PRACTICE OF MAGNETIC FIELD THERAPY

Dr. Christian Thuile M. D.

Published by the International Medical Association for Energy Medicine (IGEM)

portant Notes

Medicine is a science that is constantly in flux; research and clinical experience are constantly expanding our knowledge, in particular with regard to treatment and therapeutic medication. For this reason, data may change. If a dosage or form of administration is mentioned here, the reader may be confident that the authors have taken great pains to research the matter, and that this information corresponds exactly to the information available at the time of completion of this work. Nevertheless, it is important for each patient to carefully read the package insert before they use any medication and to be sure to pay attention to any possible contradictions.

Protected brand names and trademarks are not indicated separately here. However, the absence of such information in a given case does not permit the conclusion that a given name is a generic name.

Any statements made regarding the equipment described here and its uses are not to be taken as general recommendations, but instead represent only a summary of the opinions and experience presented here. Any use must presuppose a precise knowledge of the specific circumstances in the individual case, which must be reviewed by each authorized user under his/her own responsibility before starting treatment. The author does not assume any liability for the information presented in this book.

This book has come about through the generous support of the company vita.life, the world leader in the market for magnetic field therapy equipment. We would like to express our appreciation to this company for their support. For this reason, the medical products of this company are mentioned in the text of this book. However, that does not mean that similar equipment which could lead to the same successful results when used correctly is not also available from competitors.

First edition German, August 1999
First edition English, 2000

ISBN: 3-9500982-2-4

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Editor: Dr. Caroline Markolin, Mag. Ingrid Trauner
Coordination: Isabella Riedl
Illustrations: Piero Lercher, M.D.
Documentation of source of photographs: OKAPIA, Frankfurt/Main; The Best - Reader's Digest Publishers
Scanning, Layout, Typesetting: Reimers & Jansen MANITU GmbH (Pforzheim, Germany)
Exposures and Printing: Athesiadruck GmbH, Bozen (South Tyrol, Italy)

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The author and his friend the artist

Dr. Christian Thuile, M.D.

Born in Southern Tirol, Christian Thuile studied at the medical schools of the University of Innsbruck, the University of Vienna (Austria), the University of Maastricht (Netherlands; doctoral 1993) and the University of Bologna; graduated with honors in Vienna.

October '94 through October '97: Scientific colleague at the Outpatient Memory Clinic (director: Professor P. Dal-Bianco) of the Neurology Department of the University Clinic of the General Hospital of Vienna, teaching practice; laboratory training; tutor at the University Institute for Hygiene; teaching activity in state training of therapeutic massage practitioners and consulting assistants as well as pharmaceutical advisors; member of the Forum of the Alzheimer's Society as well as various Austrian and international medical societies for alternative medicine; since 1996, chairman of the Austrian Medical Society for Energy Medicine; since 1997, president of the International Medical Society for Energy Medicine.

Additional training in acupuncture, nutrition, TCM, homeopathy, neural therapy, magnetic field therapy, osteopathy, certified trainer in Jacobson relaxation training.

Since 1997: director of the Medical Science Department of Vita-Life; since 1996, scientific director of the Medical Center for Energy Medicine in Vienna. At the time of the first publication, Dr. Thuile was in training for this specialty. He has various publications in renowned national and international journals, journalistic activity in medical journals in Austria; book publications: "Alzheimer's Disease" (1995), "Living with Forgetfulness" (1996) (recommended by the Consensus for Neurophsychiatry in 1998), "The Big Book of Magnetic Field Therapy" (first edition, 1997, second edition 1998). "Heilsame Schwingungen" (1999 - in Co-authorship with Jakob Coudenhoye-Kalergi).

Piero Lercher, M.D.

Born in 1967 in Kärnten. Studied medicine at the University of Vienna, graduated as Doctor of General Medicine with dissertation. Since 1994, scientific collaborator with university Professor Dr. P. Haber in the Department for Sports Medicine and Performance Medicine, University Clinic for Internal Medicine IV, General Hospital of Vienna.

Teaching activity at the Institute for Occupational Promotion (BFI) Vienna: course in the theory of manual lymph drainage and connective tissue massage. Medical journal activity for the Österreichische Ärztezeitung [Austrian Medical Journal], published by the Austrian Medical Association. Artistic history: painting textiles (cartoons on T-shirts), cartoonist for various journals, exhibitions in Austria and Switzerland. 1996: illustrated the

book "Living with Forgetfulness," a book about Alzheimer's disease published by the University Clinic for Neurology, General Hospital of Vienna. 1997: co-authored (spórts medicine part) and illustrated the book "The Big Book of Magnetic Field Therapy" by Dr. C. Thuile, M.D. 1998: nominated to the 7th International Cartoon Biennial in Davos (Switzerland).

Healing through energy

An introduction by Dr. P. Klaus Connert

There have been some important findings in modern physics:

1. This world is made up of so-called "energy fields" and is constantly being recreated from them. "Fields" are areas of initially non-specific energy. By compression and differentiation, they yield particles such as photons, electrons, atoms, molecules, cells, living creatures, etc. Conversely, these particles decompose into undifferentiated energy again.

2. Differentiated matter is formed from energy fields and matter is resolved into undifferentiated energy through input of information.

3. Energy and information are the essential factors for the creation and functioning of this world and all the plants and living organisms in it.

Modern medicine is based on the findings of physics. Its understanding of the phenomena of disease and health is different from that in the past, and new, efficient methods of diagnosis and treatment have been developed from these findings. A person is in a state of health when his/her "information system," his/her "central computer" is sending the proper impulses to the body and the body can also implement these impulses properly.

To be healthy, a person needs two basic things:

- sufficient energy
- the proper information.

We receive energy through foods, beverages, light, sun, electromagnetic fields, human attention and ideas.

We receive information through images, words, unconscious messages, as well as all the substances that we consume as nutrients.

We become sick when we have too much or too little energy in our energy pathways (meridians), when we are receiving false information or are exposed to inappropriate energy.

For example, a virus forces a person to receive foreign information, because the virus uses the reproductive system of the human cell to replicate itself. A person's defense against this is through the immune system. The external manifestation of this battle is fever, pain in the joints, sore throat, etc.

Two things are required to heal from disease:

- sufficient energy
- healing information

For example, three methods which meet these requirements can be mentioned from the field of alternative medicine:

Homeopathy

Here the healing information of plants, minerals, animal toxins, etc., is potentiated through a process of medicinal potentiation and is thus rendered in a form that can be utilized by people. If the medicine is applied according to the law of similarity, it provides information and energy to the person who is sick.

Traditional Chinese medicine and acupuncture

A person's energy status is determined on the basis of his/her history plus a physical examination; then needles are placed at the control points (acupuncture points) to change the flow of vital energy (chi); in addition, herbs are prescribed, and regulating exercise (Qi Gong, Tai Chi) is performed.

Magnetic field therapy

The earth's magnetic field is essential to us for life. Because we live in homes filled with noise and a multitude of technical electromagnetic fields (radio, wireless, cell phones, radar, etc.), people can no longer absorb this energy adequately. Therefore, therapeutic use of suitable electromagnetic fields is a necessary basic treatment for acute and chronic diseases. If enough non-specific energy is available to a person, many disturbances can be handled simply by means of self-regulation (immune system).

Many other methods operate similarly. In this book, the author will give some insight into the fascinating world of energy. The future of medicine will take place in the fields of energy and information, and this future has already begun.

I hope that you as the reader will develop an interest in these areas of information and thus will arrive at a better understanding of health, sickness and healing. I also hope that medicine in universities and hospitals will take the findings of modern physics seriously and will base therapeutic concepts on them.

Dr. P. Klaus Connert

Physician in general medicine, homeopathy, psychotherapy, neurotherapy, manual medicine, university instructor in homeopathy, advisor to the Austrian Board of Medicine on alternative medicine.

Foreword by university instructor Dr. Manfred Walzl

With the books he has already published on the topic magnetic field therapy and Alzheimer's disease, Dr. Christian Thuile has proven his competence as well as his great talent as an author.

Although - or better yet because - magnetic field therapy has gained a certain acceptance in scientific discussion, the next book on this topic is now coming out, and it does not lack a certain interest.

An interest which in any case is suitable for considering magnetic field therapy from all standpoints. And my young colleague Dr. Thuile has again succeeded in an excellent manner in this regard.

First, this book should show that magnetic field therapy has gone beyond the range of pure speculation - proof is submitted in the form of numerous scientific studies - but furthermore, it may provide valuable assistance for the average person to make decisions regarding therapeutic applications.

In any case, one thing is certain: this is a very interesting book on a thoroughly interesting topic.

May it be of assistance to both researchers and users.

Dr. Manfred Walzl, university instructor

Specialist in neurology and psychiatry

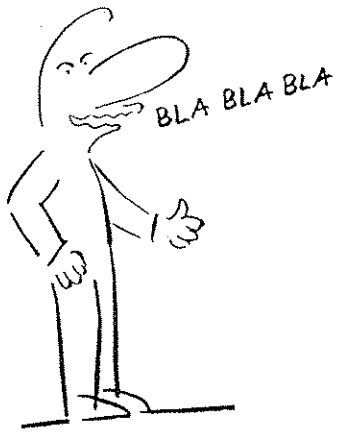
Foreword

With this book we would like to present a practically oriented reference work on the topic of magnetic field therapy for patients.

This aspect will be emphasized by numerous reports of empirical findings. By presenting interesting information from physicians and extensive medical studies, we also hope to be able to impart the required scientific background in support of this method of treatment. More and more physicians and scientists are becoming interested in magnetic field therapy, which is still a fixed component of regulatory medicine in a holistically oriented health model for the new millennium. Research and science are the keys to demystifying magnetic field therapy and securing its proper position of importance in medicine.

We have attempted to present this book in simple, easy-to-understand sentences for people who are seeking more information on magnetic field therapy. Many illustrations and graphics are presented to support the flow of information. The use of colors is intended to facilitate the use of this book as a reference work. This book is divided into two main sections, the general part with the most common questions on the topic and a second section which is organized alphabetically with various diseases highlighted for specific emphasis. Concrete proposals for applications arising from a collaboration of many physicians should facilitate the use and implementation of this method in daily practice. Through the question-and-answer model, we attempt to bring the technology and science closer to the reader by a simple procedure with many metaphors. I hope that I have succeeded in this attempt, and I want to wish everyone a great deal of enjoyment in reading this book. Perhaps it can make another small contribution toward experiencing anew magnetic field therapy in its many possibilities and its restrictions as well as awakening interest in this fascinating field of medicine. This is my wish and the goal of this work.

Dr. Christian Thuile, M.D.
President of the International Medical
Association for Energy Medicine



Writing and editing a book and finally holding it in one's hands as a finished work are comparable to an act of intellectual childbirth. Forgotten is the long, hard time of seclusion before publication, the time of doing without, the sacrifices, the sleepless nights, the cramps in the fingers and the tension in the head. Finally, the idea as a child of the mind has been born as a book. One of the special things about this project is that I have had many experienced midwives by my side.

I would like to thank in particular my family, my friends and Gudrun, my companion in life, for her love and understanding. During this time, leisure and private life were just a dream. Without their understanding, this book would never have come about! Thank you!

I want to thank God that I was able to rely on the cooperation of people who are not only highly qualified in their professional life, but are also special human beings and friends.

I am especially grateful and indebted to Dr. Caroline Markolin, who not only taught me professionally and with a great deal of patience, but also was something like a spiritual midwife for this book, which also bears her imprint in the truest sense of the word.

I also want to thank my friend Piero for long years of a satisfying friendship and also of course for his intellectual insight and his implementation of ideas into drawings which give an enlightening aspect to the serious case histories. His unselfish commitment to the last minute is "legendary." As always, his contribution to the text in the sports part is scientifically researched and also very easy to understand.

I want to thank my two friends, Peter and Martin, of the advertising agency MANITU, who gave this book its wonderful layout and professional design and are also responsible for the overall presentation of this book.

I am also especially grateful to Stefan Kreuzer, my dear friend and "brother," for his wonderful photographs; he is one of the most eager and helpful people I know.

I want to thank Gerhard Sonnberger for his important tips on the computer, his scanning work and his work with the typesetting. I want to thank Dr. Franz Profunser and his team for the (hopefully) perfect printing at Athesia, the printing shop in my homeland in Bozen.

In particular, I want to share my enthusiasm about this book with those people who played a special role in its creation and who stood by my side with assistance and support throughout the entire preparation and completion. In particular, I want to thank my two friends, Isabella and Günter, who have been my most faithful companions. These two generous people have spent countless hours day after day, and often night after night, working on this book, especially the scientific aspects, the reports of findings and many other areas.

Of course, I would like to thank in particular Mrs. Ingrid Brandstötter and Mario Hintermayer, who made this project possible in the first place through their experience and their generous support and who have done and achieved a great deal in the area of magnetic field therapy through their commitment and hard work. I also want to thank Mr. Andreas Günter, friend, jack-of-all-trades and one of the original fathers of magnetic field therapy, for his assistance in technical matters, for his studies and his compilations of literature from all over the world.

For their contribution and valuable support, I want to thank my friends Maria Pfeifer, Christian and Petra Pichler, Werner Steffer, Hilke Anne Wiedemann, Carmen Gstöhl, Olaf Skirde, Max Keiser and Verena Singer, the Studer family and the Engeli family, Leo and Cecile Betschart, Ursula Christen, Mr. Zehender, Uschi Matter, Erika Illy, Christina Mühlegger and Mr. Laszlo, Heidemarie Schäfer, Helmut Krausseneck, Gerd Schmidt, Dietmar Hauser, certified engineer, Ewald P. Müller and Siegried Müller, the Kirchleitner family, Johann Senn, Bernhard Guttau, Karin Grünhage and Beate Martina, Harry Pretschuh, Karl Garber, Manuela Hörner, Wolfgang Gasteiner, Bruna Pitta and Ennio, Rudolf Nocker, Silvester Neidhardt, the sports manager, and his family, Monika Kreutz, Robert Baumann, Kurt Holzer and Peter Kienast, Hilde Auer and Brigitte Dorfleitner, Judy Weiss, Frank Robert Belewsky, Karin Grünhagen, Manfred Seismann, Mannfred Simmke and many others.

I would also like to thank all the technical advisors who made this extensive collection of data possible in the first place through their contributions, but also I want to thank those who gave me permission to write about their experience with magnetic field therapy in order to encourage other people.

I would also like to thank Mr. Robert Nussbaumer who taught me to value opinions and ignore revisions. I would also like to express my appreciation for support to Mr. Georg Cotiaux, Mr. Frank Lowas and especially Mr. Giorgio Niedermeier, whose technical expertise in the field of supplemental nutrition I very much respect.

Last but not least, I want to thank the physicians and scientists of IGEM who provided me with data support in particular in preparation for this book.

Above all, of course, Dr. Franz Reinisch, M.D. who always stood by my side with friendly advice through his more than 20 years of experience in the field of magnetic field therapy and contributed to the medical and practical portions. I am also grateful to my dear friend, Frank Daudert, for his valuable work with

IGEM and his interesting studies. I want to thank Dr. Klaus Connert, M.D., advisor in alternative medicine with the Austrian Medical Association, for writing his forward and for his scientific interest in magnetic field therapy. I am also grateful to Dr. Manfred Walzl, M.D., university lecturer, with whom I have a very heartfelt relationship, not only for his preface but also for his support in the areas of study and research. I am grateful to my dear friend, Dr. Christoph Scherer, M.D., medical director of the Center for Energy Medicine in Vienna, for submitting many physician reports and Dr. Bernhard Kuderer, M.D. who collaborated with us at the Rudolf Foundation Hospital with great scientific interest in magnetic field therapy. In particular, I would like to thank Dr. Wolfgang Kropshofer and Dr. M. Dingl for their generous contributions. I also want to thank Dr. Alois Baumann, M.D. and head physician, Dr. Herbert Bronnemeyer, M.D., Dr. Mandred Eder, M.D., Dr. Pinter Kurt, M.D., Dr. Thomas Steinkellner, M.D., Dr. Helmut Ornig, M.D. (Hospital of the Order of Elizabeth), Dr. Gerhard Antensteiner, M.D., Dr. Peter Kreimaier, M.D., Dr. Lutz Ammerer, M.D., Dr. Mark Ebersbach, M.D. (dentist), Dr. Niven Zankov, M.D. (dentist), Dr. Rudolf Meierhöfer, M.D., Dr. Fressner Michael, M.D., Dr. Tanil Maximilian, M.D., Dr. Reiner Othmar, M.D., Dr. Miggitsch Ursula, M.D., Dr. Zenz Gunter, M.D., Dr. Bernd Boes, M.D., Dr. Thomas von Berhring, Dr. Fabio Petrossi, Dr. Enzo Maiolini, Dr. Gian Antonio Pigat, Dr. Felice Giacconi Gianfrancesco, Dr. Valse Pantellini, Dr. Paolo Roppa, Prof. Dr. G. Fischer; Dr. Gabriella Hegi, M.D., Dr. Lindbloem (S), Dr. Gerhard Beck, M.D., Dr. Roman Sawires, M.D., Mr. Drach Thomas (therapeutic practitioner), Mrs. Zita Spieler (therapeutic practitioner), Dr. Michael Leifer, M.D., Dr. Markus Gollman, M.D., Dr. A. Rösti, M.D., Dr. Claudia Haumer-Lercher, M.D., as well as everyone who assisted in the creation of this book even if not mentioned here by name.

I am dedicating this book to my parents, my son Julian, my sisters Ulli and Caro

and all of my friends who have been patient and loving with me.

He who has love for life,
will receive life from love.

Who or what is IGEM?

IGEM is the International Medical Society for Energy Medicine. It was founded in 1995, and developed out of the Austrian Medical Society for Energy Medicine. Meanwhile, IGEM has grown to 1,000 members in many countries (Austria, Germany, France, Turkey, Switzerland, Iceland, Slovakia, Hungary, Poland, Netherlands, England, Spain, Saudi Arabia, Australia and the United States).

IGEM is a legally registered association (incorporated association) of physicians, biologists, physicists, electrical engineers and scientists who have joined together to form an independent non-profit organization. They are pursuing the common goal of researching the interaction of non-ionizing radiation with biological systems. They want to provide a scientific platform for the methods of energy medicine. In addition, the healing methods of energy medicine are to be developed further and improved through research and technology. To this end, this organization cooperates with many international societies in the field of energy medicine.

IGEM represents symbolically a bridge between school medicine and alternative medicine, attempting to create access to the holistic approach of medicine through scientific support for the healing methods of alternative medicine and with the help of objective analytical profiles.

Various scientific publications are compiled in archives by IGEM and summarized in reviews. Therefore, IGEM cooperates with the Statistics Institute of the University of Vienna. The main purpose and goal is to position international studies at recognized centers. Objectively prepared study data is published or presented at congresses.

The quarterly technical journal ENERMED presents IGEM to the public.

The board of directors is the voting entity of IGEM. The company is led by the president. The treasurer, the vice president and the representatives of each state support the president. At the present time, Christian Thuile, M.D. (Vienna) is the chairman of the board. Heimo Ferarri-Brunnenfeld (Vienna) is the treasurer and manager, Dr. Franz Reinisch (St. Radegrund) is the vice-president, and Dr. W. Maus, M.D. (Germany) is president emeritus.

Physicians sit on the board of directors as representatives from all the countries mentioned above and they have an advisory capacity.

We would like to supplement the information presented in this book by Dr. Christian Thuile, M.D. with our own experience so that we can also build on serious educational work in the future as well.

On behalf of the board of directors

Dr. Franz Reinisch, M.D.
(vice president).

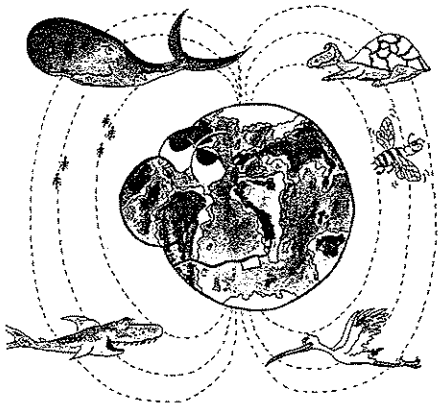
PRINCIPLES OF MAGNETIC FIELD THERAPY

Chapter 1

1. What you should know about magnetic fields and magnetic field therapy

1.1 What is a magnetic field?

A magnetic field is a force field created by a natural permanent magnet or, simulating this natural process, created "artificially" by a coil carrying electricity. The classical example to illustrate this is a bar magnet with a magnetic North pole and a magnetic South pole. The repulsive force felt when two identical poles of the same strength are moved toward one another is the force field we call a magnetic field. The greater the density of field lines, the stronger is the magnetic field (this is properly called the flux density).



The magnetic field lines themselves flow from the North pole to the South pole. A magnetic field may be static, in other words, constant and permanent, or it may be pulsating, in other words, cycling at a certain frequency. The magnetic fields of modern therapeutic systems are all pulsed. Therefore, we speak of pulsating electromagnetic fields, abbreviated PEMF. Through controlled use of a PEMF, a much higher voltage can be applied to the body, leading to better therapeutic results. The body cannot be damaged by a PEMF.

A magnetic field has the property of being capable of penetrating through matter with a relatively low energy loss. Therefore, a magnetic field used therapeutically can pass through clothing unhindered and reach every cell in the body. This is a property which differentiates magnetic field therapy from physical therapeutic devices which have a low depth of penetration and therefore manifest their effect only at the surface.

The magnetic field system has its greatest flux density or strength at the middle of the coil; it loses intensity at a greater distance from the magnetic field source; in other words, the magnetic field definitely becomes weaker toward the outside. It should be pointed out here that a point source (such as an application probe) loses intensity much more rapidly with an increase in distance (according to the third power of the distance) than would be the case, for example, with a flat source such as a flat coil. Thus, if a site at a greater distance from the coil is to be reached for the purpose of treatment, the intensity to be applied would have to be increased. Only in this way can the same dose be administered as directly at the source.

Magnetic field strength or flux density is given in teslas (T) or gauss (G), which is an older but even more common unit of measure, where 1 tesla corresponds to 10,000 gauss.

The strength of a magnetic field is determined by the property (the resistance) of the coil and by the amperage of the current (in amperes). In addition to field strength and pulse frequency, the polarity of a magnetic field also plays a crucial role. Starting from the assumption that different structures in the human and animal body have a certain polarity preference, the respective organs are treated according to this polarity in treatment with magnetic fields. A North pole preference should have a positive effect on pain, swelling, acidification of tissue, sleep disorders and agitation. An improved metabolism, better circulation, faster wound healing and

regeneration of the body take place more readily with a South pole preference.

1.2. What is magnetic field therapy?

Magnetic field therapy is understood to refer to the therapeutic use of static or pulsed magnetic fields for the purpose of treating diseases.

1.3. Can we perceive magnetic fields with our senses?

This question cannot be answered definitively, because only a very small percentage of people (approximately 15 %) can perceive magnetic fields directly. As a rule, magnetic fields cannot be perceived with the senses; in other words, we can neither hear nor see them, neither smell nor taste them and in most cases we cannot even feel them directly. "Sensing" magnetic fields must not be confused with perceptions a patient may have during a magnetic field therapy such as a hot feeling (a slight increase in body temperature) or tingling of the acrae (the nose, the chin, etc.) or in certain weak spots (due to illness). These sensations are not due to a direct perception of the magnetic fields, but instead are caused by the changes in the body brought on by the magnetic field. Thus, the improved circulation in the skin brought about by the treatment may be manifested by tingling or a feeling of warmth, as mentioned above. Measurements on 500 test subjects have shown that in more than 75 % of the cases, a significant increase in temperature occurs, but only 55 % of the people so affected reported having perceived a feeling of warmth.

