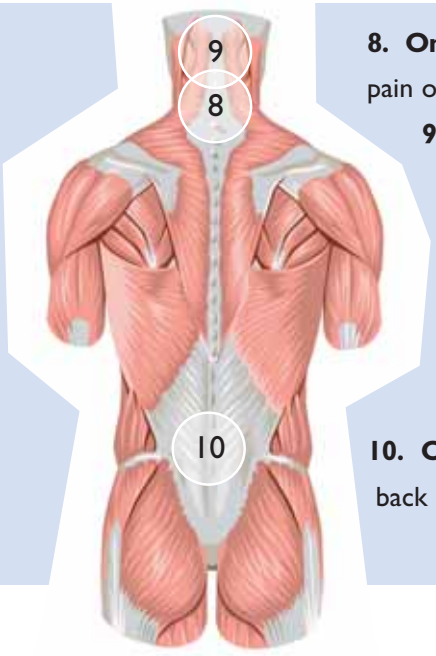

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"MIRACULOUS" RECOVERIES DUE TO PULSED MAGNETIC THERAPY [PEMF]

Case reports by Dr. M. A. P., homeopathic physician

Musculoskeletal system

P. N., 65-year old male, diagnosis: herniated disc (L4-5). In 1993, strong lower back pain began, with numbness and pain radiating into the left leg. The pain was so intolerable that the patient was unable to lie down, and thus had barely had any sleep over the previous six weeks. Strong analgesics and anti-inflammatory medicines had no effect at all. Hospital-based investigations indicated immediate surgery, but the patient was told that he may have to spend the rest of his life in a wheel-chair. The patient refused surgical intervention. His condition deteriorated so much that paralytic symptoms developed, and the patient almost got run over by a bus because his left leg failed to support him. He was desperate for help, saying his job as a film director was at stake, and that he was unable to work.

PEMF treatment: intensive therapy at a frequency of 30 Hz for 10 minutes every hour, 10 times a day, complemented with antioxidant therapy.

Results: Following only a single day of PEMF treatment the very happy patient returned to report that, for the first time in six weeks, he had his first nor-

mal, painless night of sleep! After continuing intensive PEMF treatment for an additional three weeks, the *"now healthy"* patient was able to accept an assignment to accompany and film the Pope on a Far-Eastern trip. Occasional treatments continue, the patient is symptom-free, and has not had any relapses.

M. C. B., 53-year-old female, diagnosis: herniated disc (L3-4). In 2003 unbearable back pain started, accompanied by numbness and pain radiating into both legs, as well as a radiating pain similar to a band encircling the abdominal/groin area. When lying down, the patient's condition deteriorated so much that she was suffering from severe sleep deficit. Walking even a few steps was only possible with the help of crutches. Strong analgesics, anti-inflammatory medicines, physiotherapy, and osteopathic treatment had had no effect at all, and in fact the condition of the patient deteriorated further still. She did not want hospital treatment.

PEMF treatment: intensive therapy at a frequency of 20 Hz for 10 minutes every hour, 10 times a day, complemented with antioxidant therapy.

Results: After three days the patient was already walking, if hobbling, with the help of two canes, her pain decreased significantly, and allowed her to lie down and sleep. After a further three weeks of intensive therapy the patient did not need canes anymore and was able to stand and walk once again without severe pain. After four weeks, the patient returned to work, drove her car, and was more or less free of any complaints. I recommended additional treatments, at least on an occasional basis. The patient has been well ever since.

M. W., 70-year-old female, diagnosis: urinary incontinence, herniated disc (L3-4). In spite of multiple surgical interventions the patient's incontinence was not remedied, and she was forced to wear adult diapers 24 hours a day. Further surgery was out of the question. The patient suffered from strong lower and upper back pain that also radiated into the legs.

PEMF treatment: At a frequency of 20 Hz, 4 times 10 minutes daily, applied on the area of the pelvic-perineal-lower back region, with concomitant antioxidant therapy.

Results: After two months of treatment the patient returned with a smile on her face, her incontinence was completely gone, and she did not need diapers any more. There was also a significant decrease in her upper and lower back, as well as leg pain.

P. S. K., 57-year-old male: paroxysms of coughing, herniated disc (L3-4). The life of this man had been made practically impossible over the past 14 years by a history of progressively worsening, very exhausting, long-lasting, sudden and unexplained paroxysms of coughing. He was on the verge of collapse after these attacks. His high-ranking position was in danger, because he was unable to go on with his presentations during conferences and discussion and had to leave the room. Multiple repeat investigations found no abnormality or cause for this condition. His back and leg pain caused by the herniated disc became progressively worse with each attack, causing additional worry for the patient, who was very active in sports.

PEMF treatment: At a frequency of 20 Hz, over the chest and throat, as well as the back, for 10 minutes 4 times a day, with concomitant antioxidant therapy.

Results: After a month of treatment the frequency of paroxysms decreased, and patient felt incomparably better all around. After three months of treatment paroxysms almost completely ceased, and five years later the patient is in great shape. He continues to come for treatments, but significantly less frequently. He was also able to resume long-distance bicycle trips.

J. I. B., 75-year-old female, diagnosis: lumbar radiculopathy, collapsed vertebrae (L3-4), osteoporosis. In 2003 this patient presented for exami-

nation in a wheelchair, suffering from unbearable back pain radiating into both legs. She was unable to stand or walk, and had severe sleep deficit, because analgesic and anti-inflammatory medications were ineffective. This patient, who was perfectly fresh mentally, lived alone in an apartment on the second floor in a building without an elevator, and did not want to move into a care home.

PEMF treatment: Intensive therapy at a frequency of 20 Hz for 10 minutes every hour, for a total of 10 sessions per day, with concomitant antioxidant therapy.

Results: It took only a few days for the patient's pain to decrease, and two months later she was able to stand, and even walk a few steps. Pain, numbness, limb edema, and sleep problems have resolved, and the patient has been well ever since. She returns for occasional PEMF treatments.

S. J., 74-year-old female: bilateral osteoarthritis of the knee joint. The patient was in such unbearable pain that she was unable to walk, and had to use a wheelchair. Strong analgesics and anti-inflammatory medicines did not improve the patient's condition.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 6-8 times a day, with concomitant antioxidant therapy.

Results: After a week of treatment the patient was able to stand, and started walking. After another two weeks of treatment her pain became so insignificant that she did not need her wheelchair any more. After six weeks of treatment she could use both hands and all fingers normally thanks to the significant improvement. With continuing treatment the patient completely recovered after six months. Two years later (today) both wrists, hand, palms, and all fingers are in perfect condition, almost as though there was never anything wrong with them. After being told about her recovery, her friends and acquaintances also requested PEMF treatment.

J. A., 60-year-old female: carpal tunnel syndrome, severe osteoarthritis of both hands and all fingers, and tendinitis. Painful, stiff, deformed, swollen joints in both hands and wrists. Shortened, hard, inflamed, and painful tendons on both palms. Over the last few years the condition of her hands became so poor that she was unable to perform basic activities. Analgesic and anti-inflammatory medications were ineffective.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 6 times a day, with concomitant metabolic therapy.

Results: After six weeks of treatment the improvement was so significant that the patient was able to use both hands virtually free of pain. With continuing treatment the patient completely recovered within six months. Eleven years later the patient is completely well, but returns for treatments at less frequent intervals.

F. L., 69-year-old male, diagnosis: *"frozen shoulder".* When the patient presented his right shoulder was so unbearably painful, inflamed, and swollen that he could not put on his shirt, and was unable to move his arm. This was his seventh *"frozen shoulder",* and he was desperate, because each time it lasted for 8-9 months even with all the prescribed analgesics, anti-inflammatories, and steroid treatment.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 6 times a day, with concomitant antioxidant therapy.

Results: After a week of treatment the patient's pain and inflammation significantly decreased. After two weeks of treatment he could dress by himself, and after three weeks of treatment he completely recovered. During the subsequent twelve years there was no relapse of the frozen shoulder!

Circulation

A. L., 81-year-old male: pulmonary edema, decompensated heart failure. I was called for an emergency visit to this completely exhausted patient with severe dyspnea who also suffered from chest pressure, pain, and heart arrhythmia. The patient had a history of two prior heart attacks, angina, and atrial fibrillation. He was in such a poor condition – and rapidly getting worse – that his wife had called out their priest to administer the last rites.

PEMF treatment: Continuous therapy for one hour at a frequency of 7.8 Hz, with concomitant metabolic therapy (see page 124).

Results: The condition of the patient gradually improved, he started to regain strength, his pain subsided, and he passed a large volume of urine within an hour. By the time the priest arrived, the patient was able to join in the prayer. After another hour of treatment the patient was completely well again – although exhausted and shocked.

G. P. J. S., 81-year-old female: decompensated heart failure, hypertension, pulmonary edema, valvular insufficiency. Upon being released from hospital, the patient had been told that in spite of a large number of prescribed medicines her heart was in such a poor state that at most she had one year left. She did not want to die within the year, and thus presented for treatment.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 4 times a day, applied over the chest, with concomitant metabolic therapy (see page 124).

Results: After only a month of treatment the patient felt so well that she cut back on her medications. During the seven years since her treatment she has continued to feel well, has been traveling, including a plane trip abroad, regularly exercises and rides the bike at a health club for heart patients. She continues to come for treatments, but significantly less frequently.

I. C., 61 61-year-old female: hypertension, high cholesterol levels, angina, two prior heart attacks, chest pain, crushing sensation, pressure – despite a large number of prescribed medicines. Her family physician requested transfer of her care, because he/she had tried all possible medications without result. There was no improvement in the patient's hypertension and cholesterol levels, and the patient accused the doctor of poisoning her.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 6 times a day, with concomitant metabolic therapy.

Results: After a month of treatment the patient felt completely better, and looked about 15 years younger. Her blood pressure and cholesterol level had returned to normal. During the next seven years the patient continued treatment, and her blood pressure and cholesterol levels remained normal. Her acquaintances asked her how she became so youthful and healthy.

P. V., 45-year-old male: heart attack, angina, severe hypertension and high cholesterol levels, coronary blockage and arteriosclerosis, excess body weight (233 pounds, 5 feet 8 inches). His mother had passed away a few weeks earlier after a heart attack while on board an airplane. There was a family history of heart disease. After a hospital check-up he was prescribed six different medications, and was scheduled for urgent bypass surgery within a month, because he was unlikely to survive his next heart attack. The patient presented with the question of whether he could be cured within a month, because he did not want to undergo surgery, and was unable to take his medications due to side effects (severe headache, nausea, vertigo, exhaustion).

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes at least 10 times a day, with concomitant metabolic therapy.

Results: After a month of treatment the condition of the patient improved to such a degree that he refused surgery, and no longer needed medications. Over the next twenty years the patient continued the prescribed treatment (less frequently). He has not been taking any medications, and still feels well, continues to work, and is involved in regular physical activity despite his excess weight.

F. A. L., 69-year-old male: atrial fibrillation, cardiac arrhythmia, angina. After a check-up this patient preferred to use alternative therapy, and presented for treatment.

PEMF treatment: Preventative therapy at a frequency of 7.8 Hz, 10 minutes 3 times a day, with concomitant metabolic therapy. During the next twelve years, any time the patient felt the onset of atrial fibrillation, he used the pulsed magnetic device in a continuous mode at 7.8 Hz until his heart rhythm normalized.

Results: His heart rhythm normalized within an average 30-60 minutes following treatment.

M. D., 34-year-old male: Klippel-Trenaunay syndrome, ulceration of the right foot and ankle. The patient had been receiving various antibiotic, analgesic, and anti-inflammatory treatments over the previous twenty years. He had undergone twelve skin-grafts, and each year spent on average at least 1-2 months in hospital. He requested my help because his last skin-graft had not taken, antibiotics were ineffective against his suppurating ulcers, and the hospital had discharged him because there was nothing more they could do. He was very worried that unless he returned to work within a month he would lose his job (he was married, with 1-year-old and 3-year-old sons). His ankle and foot were covered with suppurating ulcers of varying size and depth, and he could not sleep because of the severe pain.