If a patient "senses" nothing during a treatment with magnetic fields, this only means that the magnetic field is having its effect without any outward signs.

1.4. What is the earth's magnetic field?

The age of the earth's magnetic field is estimated at approximately 3.5 billion years. Thus, it is younger than the history of the earth itself but is much older than the history of life on our planet. The earth's magnetic field can be imagined as a bar magnet with a North pole and a South pole. The magnetic poles of the earth's sphere are not identical with the geographic poles, but instead they deviate daily somewhat farther away from the geographic poles. At the present time, the magnetic North pole is approximately 1,000 kilometers away from the geographic North pole.

It is still unclear how the earth's magnetic field developed. One of many theories uses for the explanation a type of dynamo effect which is caused by the different densities of the earth masses and rock masses in the interior of the earth (moments of inertia).

The earth's magnetic field has a flux density (strength) of 0.5 gauss or 50 microteslas. The average value is not constant over the entire globe, but may vary considerably. Thus, the magnetic field at the poles has an intensity of 0.7 gauss but at the equator it is only 0.3 gauss. Territorial differences have also been detected. Under the influence of so-called solar winds, there are variations not only in the flux density and field lines but also in the pulse frequency of the field. Assuming an average frequency of 7.5 Hz, this value may change by several powers of ten within a minute. Recently a slight decline in the intensity of the earth's magnetic field has been detected. This finding presents a problem for scientists because we do not actually know the health effects and environmental effects of a change in the earth's poles, despite the fact that there have been several such changes in the history of the earth.

1.5. What is the significance of the earth's magnetic field for man and animals?

The influences of the earth's magnetic field on nature have been observed and studied for thousands of years. Researchers into ancient history in modern time realized at a very early point in time that no life could exist on our planet without the magnetic field. This is because of the protective mechanism of the earth's magnetic field. With its multilayered protective shield, the magnetic field prevents harmful radiation from outer space, especially particle radiation, from penetrating to the surface of the earth.

It is known that numerous animals from the animal kingdom find their direction by using the earth's magnetic field: similar behavior has been observed in migratory birds (storks and others), ants, termites, beetles, bees with their bee's dance before entering the hive, many marine animals such as sharks, sting rays and manta rays, whales and turtles. In 1998, scientists at the University of Frankfurt succeeded in proving for the first time that the remarkable homing behavior of pigeons (carrier pigeons) can be attributed to the earth's magnetic field. Their strong sense of direction is explained by the fact that these birds sense the earth's magnetic field with the help of very small magnetite crystals in their beaks.

Esoteric

Human beings, like all living organisms, are influenced by the earth's magnetic field and over the course of evolution have also developed such fine magnetite crystals in the brain, in particular in the ear. It has long been known from folk medicine that many sleep disorders can be cured by aligning one's bed in a North-South direction. It is also known from clinical observations on Russian cosmonauts that the magnetic field can have a significant influence not only on bone growth but also on emotional well-being. The influence of even very small magnetic fields on the human body is best demonstrated by the phenomenon of weather sensitivity, where the human body reacts even to extremely small magnetic pulses (in the picotesla range). Definite proof of this was provided by research findings by scientists at the University of Giessen in 1998. These studies have formed the basis for successful use of magnetic field therapy.

1.6. Is magnetic field therapy an invention of modern times? A brief historical survey

According to the first written reports, magnetic fields were used for treating a wide variety of health disorders more than 3,500 years ago. The Chinese used the earth's magnetic field for directional orientation when they developed the first needle compass long before our current era. In Greek and Roman times, the use of magnetic fields was mentioned frequently (by Aristotle, Thales and Hippocrates) for treating a wide variety of diseases. The Egyptians studied the earth's magnetic field and its significance for people and animals from the particular standpoint of mysticism.

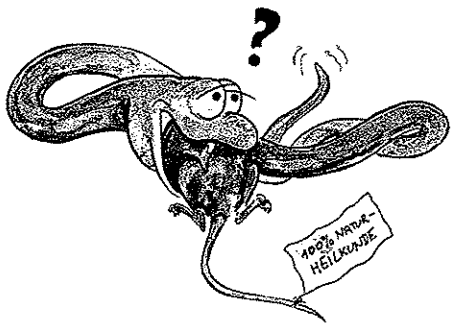
Numerous findings of our modern scientific knowledge stem from ancient times. For example, we know that Cleopatra always wore a magnetic headband not only to attract good thoughts but also to bring her relief from her migraine headaches. The mystical and medicinal significance of magnetic field therapy in the high Indian cultures of Central and North America has also survived. Until the Middle Ages, treatment with magnetic fields was in the hands of so-called barbers (traveling "country doctors"). In his writings in 1528, Theofrast von Hohenstein, better known by the name Paracelsus, recorded his success with various diseases; he mentions magnets as an effective means of treating cramps. Paracelsus regarded magnetic field therapy as one of the four main pillars in the house of health. Today this famous physician and scholar is considered the founder of modern magnetic field therapy. In approxi-

mately 1600, Sir William Gilbert, the personal physician of the English Queen Elizabeth, wrote the pioneering work De Magnete. Forty years later, Anders Celsius published his informative observations regarding the earth's magnetic field. The first scientific works on this subject were by Simonov (1835) and Gauss (1838).

Franz Anton Mesmer (ca. 1780), a physician in Vienna, was the founder of so-called animal magnetism. Today Mesmer is considered the pioneer of the modern clinical use of magnetic fields. In 1800, the English scientist Michael Faraday described magnetism as a property of matter. He discovered the magnetic attractive force of oxygen and the basic laws of electromagnetic interaction. His findings regarding the relationship between matter and magnetic fields form the physical basis for an understanding of magnetic field therapy today. The term magnetic "field" can also be traced back to Faraday's ideas.

At the beginning of the 19th century, Luigi Galvani, an Italian, investigated the interaction between bone synthesis and biomechanical electrical phenomena in his dissertation De Ossibus. Today this work is considered the basis for the piezoelectric effect, which was discovered in 1953. The Japanese scientists Yasuda and Fukuda found different charges on parts of bone, depending on whether compressed or extended. At the beginning of the 20th century, the Berlin orthopedic specialist Wolff discovered a relationship between bone structure (stability) and functional loading (depending on the person's weight and type of movement). His findings are formulated in Wolff's law, which was named after him: Structure follows function. It can be concluded from Wolff's research and the discovery of the piezoelectric property of bone, that bone is deformed under the influence of an electrical field, which triggers a structure-forming stimulus. Thus, if part of a bone is in a magnetic field that changes over time, an electric potential develops at the surface of the bone, and this can have a positive effect on bone growth.

Most clinical studies in this field from the 1960s were conducted in Russia and Japan, where magnetic field therapy has a much more important position in medicine than it does in Central Europe. Russian studies on magnetic fields originate from space research. Scientists observed extreme osteoporotic changes as well as severe depression in Russian cosmonauts returning from outer space. These phenomena were reduced significantly by incorporating artificial magnetic fields into their environment.

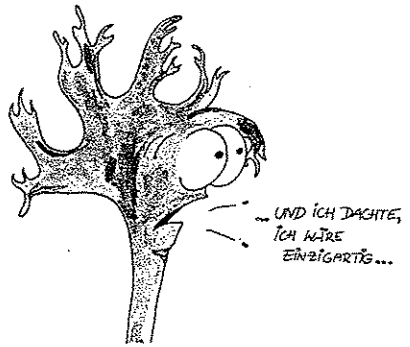


100 % natural medicine

In 1965, Linus Pauling, a two-time Nobel Prize winner, described the biomagnetic property of blood. In German-speaking countries, the first clinical studies in this field were conducted by Professors Lechner and Ascherl from Garmisch-Partenkirchen. Professor Bassett, an American scientist who was a student of Lechner, achieved another milestone in research into therapeutic use of magnetic fields. He was the first to succeed in conducting a clinical study of the influence of magnetic field therapy on poorly healing bone fractures; he published his findings in renowned medical journals, thus bringing magnetic field therapy into the light of modern medical science. Since that time (1982), there has been a drastic increase in studies in this field. Scientific and clinical studies on the topic of magnetic field therapy are now being conducted worldwide. Since 1996, the archives of IGEM, the International Medical Society for Energy Medicine, have compiled and organized vast data from hundreds of scientific studies. Many of these studies have formed the basis for this book.

1.7. What do we understand by electromagnetic interaction in conjunction with magnetic field therapy?

The term electromagnetic interaction is understood to refer to the mutual influence of magnetic fields and electric current. This means not only that a magnetic field can be produced by an electric current flowing in a coil (the principle of these therapeutic devices) but that magnetic fields can induce a current in a conductor such as the human body (the principle of magnetic fields acting on the human body). Under suitable conditions, magnetic fields can influence the ionic current on the cell membrane (a current in the form of ions flows due to an electrochemical potential). Nerve cells can be mentioned as an example here. They have a marked unique projection, an axon, which serves to convey stimuli (messages) to neighboring cells. The so-called dendrites or smaller projections function here as recipients of the stimuli.



Nerve cell

Because of the prevailing currents on isolated cell membrane, the cell potential is approximately -80 mV (a positive charge outside the cell membrane, negative charge on the inside). If the nerve cell is stimulated, there may be a brief reversal of poles if the stimulus is strong enough and compensating currents or so-called circulating currents flow. This process is subject to the influence of electric conduction and magnetic fields, which vary over time.

The magnetic field of a person can be determined today by the following methods:
Magnetocardiogram (MCG): 100 pT (hertz)
Magentoencephalogram (MEG): 3 pT (brain)

1.8. Where do magnetic fields act in the human body?

In general it is true that pulsating magnetic fields can act on every cell in the body because of their property of penetrating through matter. The main point of action is the cell membrane, which carries a current due to the ion exchange. In addition, electromagnetic interaction and resonance also play an important role as a medium of information transfer between the magnetic field and the cell.

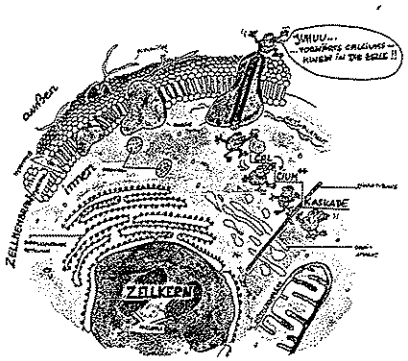
1.9. What is a cell?

Cells form the smallest viable unit in the human body. A cell is comparable to a brick in building a house. Our body is "constructed" of 50-70 billion such units. Cells of the same type and property form such tissues as connective tissue, muscle tissue, nerve tissue (the walls of the room). Several such tissues form an organ (a room). Several such organs form organ systems such as the digestive system (the stories). All the organ systems together form the unit of the human body (the house). A body contains a wide variety of different cells with many different functions. A liver cell alone is said to have more than 3,000 functions.

1.10. What is the structure of a cell?

Despite the wide variety of forms and functions, all cells have a uniform structure. They have a nucleus, usually at the center, containing the genetic information, our hereditary material stored in the chromosomes. This cell nucleus may be regarded as the actual control center for the various cell functions, i.e., for the jobs the cell must perform. Outside the cell nucleus, there is the cell fluid which constitutes approximately 40 % of the total

weight of the body. The important cell organelles float in this fluid.

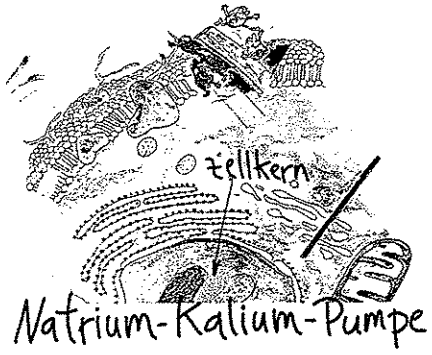


The cell

So-called mitochondria are the organelles which produce energy for the work expended by the cell; they form a sort of power plant in the cell. Mitochondria gain energy from the body's fuels: sugar, protein and fat. Mitochondria play a key role in magnetic field therapy.

The cell membrane imparts form and cohesion to a cell. With its semipermeable insulation layer, it separates the cell interior from the cell exterior and guarantees a well-controlled mass exchange as well as regulated communication between the interior and the exterior. The membrane itself consists mainly of a water-repellent inner and outer layer of fat. Important proteins which serve as communication media for the cell are embedded in this fat layer. The most important function here is the pumping function of certain proteins, with ions being transported from a site of a high concentration to a site with a lower concentration. The cell potential is built up with the consumption of energy - this is the prerequisite for metabolism and cell communication. The electrochemical potential established by the membrane pumps comes about due to the fact that a negative charge develops in the interior of the cell in this pumping process. There is a positive charge on the exterior because positive charge carriers are predominant. Due to this difference and the electric potential thus produced, charged particles on the cell membrane can flow between the interior and the exterior. In simplified terms, an electric current flows. This fact plays an important role in the effect of magnetic field therapy, because electromagnetic interactions which have a positive effect on the ionic current on the cell membrane come into play through the magnetic fields.

In comparison with a functional cell, a sick cell has a reduced potential, which means that there is a greatly reduced mass exchange in this cell. In organ parts where circulation is poor, cells are no longer receiving enough oxygen to be able to supply enough energy for operation of the pumps. Consequently, some of the pumps of the cell membrane stop working and the cell potential drops. An improvement in energy supply in the cell can reverse this situation. Magnetic field therapy makes use of this fact.



Sodium-potassium pump

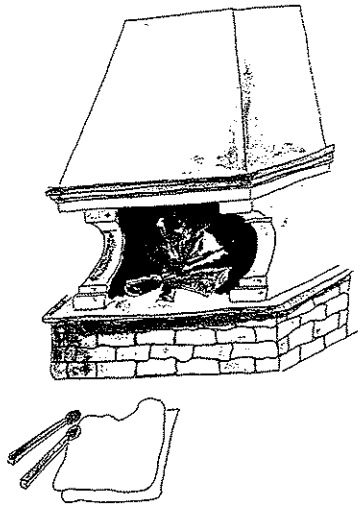
The cell membrane is where the resonant effect takes place, because all healthy cells have an inherent oscillation with a certain frequency and amplitude.

Each cell is embedded in fluid. This intercellular fluid serves as a transport medium for the metabolic products - nutrients are delivered to each individual cell, waste substances are picked up by the blood again and eliminated from the body through the appropriate organs. Salts are one of the substances carried in the intercellular fluid. The higher the concentration of these salts, the harder the tissue. Consequently, bone cells have a high salt content (calcium and phosphate) and a corresponding, relatively low water content. The fluid property of intercellular fluid is called a sol state. This sol state forms the optimum prerequisite for metabolism and thus for magnetic field therapy.

In less favorable cases, the sol state develops into a gel state, a phenomenon which may be observed with dehydration (therefore always drink lots of fluids!) or with hyperacidity of tissue. As we shall explain in even greater detail in the corresponding chapters, the gel state may explain the occasional resistance to treatment or inadequate results achieved in treatment with a magnetic field because it is difficult for mass exchange to take place in the gel state, which is denser than the sol state.

1.11. How does a cell produce energy?

Cells produce energy from sugar, proteins and fat - fuels which we supply to our bodies when we eat food. For the purpose of better understanding, let's compare the human body with a wood-burning stove, which also serves to produce energy, namely heat in this case. We use wood as fuel, and to start a fire we need a spark, which may be provided by matches, for example. In this model, the matches correspond to the enzymes in our bodies. However, a fire can burn only as long as enough oxygen is available. This applies to the wood-burning stove as well as the mitochondria in our cells.



To produce energy, a cell needs oxygen (and nutrients) in sufficient quantities; 50-70 % of the energy produced by the power plants in the cell is consumed immediately by the pumps in the cell membrane to build up the cell potential. The form of energy storage in the cell is called ATP (adenosine triphosphate).

1.12. How can magnetic field therapy affect energy production in a cell?

Magnetic field therapy leads to improved utilization of oxygen in cells. This is because red blood cells can deliver more of their bound oxygen under the influence of magnetic fields, thus having a very positive effect on circulation. A magnetic field is thus an important prerequisite for improving cell function. This is true in particular of tired cells, i.e., cells that are no longer receiving enough blood, nutrients and oxygen or are in an unfavorable position with respect to the blood vessels supplying them. Therapeutic use of magnetic fields causes these cells in particular to receive more "fuel." The result: cells produce more energy in their power plants and the membrane pumps operate more efficiently. This in turn increases the membrane potential, i.e., the cell potential. In this way, it is again possible for the cell to actively devote itself to its function. Thus, the effect of magnetic field therapy on the energy balance does not involve a secret transfer of energy to the cell, but it does involve the biological processes in and on the cell, which come about primarily through an improved supply of oxygen.

1.13. What is understood by the vitalizing effect of magnetic field therapy?

The vitalizing effect of magnetic field therapy is understood to refer to the positive effect of the magnetic field on low-energy cells or cells with restricted functions. This effect is attributed to the improved utilization of oxygen in the cells; tired cells are revitalized, so that organs with restricted function can then fulfill

their functions better. This is one of the reasons for the success of magnetic field therapy in the prevention and therapeutic treatment of functional diseases.

Due to its large number of reserve cells, an organ can deal with the failure of some cells. Before the final death of a cell, it stops performing its generally beneficial functions. Only when a large number of cells have failed does the respective organ begin to show signs of disease. If magnetic field therapy is started in time to reactivate and revitalize cells whose function is restricted by providing an improved energy supply, not only is it possible to prevent disease, but also if a disease has already developed, regeneration of diseased cells, tissue and organs can be accelerated.

1.14. Can magnetic field therapy revitalize dead cells?

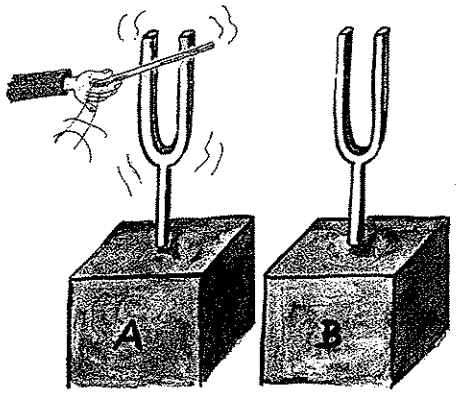
No! Even magnetic field therapy cannot reanimate what has been destroyed (final loss of substance). However, it can revitalize what has been disturbed (functional disturbance).

1.15. Is it possible to overstimulate with magnetic field therapy?

No! The reason, at least with regard to energy production, lies in the limited number of membrane pumps that build up the cell potential. If all the pumps are in operation, the maximum potential is reached - this is the case with a healthy cell functioning normally. Since the number of operating pumps is limited, the cell potential is not increased further. This means that diseased cells can be "nursed back to health" with magnetic field therapy, but healthy cells cannot be overstimulated. However, this should not by any means be confused with the maximum use time per day. According to the WHO (World Health Organization), whole-body therapy should not exceed one hour per day (there is no time limit for local treatment). Therefore, the maximum use time must be observed strictly to protect the body from a high consumption of energy raw materials.

1.16. What is resonance?

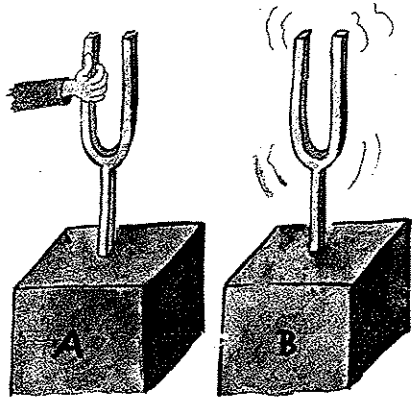
The cell membrane vibrates at a certain frequency, which depends on many factors and will vary from one person to the next and from one cell to the next.



In addition to different frequencies, each cell has a characteristic amplitude, which is the height of the vibration. A test with a tuning fork can be used here as a comparison. If a tuning fork vibrates at a certain frequency, such as 440 Hz of standard pitch A, the amplitude, i.e., the extent of the oscillation wave, determines whether we can perceive it with the unaided ear. Amplitude thus determines volume and whether or not we can hear a sound with our ear as our organ of perception. Even if the vibration of the tuning fork is no longer audible to our ear as it fades out, we can nevertheless see the vibration of the tuning fork or feel it in our hand. In this final phase of oscillation, the amplitude has become very low, but the oscillation itself still amounts to the same 440 Hz of standard pitch A.

The vibration response of a cell membrane can be imagined as similar to this illustration. The cell membrane oscillates at a certain basic frequency and at a certain amplitude. Although diseased cells have a different amplitude of oscillation due to their reduced potential, their frequency remains the same, i.e., their oscillation becomes weaker - similar to that of a tuning fork fading out. At precisely this point, the resonance phenomenon of the magnetic field comes into effect, because

the amplitude of the oscillation can be reinforced by resonance. This is important because improved oscillation also increases the oxygen supply to the cell. A recent scientific discovery has confirmed this; if the oscillation of a cell is reinforced in a positive manner, the receptors on the cell surface find better contact for mass exchange. In other words, the transfer of information and nutrients to the cell is definitely increased by reinforcing the amplitude (this is called the "black box" phenomenon). These positive results do not occur without reinforcing oscillation.



It is important to recall that resonance can be produced only by vibration that corresponds in frequency to that of the diseased cell. If several vibrations are available (frequency band of treatment devices), the cell will respond only to the vibration which most closely matches its natural frequency and induces resonance.

1.17. How do therapeutic magnetic fields act on the human body?

In principle, a magnetic field acts by way of three components:

1. by the electromagnetic effect, which depends on the flux density ("strength of the magnetic field"),

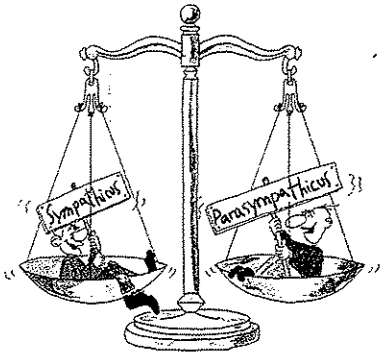
2. by the information content which is transmitted to the human body through specific pulses and oscillation frequencies and

3. by resonance.

1.18. What is the autonomic nervous system?

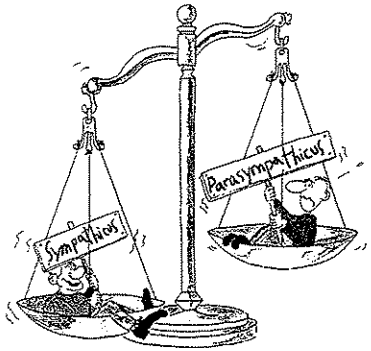
The autonomic nervous system is the part of the human nervous system which controls the functioning of all internal organs in the body.