PEMF treatment: At a frequency of 20 Hz, at least 10 sessions of 10 minutes each, or more if possible, plus antioxidant therapy.

Results: After a month of intense treatment almost all ulcers had healed with the exception of two small wounds measuring ⅓ inch in diameter, but these were healed during the second month of treatment. To the great delight of his family he managed to keep his job, he was able to walk (although with a heavy limp at the beginning), and his sleep also normalized. During the next twenty years, any time his foot sustained an injury the patient immediately restarted PEMF and antioxidant therapy, and just like before, his wounds healed.

M. M. R., 79-year-old female: non-healing, chronic, purulent, painful ulceration of the left ankle, foot, and heel. The ulceration spread in spite of the hospital prescribing various medications, treatments, bandages, etc.

PEMF treatment: At a frequency of 20 Hz, 6 sessions of 10 minutes daily, or more if possible, plus antioxidant therapy. The sores should be kept uncovered, without any bandages, and the wearing of shoes and socks avoided!

Results: After a two-week treatment the diameter of the ulcers decreased, followed by complete healing after one month, and the patient was free of pain.

Nervous system

M. A. B., 64-year-old female: The patient's history includes lumbago (6 years earlier). Accompanied by recurrent low back pain that radiated into the legs, the pain was triggered by gardening, lifting, getting into and out of the car, making the bed, and bad movements.

PEMF treatment: Continuous PEMF treatment at a frequency of 20 Hz.

Results: The unbearable pain started to subside within 15-30 minutes, and was completely gone in an hour; the patient became symptom-free, and could greatly enjoy her life. Similar results are experienced by many patients, and thus in many cases their relatives and friends also begin PEMF treatment, with great success.

A. F. L., 78-year-old male: In 1998 this patient suffered right-side paralysis and loss of speech following a stroke. The patient was not willing to go into hospital, thus the only option was treatment with pulsed electromagnetic therapy plus antioxidant therapy.

PEMF treatment: 10-minute treatments every half an hour at 3 or 20 Hz.

Results: After six hours of treatment the patient gradually began to speak, and after first regaining his speech then regained the sensation of pain in his paralyzed right arm. Later, he was able to move his right arm, hand, and foot, plus he was able to stand up, walk, and dress himself. With an additional four hours of treatment the patient recovered his ability to write legibly. His family was elated. The patient remained symptom-free, and did not relapse.

D. N. B. N., 62-year-old male: In 1997 this patient was hospitalized in a comatose, unconscious state following a stroke. He was discharged after two years, because according to medical experience no further improvement can be achieved after that period. The patient had spastic paralysis on the left side. Due to severe spasticity his *"contracted"* left arm, hand, and fingers could not be opened or straightened to any degree.

PEMF treatment: 6-8 sessions, each lasting 10 minutes, at 3 or 20 Hz, with the device placed on top of the patient's head.

Results: Ten days later the patient's left arm, hand, and fingers could be opened, the *"contracture"* was released, and the patient was able to use his left hand. With additional treatment, the patient's gait, coordination, etc. improved so much within 3-4 months that he could resume work and driving.

K. S., 7-year-old male: dyslexia, hyperactivity, attention deficit, learning and behavioral problems. The parents were greatly troubled by their son's lack of progress in learning, counting, writing, and reading. The whole family suffered from sleep deficit due to the hyperactivity of the child.

PEMF treatment: At a frequency of 20 Hz, 10-minute sessions 6 times a day, treating the head, plus antioxidant therapy.

Results: After only a month there was a clear improvement in all aspects, and with continuing treatment the boy became the best student in his class. The parents were very grateful that their whole family was able to resume a normal sleep cycle, as this was a lifesaver for them! They were also surprised by their son's sharp mind and talents.

D. J. B., 37-year-old female: anorexia nervosa (since the age of 14), osteoporosis, fracture of the pubic bone. This patient, who was active in sports, experienced severe pelvic pain after a fall. MRI examination diagnosed a fracture with

hematoma, edema, and inflammation. Body weight: 97 pounds, height: 5 feet 9 inches. Analgesic and anti-inflammatory medications did not help.

PEMF treatment: At a frequency of 20 Hz, 10-minute sessions 6 times a day, treating the head and the pelvis, plus metabolic therapy.

Results: There was gradual improvement in the patient's food intake and movement. She returned to work after four months (although only part-time). Her body weight increased by approximately 12 pounds, and her general well-being also improved. After eight months of treatment, the patient's exhaustion, depression, and pain significantly improved, she was able to work a full-time job and, to her great delight, she was posted to Africa to initiate a new project.

E. S., 26-year-old female: anorexia nervosa. This patient presented in 1992 with the following symptoms: a weight of 86 pounds (for a height of 5 feet 9 inches), anorexia, radical weight loss, exhaustion, depression, chest pains, gastrointestinal problems, deterioration of memory, concentration, and learning ability, and psoriasis. She had stopped menstruating 18 months earlier. She left university after two years. Her helpless and desperate parents watched her collapse, and all three of them hoped that I could cure her.

PEMF treatment: At a frequency of 20 Hz, one 10-minute session every hour (about 10 sessions per day). The device was alternately placed on the top of the patient's head and on the lower abdomen.

Results: After one month of treatment the patient began menstruating again, her weight gradually increased, and her food intake and complaints improved. With continued treatment - and metabolic therapy – she was able to return to university and resume her studies.

L. Z., 65-year-old male: This patient came to visit me in 1992 asking whether I could help him, because in his depressed state he was unable to face his own wedding, scheduled for the following week. Symptoms: **insomnia, anxiety, panic,** chest pain, stress, headaches, exhaustion, tension, etc.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 6 times a day, with concomitant antioxidant therapy.

Results: The wedding was a great success, and the groom was able to enjoy himself. He was so impressed by the results of the treatment that afterwards he returned several times whenever he needed additional treatment for stress, anxiety, depression, exhaustion, insomnia, etc.

S. M. L., 76-year-old female: This patient had severe depression in 2001. Pharmacological treatment not only did not help but in fact made her condition worse, with complete exhaustion, sleep deficit, anxiety, panic attacks, fear, memory impairment, etc.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes every hour, initially supplemented with antioxidant treatment.

Results: Within two weeks the condition of the patient improved so much that the doses of prescribed antidepressants could first be lowered then entirely stopped after four weeks. The patient felt so well that she returned several times for the same treatment when her depressive symptoms flared up.

G.D., 55 years old: depression. This patient was in a really bad condition. Three months of pharmacological therapy did not provide any improvement; in fact the patient's condition gradually worsened. The patient was desperate because a job as a high school principal was at stake.

PEMF treatment: At a frequency of 20 Hz, 10-minute sessions at least 10 times a day, treating the head, plus metabolic therapy.

Results: After only a single day's treatment the condition of the patient improved significantly. The dark cloud (as the depression was described) began to lift. Exhaustion, sleep, lack of energy, memory, concentration and mental abilities all improved, as if the patient suddenly came to life again. The patient returned to work after three weeks to the great joy of the high school. Treatments have been ongoing at a less frequent rate. I have had several similar cases.

G. D., 40-year-old male: viral encephalomyelopathy, chronic fatigue syndrome, severe depression with strong headaches. The patient was a high school teacher, and attempted suicide due to despondence over his condition. He came to me for help as a last resort.

PEMF treatment: At a frequency of 20 Hz, 10-minute sessions 10 times a day, treating the head, plus metabolic therapy.

Results: After a week of treatment the patient's exhaustion and depression significantly improved. After a month of treatments he resumed work, after two months his headaches were almost gone. He felt so well that he could not fathom how it was possible. A year later he got married and started a

family, and was promoted to principal. Seventeen years later he is still feeling fine.

S. P., 28-year-old female: viral myalgic encephalomyelopathy, chronic fatigue syndrome, depression. Following a viral infection ten years earlier, the patient was left in a general, severe state of fatigue, which was not helped by any medicine or other treatments. In addition to complete exhaustion the patient's complaints included pharyngitis and tonsillitis, painful, enlarged lymph nodes, coughing, and chest symptoms.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 10 times a day, treating the head, neck and chest, plus antioxidant therapy.

Results: Significant improvement after only a month, and complete recovery after three months. Twenty-two years later the patient is healthy, full of energy, lives a life helping others, and there are no signs of the earlier exhaustion or depression.

G.T.A., 66-year-old male: memory impairment, lack of concentration, attention deficit, exhaustion, etc. His symptoms were so severe that his wife suspected Alzheimer's disease.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 6 times a day, with concomitant antioxidant therapy.

Results: After two months of treatment the patient felt so well that he wanted to end the treatment. He complied with my request that he continue, although at a reduced frequency, and four years later he is doing very well. In his own words, he regained his youthful health, memory, concentration, and mental capacity – to the great joy of his family.

R. S., 68-year-old male: Alzheimer's disease. After a check-up he was released from hospital with the advice to find a care home, because within the next 3-6 months he would not be able to look after himself and would need 24-hour care.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 6 times a day, with concomitant antioxidant therapy.

Results: It has been four-and-a-half years since the diagnosis. The patient is perfectly fine, capable of taking care of himself, and he has no signs of Alzheimer's disease, such as deterioration of mental abilities, concentration, memory, attention, etc.

M. W., 51-year-old female: Parkinson's disease, osteoarthritis. Since her diagnosis 11 years ago, the patient has been taking increasing amounts of medication. Due to constant medication (tablets every 30 minutes, 24 hours a day) and their adverse effects, the life of the patient eventually became impossible to manage, but the hospital could provide no further help. Medications were effective for a short time, but the severe side effects caused sudden, uncontrolled, involuntary movements, such as sweeping objects off the table during dinner or off the shelf in a store. Furthermore, the *"beneficial"* effects of the medication ceased after only 10-15 minutes, and the patient *"froze"* (was unable to move) to such a degree that during the night she was unable to turn over in bed, take her medications, drink some water, etc. Unbearable neck, back, hip and knee pain, and headaches exacerbated the already bad situation

PEMF treatment: Initially at a frequency of 20 Hz for 10 minutes 10 times a day, treating the head and the painful joints. With complementary metabolic therapy.

Results: After only a month of treatment the patient experienced such significant improvement that she gradually decreased the doses of her medication, and thus the side effects also improved significantly. After two months of treat-

ment the patient felt so well that she could live a virtually normal life. To the great joy of both the patient and her family they went on regular hikes of several miles, and could enjoy restaurant meals and shopping trips without worrying. The patient's sleep normalized, and her pain greatly decreased. There came a time when the patient was able to go for two days without medication, which had been previously unimaginable (she had no tremors and did not *"freeze up"*, and felt very well). Her family considered it a miracle. Although the patient eventually resumed taking her medication at a low dose, she was able to lead a healthy and normal lifestyle during the next 11 years. She continued to use the treatment recommended by me, at a lower dose.

F. P. T., 61-year-old female: Parkinson's disease, lumbar radiculopathy (injury of nerve roots). These conditions had been diagnosed five years earlier, but the patient was reluctant to use medications.

PEMF treatment: At a frequency of 20 Hz, 10 minute sessions 6 times a day, treating the head and the back in the region of the waist, plus metabolic therapy.

Results: During the next 13 years the patient relied solely on these treatments. She felt fine, was very athletic, continued with tennis and long-distance hikes, and was able to lead a healthy, normal life. The strong pains in her back and right leg also ceased. During the next nine years and up to the present time the patient has continued treatments at a lower frequency and dose. She has had to start taking medication, but the state of her Parkinson's disease is acceptable when all factors are taken into consideration.

J. R. C., 61-year-old male: multiple sclerosis. The patient requested my help in 1995, because even with numerous medications and physiotherapy his condition was gradually worsening (over five years). He had to use a wheelchair and had strong back pain, and edema in his legs, ankles, and feet. The lower limbs

showed spasticity with occasional involuntary muscle spasms. The patient was unable to stand or walk, suffered from sleep deficit, and his bladder and prostate problems only exacerbated his situation.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 6 times a day, with concomitant metabolic therapy.