The autonomic nervous system is not subject to control by our will; it functions without conscious control, that is, autonomically, which is why it is called an autonomic nervous system. The nervous system is divided into two types: the sympathetic nervous system, which is a generally stimulating system, and the parasympathetic nervous system, which tends to have a calming effect. Ideally, the sympathetic and parasympathetic nervous systems are in a certain equilibrium in their activity phases throughout the day and night. The sympathetic nervous system (also called stress nerve because it mediates the stress reaction in the body) should reach its peak activity around 11:00 a.m. in the morning, while the parasympathetic nervous system should manifest its relaxing effect at night. The internal balance in this control circuit between the two parts of the autonomic nervous system is of great importance for the health of a person. However, the sympathetic portion is usually predominant today due to increasing occupational and social stress. In the long run, this imbalance can lead to serious health problems. For example, almost 70 % of all doctor's visits in Central Europe are known to be attributed to functional disorders, i.e., disorders in the area of the autonomic nervous system. With many diseases such as migraines, menstrual complaints, menopausal complaints, blood pressure disorders, enteritis and bowel inflammations, chronic constipation, circulation problems, heart disease, gastritis, ulcers, bladder diseases, skin problems, bronchial asthma and many more, the cause is usually a disturbance in the autonomic nervous system. Excessive stress - an overactivation of the sympathetic nervous system - is closely related to a weakening of the immune system, which is why excessive stress plays a certain role in numerous infections and probably also in the area of tumor diseases.



Sympathetic nervous system balanced

Even if the autonomic nervous system is not the cause of a given disease, it may be involved in the development of many other diseases. This participatory role is found with any pain, regardless of whether it is chronic or acute, but also with any psychological or mental strain. Magnetic field therapy can restore balance to an autonomic nervous system that has become imbalanced by having a positive effect on the control circuit.



Sympathetic nervous system unbalanced

1.19. What are the active principles on which magnetic field therapy is based?

In summary, the following active mechanisms on a cellular and subcellular level form the basis for the various therapeutic and curative successes of magnetic field therapy:

1. An improvement in energy balance: By activating the Na/K (membrane) pump and ion exchange, the cell potential is built up again and a more active metabolism and reactivation of fatigued cells in the boundary regions of oxygen supply are achieved. If the cell potential is reduced due to a reduced oxygen supply, the affected cells stop functioning.

The "fatigued" cells still attempt to maintain their natural vital functions, but due to a lack of energy, they must reduce and neglect other functions which would be important for overall organ function. This causes functional disturbances. In such a state, the affected person might not necessarily show any impairment in overall performance; usually at this time, there are still no signs of disease in the body, and laboratory values are still within the normal range. The reason for this is the great reserve supply of functioning cells in each organ.

Significant changes occur only when the reserves have been consumed. In most cases, people experience a phase of extreme fatigue and depletion even before there are any visible signs of disease. Treatment with a magnetic field can improve oxygen utilization in the tissue and thus again create the prerequisites for production of energy (ATP) in cells with restricted function. This increase in energy supply is utilized by the cell to build up its cell potential again, so that the prerequisites for recovery and regeneration of the body are created.

2. A positive effect on the autonomic nervous system: Balancing of the autonomic nervous system forms the basis for the various possible applications of magnetic field therapy because this part of the nervous system plays a causal or secondary role (i.e., as a reaction to another disease) in almost all diseases. This relationship is manifested directly in functional disorders, stress-related diseases, sleep disorders and depression. Most people know from their own experience that they get sick more easily when they are not in a good psychological condition. Conversely, we know that the mind also becomes involved when we are physically ill. To this extent, there are no specific "psychosomatic diseases" except in this sense.

Additional mechanisms of action of magnetic field therapy discussed in the literature include:

3. An improvement in circulation due to a dilatation in the area of the precapillary sphincter and, associated with this, a reduction in vascular resistance. The lower the vascular resistance, the lower the friction of the blood flowing through the vessels. The blood in turn supplies more oxygen and nutrients to the cells throughout the entire body for energy production and for strengthening the body's immune system. Conversely, toxins and waste products are removed more rapidly. Improved circulation is also associated with a general increase in cell performance and optimization of metabolism. Consider the fact that the total number of capillaries in a person amounts to approximately 40 billion, so an exchange area of approximately 1,000 square meters is available for mass exchange in the tissue. The smallest hair follicles are no more than six-tenths of a millimeter in cross section.

4. An improvement in utilization of oxygen from red blood cells: Scientific studies have proven that erythrocytes or red blood cells, which carry oxygen from the lungs and bind it, release more of their valuable cargo to the blood under the influence of magnetic field therapy. The reason for this might be a slight shift to the right in the oxygen binding curve. In this case, the erythrocyte saturation difference is very pronounced. Saturation of red blood cells increases by at least 30 % even at a relatively low field strength. Magnetic field therapy leads to increased delivery of oxygen to the cells in the surrounding tissue. The tissue accepts only as much oxygen as it can utilize.

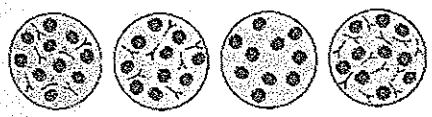


Illustration: drop of blood

5. Accelerated regeneration of diseased tissue: Due to the induced voltage, there is a buildup of electric potential in muscle tissue, nerve tissue and connective tissue. Nerves and connective tissue are considered the fastest carriers of information in the body. Unfortunately, the influence of connective tissue is still being underestimated in medicine. Damaged nerve cells, in particular in anterograde degeneration, receive stimuli due to induced current pulses, preventing further degeneration or increasing the regeneration of damaged cells.

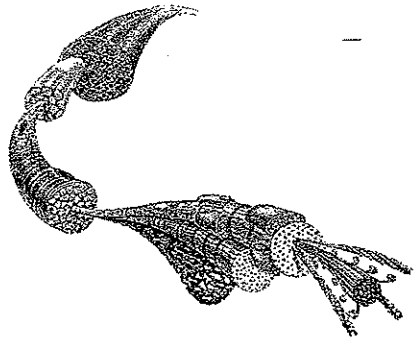


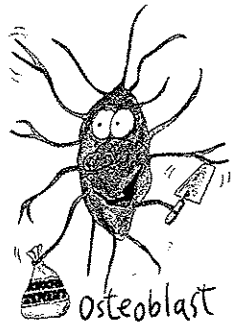
Illustration: muscle

The hyperpolarizing effect of magnetic field therapy is a very important factor in controlling pain and is equivalent to raising the pain threshold. The same thing is true of muscle hypertension, which makes it possible to achieve relaxation especially when under tension. This effect is especially valuable in back problems and before an athletic competition, because excessive tension can be reduced to a healthy extent. The effect on tense back muscles is equivalent to interrupting a viscous cycle. Normally, when pressure is applied to a spinal nerve, an alarm message is sent to the brain. The result is that pain is experienced. The brain then tries to immobilize the affected region in the body by increasing muscle tension. When a muscle tenses, it naturally exerts an increased pressure on the tissue. The pain receptors on the vertebrae are especially sensitive here. This new situation brings a further increase in pressure or pain and leads to a new message to the brain. The brain now seriously attempts to immobilize the body, again increasing the tension, and the same process begins from the beginning, so the pain can become more and more in-

tense. This cycle can be interrupted with magnetic field therapy and utilized in a positive manner. The magnetic field prevents excessive stimuli from being relayed to the brain, and the brain records less pain and consequently the muscle tension is relieved. This results in a reduction in pressure and thus there is also a reduction in tension and pain.

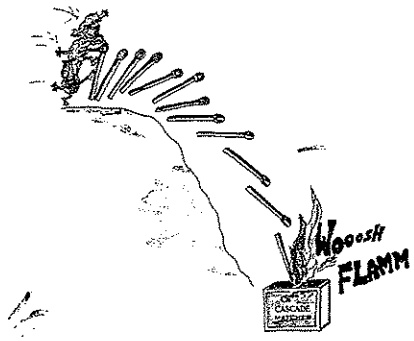
6. The influence of the Lorenz force: This force acts perpendicular to the magnetic field and to the direction of movement and flow of moving ions (charged particles). With appropriate charge separation, Hall effects may occur. These are influences that are manifested especially in the cell membrane.

7. Piezoelectric effects play a role especially in the repair of bone tissue. Pulsating currents acting on the bone initiate repair mechanisms in the bone on the basis of tensile and compressive stresses, so there is an increase in bone mass. The magnetic field imitates this mechanism and in this way supports bone growth. Effects that should promote the cell division of osteogenic or bone-building cells are also involved here (Schütz et al., 1985). A recent theory concerns the influence of magnetic fields on bone density. An additional effect on the cells that produce bone tissue (osteoblasts) is said to be observed here.



Under the influence of magnetic field therapy, these cells should reduce their sensitivity to parathyroid hormone PTH, which has an inhibiting effect, from the parathyroid glands. This results in increased use of osteoblasts and thus improved bone synthesis.

8. Release of Ca++:
Calcium is considered to be an important messenger substance for the cell. The metabolism and specific cell functions are stimulated as a result of an increase in calcium (Cooper, 1990). A change in cell potential is considered the most probable explanation for the impairment of neurologic functions, primarily the analgesic and spasmolytic effects. This also plays a role in bone healing.



Calcium cascade

9. A change in the properties of the cell membrane can come about due to the field effect in the area of protein binding (receptor-ligand binding) at the surface of the cell membrane. Phenomena of resonance play an especially important role here.

10. A direct influence on cartilage cells: Primarily the influence of the magnetic field on the cartilage matrix of the joint plays a role here. Magnetic fields can retard or even prevent the degradation of proteoglycans (Lju, 1994). Synthesis of these sulfur-containing protein compounds has already been demonstrated experimentally. This emphasizes the importance of magnetic field therapy in the conservative treatment of arthrosis.

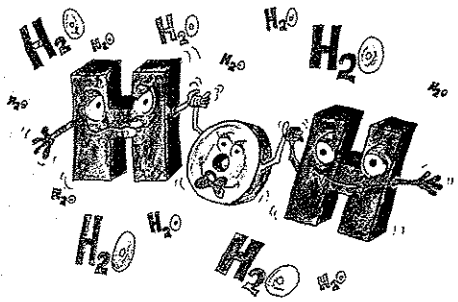
11. Energies of atomic and/or molecular magnetic dipoles in the magnetic field (hydrogen bridges, van der Waal's forces on protein chains).

12. The cell membrane is important as a receptor of the magnetic field and a converter of biologically interesting processes in the body (especially metabolism, pump activity).

13. Direct stimulating effect on nerve cells (documentation 1998 University of Göttingen)

14. Stimulation of fibroblasts (wound healing): Numerous studies have proven a direct influence of magnetic fields on the connective tissue cells in wound healing. Here again, as with other so-called mesenchymal cells (bones), the mitosis rate seems to be increased on the basis of processes in the cell that influence calcium.

15. Effect on water in the extracellular space. It is known from practice that better results can be expected from magnetic field therapy if the patient drinks enough water. The reason: water does not consist of a random group of H_2O molecules. Electromagnetic coupling causes the water particles to form ordered clusters (accumulations) which obey certain principles. These clusters are stable units and can serve as information storage.



The aqueous intercellular space forms a functional unit throughout the entire body. Disturbances are relayed further immediately from here and thus can influence the regulatory system. Magnetic resonance therapy is capable of having a positive influence on the body by way of this regulatory system. Electromagnetic resonance phenomena in the form of extremely small stimuli in the intercellular fluid can contribute to a definite improvement in certain interfering influences through the magnetic field. The most important prerequisite here is an adequate fluid intake by the patient.

1.20. What are the indications for magnetic field therapy in general?

The most important areas for the use of magnetic field therapy result from its regulatory effect. Harmonizing internal control systems is considered a higher-level operative principle of this method of treatment. It should be emphasized here once again that magnetic field therapy is intended primarily as a supportive measure.

In summary, the following possible uses of magnetic field therapy can be listed:

1. Functional disorders caused by exogenous, endogenous or iatrogenic interference fields
2. Rehabilitation, mobilization (after accidents and severe events such as a stroke)
3. Prevention (general preventive medicine and prophylactic medicine)
4. Treatment with a broad spectrum of indications, relatively few side effects and almost no contra-indications
5. Improvement in oxygen utilization and circulation
6. Stabilization of the psyche
7. Stimulating the metabolism
8. Accelerating regeneration
9. Increasing immune activity
10. General increase in performance

1.21. For what diseases is the use of magnetic field therapy especially appropriate?

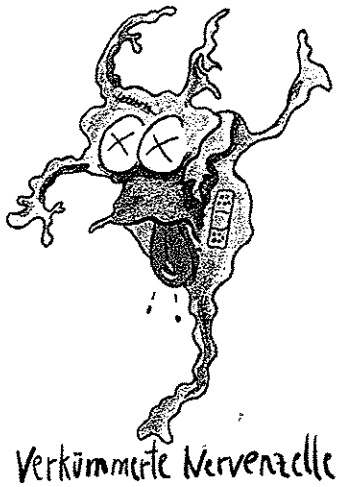
1. for prevention and relaxation
2. for circulation disorders and cardiovascular problems
3. to support wound healing
4. to promote bone healing
5. for treatment of pain in particular in the area of the motor system
6. for muscle tension states
7. for sleep disorders and stress-associated diseases
8. for improving performance in sports, for injuries and for more rapid regeneration
9. for migraines
10. for metabolic diseases

11. for disorders involving the cardiovascular system
12. for depression
13. for neurologic diseases and injuries
14. for optimization of medication
15. for strengthening the immune system (also in cancer)
16. for dermatological conditions

Additional details on these diseases as well as others with documentation of studies and use recommendations are discussed in detail in the chapter "Diseases."

1.22. What does magnetic field therapy do in the body?

1. Regulatory effect through the autonomic nervous system
2. Bone-cartilage cell stimulation
3. Nerve regeneration: Damaged cells can be stimulated to regeneration by suitable pulses from a magnetic field. Magnetic fields here cause a type of electric current pulse which stimulates the nerve cells to "grow."



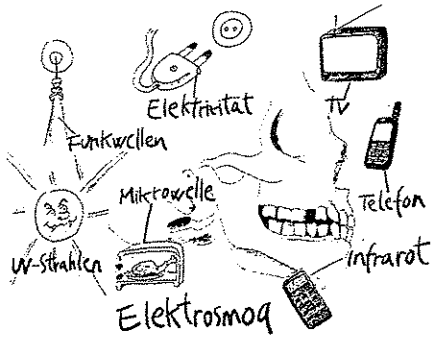
Verkümmerte Nervenzelle

4. Wound healing
5. Relieving pain
6. Improving the metabolic situation
7. Removal of waste products through improved circulation and mass exchange
8. Activation of macrophages (cells of the immune system capable of ingesting particulate matter)
9. Reducing sensibility (sensitivity) of receptors of adrenaline and noradrenaline (stress hormones) with a subsequent reduction in stress
10. Regulation of the plexus myentericus in the intestine with subsequent regulation of digestive activity
11. Improving melatonin production with all the known consequences of this hormone, in particular its effects on sleep
12. Strengthening the immune system: In addition to the above-mentioned influence by way of the autonomic nervous system, a direct influence on lymphocytes also plays a role here (lymphopoietin)
13. Better effect of medication due to improved metabolism and improved circulation (medication can reach target cells more easily)
14. Normalization of heart rate: Tests have shown that the heart rate can be influenced in a positive sense through the regulatory effect of a magnetic field on the autonomic nervous system.
15. Improving respiratory volume through improved function of the respiratory musculature
16. The tendency of blood platelets to aggregate into clots (platelet aggregation) is reduced by altering the flow properties of blood.

1.23. Can artificially produced magnetic fields (electromagnetic smog) have a harmful effect on health?

Magnetic fields, including those used in magnetic field therapy, are generated artificially. The main difference in whether a magnetic field is therapeutically beneficial or harmful is to be found in the difference in composition in the fields. For therapeutic use, fields of a lower intensity and a lower frequency are used. These systems are tuned exactly to the body's needs and they are cycled accurately, with their information content organized to conform to the body's response. However, the natural parameters are not taken into account in many technical fields. The result: The information content is chaotic and confused. Although fields that are used therapeutically fit precisely in dosage into the biological window corresponding to the therapeutic scope of the magnetic field, industrial high-frequency fields are usually above that.

The example that can be used here is a radio with a set frequency (receiver = our body). The frequency (the therapeutic magnetic field) transmitted by the radio station produces a resonance and the corresponding information - speech and music (therapy effect) - can be transmitted and received only by a properly set frequency. However, if foreign frequencies which are outside the natural frequency interfere with reception, we speak of interference or so-called electromagnetic smog. The radio receiver then produces only noise. The effects of an uncontrolled overdosage of electromagnetic smog on our body are easy to imagine but have not been researched much scientifically.



Elektrosmog

1.24 Why is magnetic field therapy still largely unknown as a supportive treatment method in many diseases and how can we change this?

Like any other form of therapy which wants to claim its place in science, magnetic field therapy will need some serious work to establish it and a corresponding amount of study data. In the past, many scientific studies were conducted and they yielded very positive results which emphasized the efficacy of magnetic field therapy, but unfortunately, information on standardization of the various methods was often lacking from these studies. In addition, the goals of these studies were widely scattered. Furthermore, they were often conducted with a wide variety of systems and devices so it is very difficult to discern uniform guidelines and results. For these reasons, it is important for newly conducted studies to conform to internationally recognized guidelines. Only in this way can magnetic field therapy further solidify its position in science and gain full international recognition. For this reason, the work of an international group of experts such as that of the IGEM (International Medical Society for Energy Medicine) is so important. For a secure future for magnetic field therapy, it will also be indispensable for not only physicians and scientists, but also manufacturers of magnetic field systems to seek collaboration. The chances for magnetic field therapy to gain a serious position within medicine will increase considerably if we find a common denominator here, invest jointly in research projects and regularly exchange the information gained in this way. These are the main goals of IGEM.

1.25. Why are many physicians skeptical with regard to magnetic field therapy?

We often encounter this question and it is difficult to find an answer. Patients often ask physicians to state their position regarding MFT only to find that they have never heard of it. One of the main reasons for this lack of knowledge is that physicians never learn anything about magnetic field therapy as part as their regular university medical training because it is not part of the curriculum.

Because of this ignorance, many physicians at first warn patients against treatment with

magnetic field systems (this has also been proven by an internal poll that was conducted). However, isn't it nevertheless the obligation of each physician to inform himself regarding modern technical accomplishments in medicine as well as the latest developments in the field of medication? In truth, there is no lack of research material or study material on the topic of magnetic fields. More than 7,000 scientific publications were reviewed merely to prepare the present book. The results concerning the use of magnetic field therapy are based first on empirical values which still require research in the form of studies, but also there are numerous research results that prove clearly the effect of magnetic field therapy on a wide variety of diseases. For the future, new and up-to-date scientific information will be necessary, but the basics of the therapeutic efficacy of this form of treatment can no longer be doubted.

Skepticism

Due to the lack of knowledge regarding the efficacy of modern magnetic field systems, magnetic field therapy is often placed in the context of the esoteric. This is a relic from the history of magnetic field therapy and is based on the fact that magnetic fields cannot usually be perceived by the human senses. Education and an active acquisition of information can rapidly eliminate prejudices and demythologize the "secret" behind magnetic field therapy.

1.26. What scientific studies are available on magnetic field therapy?

Meanwhile, there are more than 7,500 publications on the topic of magnetic field therapy. This is more than the publications available on some current pharmaceuticals! More than 200,000 patients have participated in scientific studies investigating magnetic field therapy. Most studies on the topic of magnetic field therapy have involved the motor system, mainly in the area of bone fractures, osteoporosis and arthrosis.

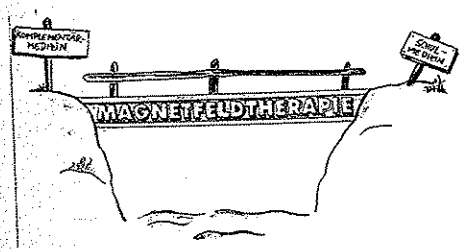
Mountains of data

On the topic of bone fractures, there are more than 50 different international publications concerning double-blind randomized studies. More than 30 of these were reviewed in 1998 by the Viennese University Clinic and compiled as a review (ÖZPM [Austrian Journal of Practical Medicine]) with a clearly positive result. Only in recent years have international teams of researchers devoted themselves to studying diseases and pain other than in the motor system. For example, one study in Lancet, one of the best known medical journals in the world, demonstrated the success of treatment with magnetic field therapy as a supportive therapy in depression. Preliminary results in the treatment of cardiovascular complaints, sleep disorders, neurologic diseases, skin diseases, gynecologic diseases and general functional disorders have shown the varied possible applications of magnetic field therapy.

The prerequisite for good serious studies is of course financial support by third parties in the industry, which is why only a joint path, i.e., a symbiosis of industry and science, can be of service to everyone.

1.27. Does magnetic field therapy belong to the so-called alternative healing methods?

Although the roots of magnetic field therapy lie in traditional natural healing methods, and therefore it is grouped with the alternative medical treatment methods today in addition to other holistic treatment methods, it would be completely wrong to regard it as an "alternative" method (it is an alternative only to excessive unthinking use of drugs). Magnetic field therapy is a supportive medical treatment method which can be of benefit for traditional medicine using pharmaceutical drugs as well as for the healing methods of alternative medicine. It is not an alternative because it is not in conflict with other forms of treatment but instead it is a bridge between traditional medicine and alternative medicine. Magnetic field therapy is by no means a questioning of traditional medicine, because that would mean throwing doubt on everything that has been learned in the past and erasing our scientific basis and world of thought.



Bridge

2. What you should know about the technology of magnetic fields and magnetic field therapy

2.1. Which physical parameters should you know about as units of measure in magnetic field therapy?

Magnetic flux: 1 Weber (Wb) = Vs or maxwell, M = 10-4 Wb

Magnetic moment: Vsm

Magnetic polarization: tesla T = Vs/m2 = kg/s2 A, 1 tesla = 10,000 gauss

Magnetization oersted, Oe = 79.6 A/m

Magnetic field strength: A/m; Oe = 79.6 A/m

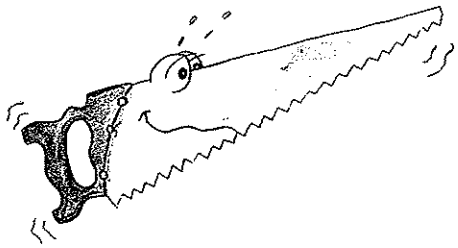
Please note: To facilitate an understanding, we will continue to use the term "magnetic field strength" which is conventionally used by the general public but should more properly be referred to as magnetic flux density which is given in gauss or tesla, although this is not entirely correct from the standpoint of physics according to the preceding definitions.

2.2. Why it is important that modern treatment devices use frequency bands?

Like different tuning forks, cells react only to a frequency which is capable of producing a resonance. Each cell vibrates at a different frequency from one person to the next, and even within one organ, cells will have different frequencies depending on their form and properties. For this reason, it is impossible to use a certain single frequency for different people with a certain organ disease. One exception might be in the area of bones and joints, where vibrations are in a range that is not too widespread even among different people. It would also be in conflict with holistic medicine to treat one and the same disease with one and the same frequency in different people. Only for study purposes must fixed frequencies be selected in order to be able to define a system as precisely as possible.

2.3. Why a sawtooth pulse?

The vibrating cell membrane responds preferentially to vibrations near its own natural frequency (Fourier analyzer); for example, a single note with a characteristic amplitude (= tone) may be assigned by our brain to different instruments.