Results: Significant improvement after two months of treatment: his pain and leg cramps were gone, and the patient could stand, and even walk a few steps with the help of crutches. Limb spasticity, insomnia, and depression cleared up.

G. G., 44-year-old male: This patient requested my help in 2001. He had been diagnosed with **multiple sclerosis** 12 years earlier. He was given a variety of treatments (courses of prednisolone, antidepressants, tranquilizers, antiparkinson drugs), without any improvement. After courses of interferon injections and immunosuppressive medications his condition worsened to such a degree that he was forced to use a wheelchair. The patient was unable to stand or walk, and had limb spasticity and occasional involuntary twitches. This young man, who was lean and athletic under normal conditions, could barely ingest any food, and had lost 11 pounds over the previous month. He was suffering from terminal exhaustion, insomnia, as well as urinary and fecal incontinence.

PEMF treatment: At a frequency of 20 Hz, initially 10 minutes every hour, with concomitant metabolic therapy.

Results: Within a week the patient was able to stand, walk, climb the stairs, and dress and feed himself. He stopped taking prescription medications and interferon injections. After a month of treatment he resumed working.

L. G., 41-year-old female: 21-year history of multiple sclerosis, with severe relapses improving in response to cortisone-prednisolone treatments. However, over the years the improvement became less and less. Symptoms: visual impair-

ment, dizziness, balance problems, depression, fatigue, headaches, memory problems, bladder, chest and stomach complaints, plus paralysis and spasticity of the lower limbs.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 6 times a day, with concomitant metabolic therapy.

Results: After a week of treatment her visual impairment, headaches, dizziness, fatigue and limb spasticity improved to such a degree that she and her husband considered it a miracle. The patient could walk without losing her balance. After another month of treatment the patient was well enough to return to work. With ongoing treatments over the next two years the patient was well, and was able to lead a healthy, normal life.

A. G., 57-year-old female: a ten-year history of multiple sclerosis. She was desperate when she came to see me in 1999, because aches and pains affecting her whole body (joints, muscles, and bones) made her life unbearable. Analgesics and anti-inflammatory medications had had no effect. Further symptoms: exhaustion, insomnia, occasional visual impairment, stress, anxiety, limb spasticity. She could barely stand and could only walk a few steps, lacking sensation in her legs

PEMF treatment: At a frequency of 20 Hz, 10 minutes 6 times a day, with concomitant metabolic therapy.

Results: After two months of treatment the patient's pain was gone, her walk had improved significantly, and she felt so well all around that she could barely believe it. She continued with the treatments for several years, and was able to live a normal, healthy life.

Gastrointestinal system

T. F. L., 76-year-old male: rectal prolapse (the intestinal wall protrudes from the anus). I was called out to this patient in 1996, because he was reluctant to go into hospital. The size of the rectal prolapse exceeded that of a human head, and everything was covered in blood. Both the patient and his wife were in a panicked, shocked state.

PEMF treatment: After reinsertion of the internal organs, I used a frequency of 20 Hz for 10 minutes 6 times a day. I prescribed two weeks of treatments, because experience shows that the prolapse tends to recur.

Results: In this case (thanks to PEMF treatment) the prolapse did not recur at all, and the patient recovered completely.

S. S., 82-year-old female: rectal prolapse. Almost identical to the previous case (the case of T. F. L.), treatment ended in complete cure, to the great joy of the patient.

D. G., 68-year-old female: gastroenteritis (infection, food poisoning). Two-day history of diarrhea, vomiting, painful abdominal cramps, dehydration, and exhaustion. The patient could not take any food or drink because they immediately made her worse. The patient came to me in desperation, because she was planning to attend a large wedding the next day.

PEMF treatment: At a frequency of 20 Hz in the stomach and abdominal region.

Results: There was a significant decrease in pain after only one hour of continuous treatment. Diarrhea and vomiting ceased after three hours of treatment (the patient was able to take fluids). After six hours of treatment the patient was

pain-free. Although exhausted, she was able to eat a small amount of food. By the next day she had completely recovered, and to her great joy she was able to attend the wedding. There are many similar fast and successful cures of gastro-intestinal ailments in my case files.

R. C., 40-year-old male: stomach ulcer, heartburn, reflux, diaphragmatic hernia. This very underweight young man had a one-year history of stomach pains, nausea, and exhaustion. He had lost 22 pounds during the previous three months. He could barely take any food or drink, and could not take any medications at all, because they exacerbated his condition. He was so weak that he could not work, and was cared for by his mother.

PEMF treatment: At a frequency of 20 Hz, 6 minute sessions 10 times a day, treating the stomach area, plus metabolic therapy.

Results: There was significant improvement after only a week of treatment, and within two months the patient was virtually cured and pain-free, but kept to a strict diet. He is still feeling well after thirteen years.

Respiratory organs

S. M., 40-year-old female: asthma, hay fever, cough, breathlessness, dyspnea, lumbago.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 4-6 times a day, with concomitant antioxidant therapy.

Results: Within a month, the improvement was so great that the patient was able to halve the doses of her prescription medicines. After three months of treatment she did not need medications any more, and today, 14 years later, she is still feeling well. Treatments have been ongoing at a less frequent rate.

Cancer

M. N., 64-year-old female: Breast cancer was diagnosed in 2008 based on a biopsy. Recommended hospital treatments: immediate surgical excision of the tumor and lymph nodes. Tamoxifen, radiation, and chemotherapy. The patient preferred non-conventional treatments, choosing the alternative treatments I recommended.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 6 times a day, with concomitant metabolic therapy.

Results: The patient became symptom-free within a month and (four and a half years later) she is still feeling fine. As a further positive side effect of the treatment, the patient's painful osteoarthritis of the ankles, feet and toes has also healed, her sleep has normalized and her symptoms of depression have disappeared.