Sawtooth

The simplest form of vibration is the sine wave form, the traditional form of a periodically oscillating pendulum. Bizarre forms such as the sawtooth pulse can be broken down into a multitude of individual sine vibrations by Fourier analysis, a mathematical method. A sawtooth pulse is thus composed of various sine vibrations and has a broad frequency spectrum. The fundamental vibration has the same frequency as the pulse train. The following harmonics are frequencies representing a multiple of the fundamental mode, but as a rule they also have a decreasing amplitude (height). If a structure such as a cell membrane oscillating with a sine wave vibration (= oscillating circuit) is stimulated with a sawtooth pulse, i.e., many individual sine waves of different amplitudes, the cell membrane will respond preferentially to a harmonic close to its natural frequency. The great advantage of the sawtooth pulse in comparison with the individual sine pulse for the resonant effect lies precisely in this increased supply of oscillations. In comparison with a square wave pulse, a sawtooth pulse has the advantage that it changes constantly over time. In the rising phase and in the middle phase, the sawtooth pulse has an elliptical rise, whereas a square wave pulse does not show any change in this phase. Both conclude with a rapid descending phase. Thus, the sawtooth pulse has a continuing inductive force while the square wave pulse provides this only in the rising phase and the descending phase. This induction is important for the ion shift in the body.

2.4. What is an amplitude window in this connection?

The amplitude window makes possible the phenomenon of oscillation enhancement, i.e., selection of a certain oscillation intensity (height = amplitude) at a given frequency. This means that the oscillation must have a minimum amplitude to be received by our body at all (remember the experiment with the tuning fork - we can record the sound (amplitude) with our ear only at a certain volume). The audible range from our tuning fork model corresponds to the amplitude window in therapy. Thus, the magnetic field must also have a certain strength to be able to act therapeutically in the body. This strength must not be outside a certain range because otherwise the effect is reduced progressively with the distance from this range. The term amplitude window can be compared with the so-called "therapeutic scope" of a drug. The dosage must also be maintained accurately (1-10 pills daily, depending on the drug). Outside this range, the drug will have no therapeutic effect (what remains is the risk of an overdose). In conjunction with magnetic resonance, the amplitude window is thus to be understood as the range of the magnetic field strength that is necessary to transmit the signal (vibration) in the body to the entire body in sufficient strength and thus with a sufficient depth effect. Only in this way can resonance be achieved at all. Therefore, the magnetic field must be in this specific range, which is referred to as the amplitude window. All magnetic resonance systems (MRS) take into account this frequency band, which is so important for the body, in their programs. Therefore, they are also exactly in the middle of the amplitude window (above and below this range, magnetic fields have little or no therapeutic effect).

2.5. Is magnetic resonance different from magnetic field therapy?

No, not in principle, because magnetic field therapy is the general term for all relationships of the magnetic field in the human body that can be utilized for health purposes. This includes all phenomena of information transmission, the vibration phenomenon and all effects attributed to electromagnetic interactions. Magnetic resonance is the part of the magnetic field therapy concerned with vibrations of pulsating magnetic fields. Each effective magnetic field has a certain amplitude, but only pulsating magnetic fields have a vibration component. The amplitude is determined by the intensity (program switch), i.e., the flux density (magnetic field strength). This term is understood to refer to the force of the magnetic field and the related health effects, i.e., subsequent electric and magnetic phenomena. This phenomenon of electromagnetic interactions has static magnetic fields under certain conditions, but resonance exists only with pulsating magnetic fields.

2.6. Does a higher field strength also mean a greater effect?

The law that a higher dose also means a better effect does not apply to magnetic fields, because in magnetic field therapy each person as an individual must find the correct dose in accordance with his/her constitution - that would be pigeonhole thinking, aiming

only at controlling systems and trying to treat everyone with the same dose - but that is completely out of place here. In magnetic field therapy, it is true that less can be more because in many cases the greatest effect can be achieved with precisely the weakest stimulus. Of course, the strength (flux density = dose) of the magnetic field must be within a certain range in order to achieve any biological effect in the body at all according to the physical principles. We have described this range above as the amplitude window.

What you should know about the practical use of magnetic field therapy

3.1. What does the effect of a magnetic field in the human body depend on?

In addition to the technical prerequisites of the treatment devices (proper field strength, correct frequency band and pattern, shape of the pulse and the number of pulses per unit of time), the ability of the person being treated to respond is of great importance. This is true of any form of therapy, not only magnetic field therapy. The reaction ability, i.e., the ability of the body to respond to magnetic field stimuli, depends on various factors which include, for example, sleep patterns and stress patterns, stress situations, nutritional habits, water content, the basic composition of blood and tissue, compliance (the reliability of the patient in regularly performing the therapy as instructed), as well as the general typology of the person in question. These properties will be explained in greater detail in the respective chapters.

3.2. What are the most important basic rules that should be taken into account in using magnetic field therapy in order to optimize the success of the treatment?

1. Do not smoke before or after a treatment: Nicotine in the body causes constriction of blood vessels and thus counteracts the effects of magnetic field therapy.

2. Drink lots of fluids: You should drink a sufficient amount of water before the treatment (at least 2-3 liters each day). Inadequate fluid intake results in the intercellular fluid being converted from a sol state, which is highly permeable for nutrients, to a gel state through which nutrients and oxygen can pass only with difficulty. This makes treatment with magnetic fields difficult.

3. Exclude contra-indications: This is a prerequisite for even considering treatment. Since electronic components and circuits are sensitive to magnetic fields, the functioning of electronic implants can be impaired with severe consequences. Therefore, caution should be employed in treating patients who have electronic devices such as pacemakers.

4. Accurate dosage and diagnosis of symptoms by a physician: In any case, magnetic field therapy should not be used at home for treatment of pain and symptoms that have not previously been diagnosed by a physician. Such behavior could not only mask symptoms but could also unnecessarily delay important therapeutic measures. Therefore, a very important principle of magnetic field therapy is "first diagnosis, then treatment." In other words, a treatment should be considered only after the disease or the causes of the pain are known and have been diagnosed.

5. Ruling out an acid excess: Due to improper nutrition, most people have an excessive acid intake. This can be detected very well by the increased elimination of acid in the urine. A definitely acidic urine over a long period of time can not only have negative effects on treatment but may also be the cause of chronic fatigue, joint pain and other symptoms. Too much acid in the tissue causes the sol state to be converted to a gel state, which is thus responsible for a serious deterioration in the metabolic situation of the cells. When a cell receives fewer raw materials, it cannot remove waste products as well and thus virtually suffocates in its own waste products. In addition to consistent dietary changes, a powdered alkaline preparation may be of short-term assistance.

6. Vitamins, minerals and trace elements: These form the prerequisite for a healthy cell

reaction, especially for the citric acid cycle. They serve to ignite energy production to a certain extent. A deficiency of these valuable nutrients prevents cells from being stimulated to increase energy production and the magnetic field cannot manifest its full potential effect.

7. Regular but moderate intake of food: Regular intake of food is essential because cells need proteins, fats and sugars for production of energy. We need these raw materials like a furnace needs wood to produce heat.

8. Avoiding radical diets: When fasting, there is an increased rise of acids in the blood and tissue due to burning of fat. A persistent acid excess can not only have effects that are harmful on health but also inhibits the effect of magnetic field therapy.

9. Avoiding risk factors for permanent healing: Certain risk factors must of course be avoided to achieve a permanent cure. This means that it is not sufficient to use magnetic field therapy for extremely severe diseases without at the same time making a contribution toward corresponding changes in lifestyle. Thus, there is little benefit from merely hoping for the pain-relieving effect of the magnetic field in severe arthrosis complaints caused by obesity. In the long run, the magnetic field will help only when combined with appropriate weight loss. The same thing is true for pulmonary or cardiovascular diseases, smoking, stress diseases, liver diseases, etc. The comparison with acid rain and the death of forests is relevant here. Acid rain cannot be combated by cutting down the diseased trees but only by changing the environmental conditions.

10. Medications such as cortisone only for emergencies: Since cortisone can block certain metabolic processes in the body, it can impair the effect of magnetic field therapy. Nevertheless, it should be recalled that the magnetic field therapy can potentiate the effect of cortisone through improved circulation. In certain cases, the dosage of medication may even be reduced. However, the converse conclusion, namely that cortisone can improve the effect of the magnetic field, is not true.

11. Eliminating or avoiding stress factors: As described in the respective chapter, there are wide varieties of interfering factors that can influence the effect of the magnetic field. One should be sure to avoid these factors as much as possible. It is not out of the question for a water vein to be superimposed on the effect of the magnetic field on the human body. In this case it is advisable to change the location where the therapy is performed.

12. Realistic estimate of the possibilities of treatment with the magnetic field system: Magnetic field therapy cannot perform miracles. We discuss the individual possibilities further in the chapter titled "Diseases."

Wonder drugs

13. Regular use (compliance): It is self-evident that optimum therapeutic results can be achieved only by regular, reliable use. Since no pain-relieving injections with an immediate effect are involved in magnetic field therapy, the treatment usually lasts longer, i.e., only someone with patience is a suitable candidate for magnetic field therapy.

14. Correct instrument settings (the medical hotline with its trained advisors may be of assistance here). Proper settings on the treatment instrument have a crucial influence on the success of the treatment. Technical advice is important in this regard. If the treatment is not successful, you should in any case contact one of the many energy medicine centers.

The Therapy and Magnetic Field Research Center in Vienna has had unique clinical experience in performing high-precision measurements of the effects of the magnetic field in the human body in problem cases. For further information on the Energy Medicine Center in Vienna, you may contact : Dr. Christoph Scherer, 1080 Vienna, Breitenfeldergasse 10, tel.: 0043/1/40 666 00.

15. Take into account individual settings on the instrument: There are no generally valid settings in magnetic field therapy. Each person is different, and thus, the settings must be adjusted individually for each person. In some cases, a certain person with arthrosis pain, for example, may react immediately at an intensity of 100 % and experience relief from pain, whereas a second person will not experience any effect at all at an intensity level of 100 %, but instead will have the best reaction at 10 % intensity.

16. Effects due to internal or external rejection of the therapy: It is self-evident that no person should be forced to receive magnetic field therapy. The fact that effects can be achieved nevertheless is evidence in support of this form of therapy, but on the other hand, it is known that a positive attitude toward magnetic field therapy can greatly improve the effects, as is known with other forms of therapy.

17. Do not stop medication abruptly: Please note that in no case should any medications be stopped on your own responsibility without notifying your prescribing physician or seeking his/her advice.

18. Prompt information regarding the possibility of a so-called first reaction: Approximately 15-20 % of all people with pain will experience an unusual phenomenon in magnetic field therapy. Their pain, which has usually been chronic, may briefly become worse (exacerbate) at the start of treatment. However, as treatment is continued, those affected in this way generally respond with a corresponding relief from pain, finally becoming pain-free. Prompt information is important in this regard. If a patient does not know about this possible initial reaction, he/she might want to terminate therapy because of this experience. This is regrettable because people who have these initial reactions ultimately respond particularly well to the treatment.

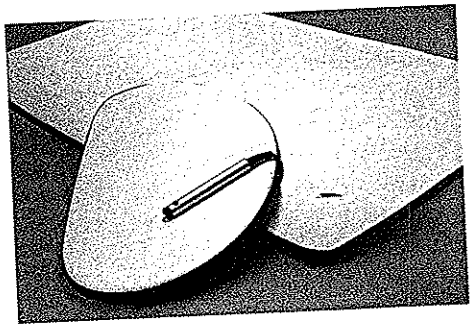
19. Geopathic interference factors (water veins) in the vicinity of treatment should be avoided, as should electric devices, in order to prevent and rule out any unwanted superimposed magnetic fields as much as possible.

20. In severe infectious diseases (for example, fever > 38.5 °C) a self-experiment is strictly inadvisable. In this case, you should definitely see a physician.

21. The proper choice of phase of electric current can contribute to the success of the treatment. The simplest test to perform if the treatment has not been successful is to remove the plug from the position it is in and insert it into the receptacle the other way.

22. Proper positioning of the patient: This point is often disregarded, but proper positioning is of great importance, especially in whole-body therapy, and can be a significant factor in the success or failure of the treatment. This is discussed with the individual diseases.

23. Proper positioning of the local applicators: Here again, the coils generating the magnetic field must be placed in the proper positions on the body to achieve the desired results (see chapter "Diseases")



24. Avoid drinking more than two cups of caffeinated coffee before the treatment. In general, use after breakfast is recommended, because rapidly utilized sources of energy are usually eaten at that time in addition to the fluid intake.

3.3. What interfering factors can have a negative effect in general on magnetic field therapy and a person's health?

The human body must rely on the functioning of internal and external control circuits. Magnetic field therapy contributes toward maintaining or restoring the harmony of these internal regulatory circuits. The reasons for disturbances in these regulatory centers of the body may vary (according to Dr. A. Röstil):

1. Exogenous (external interfering fields): These include pollutants and other harmful substances as well as foreign substances in foods and drinking water and also in the area of the household and the environment:

- electromagnetic smog, geopathic disturbances from electric power plants, high-voltage lines, neon tubes, hairdryer, computers, televisions, radio alarm clocks, cellular phones, water lines, etc.
- toxins in the home (formaldehyde)
- jewelry, watches and clocks, piercing
- discos, motors
- fine particles from combustion processes of all types that pass through the lungs, polycyclic hydrocarbons, fertilizers
- heavy metals
- pesticides, fungicides, insecticides, herbicides
- food additives, preservatives, dyes and flavoring agents (E numbers)
- plastics, canned goods
- microbial toxins: aflatoxin, botulin
- detergents, household cleaners, body care products

2. Endogenous (internal) interfering fields: These include all chronic inflammatory problems (inflammation of paranasal sinuses, tonsilitis, prostatitis), scars of all types, dysbiosis (disturbance in intestinal flora).

3. Iatrogenic interference fields are those caused by a physician: 50 % of all interference fields are scars!

4. Hidden interference fields: psychological (family, job, ...)

3.4. What is the relationship between magnetic field therapy and preventive health care?

The term preventive medicine summarizes all the preventive measures that contribute toward maintenance of health.

1. Eliminating factors that can harm health (risk factors)

2. Preventive treatment, preventive medicine: preventing diseases through

- preventive measures (prevention = magnetic field therapy)
- performing general health promoting measures (e.g., spinal exercises and autogenous training, magnetic field therapy, etc.) which should prevent a manifest symptom from developing.

Because of its mechanism of action, magnetic field therapy belongs with the regulatory measures (such as homeopathy, acupuncture and manual medicine) whose main area of use includes not only therapy and rehabilitation but also prevention in particular. Hardly any other method offers a more favorable physical therapy measure with comprehensive use options than magnetic field therapy.

Western medicine places far too little emphasis on preventive measures. Whereas Eastern cultures emphasize prevention of disease, in the West our main emphasis is on treating symptoms.

Therefore, magnetic field therapy should be classified as preventive medicine because it improves circulation and thus also the oxygen supply to the cells at a time when the cells are diseased or have been destroyed.

Interference fields have a negative effect on the regulatory circuits of the human body and can lead to energy blocks or to a disturbed energy balance. Such interference fields not only inhibit therapy and healing processes but may also be the cause of diseases - health disorders. Regulatory circuits that have become imbalanced have a negative effect on well-being and performance and are the cause of sleep disorders, hormone imbalances and physical dysfunctions (digestive problems, menstrual disorders, headaches, irritable bladder, asthma, muscle diseases, etc.). Arteriosclerosis with such consequences as myocardial infarction, high blood pressure, etc., is causally related to these interference factors from a medical standpoint.

More than 60 % of all doctor's visits are caused by functional disorders, most of which can be attributed to one or more of the above-mentioned toxic effects.

Because of the regulating and harmonizing effects of magnetic field therapy, functional disorders are one of the main areas of use. The attenuating effect on the sympathetic nervous system, the resting and relaxing nervous system, is mainly responsible for the good therapeutic results. Since magnetic field therapy has a therapeutic effect on and through the entire somatic and autonomic nervous system, it exerts its regulatory effect on the entire body. In addition, it also has a positive effect on soft connective tissue, which is considered to be the fastest information carrier in the body.

3.5. What are the most common health complaints today?

A questionnaire in the Austrian Central Office of Statistics in 1995 showed that the annual tax burden on Austrian taxpayers due to sick leave alone amounted to 36 billion shillings. 60 % of the 5.3 million people questioned in the poll indicated that they feel they are "challenged" with regard to their health.

In Europe, approximately 10-15 % of the population is currently between the ages of 65 and 74, and approximately 10 % is 75 or older. Of course, people become increasingly more susceptible to diseases as they become older. In particular, chronic diseases increase and thus the demand for constant medical care also increases. Approximately 75 % of all people over 60 years of age take at least one medication each day. The most common reasons for taking medication include backaches (more men than women), weakness and lack of energy as well as headaches and sleeping problems. All the information given here is based on statistics from the Austrian and German Central Offices of Statistics as well as the Swiss Office of Statistics.

These statistics emphasize again impressively the importance of preventive medicine as well as the importance of magnetic field therapy for the future.

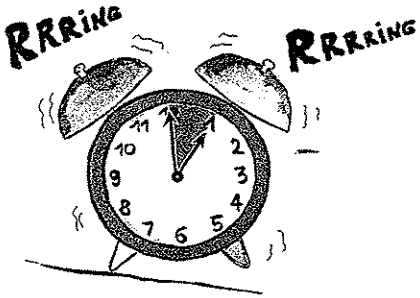
3.6. What do people do for their health?

Most people do too little or nothing at all for their health. Almost 50 % don't do any physical exercise in their leisure hours (sports, fitness training, walking); almost 40 % smoke despite urgent warnings, 85 % consume alcohol regularly, almost 50 % eat meat six to seven times a week, and only 40-50 % of those polled reported being concerned about their nutrition, although there was no indication as to what exactly they are concerned about.

Magnetic field therapy can be of assistance with many diseases. However, the prerequisite for prevention as well as for a long-term therapeutic effect must be created by each person individually.

3.7. How should magnetic field therapy be performed?

Whole-body use should not be performed for more than one hour distributed throughout the day. There is no time limit for topical (local) use.



The recommended times given in the chapter on individual diseases each represent an optimum duration of a treatment. Of course, it is

not always possible to observe these recommended times strictly. However, you should attempt to approximate it as closely as possible. This is also true of magnetic field treatments in a medical practice where daily treatments are often impossible. If the recommended duration of 8-16 minutes is not exceeded, the magnetic resonance system can be used in whole-body therapy twice to four times a day.

3.8. Which principles of use should be taken into account when using the magnetic resonance system?

The following rules should help in using this system:

1. The older the person, the lower the selected strength of the magnetic field should be.
2. The more chronic the illness, i.e., the longer it has already been in existence, the lower the strength at which treatment is begun should be.
3. The more athletic and energetic a person, the higher the intensity can be.
4. The stronger your body, the higher the field strength should be.
5. The more nervous or agitated a person, the lower the intensity should be.

The following basic criteria apply to topical use of the coil pad or probe:

1. The farther away from the torso it is applied, the higher the intensity level (foot, hand, knee and elbow) may be. Caution is advised in the area of the torso, especially in the area of the cervical spine.
2. The deeper in the body the target organ to be treated, the higher the intensity must be set because the energy of the electromagnetic field decreases with the distance from the radiation source (coil).
3. In principle, men tolerate higher doses better than women.
4. The more acute the pain, the higher the field strength of the magnetic field should be.

3.9. Are there any general tips for successful therapy?

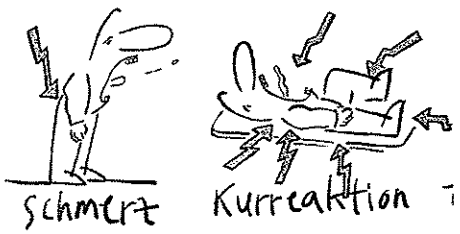
To permit a reasonable and problem-free procedure, the treatment should be started at a low intensity, only gradually increasing the intensity. In this way, it is possible to avoid the relatively common initial phenomenon of a short-term increase in pain intensity. In addition, it is advisable to adjust the dosage individually. Guidelines are given in the chapter "Diseases" where approximate values are given that can be used on an individual basis.

Drink a large amount of water before the treatment (approximately 1/2 liter 20 minutes before use). In general, the ideal time for a treatment is after eating.

3.10. What is understood by the initial reaction or healing reaction?

As with many other physical forms of therapy, there may be an initial exacerbation with magnetic field therapy. Approximately 15-20 % of all people who receive magnetic field therapy experience the phenomenon of an initial exacerbation. This phenomenon of an that affects people who are susceptible to electromagnetic radiation in particular. Following the initial exacerbation phase, an initial reaction is characterized by a definite improvement in symptoms. Such a reaction should not last more than four to six weeks. On the average, it is only two weeks long, and often it is just a single event. The reason for this initial reaction may be a general regulatory effect of the body caused by activation of a chronic process as part of a general cleansing effect. This initial phenomenon is basically a sign of a good prognosis, because usually the patient will soon experience a definite relief of the original symptoms. Therefore, this is also called a healing reaction.

When a patient has been informed in advance regarding the possibility of such a reaction, this healing reaction is generally accepted gladly (or in some cases perhaps not so gladly). Premature termination of treatment for lack of information is regrettable because this initial reaction usually means that the success of the therapy will be good. We would also like to point out that an initial reaction may not only occur at the beginning of treatment, but may also be manifested whenever the dose is increased, although that is much less common and much less pronounced. The method of gradually increasing the dose, i.e., increasing it in small steps, can greatly reduce the extent of this initial reaction.

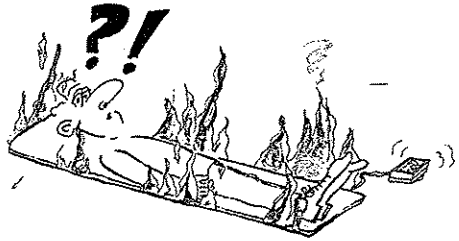


Initial reaction

3.11. What will I feel during a treatment?

Although the force of the magnetic fields cannot be perceived with the senses, approximately 50-60 % of the users perceive certain sensations during this treatment. The most common observation is a slight feeling of heat on the body parts being treated. However, this is only a slight, harmless increase in body temperature which presumably occurs in most people being treated but is not usually perceived at all. However, this is not heating of the body from the outside (such as that due to a heating pad or a thermophore) but instead it is a temperature increase which occurs due to improved circulation in the skin or the muscles. This statement is emphasized by the fact that there is no heating of the coil pad.

Tingling of the hands and feet is one of the sensations reported most commonly. A feeling of pressure in the eye sockets or taste effects are observed less frequently. Some people report that they experience palpitations of the heart, but that has not been confirmed clinically. One exception here would be a feeling of anxiety in perceiving one's own heartbeat (in its normal rhythm) so that an acceleration in heartbeat could then in fact be felt due to the activation of stress and anxiety nerves.



Warm feeling

3.12. Does clothing interfere with the success of the treatment?

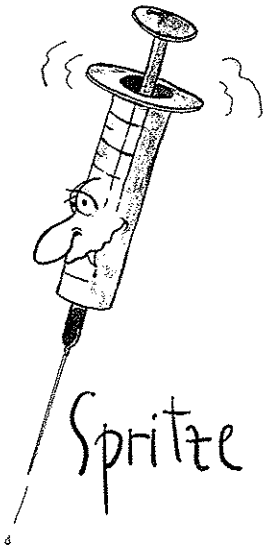
Since magnetic fields can pass through clothing unhindered, they do not interfere with the treatment. Of course, here again the physical law holds that the thicker the underlayer, the greater the distance from the coil and the greater the reduction in magnetic field strength to the target site of the body part to be treated. Metal objects and jewelry should be removed from the body.