A. B. F., 39-year-old male: In 1995 the patient underwent surgery for a malignant spinal cord tumor. The tumor spread over an approximately 5-inch section of the lumbar region. The tumor strongly infiltrated the spinal cord; therefore it could not be excised completely. Following surgery, radiation

treatment was recommended, but the patient chose a different method. He was released from hospital, and given no more than 2 to 3 months to live. His family, including his two sons, was desperate for help, and turned to me. The patient had unbearable back and bilateral leg pain. He needed crutches for standing and walking a few steps, had to use a wheelchair, and had numbness, paralytic symptoms, sleep deficit, and depression.

PEMF treatment: At a frequency of 7.8 Hz, 10 minutes 6 times a day, treating the painful area of the spine.

Results: The patient improved gradually. Six months later he returned to the hospital without a wheelchair, crutches, pain, numbness, and other symptoms, walking under his own power. Hospital staff could not believe he was the same patient, because they assumed that he had passed away. They were so incredulous that the patient had to show them his surgical scars. This happened 17 years ago. The patient has been pain- and symptom-free ever since, able to work, with a very happy family.

E. M., 70-year-old female: ovarian cancer. This patient presented in 1995 with a malignant tumor approximately 4 inches across, urinary incontinence, a left tibial fracture, and bilateral leg edema. She refused the surgical, radiation and chemotherapeutic treatments she was offered in the hospital.

PEMF treatment: At a frequency of 7.8 Hz for the treatment of the abdomen, and at a frequency of 20 Hz for the treatment of the left leg, 10 minutes 6 to 8 times a day, with concomitant metabolic therapy.

Results: After two months of treatment her pain was gone, the edema decreased, and her urinary incontinence resolved. The patient could resume her normal life, and felt well all around during the next ten years, while continuing treatment. During the last two months of her life she began to lose weight, and had difficulty breathing, but was pain-free even during this period.

T. K., 66-year-old male: MRSA (methicillin-resistant Staphylococcus aureus) infection. After undergoing surgery for intestinal cancer, the patient's wounds did not heal, and he contracted a bacterial infection. In spite of treatment with a variety of antibiotics, the patient's condition continued to deteriorate, and there were a number of abscesses of various sizes in his abdomen and abdominal wall. The hospital released the patient, because there was nothing more they could do for him. The family and the patient were desperate, and asked for my help.

PEMF treatment: At a frequency of 20 Hz, 10 minutes 10 times a day, with concomitant antioxidant therapy.

Results: High fever, headache, vomiting, and painful cramps were gone after only a week of treatment. No new abscesses appeared, and the old ones decreased in size. The patient had lost 31 pounds during his hospitalization, and even though his constant diarrhea did not cease, he was able to gradually resume eating and drinking. After a month of PEMF treatment the abscesses and wounds healed, and when a senior physician saw the patient, he could hardly believe this was the same man, who had been deemed terminal one month earlier. The patient did not want chemotherapy, and continued with the treatment I had prescribed, although at a reduced frequency. Thirteen years later the patient is still doing very well.

H. B., 65-year-old male: terminal, malignant stomach cancer. The patient's illness was diagnosed right after he retired. During surgery his tumor was deemed inoperable, because it had infiltrated the abdominal organs to such a degree that it was impossible to excise. The patient was released, and told that he had 2 to 3 weeks to live. This happened in November. The family was desperate, and requested my help, because they wanted to spend his last Christmas together.

PEMF treatment: At a frequency of 20 Hz, 10 minute sessions 6 times a day, treating the stomach and the abdomen, plus metabolic therapy.

Results: This very tall and strong patient was feeling so well after only two weeks of treatments (pain- and symptom-free, no longer needing medications), that not only did he spend the wished for Christmas with his family, but the next two as well! When he returned to the hospital for a follow-up examination, they could hardly believe that they were seeing the same patient, who in their opinion had had 2 to 3 weeks left to live, and were surprised that he was in such good health.

N. P., 49-year-old male: malignant melanoma. The patient was diagnosed one year before he came to see me. The melanoma on his left arm and his axillary lymph nodes were removed surgically. He received chemotherapy for six months, and then further chemotherapy for an additional three months due to recurrence. During this period, further tumors developed on his left arm, underarm, and chest. The hospital abandoned the treatment and released the patient, because there was nothing more they could do, and the patient had no more than 2 or 3 weeks left.

PEMF treatment: At a frequency of 7.8 Hz, 10 minute sessions 6 times a day, treating the chest and armpit, with concomitant antioxidant therapy.

Results: After a month of treatment the size of the tumors decreased significantly, and after two months of treatment the tumors were gone. There was also great improvement in the general condition, pain, depression, memory, and concentration of the patient, and to the great joy of his family, he was well for the next six months.

C. K. M., 47-year-old female: brain tumor. The patient was hospitalized in the seventh month of her pregnancy (male twins) due to severe, unbearable headaches, vomiting, etc. Analgesics had no effect, and the MRI scan showed a brain tumor. The twins were delivered by C-section in the eighth month of the pregnancy, and the mother was advised to undergo immediate surgery, because if the tumor was allowed to grow any further, the surgery might have led to additional adverse effects (having to use a wheelchair, etc.). The patient did not want to leave her newborns, and asked me whether I could stop the rapid spread of the tumor. The neurosurgeon reluctantly agreed to delay surgery for one month.

PEMF treatment: At a frequency of 7.8 Hz, 10 minute sessions 6 times a day, treating the head, with concomitant antioxidant therapy.

Results: One month later the headaches were gone, and the MRI scan showed that the size of the tumor had decreased significantly, so much so that the neurosurgeon agreed to a further delay. With continued treatment during which the patient was pain- and symptom-free six months later, based on the MRI scan, the neurosurgeon did not think that surgery was required at all. Seven years later the patient is doing well and free of complaints, to the great joy of her family.

Other kinds of problems

G. S., 3-year-old male: In 2003 this boy became autistic, and the causes could not be identified. His mental state worsened, showing behavioral problems and occasional hyperactivity.

PEMF treatment: At a frequency of 3 Hz, 10 minutes 3-6 times a day, with concomitant antioxidant therapy.

Results: Within six weeks significant improvement could be seen, primarily in mental development, learning, behavior, and attention.