3.13. How long does it take for the magnetic field to act?

Because of various influences, the onset of effect varies from one person to the next. In general, the onset of effect is determined by the body's reactivity (a young person will react more quickly than an older person), the type of complaint and its cause, the duration of the disease and any damage that has already occurred in the body, concomitant measures, the patient's cooperation, elimination of risk factors and the type and intensity of the therapeutic application. In addition to the most positive possible attitude on the part

of the patitne, his/her age, sex, general condition, nutritional habits and lifestyle, environmental pollutants, energy balance, acid-base balance and fluid balance also play a crucial role.

In treatment of pain, relief occurs on the average after six to eight weeks. If this is not the case, the influencing factors described above should be elucidated and perhaps the dose should also be adjusted. Elimination of the cause of a disease often cannot be expected until after several months or even years of treatment.



Syringe

This means that pain relief should occur relatively rapidly, but a change in bone density, for example, in osteoporosis can be evaluated appropriately only after eighteen months to two years at the earliest.

3.14. What can be done if the effect does not last?

Variations in success of the treatment are observed occasionally in patients with chronic complaints. This is where magnetic field therapy may bring relief but the symptoms return, so that no ultimate remedy can be achieved. This situation can frequently be remedied by adjusting the dose or through suitable adjuvant therapies (for example, with herbal remedies).

In many cases, a declining effect is due to careless use with a treatment time that is too short or not continuing the treatments over a long enough period of time. A change in the fluid balance in a person's body also influences the effect of the magnetic field. Unfortunately, a patient is often so happy to be relieved of pain that he/she will forget that certain disease processes (especially deterioration phenomena) continue to progress despite the effect of magnetic field therapy and then the symptoms flair up again, leading to an even more extensive physical burden. In their euphoria about the initial success, patients sometimes also forget to consistently maintain changes in lifestyle or nutritional habits. However, even magnetic field therapy cannot help undo the negative effects of poor habits. Furthermore, nothing is forgotten as rapidly as past pain that has been experienced. Many patients make small advances during magnetic field therapy, but are not satisfied with the results achieved and then regrettably terminate the treatment. The most common cause for fluctuations, however, is probably the weather sensitivity of people, because weather is one of the factors that can have a negative effect on an electromagnetic field.

3.15. Can I receive too much therapy?

In general, it is safe to assume that magnetic field therapy can be used several times a day for a long period of time without any negative health consequences. There is no overstimulation if one follows the guidelines of the World Health Organization (WHO) in whole-body application; the WHO recommendation is that treatment not be continued for more than one hour per day (this is true only of whole-body treatment, not for local therapy).

3.16. Can magnetic field therapy be interrupted for vacations?

In principle, therapy should not be interrupted when one goes to a spa or resort. Only when a patient is stabilized in use of the magnetic field can treatments be interrupted. In concrete terms, this means that one should begin with the treatments at least six weeks before going on vacation; otherwise it is advisable to continue the treatments while on vacation. If treatments are interrupted to go on vacation, they should be resumed only gradually after returning, i.e., beginning at lower intensities.

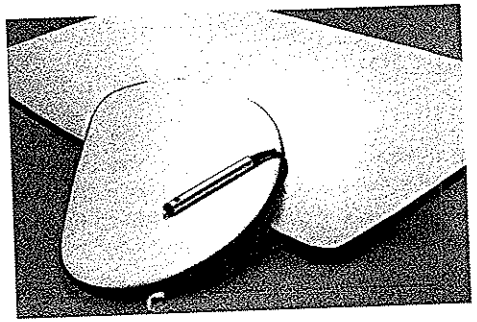
3.17. Can the treatment be interrupted after long-term use?

The principle applicable here is that consistent treatments are best. Since there is no such thing as too much magnetic field therapy, long-term use is recommended. Treatment should not be interrupted in therapeutic phases, but of course preventive use may be interrupted. A rule of thumb here would be six months of intensive treatments followed by a maximum pause of three months.

3.18. Which applicator should be selected for proper treatment?

Of course the choice of the correct applicator will vary from one person to the next and in some cases may even be a matter of taste. In addition to an equalizing whole-body therapy, we also recommend performing local therapy for treatment of pain. There need not be any pause between the successive treatments. For smaller pain points to which one can point with an index finger, the probe of the medical device is especially efficient because it can produce the strongest magnetic field. However, both the advantage and disadvantage of the probe are that the magnetic field becomes weaker with the third power with an increase in distance from the source; in other words, the probe (in comparison with the pad) has a lower depth of penetration, but it can achieve an optimum effect at the surface with a slight depth. An additional advantage of the probe is its use in acupuncture. It has proven especially helpful here in treatment of people, especially children, who are afraid of needles or electroacupuncture, and it is superior to a laser because of the greater depth effect.

The pad which contains two coils is recommended for all superficial pain zones. Local application generally lasts more than eight minutes, while whole-body treatment should only exceed eight minutes per session in exceptional cases.



3.19. What does it mean to increase the dose gradually and how should this be done?

To gradually increase the dose means that a patient's treatment is begun at a lower intensity and the dose is increased step by step until reaching the optimum dose. The purpose of this measure is to prevent an initial exacerbation and to determine the ideal intensity level for each individual patient. The dose in magnetic field therapy is always determined by the product of treatment time multiplied by intensity. This yields various possibilities for gradually increasing the dose. First, the intensity used can be reduced, or on the other hand, the treatment time may be shortened (for example, reduced by one-half to four minutes).

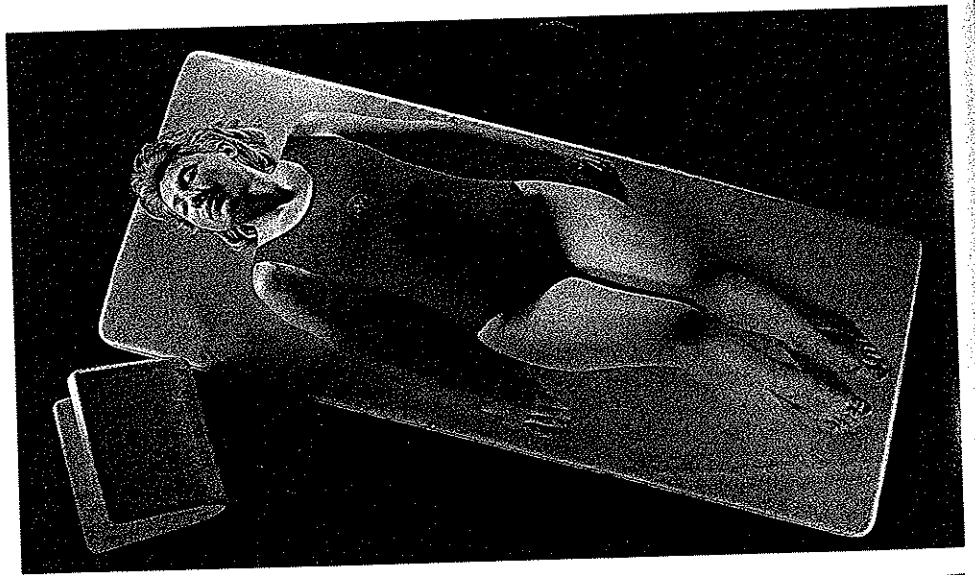
A very effective form of gradually increasing the dose has been a four minute application at the beginning of treatment followed by a

PRACTICAL USE

Gradually increasing the dose

four minute pause and then another four minutes of treatment. In some cases it may also be appropriate to begin with the pad and the local treatment before using the whole-body therapy (for example, only the pad for four weeks, then switching to the mat). It should be pointed out that when gradually increasing the dose, this should be done much more slowly when using the whole-body mat than a local applicator. On the average, the dose may be increased by one intensity level every seven to fourteen days when using the mat, or every four to seven days when using the pad. The older the patient, the slower the increase in intensity should be. Thus, with a cooperative, tolerant patient more than 60 years of age, it is advisable to increase the dose only once every four to six weeks when using the mat. The reason for this is that there is direct causal relationship between the body's water content and the risk of an initial reaction.

Whole-body therapy should be started at the lowest intensity levels. Our proposal here is to begin at 10 %. The "sensitive" level causes initial reactions more often than the 10 % level. The reason for this is the especially high potency (homeopathic) of the sensitive level, which has the lowest field strength but the highest informational content. In this case, the weakest pulse has the greatest stimulating effect on the body (this is true to an even greater extent for sensitive people). Therefore, it is advisable to select the sensitive level only when initial reactions are observed at the 10 % level. Thus, the patient basically has a reserve: since the body is already accustomed to the vibrations of the 10 % level, there are no initial reactions when switching to the sensitive level. Of course, treatment can also be initiated at the sensitive level, but the statements made above regarding the initial reactions should be taken into account in this case. The probe should be excluded from these guidelines; because you can begin directly at the desired dose when using it due to its very small depth of penetration. Thus, it is not necessary to gradually increase the dose when using the probe.



3.20. What is the importance of proper positioning?

One should consider first that the ideal alignment of the magnetic field applicator (whole-body mat) is the North-South axis. Special positioning during treatment of certain sections of the body is a great advantage. Pads (for the knee and the cervical spine), splints or special reclining facilities are suitable for support here. It is important to relieve the stress on the motor system such as the lumbar spinal column.

In all pain states in the area of the back and the lower extremities, the knees should be bent during a whole-body treatment so that the pelvis is stabilized and the muscles can relax.

Elevating the legs has proven to be advantageous in treating venous problems or low blood pressure. A wedge should then be placed under the magnetic field mat at the level of the legs/feet. Unless otherwise indicated, the patient should lie on his/her back, positioning the head at the top end of the mat (cable). In cases of lung disease, the proper breathing technique is also important in addition to the proper positioning of the body. When inhaling, it may be helpful to hold one side of the nose closed and inhale air through the other side. It is also advisable to breath through the nose as if yawning but with the mouth closed because this causes the upper respiratory tract and the pulmonary alveoli to expand by reflex. Exhale very, very slowly - a meditative image to use for assistance in prolonging exhalation is to keep a candle flame flickering as long as possible without blowing it out.

3.21. When is actually the best time for treatment?

The success of this therapy can be increased significantly by taking into account the so-called peak times of organs. For complaints involving the stomach, the ideal treatment time is between 7:00 a.m. and 9:00 a.m.; for cardiovascular problems, the best time is around noon; for bladder disorders the best time is late in the evening. Since the peak time for secretion of adrenaline and noradrenaline is about 11:00 a.m., this time is optimal for treatment of stress symptoms.

3.22. What is the actual role of biorhythm?

A person's biorhythm should absolutely be taken into account as part of magnetic field therapy. It is essentially the same with all people and must not be confused with the circadian or day-night rhythm. From 3:00 a.m. to 3:00 p.m., the cells in our body are in a warmup phase, i.e., they produce energy. To utilize this phase therapeutically, higher intensities should be set during this period of time. Between 3:00 p.m. and 3:00 a.m., our body is in a cool-down phase. Since the cells are not producing any additional energy in this period of time, lower intensities are advisable to support cellular activity. These guidelines for therapeutic use also apply to night-shift workers, because the night shift may change a person's day-night rhythm but it does not change the biorhythm.

The settings on the Magnetic Resonance System 2000 automatically take the biorhythm into account with the proper time setting.

3.23. What are the contra-indications for magnetic field therapy?

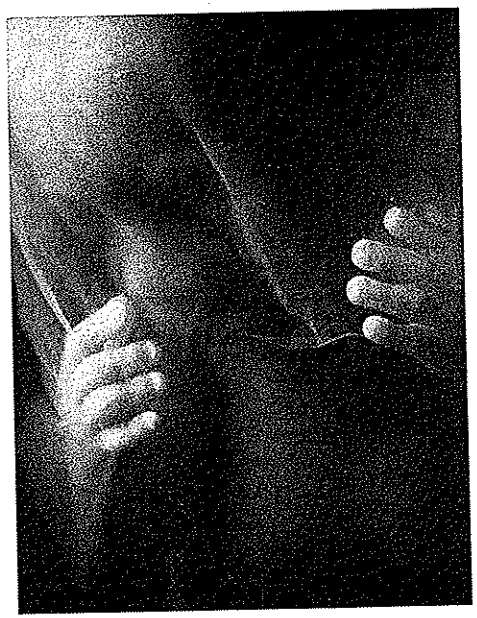
Although magnetic field therapy is practically free of side effects, certain precautionary measures must be observed. The only absolute contra-indications are for people who have electric implants (such as pacemakers).

Relative contra-indications, i.e., diseases or areas of use where magnetic field therapy should be performed only under medical supervision (but medical monitoring - by a physician or medical hotline - is always recommended in principle) are:

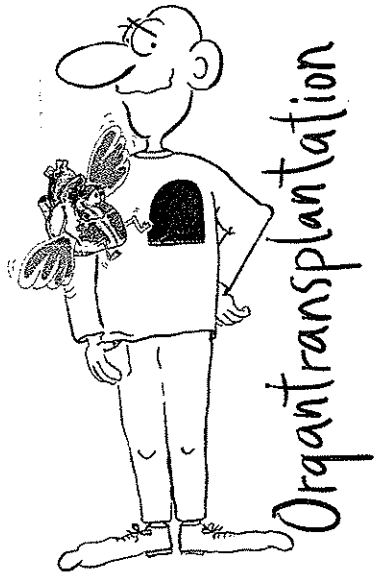
1. Epilepsy: In principle, this seizure disease should be treated only under a doctor's supervision because in the worst case, influencing the stimulus threshold in the brain can bring on a seizure.

It is important to note that there have been many positive study results on epilepsy and magnetic field therapy, and there have been only isolated reports of negative experience in the technical literature. Nevertheless, clarification with an experienced physician or a medical hotline is an absolute must.

2. With regard to the use of magnetic field therapy during pregnancy, caution is advised for lack of relevant study data. So far, there have not been any positive study results investigating the use of magnetic field therapy on pregnant women. Nor have there been any signs of harmful effects of magnetic field therapy on the fetus.



Embryo, 19 weeks

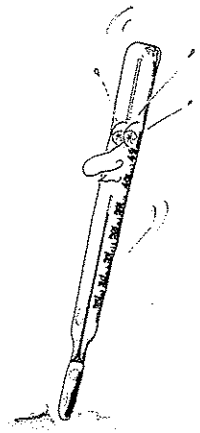


Organ transplant

3. People with organ transplants receiving subsequent immunosuppressant therapy should be treated with special caution. Individual physicians are of the opinion that magnetic field therapy should be used at the soonest six months after a transplant. The reason for this is that magnetic field therapy has an immune system stimulating effect, which in this specific case could be undesirable. Individual consultation may be of assistance here.

Caution is also advised in cases of untreated hyperthyroidism as well as in severe forms of arrhythmia. However, after successful stabilization of the thyroid function with medication, treatment can be administered just as with any healthy person. For people more than 75 years of age after acute bacterial or mycotic infections (fever > 38.5 °C), treatment should only be administered in the rehabilitation phase. In other words, treatment should be postponed until the fever phase subsides in order to prevent a short-term increase in temperature (initial reaction).

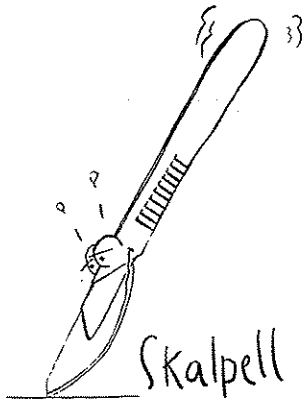
However, convalescence can be supported to a great extent by magnetic field therapy in



Fever

the regeneration phase, the recovery and buildup time following the acute fever phase.

Although magnetic field therapy does not have the effect of thinning blood but instead merely improves the flow properties of blood, patients taking anticoagulant medication (such as Marcumar) should continue to have their blood values monitored closely. So far, no negative effects have been described in the scientific literature in this regard.



Scalpel

People with a hypersensitivity to electromagnetic fields should be especially cautious in gradually increasing the dose over a longer period of time. In these cases it is advisable to begin with a single treatment once a week and increase it by one step every three to four weeks. Then by adding a second or third day of treatment each week, the body can become adjusted to the treatment in small increments.

3.24. Can magnetic field therapy be used with surgery?

When magnetic field therapy is used before surgery for preparation and after surgery, it can lead to better wound healing and faster regeneration. Postoperative use of a magnetic field system depends essentially on the extent of the surgical procedure. In surgery with severe blood loss, magnetic field therapy should not be used therapeutically until ten days after surgery; in minor surgery, it can be used already after the third day, if allowed by circumstances in the hospital.

3.25. What are the most common adverse effects of magnetic field therapy?

In rare cases, sleep disorders and heart palpitations have been reported. This reaction is often due to improper use or a certain internal anxiety associated with tension and its concomitant phenomena and it has nothing directly to do with magnetic field therapy per se. In some cases, a reduction in dose will yield a significant relief - on a psychological level.

The effect of medications can be improved by magnetic field therapy to the extent that the family physician may in many cases reduce the dose of medication (in no case should the dose of medication be changed without first consulting with the prescribing physician).

People with low blood pressure may experience a feeling of dizziness or may see blackspots in the initial phase, especially in the morning. The remedy here - as with vein problems - is to elevate the legs. In addition, sufficient intake of fluids is necessary especially in these cases.

It should be pointed out that all cards with magnetic strips can be erased with a certain magnetic field strength in treatment. In other words, be careful with bank cards and credit cards!

To avoid any possible adverse effects of the magnetic field, the contra-indications listed here should in any case be taken seriously. Although these guidelines must be observed strictly for home use, a physician in practice can use magnetic field therapy in accordance with his own experience.

3.26. Is it also possible to lie face down on the mat?

Yes. Magnetic fields penetrate the body completely and thus also act at a depth. If the maximum dose is to be concentrated on the diaphragm or chest area, it is definitely advisable to turn over onto your stomach and thereby utilize direct contact with the center of the coil and thus with the strongest area of the magnetic field.

3.27. How can the effect of magnetic field therapy be verified?

In order to verify the effect of magnetic field therapy, various methods with different informational value can be used. These include:

1. The patient's subjective perception (probably the only truly deciding criterion): The patient describes his/her pain and pain perception and compares it with the condition before treatment.

2. Objective clinical parameters and case history: the "patient's history"

3. Observation of the activities of daily life

4. Finger-floor distance test: The simplest and most impressive method to prove the relaxing and spasmolytic effect of magnetic field therapy on back pain quickly and without requiring expensive equipment.

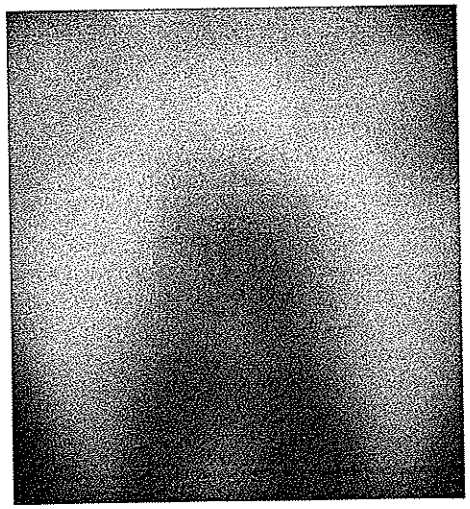
5. The pain scale from 0-10, with 0 indicating no pain and 10 indicating the greatest pain.

6. X-rays, MRI, CT scan, laboratory results, EKG, EEG, EMG, ENG.

7. Thermography: The body temperature is determined with an infrared measurement device and represented graphically or by display. It represents an indirect parameter for the improved circulation under the influence of magnetic field therapy.

8. PROGNOS: This diagnostic system determines very accurately the skin resistance at the beginning and end points of acupuncture meridians, thus indirectly permitting a conclusion as to the energy content of the acupuncture meridians and therefore also any possible disturbances.

9. PROCOMP/biofeedback: This system offers clinically accurate measurement results and is the most accurate method of measuring the effect of magnetic field therapy.



Above: aura before, below: aura after

10. Kinesiology, pulse, iris and tongue diagnostic tests, foot reflex, segment, aura photography, blood pressure, Kiebler's fold (fold of skin on the back that can be lifted and rolled over the muscles), mobility tests and the like.

3.28. How does one select the proper magnetic field therapy device from the numerous devices available?

Many different systems and devices are available on the market today. It is often difficult for an average person to separate the wheat from the chaff.

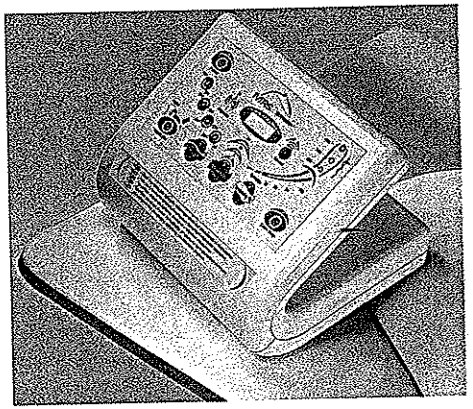
In no case should price be the most important criterion in acquiring a device. A cheap purchase is often more expensive than you might think. Avoid purchasing a device at a discount store. Instead you should buy it from a person with whom you are familiar, and you should become informed about whether the system has been investigated clinically and scientifically. Serious manufacturers invest a great deal of money in scientific testing of their equipment. Fly-by-night companies do not! Check the headquarters of the manufacturer and avoid companies that do not give a physical address (just a post office box) and cannot be reached by telephone. The magnetic field device you purchase should be one that has been used by many physicians and clinics. That would indicate a serious supplier. In addition, a magnetic field system should absolutely have a warranty, and the control device should have a warranty of at least 15 months. It is also important to have certification in accordance with German Industrial Standards (DIN 9003 and/or 9002). This guarantees constant technical testing and is issued only to serious manufacturers by the TÜV [Industrial Supervisory Association]. The date of recent tests should in any case be at least 1998, because the testing standards before 1998 did not fully conform to current requirements.

Another important criterion is the availability of medical assistance. The leading companies offer a medical hotline, a facility which costs a company a lot of money and is offered only by those companies that are aware of the responsibility associated with their product. You can receive answers to your questions by telephone, the Internet or by fax. Also ask about the possibility of a medical center which specializes in magnetic field therapy which you might be able to visit. You will soon learn that very few suppliers meet these conditions.

The company Vita-Life is considered to be the market leader. Their Magnetic Resonance System (MRS) serves as a model for practical handling of magnetic field therapy devices. The Magnetic Resonance System (MRS) is therefore used as a good example here because it is extremely user-friendly (this is also the reason why it is the one used most frequently). Nevertheless, this should not give the impression that the Magnetic Resonance System is the only magnetic field device or the only good one.

3.29. How should one select the correct magnetic resonance system?

The correct choice of a magnetic resonance system device is not so easy due to the numerous devices available.



MED-System

The **MED system** in any case belongs in the hands of a physician or a trained therapist. In addition to the possibility of a significantly

higher field strength (flux density) for special indications in the medical field, this therapeutic system also offers a separate applicator connection for use with a coil probe. This probe is especially suitable for local treatment of small joints or inaccessible body parts. Consequently, this probe is used therapeutically in the area of the neck and head, especially the teeth and jaws, as well as the ear, nose and throat area. It is also suitable for treatment of small joints (e.g., fingers). This probe not only offers the advantage of more precise localization in the proper area of the face, but also offers the greatest possible protection of surrounding areas of the head. Due to its cone-shaped field, the greatest possible precision is achieved. Another advantage of this applicator is the relatively low depth of penetration, thus largely protecting the structures inside the skull (for example, the retina and pineal gland). The reason for this is that the intensity decreases more rapidly with the distance from the coil (with the third power of the distance with point sources). In addition, use of the probe offers a higher flux density and thus a higher energy at the coil core.

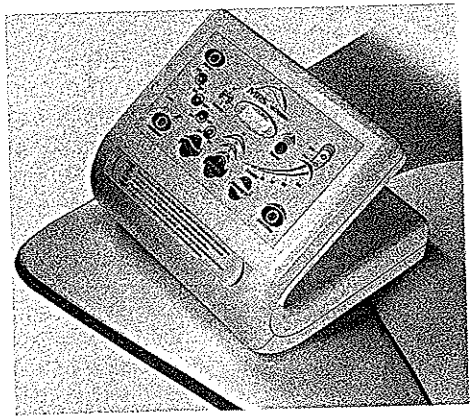
This property means another possible application for the probe, namely in acupuncture, where it is actually superior to pure laser acupuncture because of the greater depth of penetration.

Its conical propagation in the body, thus covering a certain area, permits a greater deviation from the acupuncture point, which is often just a few millimeters in size (the so-called sweet spot) without resulting in a reduced effect. To this extent, the probe has a higher success rate. It is especially suitable for acupuncture in people (often children) who are afraid of needles.

The **home device** is an all-purpose system that works like the MED system with frequency programs which take into account the biorhythm of the human body and are adjusted to the human brain waves. As with the MED system, it also has multiple time settings so that topical use can be preprogrammed for up to half an hour. Likewise, the applicators can remain connected at the same time and can be selected with the proper switch before starting operation.

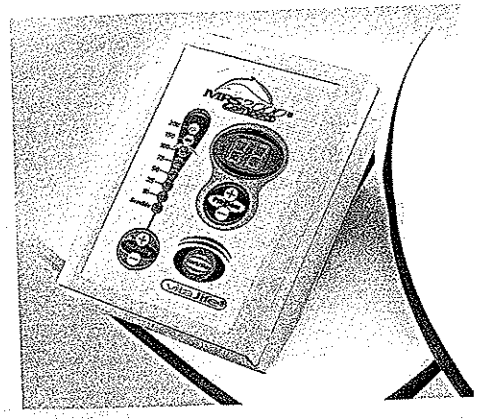
Magnetic resonance system devices have their own testing software for checking on the proper functioning of the system, including applicators, before each new use, thereby guaranteeing that these systems will also continue to function for several years. Any defects, such as a damaged applicator, are indicated immediately and operation of the system is impossible.

Applicators available include pads and the whole-body mat. The mat has three pairs of flat coils located in the area of the shoulders, the pelvis and the ankles with different sizes and different numbers of windings. Therefore, the coils in these areas also produce different strengths of the respective magnetic fields, with the lowest strength being achieved in the shoulder area and the highest flux density in the foot area (measured by the average height of an adult). The whole-body mat mainly serves the function of regulatory harmonizing therapy. The pads have two flat coils each with a high field strength and they are considered especially effective for local treatment. They are characterized by an accurate application technique with a higher energy transfer.



HOME-System

The **compact system** offers advantages with regard to handling and convenience. Due to its practical size, it is considered a travel device or sports device. It operates with the same frequency band as the home and MED devices for treatment of pain, but it has two additional settings for the whole-body mat, namely a soothing 3 Hz frequency and a stimulating 12-13 Hz frequency. In intensity, i.e., magnetic flux density (strength of the field), the compact system corresponds to the possibilities of the home device of the Magnetic Resonance System 2000+ series. It is more convenient and also simpler in technology and in design, although it works with the same intensity levels as the home system. The mat and the pad cannot be plugged in at the same time, but instead they must be plugged into the outlet individually as needed. In contrast with the home system and the MED system, the compact system functions without a chip card and therefore does not offer the option of connecting the Sound and Light Relax System, which is of great benefit especially in stress disorders because of the relaxing effect.



COMPACT-System

From a technical standpoint, it should also be pointed out that all systems are equipped with an external transformer so that there is not any superimposed interference due to electric fields from the transformer. The waveform for the current is preprogrammed to be the technically complex but highly effective sawtooth waveform (see explanations in the corresponding section).

The frequencies of the home system and the MED system are identical and have different carrier frequencies, depending on the program selected. The carrier frequency is understood to refer to the distance between two successive pulse blocks: 15 Hz, 5.5 Hz, 3 Hz, 0.5 Hz are the corresponding frequencies with the main pulse frequency (determined by the sawtooth pulse) being 64 Hz overall, which is exactly the vital frequency of the heart. Since the structure of a frequency band with a broad effect is not only technically difficult but also has many important and therapeutically effective frequencies, it should be pointed out that the entire frequency band contains frequencies from 0.1 to 200 Hz.

The polarity changes automatically every two minutes.

The field strength is at least 90 nT (nanoteslas) up to a maximum of 160,000 nT, depending on the applicator selected and the intensity level. The intensity up to 100 % refers to the range intended for prophylactic and whole-body use, while higher intensity levels are used more for treatment with a local applicator.

3.30. How can magnetic field therapy be adjusted correctly for local use?

In general, the intensity can be selected higher the greater the distance from the torso. The following general guidelines can be given for local therapy with a pad or probe:

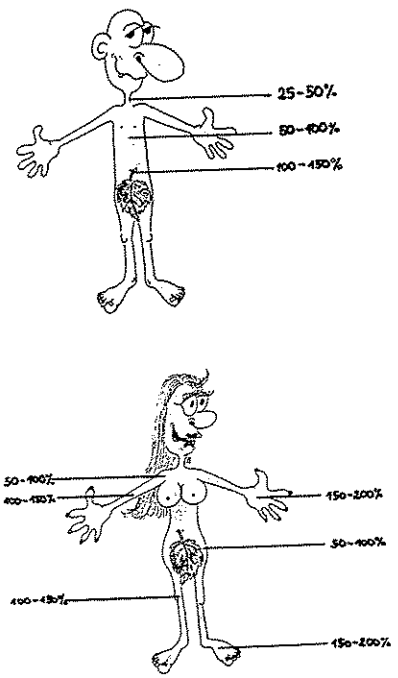
Cervical spine area 25-50 %
Thoracic spine area 50-100 %
Lumbar spine area 100-150 %
Shoulder and hips 50-100 %
Elbows and knees 100-150 %
Hands and feet 150-200 %

The probe is used with various intensities in the head area, but usually between 200-400 %.

The 400 % level is available with the MED system for use with degenerative diseases of the joints and bones.

For all these use recommendations, the rule of gradually increasing the dose is applicable, but it should also be pointed out that although these are rules of thumb based on empirical values, they are not universally

valid. Everyone can react differently to a selected intensity. Therefore, it is advisable to select the intensity level on an individual basis.



Intensitätsstufen

3.31. How should one properly proceed in the use of this system?

For whole-body use, an 8-minute treatment time is usually sufficient. Use is designed to be very simple. With few exceptions, the magnetic field system can be used once or twice a day with any disease.

For local pain, an additional extra treatment one to three times a day for 16-24 minutes each time with a pad or probe, depending on the size of the treatment area on the body and the cause of the condition, is recommended.

For pain in an extremity, before beginning local therapy, a single whole-body application is also recommended in addition to the local application. This procedure can be repeated with each treatment.

Proper positioning is important - for example, keep knees bent for back problems.

3.32. How should children be treated?

For small children, lower doses than those used for adults are sufficient. Therefore, the dose should be reduced to one third for children up to three years of age. Since this is often difficult, especially when working with lower intensity levels, we recommend a much simpler solution: The child and mother (or father) may use the mat together, following the dosage recommendations for an adult. Due to the distance from the coil, the dose is thus automatically reduced for the child. The mother lies with her back on the flat coil applicator and the child lies on the mother's abdomen. This close connection creates contact while also soothing the child. Treatment for mother and child together cannot harm either of them.

Adolescents should receive half the dose, i.e., either the intensity level or the time should be reduced by one half. Young people who are no longer teenagers should follow the treatment guidelines for adults.

3.33. Can magnetic field therapy be used by nursing mothers?

Yes. There is no information to the contrary in the technical literature. There are women who prefer to nurse while receiving magnetic field therapy because the baby is especially calm then. There are even references in the literature indicating that women who do not produce enough milk may solve this problem with the help of magnetic field therapy.

3.34. When can a short-term treatment be carried out successfully?

A short-term treatment can be successful especially in conjunction with sports injuries. Other examples include the traditional prolapsed disk and acute tension states (lumbago), menstrual complaints, toothaches, headaches, sleep disorders and fatigue, for prevention and follow-up care in surgery, wound healing and bone healing.

3.35. When is long-term therapy necessary?

In long-term therapy, the magnetic field has a regulatory and harmonizing effect on the autonomic nervous system. Therefore, it is used as a supportive measure in cases of lack of energy, depression, chronic fatigue, functional disorders, circulation disorders, chronic pain states, circulatory problems, osteoporosis, arthrosis, traumatic or degenerative nerve diseases, a weakened immune system and in general for rehabilitation and regeneration. Since chronic degenerative diseases with severe deterioration phenomena develop over a long period of time, the treatment may accordingly take a long time until it has a far-reaching effect. Thus, it is known that in osteoporosis, for example, there is no point in measuring bone density until after approximately one and half years of treatment because bone cells take such a long period of time before measurable results can be detected.

3.36. Has there already been clinical experience with a magnetic field therapy device like the Magnetic Resonance System 2000+ MED?

With this system, approximately 40 clinical studies are currently being conducted throughout Europe, all in accordance with the internationally recognized methods of GCPG - good clinical practice guidelines. This method is already being used at many clinics for treatment of a wide variety of symptoms. As an example, we would like to present here a report by the Viennese Community Hospital of the Rudolf Foundation. For two years, a double-blind study of the Magnetic Resonance System in intervertebral disk problems has been underway there.

I would like to thank my friend and colleague, Dr. Bernhard Kuderer, head physician, and his team for permission to publish this report. Dr. Kuderer is without a doubt an expert in the field of magnetic field therapy.

3.37. What are the reasons for successful use of the Magnetic Resonance System in everyday clinical practice?

Dr. Kuderer, of the Viennese Community Hospital of the Rudolf Foundation (citation):

1. its extensive safety (versus side effects and contra-indications with other forms of therapy),
2. its temperature neutrality: with intolerance to heat, in the acute-chronic transitional stage,
3. varied and often surprising effects as the last resort when other forms of therapy are ineffective,
4. the depth effect is almost undiminished in prolapsed and protruding disks,
5. special applicators with corresponding field geometries for narrowly defined localizations such as a ganglion or stenosing tendinitis, for large-area whole-body applications: for example, in subjective disorders of well-being,
6. explicit patient wishes for patients who have been preinformed through the media,
7. main effect in the functional stage,
8. other general indications: sports injuries, arthrosis, osteoporosis, fractures, pseudarthrosis, wound healing, ulcers, Sudeck's disease, vertigo, tinnitus, carpal tunnel syndrome.

3.38. Can magnetic field therapy be used in tumors?

For a long time the use of magnetic field systems for treatment of tumors was disputed. The reason for this was to be found in studies about the harmful health effects of electromagnetic fields (electromagnetic smog). However, a strict distinction must be made here, because magnetic fields with a therapeutic benefit have nothing in common with

highly industrial fields of electromagnetic smog. The basis for the use of magnetic fields as a form a therapy is found in the results of the American National Cancer Institute (NCI), which classified the magnetic fields used therapeutically as safe for human health (1997).

There are no indications in the scientific literature that therapeutic low-frequency, low-intensity magnetic fields can damage human cells or stimulate the growth or development of a tumor. Although the influence of industrial electromagnetic fields on the human body is still a point of dispute among scientists, no objections have been reported for treatment with therapeutic magnetic fields. Although therapeutic magnetic fields cannot actually stop cancer cells, they can nevertheless have a positive influence on the disease process according to numerous medical studies. The reason for this positive effect is probably the general improvement in the defensive power of the immune system. This is also proven by the study conducted by the German physician Frank Daudert from Bad Aibling on more than three hundred patients. Frank Daudert's research has proven that even the harmful consequences of radiation therapy and chemotherapy can be reduced with magnetic field therapy.

All these are reasons why magnetic field therapy is being used more and more frequently for supportive treatment of cancer (see also Chapter II "Tumor diseases").

3.39. What is the attitude of medical insurance companies with respect to magnetic field therapy?

Unfortunately, the medical insurance carriers do not actually have a uniform approach in this regard. Although obligatory insurance will approve the cost of treatment or even the expenses of an entire system only in exceptional cases, insurance companies do relatively often provide compensation for a portion of the rental of the device for very specific indications and with appropriate preinformation by the treating physician. The situation is different with supplementary insurance. It is not unusual for therapy expenses up to a certain amount to be assumed by these insurance companies. Entire systems have been paid for when the insured patient has shown a certain skill in negotiation. In chronic pain cases, a retrospective negotiation tactic has proven most suitable. Anyone who is financing a system himself/herself can propose a deal to the insurance company by calculating the average cost of his/her pain pills for the last year to receive the difference from the insurance company as payment for future years until the Magnetic Resonance System is fully paid for. This is a deal that an insurance company will rarely refuse. The fact is that magnetic field therapy was once billed as a medical service by insurance companies, but this option has been dropped as part of economizing measures. At the present time, new negotiations are underway in this regard.

3.40. Where can I get advice about questions concerning magnetic field therapy?

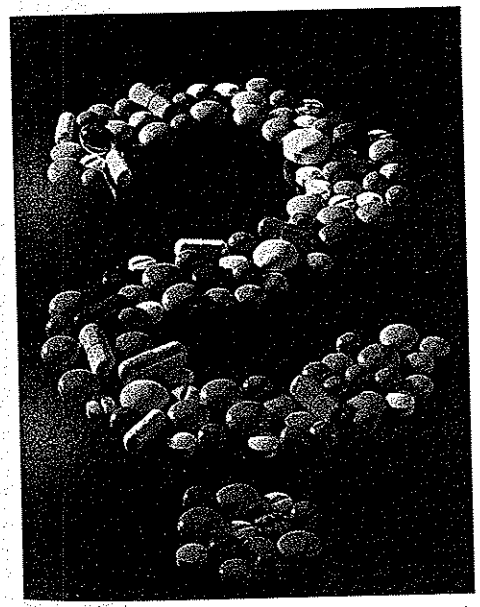
Technical advisors are available to you. These advisors can be recommended by an experienced physician in your area, or they can give you the address of the Energy Medicine Center in Vienna or the medical hotline.

3.41. What is the effect of magnetic field therapy with a vaccination?

In general, magnetic field therapy has a neutral effect on vaccinations. During a vaccination, which is an artificially induced infection with a weakened or dead disease pathogen, the process taking place in the body is similar to that in an actual infection. Studies have shown that magnetic field therapy is capable of stimulating the immune system to produce lymphocytes in particular (lymphocytes are a special subgroup of white blood cells which are capable of antibody production and guarantee immunization, which protects the body from the invading microorganism). It can thus be assumed that when using the magnetic field system in vaccinations, the vaccination effect will be increased. The immune reaction will take place more quickly and the body will in general tolerate the vaccination better. The inflammation reaction is also minimized and the risk of side effects of the vaccination will be lower.

3.42. Is magnetic field therapy compatible with medication?

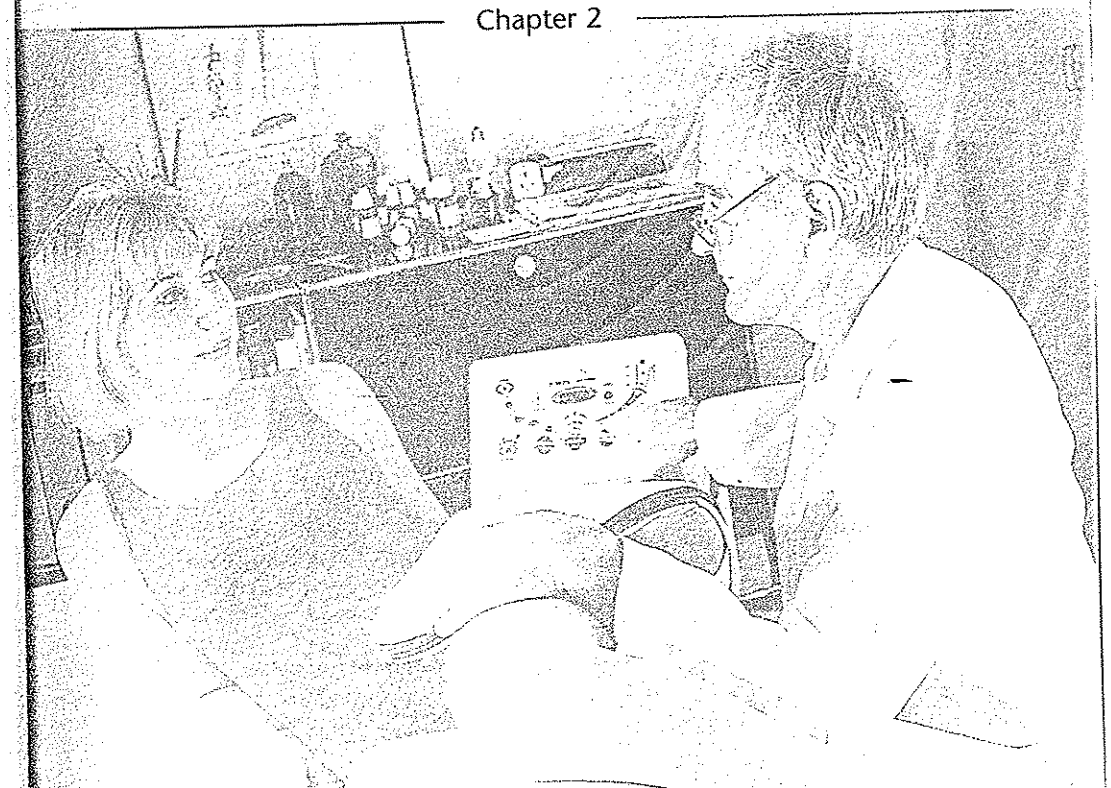
As numerous studies have shown, magnetic field therapy is often a good supplement to the traditional use of medication. Due to the improved circulation, the active ingredients in the medications reach the cells in the diseased organ more efficiency and in a higher concentration. The increased effect of the medication is often associated with reduced side effects. A second consideration is derived from the resonance effect on the cell membrane.



Due to the increased amplitude of vibration, the receptors at the cell surface come in better contact with the medication and thus achieve an increased efficiency in their effect. Perhaps the change in permeability of the membrane and the related improved permeability into the cell may also play a certain role. Studies with antibiotics, cortisone and insulin have proven the often improved effect of these drugs. The Magnetic Resonance System is used here as a whole-body treatment. Study results by the Artificial Heart Research Laboratory and the Department of Chemistry at the University of Utah (USA) have shown that pulsating magnetic fields definitely increase the efficacy of the antibiotic gentamicin against Pseudomonas aeruginosa because the bacteria form less of the defensive film against the antibiotic (Dianna E. Benson et al.: "Magnetic field enhancement of antibiotic activity in biofilm forming Pseudomonas aeruginosa," University of Utah, Salt Lake City, Utah).

Chapter 2

POSSIBLE USES OF MAGNETIC FIELD THERAPY FROM A to Z



Foreword to the chapter: Possible uses of magnetic field therapy

With regard to almost all the diseases discussed in the following chapter which have been treated with magnetic field therapy, our summaries are based on international studies as well as numerous reports by physicians and patients. We have attempted to select the most interesting ones for this book. Although we have researched this field conscientiously and have reviewed it carefully, the author of each respective report and study is responsible for the truth of the contents of each respectively. For reasons of space, we cannot go into detail about all the diseases mentioned in the literature in conjunction with MFT, so we do not make any claims as to the thoroughness of the material presented in this book. Our selection should only reflect a representative cross section of the possible uses of MFT.

The MRS 2000+ system was selected for use because these systems are the most widely used due to their simple handling and their easy-to-use operating elements. The Magnetic Resonance System is not the only effective magnetic field therapy system, but is it very suitable for supportive therapeutic use in many diseases. The HOME, MED and COMPACT systems do not differ in their local programs, i.e., pain therapy is administered with the same intensities and the same frequency in any case. Only the medical system offers the possibility of selecting higher field strengths for special indications. Thus, the strengths indicated in this book for the individual diseases can be used with each of these systems. One thing to take into account when using the COMPACT system is that it does not automatically follow a biorhythm through the program selector key, as does the HOME or MED device. With certain whole-body applications, e.g., for sleep disorders, stress and psychological diseases, the sedative (soothing) program is selected. The tonicizing program, i.e., the stimulating effect, is recommended in the morning hours for chronic fatigue, depression or in the field of sports.

The suggested uses selected in this book are based on reports of findings by many physicians and are considered to be general guidelines for magnetic field therapy with Magnetic Resonance Systems of IGEM (International Society of Physicians for Energy Medicine). This should not give the impression that all the diseases listed in this chapter can be cured with magnetic field therapy. Our book is intended to offer a nonjudgmental review of the many possible uses of this form of therapy described in the literature. Our recommendations should be considered as a rule of thumb and must always be adapted to the individual case because each person may react differently to magnetic fields. Science and thus the level of knowledge are in constant flux. Please remember that the diagnosis should be made by a physician in any case.

When should you see a physician immediately?

People are often unsure which signs and symptoms justify a doctor's visit. The following list includes the most important symptoms that should be reported to a physician if they last more than a couple of days:

- weight loss of more than 3 kg for no reason
- any change in shape, size and skin texture of the breast, a lump or a thickening in the breast, any change in the nipple or bleeding from the nipple
- changes, swelling or tumors in the testicles or constant total erectile dysfunction
- a constant feeling of thirst for no apparent reason
- an unexplained feeling of dizziness
- any change in color or growth or thickening of birthmarks, warts and liver spots, itching and bleeding
- coughing up blood, blood in the urine or stool, unexplained vaginal bleeding after sexual intercourse, between periods or during menopause
- black feces or any persistent change in bowel habits
- constant digestive problems or acid belching

- problems in swallowing and a rough or hoarse voice for more than three weeks
- any severe or unusual headache for the first time
- any unexplainable leg pain or regular persistent back pain
- any wound that does not heal or shows signs of swelling

The fact that pain seems to be more intense at night is normal and should not cause anxiety. In case of doubt, it is always better to consult a physician. This is also true of treatment with magnetic fields. Any serious supplier of these systems will be able to provide you with the service of a medical hotline or a consultation office.