J. B., 6-year-old male: Unexplained regression of all development starting at the age of 18 months. Symptoms of **autism** developed. The child stopped talking and listening, and showed behavioral and concentration problems, in addition to a significant delay in mental development. He was only accepted into a school for the mentally disabled, which he attended crying and protesting, and refused to participate in any activities. He found the noise of the school intolerable.

PEMF treatment: At a frequency of 3 Hz, 10 minutes 3-6 times a day, with concomitant antioxidant therapy.

Results: After six weeks of treatment this boy made great strides in almost all areas: he went to school happily, with a smile on his face, he became friendly and opened up to his teacher. His speech improved greatly, and he showed good progress in both behavior and learning. The teacher was surprised, and asked the parents to explain what happened to the boy. His progress was so significant in all aspects that after a year of treatments he was able to transfer to a regular school.

T. M. A. C., 50-year-old female: menopause. Symptoms included menopausal hot flashes, perspiration, insomnia, exhaustion, lack of energy, joint pains, irritability, impatience, irascibility, etc. She could not bear to make love to her husband for a long time.

PEMF treatment: At a frequency of 20 Hz, 10 minutes four times a day.

Results: After only two weeks of treatment this patient sent me a letter signed *"No longer ill"*. Her whole life had changed, and she could not imagine that she could feel that well. Her hot flushes and perspiration were almost completely gone, and she was able to ignore her joint pains. Their sex life improved, and her family could not understand the cause of such a pleasant improvement. I have had many similar cases.

R. L., 48-year-old male: prostate and bladder inflammation, benign prostatic hyperplasia. In spite of multiple courses of treatment with various antibiotics the infection did not heal. Symptoms returned every time the patient stopped taking the antibiotic: bloody urine, abdominal and pelvic pain (making driving his car extremely uncomfortable), frequent need for urination with very little urine flow, accompanied by a burning, prickling pain. The hospital was unable to offer further help.

PEMF treatment: At a frequency of 7.8 Hz, 10-minute sessions 6 times a day, treating the abdomen and the pelvis, with concomitant antioxidant therapy.

Results: After three weeks of treatment the patient's prostatitis and its attendant symptoms cleared up. The patient continued treatments, although at a reduced frequency, and is still feeling well today, seventeen years later. I have had several similar cases.

CAUTION!

The medical histories in this chapter were chosen from the case reports of a Hungarian homeopathic physician practicing in England. After reading them, it must be apparent to the Reader that these patients preferred alternative solutions to conventional medical treatments. I would like to underline that these patients also consulted a medical doctor, who was experienced in pulsed magnetic therapy, and had been using it successfully in the treatment of his patients. Please, always consult a doctor if you are thinking about cutting back on or stopping your medications!

Positive side effects of magnetic resonance [MR] imaging

P. M., 65-year-old female, the wife of a Hungarian Professor of Medicine contracted Lyme disease in May, 1998. After three courses of pharmacological treatment, her test results were already negative in March, 1999, but her joint pain did not improve. In February, 2002 the patient, a teacher, had to climb a lot of steps while chaperoning a school event that coincided with a flare-up in her right knee. The pain was unrelenting. In the spring of 2003 an MRI scan was performed on the patient's knee, after which her pain ceased immediately, and did not return for 18 months.

Explanation of metabolic and antioxidant therapies

Metabolic therapy: Its goal is to prevent and treat various diseases with a special diet and natural, essential nutrients (vitamins, minerals, trace elements, amino acid, enzymes, omega-3 and -6 fatty acids, etc.). Supports and strengthens the immune system, and promotes healing processes.

Antioxidant therapy: Antioxidants are essential nutrients for all living organisms, but people who are ill need higher doses to promote healing. Antioxidant nutrients: Vitamins C and E, plant extracts, such as flavonoids, gingko biloba, blueberries, etc. These nutrients can detoxify the body, neutralize free radicals, decrease or inhibit oxidation (which adversely affects our organs and immune system), and thereby protect our cells, tissues, and the immune system. They also increase resistance against diseases, and promote healing processes.

RECOMMENDATIONS FOR TREATMENT OF VARIOUS PROBLEMS AND DISEASES WITH PULSED MAGNETIC THERAPY

	Disease	Duration of treatment	Frequency
MUSCULOSKELETAL SYSTEM	Fractures	20 minutes	10 or 20 Hz
	Periostitis	20 minutes	6 Hz
	Pseudoarthrosis (nonunion)	20-30 minutes	10 or 20 Hz
	Osteoporosis	20 minutes	8-10, 15 or 19 Hz
	Osteoarthrosis (osteoarthritis)	20 minutes	8-12 or 18 Hz
	Tendinitis	10 minutes	8 Hz
	Ligament injuries	20 minutes	10-15 Hz
	Frozen shoulder	20-30 minutes	7-8 Hz
	Tennis or golf elbow	10 minutes	8 Hz
	Dislocations and sprains	20-30 minutes	10 Hz
	Strains	20 minutes	11-15 Hz
	Herniated disc	20-30 minutes	16-20 or 30 Hz
	Rheumatoid arthritis	20 minutes	10 or 20 Hz
	Psoriatic arthritis	20 minutes	General programs
	Fibromyalgia	20 minutes	18 Hz
	Musculoskeletal pain	20 minutes	10 Hz
	Osteonecrosis/osteochondrosis	20-30 minutes	10, 19 or 20 Hz
CIRCULATION	Hypertension (high blood pressure)	20-30 minutes *	1-5 Hz
	Arrhythmia	20-30 minutes	7-8 Hz
	Angina pectoris)	20-30 minutes	2-8 Hz
	Arteriosclerosis	15 minutes	7-10 Hz
	Circulatory dysfunction	15 minutes	7-10 Hz
	Poor blood supply (e.g. diabetic foot, ulcer)	20 minutes	2-6 or 20 Hz
	Raynaud's syndrome	20 minutes	15 Hz
	Lymphatic disorders	20-30 minutes	General programs