The following things are important in a doctor's visit:

To save time, before your doctor's visit you should write down the questions you would like to ask or what you would like to say:

- when your symptoms occurred for the first time
- whether you have observed anything unusual
- whether the complaints are occurring for the first time
- a precise description of the pain
- whether the pain is a hindrance
- what circumstances increase or reduce the pain (heat, time of day)
- medications you are currently taking, treatments that have already been administered by other physicians or therapists
- what causes the disease
- how the disease is normally treated
- what can be done to help
- what long-term effects the disease does have
- what can be done to prevent another outbreak

Often the disease history is sufficient to make a diagnosis. A physical examination is not always necessary. In some cases, you will be referred to a specialist.

It can be dangerous to make a self-diagnosis. You should not stop taking your medication until after talking with your physician.

Which signs and symptoms indicate that you should take a child to the doctor?

- purple spots that do not become lighter under pressure
- difficulty in breathing
- pain on inhalation
- violent vomiting
- weakness, drowsiness or confusion
- no reaction to other children
- inability to stand up by himself/herself
- the child is unable to hold his/her head up straight
- children under six months: temperature above 38.3 °C (armpit) or 39.7 °C (rectal)

The following are signs of an emergency, when an emergency physician should be consulted immediately:

- serious chest pain: pain accompanied by a pale face, nausea or feeling of coldness, breaking out in sweat or difficulty in breathing for more than ten minutes
- respiratory problems: shortness of breath, wheezing, strangling, a whistling sound in breathing, if the person seems to be suffocating and cannot eat or drink
- high fever: more than 40 °C in an adult, possibly in combination with a stiff neck, convulsions or vomiting
- serious wounds: deep cuts or wounds where the bleeding cannot be stopped; gaping wounds or wounds that are red, difficult to clean and inflamed
- head injuries: combined with loss of consciousness, seeing double, confusion, drowsiness, dizziness or loss of memory
- fractures: a bone is broken when it cannot bear load or is severely twisted, if the person has severe pain and nausea
- severe sudden pain: if it lasts more than ten minutes

- loss of consciousness: when a person cannot be awakened
- serious burns or scalding: severe formation blistering or destroyed skin; a burn affecting a large area of the face, where the skin turns either white or black; you should see a doctor for a sunburn if large areas are burned and covered with blisters, or if you have shivering, nausea, vomiting, fever or symptoms because of heart palpitations
- vomiting and diarrhea: this is a serious disease if combined with a stomachache or blood in the vomit.

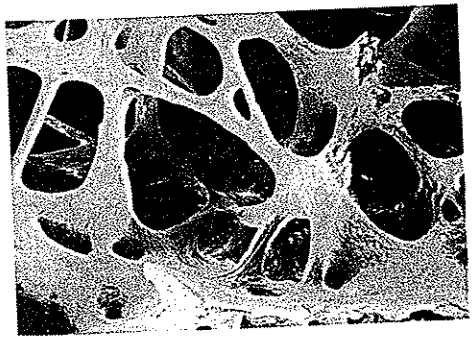
Abbreviations used in physician reports and patient reports:

MF:	magnetic field
MFT:	magnetic field therapy
MRS:	Magnetic Resonance System
OP:	operation (surgery)
WS:	spinal cord

ORTHOPEDICS

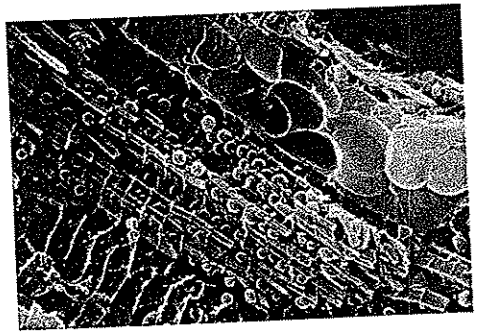
1. Diseases of the motor system and the supporting apparatus

The human motor system is a complicated structure consisting of various interconnected parts. Every tiny movement involves an interaction of bones, muscles, tendons and ligaments.



Bone structure

The skeletal structure supports the body and protects the internal organs from injury. The bones (approximately 206) are 99 % calcium, a mineral salt which gives bones their strength and stability. The bone marrow, which produces red and white blood cells, is found in the small interior cavity of bones. The point of contact between two bones which are not fixedly joined together is called the joint. Ligaments stabilize these joint connections, cushioning the cartilage and protecting it. Various fluids in the joints (lubrication) and in the synovial bursa (bags of mucus in the joint) allow them to slide together without friction and thus prevent the joints from wearing down. Tendons connect the muscles to the bones. The muscles enclosing the skeletal structure have the ability to contract and thus cause the parts of the skeleton to move.



Muscles with transverse striations

1.1. Arthritis (inflammation of joints)

Arthritis is characterized by redness of the joints combined with intense pain and swelling. The causes of most forms of arthritis are

still unknown. The most common type is acute rheumatoid arthritis. This disease affects three times as many women as men and usually begins between the ages of 20 and 30. This reactive arthritis is not caused directly by pathogens such as bacteria or viruses, but instead it is the result of an inflammation in the gastrointestinal tract or the urinary tract which may have been several weeks in the past. The joint symptoms are often preceded by an inflammation of the tonsils (rheumatic fever) caused by streptococci (pyogenic pathogens, i.e., germs that produce pus). Due to the use of antibiotics, this disease rarely occurs today. Usually larger joints are affected by acute rheumatoid arthritis, especially the ankle and knee joints. Only in rare cases does the acute inflammation affect the bones or cartilage permanently. The intense pain can move from one joint to another, but usually disappears spontaneously without any additional medication.

1.2. Primary chronic polyarthritis (PCP)

Chronic polyarthritis or rheumatoid arthritis affects especially young women between the ages of 20 and 30 or around the age of 40. The cause of this autoimmune disease has not yet been determined conclusively. It is assumed that the immune system is misled by a virus to incorrectly recognize the body's own cells in the joint as foreign substances, so it begins to attack these cells and destroy them. In 80 % of those affected, protein is found in the blood, which is an indication for the so-called rheumatoid factor.

Arthritis/X-ray

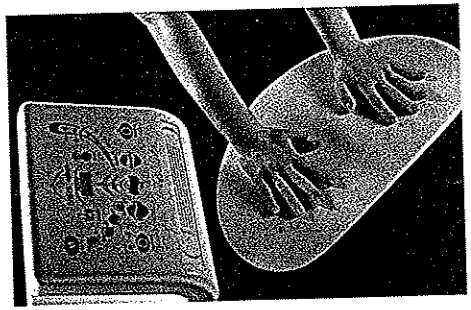
It is characterized by symmetrical involvement of the metacarpophalangeal joints of the finger. The shoulder joints and knee joints may be involved in attacks, with the hip joints being involved less frequently. The inflammation affects the tender skin of the inside surfaces of the joints (synovia). If these joint surfaces begin to stick together, the inflammation attacks the cartilage, ultimately destroying it. The metacarpophalangeal joints then often become grotesquely deformed. The typical stiffness of joints in the morning can subside again in the course of the day due to movement, but if left untreated, it may end in ankylosis (immobility). The goal of therapeutic treatment is to relieve pain and stop the progression of the disease to maintain mobility of the joints for as long as possible.

Effect of MFT on arthritis:
relieving pain, supporting therapy, reducing the extent of the disease

Proper use of MRS for arthritis

Treatment of the metacarpophalangeal joint of the finger (discussions for all other joints: see "Arthrosis")

- Whole-body mat: twice a day for 8 minutes each time, 100 % level in the morning (increasing the dose gradually, starting from the 10 % level), 10 % level in the evening



Local treatment of hands

- Pad or probe (especially successful): three times a day for 16-24 minutes each time at a level of 150-200 %, placing the hands on the pad or probe
- Special instructions on use: The treatments should also be continued in the intervals when there are no attacks.
- Notes on the initial reaction: The risk of an intense initial reaction is relatively high (25 %) in arthritis, especially in PCP. This can be prevented by increasing the dose very gradually.
- Forms of therapy supportive of MFT: homeopathy, enzymes, herbal remedies (herbal extracts: rampion, yucca, grape seed, white willow bark)

Local treatment of fingers

Scientific studies on the treatment of arthritis with MFT

- T. Zizic et al.: "The treatment of rheumatoid arthritis of the hand with pulsed electrical fields," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - This double-blind, placebo-controlled study investigates the effects of pulsating fields for a period of four weeks in the treatment of arthritis of the hand. The results show a definite clinical improvement in patients receiving magnetic field therapy in comparison with the control group without MFT.
- V. D. Grigor'eva et al.: "Therapeutic use of physical factors in complex therapy of patients with psoriatic arthritis," Vopr Kurortol Fizioter Lech Fiz Kult (6), 1995, pp. 48-51. - This study presents a review of the treatment of patients with psoriatic arthritis with low-frequency MF. It demonstrates a definite improvement in the clinical condition of the joints affected.
- E. Riva Sanseverino, A. Vannini, P. Castellacci: "Therapeutic effects of pulsed magnetic fields on joint diseases," Panminerva Medica 34 (4), October-December 1992, pp. 187-196. - This investigation characterizes MFT as an excellent physical measure for the treatment of joint diseases. The authors of this study report that MFT, when used correctly and repeated periodically, can stop the disease process of the joints affected, at least with regard to clinical findings. The best results are achieved in the treatment of pain.

Physician reports on the treatment of arthritis with MF

1. Dr. Christoph Scherer, MD, Dr. Christian Thuile, MD, Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

- *Patient, female, H. K., 57 years old. Diagnosis: Arthritis in the knee, wrist and ankle joints. Results of MRS therapy: After the first treatment, the subjective pain was reduced from 8 to 3 on a scale of 10. Mobility was already much better after just a few days.*
- *Patient, female, E.B., 70 years old. Diagnosis: Non-specific polyarthritis, cervical syndrome after an automobile accident, lumbago, dizziness. Results of MRS therapy: The paresthesias (disturbances in sensitivity) were reduced greatly after the fifth treatment, the patient felt more vital and full of energy, and the pain was definitely reduced.*

2. Wolfgang Kropshofer, Doctor of Chiropractics, Health Center, 1080 Vienna, Alserstrasse 43/8a, tel. +43/(0)1/40 373 80

- *Patient, female, B.G., 70 years old. Diagnosis: On September 28, 1998, the patient complained of rheumatism and lumbo-ischialgia on the left. She had gone for spa treatments five times with moderate success. Pain symptoms:*

Variable complaints involving all of the joints, in particular the major joints (polyarthritis), ischialgia with radiating pain into the thigh on the left. Results of MRS therapy: The patient has been completely free of symptoms since the last visit.

Patient reports on the treatment of arthritis with MRS

1. Thanks to Mr. Rudolf Frauenberger

• *Patient, female, H.H., 61 years old. Diagnosis: Increasingly severe pain in the joints (finger, hip and knee joints), backache (lower back pain), weak immune system. Results of MRS therapy: A definite improvement has occurred on all levels. "There has been a significant improvement in my arthritic symptoms. I can move again without pain. If I don't feel good, the MRS mat helps me within a short period of time."*

• *Patient, female, C.L., 62 years old. Diagnosis: Increasing arthritic pain in her right hand, arthrosis in the hip and wrist joints on both sides. Severe symptoms after surgery, especially in bed and climbing stairs. Results of MRS therapy: "I am free of pain in my normal everyday life, and I again have full freedom of movement and undisturbed sleep. My joints still cannot bear much weight for great exertion, but this is probably because of my lack of movement."*

• *Patient, female, K., 59 years old. Diagnosis: Severe arthritis in the left knee and arthrosis (for many years), left hip severely affected due to constant limping. "I was supposed to receive an artificial knee joint and a new hip joint in the fall of 1997. I was experiencing very severe pain and my mobility was limited." Results of MRS therapy: "After one week, swelling of my knee had gone down; therefore, I had less pain. After six months, I can move my knee well and I have almost no pain. My hip does not bother me as much either. I can drive a car again, i.e., work the clutch and get out of the car much more easily."*

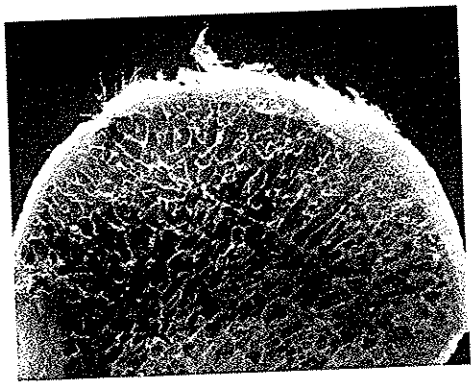
2. Thanks to Mrs. Beate Martina

• *Patient, female, M.P., 83 years old. Diagnosis: Polyarthritis, weakened immune system, sleep disorders, heart valve defect, low blood pressure (110/80), severe soft tissue rheumatism, pain in the hip joint, slight depression, 70 % osteoporosis, chronic sinusitis, cysts in the jaw, ringing in the left ear and no sense of smell for 33 years, bronchial asthma until two years ago, congenital torticollis; 2/3 of the stomach removed after perforation of the stomach, hepatitis B. A total of 15 surgeries including two faulty surgeries. Results of MRS therapy: Definite improvement in the patient's overall health in combination with infusions of vitamin B12 three times a week; she is sleeping better, walking without limping and without a cane, and mobility has obviously improved.*

Appraisal of MFT: **70 % good to very good success**

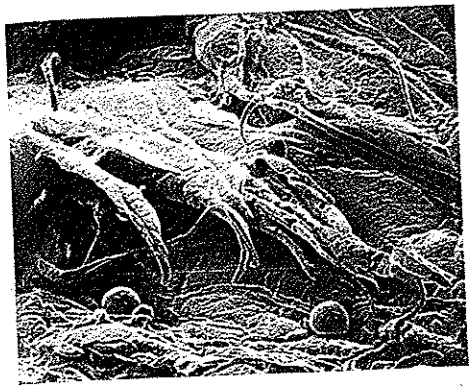
1.3. Arthrosis

Arthrosis refers to non-inflammatory wear on the joint due to overstrain and overloading. We speak of "degenerative rheumatism of the spine" when arthrosis extends to the small joints of the spinal column.



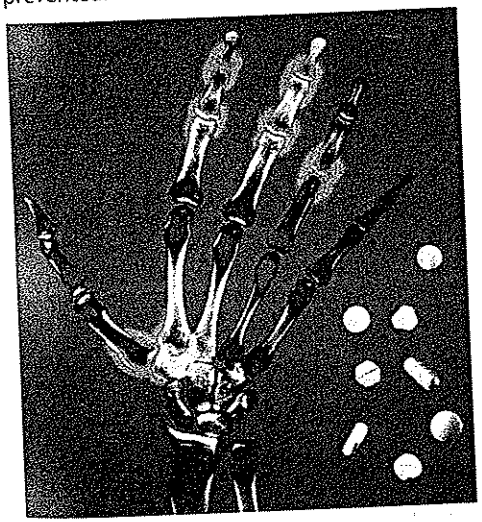
Arthrosis of the head of the femur

Arthrosis today is considered a disease of civilization or well-being which is attributed to sitting too much and the related faulty weight distribution for the skeleton. Not only the aging process but also overexertion of joints due to heavy physical labor, an imbalanced load due to obesity or sports injuries can damage the cartilage surface and lead to severe wear. The joints most commonly affected are the knee, hip, finger, shoulder and spine. The joints begin to cause pain, the movements become slower and walking can be seriously restricted.



Arthrosis of the head of the femur

One out of two Austrians over the age of 35 has serious problems with their joints and motor system. At the onset of the disease, the person usually does not sense anything of the wear phenomena. The first signs of this disease include pain on rising in the morning, manifested as a sharp pain and definitely audible creaking or popping sounds in the joints. The pain disappears as soon as the joint begins to move again. Arthrosis cannot be cured, but the pain can be relieved and progression of the wear phenomena can be prevented.



Arthrosis/X-ray

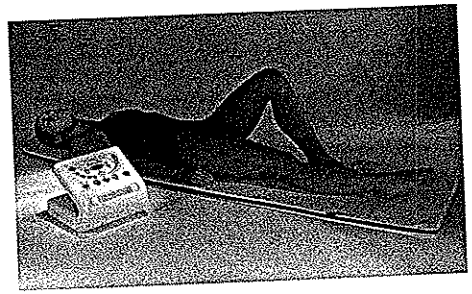
The sooner treatment is begun, the better the prospects for success. To prevent arthrotic changes, poor posture, excess weight and faulty loading should be ruled out as soon as possible. Recently, it has become possible to detect even very slight cartilage defects (1.5 mm) in the early stage with the help of MRI technology. If countermeasures are taken promptly such as proper exercise, the development of arthrosis can be retarded. If all therapeutic measures fail, only surgery remains, in which case an artificial joint (made of metal, plastic or ceramic) is used to prevent complete ankylosis or stiffening of the joint. Traditional household remedies such as heat and cold can be of good assistance in supporting this therapy.

Arthrosis is the best researched area for the use of magnetic field therapy.

Effect of MFT in arthrosis:
Supporting, reducing pain (after just 4-8 weeks), inhibiting degeneration of the cartilage; when used early: strengthening the cartilage, promoting circulation, relaxing the muscles (this improves the mobility of joints after 4-6 weeks), reducing the need for medication.

Proper use of MRS for arthrosis

• Whole-body mat: twice a day, 8 minutes each time; 100 % level in the morning (increasing gradually from 10 %), 10 % level in the evening



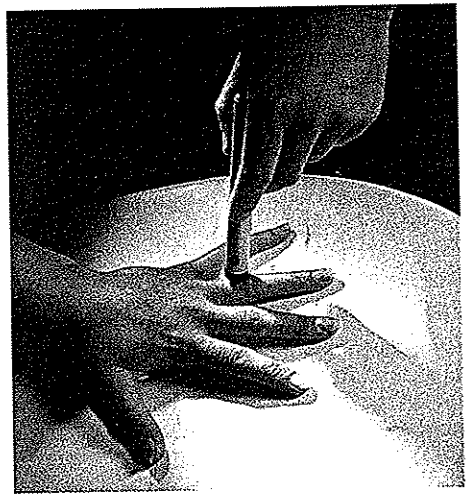
Basic teatment for arthrosis

• Pad: 2-4 times a day, 16-24 minutes each time (depending on disposition)
Hand, foot, toe and finger joints: 150-200 % level
Knee and elbow: 100-200 % level
Hip and shoulder joints: 50-150 % level
Cervical spine: 25-100 % level
Thoracic spine: 50-100 % level

Lumbar spine: 100-150 % level
Probe (especially for arthrosis of the finger joints): 200 % level
• Special instructions for use: Patience (often over a period of years) is the key to success.

Local treatment of lumbar spine

• Notes on the initial reaction: The initial reaction occurs in 10 % of users at the beginning.
• Forms of therapy supportive of MFT: exercise and instruction in movement; educational counseling, acupuncture and neural therapy, massage, enzymes, glucosamine sulfate, shark cartilage extract, homeopathic remedies



Local treatment of fingers with probe

Scientific studies on the treatment of arthrosis with MFT

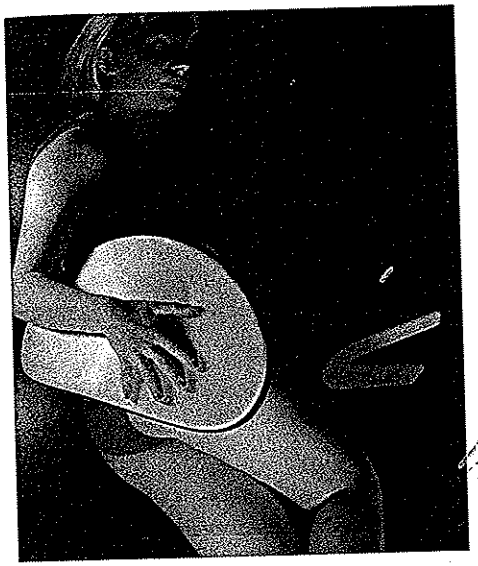
Until a few years ago, most studies on magnetic field therapy were conducted in the area of bone fractures. Due to the good clinical results, studies of arthrosis have recently dominated the field. Various internationally recognized clinical studies on the topic of the treatment of arthrosis with MRS are also available, including one by the Klagenfurt District Hospital.

◦ F. Pezzetti et al.: "Effect of Pulsed Electromagnetic Field Exposure of Human Chondrocytes in Vitro," University of Ferrara, Italy, November 1998. - This study investigated the influence of pulsating electromagnetic fields on cartilage cells and demonstrated a definite increase in cartilage reconstruction under the influence of the magnetic field.

◦ H. Lieu et al.: "Pulsed Electromagnetic Fields Influence Hyaline Cartilage Extracellular Matrix Composition Without Affecting Molecular structure," Osteoarthritis and Cartilage 4, 1996, pp. 63-76. - This study shows that pulsating electromagnetic fields influence cartilage metabolism and can prevent the degradation of glucosamine glycans. In individual cases, cartilage mass can actually be recreated. This study represents an important step in scientific research into the positive effects of magnetic fields on arthrosis.

◦ L. Yurkiv et al.: "The Use of Changeable Magnetic Field in Treatment of Osteoarthritis," European Bioelectromagnetics Association, 3rd International Congress, February 29-March 3, 1996, Nancy, France. - This controlled study on arthrosis patients has shown a definite improvement in the disease condition of patients treated with MFT.

◦ D. H. Trock et al.: "The Effect of Pulsed Electromagnetic Fields in the Treatment of Osteoarthritis of the Knee and Cervical Spine. Report of Randomized, Double-blind, Placebo-controlled Trials," Journal of Rheumatology, 1994:21, pp. 1903-1911. - This study on 86 patients with arthrosis in the knee and 81 patients with arthrosis in the cervical spine has shown that there are definite differences between the magnetic field group and the control group. The patients treated with the magnetic field show an improvement with a statistically significant difference in almost all clinical measurements.



Local treatment of hip with pad

◦ D. H. Trock et al.: "A Double-blind Trial of the Clinical Effects of Pulsed Electromagnetic Fields in Osteoarthritis," Journal of Rheumatology, 1993:20, pp. 456-460. - This double-blind randomized study with 27 patients (primary arthrosis of the knee) is one of the most important research studies conducted in the field of MFT. Six clinical parameters were investigated at different times during the treatment and evaluated after one month. These results show a definite improvement in clinical parameters (such as mobility) in the group treated with magnetic field therapy in comparison with the group treated without magnetic field therapy. An important conclusion in this study is that for more than 17 years, more than 200,000 patients have already been treated with pulsating magnetic fields in clinical trials without any mentionable side effects. Observations in Europe on 861 patients with painful rheumatic changes have shown an improvement in symptoms in 70-80 %.

◦ "Four years of experience with low-frequency pulsed electromagnetic fields in diseases and injuries of the supporting system and the motor system at the Herder Clinic in Bremen" - According to the expert evaluation of 650 cases of arthrosis of the spinal column and peripheral joints, a reduction in pain was found in 60-70 % of the cases.