** 40 minutes for chronic cases*

	Disease	Duration of treatment	Frequency
NERVOUS SYSTEM	Stroke	15 minutes	7-10 or 20 Hz
	Alzheimer's disease	20-30 minutes	2-8 Hz
	Parkinson's disease	20-30 minutes	20 Hz
	Headache	15 minutes	3 or 6-10 Hz
	Tinnitus	20 minutes	10 Hz
	Sleep disorders	10-20 minutes	1-5 Hz
	Carpal tunnel syndrome	10 minutes	6 or 20 Hz
	Lumbago	15 minutes	10 or 20 Hz
	Sciatica	20 minutes	16-20 Hz
	Spinal injuries	20 minutes	General programs
	Multiple sclerosis	20-30 minutes	5, 13 or 20 Hz
	Sensitivity to weather fronts	10 minutes	11-15 Hz
	Stress	15 minutes	3 or 5 Hz
	Depression	10 minutes	3 or 20 Hz
	Hyperactivity		20 Hz
	Nerve pain	10 minutes	6 Hz
DIGESTION	Diabetes mellitus	15-20 minutes	General programs
	Inflamed liver, pancreas, or colon	20-30 minutes	General programs
	Crohn's disease	20-30 minutes	General programs
	Dental and oral diseases	30 minutes	30 Hz
	Stomach/duodenal ulcer (no bleeding!)	12 minutes	10 or 20 Hz
	Stomach aches	12 minutes	10 Hz
RESPIRATION	Bronchitis	12 minutes	4 Hz*
	Pneumonia, respiratory diseases	20-30 minutes	General programs
	Asthma	20 minutes	7-10 or 12-15 Hz
	Allergy	10 minutes	5-10 Hz
	Tuberculosis (TB)	12 minutes	4 Hz
WOUNDS	Wound healing	15 minutes	1-5 Hz
	Pain associated with wound healing	15 minutes	11-15 or 17 Hz
	Bruises	15 minutes	10 Hz
	Phantom pain	15 minutes	16-19 Hz
	Bruises	16 minutes	14 Hz
OTHER	Psoriasis	20-30 minutes	General programs
	Chronic pelvic pain	20 minutes	5-7 Hz
	Menstrual pain	20 minutes	5-7 Hz
	Cystitis	10 minutes	5-8 Hz
	Prostatitis	10-15 minutes	2-8 Hz
	Erectile dysfunction	20 minutes	6 Hz
	Hepatitis	20-30 minutes	General programs
	Systemic lupus erythemasosus (SLE)	20 minutes	General programs
	Chronic blepharitis	20-30 minutes	1-2 Hz
	Glaucoma, atrophy of the optic nerve	20-30 minutes	General programs

* *12 Hz for chronic cases*

MAGNETIC THERAPY FOR OUR BELOVED PETS

Horses, dogs, cats, and pets have also been successfully treated with pulsed magnetic therapy (http://maok.hu/alternativ_tagozat/terapias_modszerek; Hungarian Veterinary Chamber). Especially recommended for: older animals with rheumatism, treatment of traumatic injuries, improving the performance of racehorses (maintenance of general well-being, disease prevention).

- ☑ Stimulates circulation,
- ☑ relaxes muscles,
- ☑ provides pain relief,
- ☑ promotes restful sleep,
- ☑ anti-inflammatory effects,
- ☑ alleviates dermatological problems,
- ☑ relieves rheumatic pain,
- ☑ accelerates the healing of traumatic injuries,
- ☑ promotes healing of tumors and ulcers.

Reports by Dr. M.A.P., a homeopathic physician

S. M., a patient, was so impressed by his/her healing that he/she requested that I cure their favorite horse as well. The veterinarian could not offer any further help, and wanted to put down the animal. The horse could not stand or walk any

more, and had a bleeding, mud-contaminated ulcer measuring 4×9 inches on her left leg, and the horse was lying in the mud. I tried to explain that I specialized in treating human patients only, but finally, for the sake of my patient's peace of mind, I agreed to try to help the horse.

PEMF treatment: At a frequency of 20 Hz, 10 minutes at least 6 times a day, with concomitant antioxidant therapy. I cleaned the wound, and advised that it should be kept uncovered.

Results: After one month of treatment the size of the ulcer shrank to less than 1 square inch. The horse was once again able to stand and walk. With continued treatment, the leg wound had healed completely by the end of the second month.

My patient, R.S., seeing the success of her own magnetic therapy, requested that I also cure her oldest dog. The veterinarian could offer no further treatments, and wanted to put down the animal. I tried to explain that I specialized in treating human patients only but finally, for the sake of my patient's peace of mind, I agreed to advise in the case. The dog could no longer stand or walk, had multiple subcutaneous and abdominal tumors, and was hemorrhaging from the left ear and the anus. The animal was deaf, or possibly did not react to sound any more.

PEMF treatment: At a frequency of 20 Hz, at least 6 sessions of 10 minutes each or more if possible, plus antioxidant therapy.

Results: The size of the tumors decreased, and the hemorrhage stopped after only one month of therapy. This beloved dog regained hearing, and could cover a distance of approximately 110 yards. With further treatment the dog was doing so much better after three months that it was hard to believe how sick it used to be.

AFTERWORD

I hope that after finishing this book, having become familiar with magnetic therapy, and reading about successful clinical trials and miraculous cures, you, Dear Reader, will also try this easy-to-use home therapy! It has been the last hope and a lifesaving and sole option for many patients. It provides an effective solution for stress relief, recharging the body, and disease prevention. This side effect-free therapy can be used by people of all ages. It works with short treatments, and provides great support for our health while requiring just a few minutes a day.

Dear Reader, for safe and effective treatments, **please, use only certified medical devices.** In Hungary many physicians use magnetic therapy as an alternative method in the treatment of their patients. In the case of serious conditions, it is advisable to consult an open-minded physician, who will optimize treatment based on the individual reactions of the patient.

The outstanding effectiveness of pulsed magnetic therapy is based on treating the disease itself, not just its symptoms. Its wide range of applications makes it suitable for the drug-free healing of the whole family (including *"your favorite pets"*). It is based on a huge amount of research, clinical trials, and numerous scientific publications.

Wishing you good health
and a well-balanced life!

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