Physician reports on the treatment of arthrosis with MFT

1. Dr. Michael Pommer, M.D., specialist in orthopedics and surgery, Graz

• *"In arthrosis and osteoporosis, excellent therapeutic results are achieved due to the cell-regenerating, anti-inflammatory and circulation-improving effects. Magnetic field therapy has proven to be excellent in my practice. In bone fractures, the healing results are greatly improved. Loosened prostheses can be secured again."*

2. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient X.F., male, 44 years old. Diagnosis: Arthrosis of the right elbow joint, condition after a trauma in 1998: definitely reduced extension, marked pain symptoms in the morning and paresthesias (tingling) in the supply region of the ulnar nerve (elbow nerve). Results of MRS therapy: A temporary reduction in pain and increased freedom of movement were observed after just one day of treatment. A shortening of the regeneration phase was observed after playing tennis. Due to an unavoidable interruption in therapy (approximately four days), the success already achieved was reversed, thus demonstrating a direct correlation between treatment and pain relief.*

• *Patient I.D., female, 57 years old. Diagnosis: Gonarthrosis. Results of MRS therapy: The pain perceived subjectively subsided from 6 to 1 (on a scale of 10: 1 = no pain, 10 = intolerable pain).*

• *Patient C.B., male, 65 years old. Diagnosis: Poor general condition, cachectic; lack of energy after/due to reactive depression, no change in condition despite the use of antidepressants; in*

addition, marked polyarthrosis with extremely restricted movement in the area of the MCP (metacarpophalangeal joint of the finger), PIP (proximal interdigital joint) and DIP (distal interdigital joint). Due to the primary illness, the patient has little strength in either wrist, and he cannot make a fist or hold an empty cup. His gonarthrosis is so painful that the patient has been unable to go up stairs for several years. Results of MRS therapy: After 3 months of MFT with a marked initial reaction at the beginning, this patient is now pain-free today; he can make a fist, drink from a full coffee cup and climb stairs.

3. Dr. Kurt Pinter, M.D., Graz

• *Patient S.M., female, 85 years old. Diagnosis: Mrs. M has been suffering from the consequences of static and dynamic overloading of the motor system and the supporting system for several years; in addition to the lumbar spine, mainly the major joints are affected in particular; a total endoprosthesis had to be implanted in this patient in 1995 because of extreme coxarthrosis on the right. Continued high-grade deforming arthrosis of the finger joints, and the shoulder joints also show massive degenerative changes. This patient has refused medication and originally did not want to do MRS therapy because she had already received expensive MFT 20 years ago but with no effect. After an introductory infiltration therapy to alleviate the severe pain, she began magnetic resonance therapy on a trial basis. Results of MRS therapy: "The improvement in the degenerative changes (which she had hoped to see but which I had ruled out from the beginning) of course did not occur; however, she has experienced a significant reduction in pain and thus also a definite lightening of her overall mood."*

4. Heimo Simon, M.D., University Instructor

• *Patient, male, 59 years old. Diagnosis: Severe arthrosis in the area of the wrist as the result of a fracture 40 years previously in the area of radius and the wrist. Status report at the beginning of treatment: Swelling and inflammation in this area, restricted movement. Results of MRS therapy: Increased pain after three days, thereafter an improvement in the swelling, the restricted movement and pain.*

5. Rudolf Foundation Hospital in Vienna

• *Patient, male, 84 years old. Diagnosis: Severe coxarthrosis (arthrosis of the hip), lumbago (pain in the back), shortening of leg. Results of MRS therapy: MRS therapy and ultrasound three times a week after a fracture of the neck of the femur. Tendency to a significant improvement after seven treatments.*

6. Wolfgang Kropshofer, Health Center, Doctor of Chiropratics, 1080 Vienna, Alserstrasse 43/8a, tel. +43/(0)1/40 373 80

• *Patient G.C., female, 60 years old. Diagnosis: Gonarthrosis in the left knee. Signs of arthrosis in the sacral-intestinal insertions on both sides, shoulder-arm syndrome on the right, radiating pain into the upper arm, numbness in the fingers. Treatment: Scarification of the gelose trapezius, bloody medially (myogelosis). Results of MRS therapy: Virtually no pain in the knee joints within a short period of time, shoulder-arm complaints also improving. Osteoporosis findings on May 25, 1998: bone density 119 %. December 15, 1998: Patient is free of symptoms in the follow-up examination, can walk for long distances and the stiffness of her fingers has disappeared.*

• *Patient K.R., female, born 1923. Diagnosis: High-grade gonarthrosis. The patient has received five cortisone injections from her orthopedic surgeon; two weeks without symptoms. The patient walks with a cane and can only walk short distances. The pain (for about four years) is almost intolerable in the evening. Results of MRS therapy: The patient is completely pain-free - even at a follow-up four months later.*

7. Monika Grau, M.D., General Practitioner and Homeopathy Specialist

• *Patient A.E., female, born 1928. Diagnosis: Incipient arthrosis of the shoulder, arthrosis of knee joints on both sides and old cervical and lumbar spine complaints. Results of MRS therapy: The patient described the treatment (especially the first week) as extremely euphoric because of a definite improvement in general body feeling (lighter, more energy) and a perceptible improvement in specific symptoms. After ten treatments, the patient could move both shoulders again in all planes without pain and the knee and spinal complaints are becoming increasingly better.*

Patient reports on the treatment of arthrosis with MRS

1. Thanks to Mr. Reinhard Schlag

• *Patient B., male, 64 years old. Diagnosis: Primary arthrosis in the left knee and right foot, mild arthrosis in the right knee, movement and walking possible only with severe pain. Results of MRS therapy: A definite improvement in all areas after just three treatments. Mr. B. reported that even the pain in his back and shoulder had disappeared. In addition, he no longer had any prostate problems. After a pause in the treatment (vacation), Mr. B. reported that he still occasionally experienced pain in his foot and he was already able to go on long hikes. Mr. B. stopped taking all medication on his own at the beginning of the treatment and now is off all medication. He said that he has never felt so good or slept so well. Long hikes no longer cause him any pain, and heavy physical labor is now possible with no problem.*

• *Patient R., male, 71 years old. Diagnosis: Arthrosis in the right knee: severe pain. Shoulder pain, backache, circulation problems in the arms (feeling of numbness), prostate problems. Results of MRS therapy: After three treatments, all symptoms improved. Mr. R. is completely free of symptoms after two weeks of treatment. He can now walk without pain, and his shoulder pain and backache have disappeared. He sleeps very well and no longer has any prostate problems. The feeling of numbness in his arms has disappeared completely.*

2. Thanks to Mrs. Beate Martina

• *Patient G.M., male, 85 years old. Diagnosis: Arthrosis in the hands and knees: diabetes mellitus, prostate problems (must go to the toilet seven times a night), cataracts in both eyes, poor circulation, sleep disorders, digestive disorders, and resulting bowel problems, inflammation of the bladder, prostate surgery in 1997 led to difficulty in urination. Results of MRS therapy: After two weeks, significant improvement in circulation, the patient sleeps better, digestion has improved, nycturia only three times per night. After five months: Motor system free of pain, blood sugar levels stable, he no longer has to get up at night. Wound healing enormously improved. Furthermore, surgery on his eyes is no longer necessary (the cataract has disappeared), his hair is growing in darker, he no longer has any digestive problems and he is taking only one drug for diabetes.*

3. Thanks to Mr. Rudolf Frauenberger

• *Patient L., female, , 62 years old. Diagnosis: Arthrosis in the hips and wrists. Increasingly severe pain when climbing stairs. Results of MRS therapy: Full freedom of movement and no pain in normal everyday life.*

4. Thanks to Mrs. Beatric Studer

• *Patient, female, 62 years old. Diagnosis: Joint pain throughout the entire body, primary arthrosis pain in the left hip joint, 1995 hip joint surgery with a total prosthesis made of titanium. Results of MRS therapy: The patient is more balanced, has greater endurance, can withstand stress better and no longer has any joint pain.*

5. Thanks to Mrs. Gabriele Ockenfels

• *Patient R.O., male, 63 years old. Diagnosis: Pain due to coxarthrosis; patient referred for surgery on both hips, hypertension, gout, circulation disorders, especially in the legs. Results of MRS therapy: No more pain after three days, but the pain returns when lifting heavy weights. After longer treatment, he is free of pain in the hips and legs, and there has also been an improvement in his gout. So far, surgery on the two hip joints has not been necessary.*

6. Thanks to Mrs. Sieglinde Kapun

• *Patient K.R., male, , 64 years old. Diagnosis: Wear on the spinal cord and hip joint, circulation disorders throughout the whole body, migraines, tension in shoulder area, low blood pressure, severe sleep disorders, pain in the joints. Results of MRS therapy: Sleeping problems greatly improved after one and a half weeks, tension in shoulder area improved. Pain in the hip joint disappeared after treatment with the pad.*

7. Thanks to Mr. Karl Garber

• *Patient A.G., female, 35 years old. Diagnosis: Wear phenomena on the cervical and thoracic spine, therefore, severe headaches three to four times a week (medication), sleep disorders. Results of MRS therapy: No more headaches, sleep disorders and back pain eliminated.*

8. Thanks to Mr. Wolfgang Gasteiner

• *Patient H.W., female, 53 years old. Diagnosis: Extreme pain in the pelvic area and in the right thigh. Joint pain in the right knee, elbow and shoulder; patient finds it almost impossible to fix her hair; circulation problems in the feet. Results of MRS therapy: Circulation in the feet optimized after the first treatment, extreme relief in climbing stairs, subsidence of pain the next day, sleep disorders eliminated due to the pain relief. Movement therapy was possible after three days (walking rapidly for 5-6 kilometers). Circulation stabilized after the first days (daily medication stopped), medication for osteoporosis and gout stopped after 14 days. After four weeks, the patient is free of pain and experiencing physical well-being.*

9. Thanks to Mrs. Doris Paunger

• *Patient R.H., male, 75 years old. Diagnosis: Wear phenomena in the shoulder and knee areas, fracture in the hip area with constant complaints. Results of MRS therapy: Significant improvement after 14 days of treatment, pad used in the shoulder and knee areas; significant pain relief during the treatment. Tinnitus improved, general condition very good. After the fourth week, the shoulder pain improved progressively (longer-lasting freedom from pain).*

10. Thanks to Mrs. Verena Singer

• *Patient E. O., female, 75 years old. Diagnosis: Arthrosis. Mrs. O. had severe pain, necessitating reliance on injections and pills. Results of MRS therapy: She no longer needs any pills or injections. After a few treatments, Mrs. O. experienced an improvement in mobility immediately and pain relief and stabilization of the entire body structure. She has been treating her knee (arthrosis) with the pad. Today she rides a bicycle a lot.*

• *Patient T. S., male, 84 years old. Diagnosis: Arthrosis in the shoulder joint and in the knees - surgery was performed on one knee in May 1988 (straightening it with a plate and screw), mild angina pectoris, pain throughout the entire supporting apparatus, gout nodules on the hands and feet (fingers on the left hand deformed, severe nodules on the right hand), circulation disorders, alopecia. Results of MRS therapy: In January 1997, second knee surgery (artificial joint); released from the hospital after 13 days. Three weeks later: The patient was able to drive a car himself (standard transmission). Shoulder: Great improvement in mobility, he can again rise his arm above his head, has more strength and mobility throughout his entire supporting apparatus, restrictions due to angina pectoris improved, no gout attacks and no pain in the hands and feet, fewer circulation problems, more energy and strength, hair loss stopped (denser hair structure), stronger fingernails.*

11. Thanks Mr. Siegfried Muhry

• *Patient W.H., male, 39 years old. Diagnosis: Wear on lumbar spinal cord, intolerable backaches for approximately ten years, sensitivity to weather, depression. Results of MRS therapy: "After two weeks, the pain increased almost to the point of being intolerable, but then a rapid improvement occurred. Now I am almost free of symptoms and I no longer need any pain pills."*

Appraisal of MFT: **80 % very good success, pain relief**

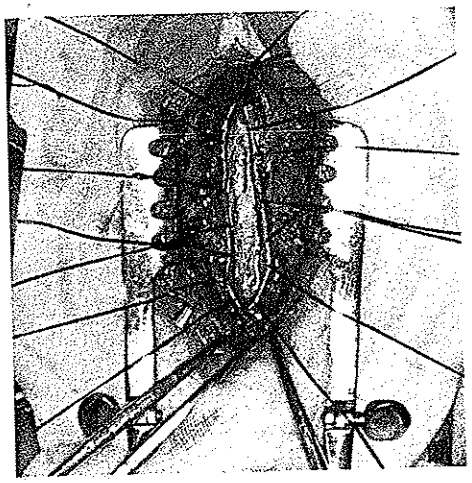
1.4. Rupture of ligaments and strained ligaments:

see "Sports medicine"

1.5. Prolapsed disk

Intervertebral disk complaints are a typical disease of civilization of which a great many people suffer today to a more or less great extent. A prolapsed disk is a form of degenerative rheumatism.

There are 23 intervertebral disks between the individual vertebrae (bones) acting as shock absorbers between the individual vertebrae. The vertebrae and intervertebral disks are held together by ligaments. Each intervertebral disk consists of a cartilage sheath which has a high tensile strength and a gelatinous core which assumes the shock-absorbing effect. As a result of certain movements or certain stresses, the gelatinous mass between the individual vertebrae can escape through a tear in the sheath. This results in the feared phenomenon of prolapsed disk (slipped disk), which is very painful. Over the years, drying leads to shrinkage, so the spinal column actually becomes shorter. The flatter the disks, the greater the pressure of the vertebrae on the nerve pathways branching off from the spinal cord. This is the cause of the severe pain.



Surgery on ninth disk

Prolapsed disks are occupying more and more often among relatively young people. The symptoms depend on the location affected in the spinal column. Impairment in the sciatic nerve causes an enormous impairment in mobility and is also responsible for a certain loss of sensitivity. Tingling or stiffness in parts of the arms, legs or feet may be the result of wear in the area of the cervical spine.

These patients should never lift or carry heavy objects. If the pain is severe, the patient is treated with medication. Exercise strengthens the muscles. Sometimes surgery is unavoidable, although the surgery itself is painful and not without risks.

Effect of magnetic field therapy on prolapsed disk:

relieving pain (effect of hyperpolarization), relaxing muscles (taking the pressure off the nerve).

Proper use of MRS for patients with a prolapsed disk

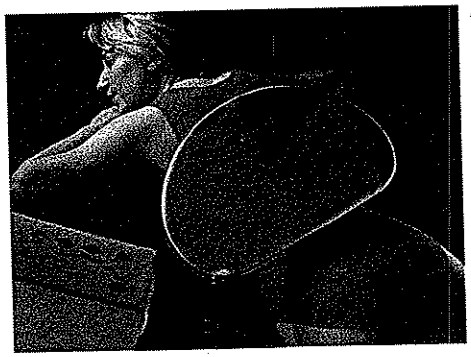
• Whole-body mat: twice a day for 8 minutes each time: 50 % level in the morning, 10 % level in the evening

• Pad: 2-3 times a day for 16-24 minutes each time, levels: 25-50 % cervical, 50-100 % chest, 100-150 % lumbar

• Special instructions for use: Keep knees bent! Roll over on the side before standing up. The results of this treatment will depend to a great extent on this measure.

• Duration of treatment: the duration (days, months or, as a prophylactic measure, even years) will depend on the extent of the damage.

• Notes on initial reaction: There is an initial exacerbating reaction in less than 5 % of these patients.



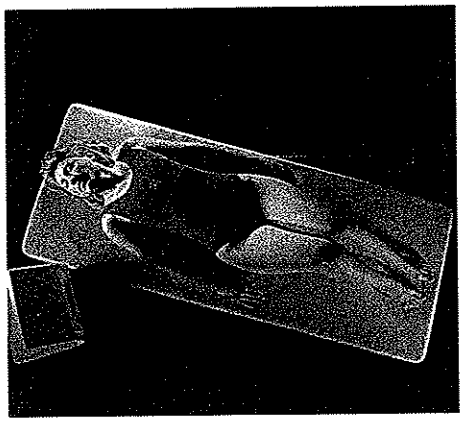
Local treatment of spine with pad

• Forms of treatment supportive of MFT: acupuncture, neural therapy, movement therapy, cognitive therapy

Scientific studies on the treatment of prolapsed disk with MFT

We would like to refer here to a special study with the MRS 2000+ MED System which was conducted in Graz by Dr. Manfred Walzl, M.D. (neurologist). In two comparative groups, 40 patients with nerve root irritation due to disk problems were investigated. One group was treated with the usual medication, and the second group was also treated with MRS. The days until the patients became clinically pain free, the increased movement in the flexion angle according to Lasegue and the subjective pain perception of the patient were measured. Healing occurred two days sooner in the group with MFT (9 days versus

11 days in the second group). Mobility was definitely improved and the subjective pain perception was also greatly reduced.



Basic treatment in prolapsed disk

◦ J. Barovic, G. Fischer: "Increased Mobility and Pain Relief in Diseases of the Motor System Due to Magnetic Fields," Maribor District Hospital and University of Graz. - A population of 25 male and female patients with prolapsed disk (diagnosed by myelography) was treated with magnetic resonance in the period from February 1, 1995 through September 1, 1995. In addition to measuring the finger-to-floor distance, the ten-point pain scale was used as a criterion. Highly significant positive results were obtained.

Physician reports on the treatment of prolapsed disk with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, Tel. 0043/1/40 666 00

• *Patient M.C., male, 53 years old. Diagnosis: Intervertebral disk surgery L3/L4, knee surgery (meniscus). Results of MRS therapy: Finger-to-floor distance before the first treatment 45 cm, after the first treatment 36 cm; pain free after three months.*

2. Dr. W. R. Maus, M.D., Überlingen

• *Patient W.R.M., male, Diagnosis: Intervertebral disk surgery. Results of MRS therapy: "After eight months of intense pain, I was pain-free within three weeks due to treatment with MRS."*

3. Dr. Karl Gruber, M.D., Medical Director of the Hospital of the City of Weiz

• *"We have used the magnetic field mat on 40 patients and the MF pad on 55 patients, 10-15 times each. The areas for use of this therapy in our hospital were limited primarily to intervertebral disk injuries, arthrosis of the major joints of the body, bone fractures and loosening of implants, mainly hip endoprotheses." Results of MRS therapy: Positive feedback on the part of the patients in more 70 % of the cases, reduced muscle tension, reduced symptoms due to arthrosis, improved mobility and a definite improvement in gait.*

4. Dr. Harald Eckardt, M.D., Dr. Gero Krause, M.D., Dr. Holger Lorenz, M.D., Dr. Josef Kapellmann, M.D., Orthopedic Surgeons, Rosenheim

• *Patient S., male, diagnosis: prolapsed disk L4/5 left, protrusion L5/S1 with root irritation syndrome. The patient was complaining of pain in the shoulder blade and the entire lumbar spine. Results of MRS therapy: After just five treatments, Mr. S. experienced extensive improvement in symptoms.*

5. Dr. Werner Raufelder, M.D., Bad Endorf

• *Patient C.O., female, 54 years old. Diagnosis: Prolapsed disk L4/5, recurrent ischialgia. Previous treatment: physical therapy, NSAIDs (analgesics), radiation - unsuccessful. Results of MRS therapy: Start of treatment December 3, 1997, end of treatment December 18, 1997. Course: Improvement in lumbar symptoms after the first treatment, patient free of symptoms after eight treatments, still virtually free of symptoms.*

6. Dr. Sigrun Schaller, M.D. General Practitioner, Naturopathic Medicine, Zell am See

• *Patient Z.H., male, born 1952. Diagnosis: Prolapsed disk L4/L5. History: the patient was a soccer player and trainer. During that time, he experienced lumbar pain with pulling symptoms in the right leg. Despite medication and physical therapy, the patient was never free of symptoms. In June 1997, renewed symptoms with paresthesias (tingling) in the area of the right calf laterally to the edge of the foot (peroneal region) and a marked feeling of stiffness in the area of the lumbar spine, continuing into the cervical spine. Results of MRS therapy: Persistent improvement in hypesthesia immediately after the first treatment. At the end of the treatment, only the mobility of the lumbar spine was still slightly restricted, there was no more perceptible dysesthesia, and the patient's general well-being was definitely improved.*

Patient reports on the treatment with MRS in prolapsed disk

1. Thanks to Mr. Max Keiser and Mrs. Verena Singer

• *Patient A. H., female, 61 years old. Diagnosis: Intervertebral disk damage since 1957. Results of MRS therapy: Pain-free for five months in the area of the disks, greatly improved general well-being and psychological well-being.*

2. Thanks to Mrs. Sieglinde Kapun

• *Patient S. P., male, 66 years old. Diagnosis: Wear and tear on intervertebral disk, rheumatism, lumbar pain. Results of MRS therapy: improvement in lumbar pain after 7 days, loosening of tension after 14 days, patient able to sleep without pills, improved general condition.*

• *Patient W. A., male, 29 years old. Diagnosis: Prolapsed disk L5/S1, stiff knee after surgery (torn meniscus, cruciate ligament and collateral ligament). Results of MRS therapy: Minimal improvement in disks after one week. Second to third weeks: reduction in pain and use of pain pills, injections could be stopped completely; patient pain-free after twelve weeks. Knee after first to third weeks: dissolution of chondrification in the joint. "After five weeks, I was able to complete a light running training course and after 16 weeks my knee was fully movable again. I am now pain free."*

3. Thanks to Mrs. Gabriele Heidt

• *Patient E.H., male, 47 years old. Diagnosis: "According to my physician, the last five vertebrae are destroyed. I was having constant back pain. The CT scan showed the disk "black" on the x-ray. After improper movements, I was often unable to move at all. Injections provided short-term pain relief. In addition I had a bone splinter under the knee disk on the left knee that was causing constant pain." Results of MRS therapy: "Initially there was a slight improvement, but after two months there was a brief exacerbation of symptoms. Today after one year I can say that my symptoms have completely disappeared."*

4. Thanks to Mrs. Heidemarie Schäfer

• *Patient U.E., male, 72 years old. Diagnosis: Severe lumbar pain and disk complaints. "I could not sit up without assistance. The pain was caused by osteoporosis. Results of MRS therapy: "The pain gradually became better but a definite improvement occurred only after about twenty weeks. Today I am still not completely free of pain. I was taking calcium pills for bone density."*

5. Thanks to Mrs. Prietl

• *Patient H.S., male, 37 years old. Diagnosis: Prolapsed disk in December 1995; January 16 through February 1, 1996: hospitalized for treatment with infusions, medication and interference current; hydroxeur, therapeutic massage, individual physical therapy, training in back posture and exercise and repeated acupuncture treatments on the ear and on the body. The pain went away but "the dead feeling in my right leg" remained. Results of MRS therapy: "Since using the mat, I have not had any more pain and the 'dead' feeling has disappeared."*

6. Thanks to Medline

• *Patient S.K., male, diagnosis: "I suffered a prolapsed disk due to overexertion, which caused me a great deal of pain. The doctor urgently advised therapy (swimming and radiation) which I began immediately. The pain became worse and worse and I developed a feeling of numbness in both legs which seemed to radiate out from the disks." Results of MRS therapy: "After using this only twice, I was already free of symptoms and was able to feel my left leg again. Four days later, my right leg was also healthy again. To my amazement, the disk, which had initially projected about 4-5 mm, slipped back into the original position."*

7. Thanks to Mrs. Ursula Lange

• *Patient, male, 49 years old. Diagnosis: Back/skeleton problems for 30 years in shoulder, cervical and thoracic spine (hunchback). Several prolapsed disks in the lumbar spine. No surgery. In recent years, the patient has received injec-*

tions up to twice a week to relax the muscles and counteract very severe pain. The patient had also taken several cures, had received instruction in back exercises, and had a lot of activity outdoors. 20 % impairment in walking, could not drive a care for more than 40 minutes; sitting and standing hardly possible at all. Results of MRS therapy: After two weeks of regular use, the patient is free of symptoms. It is possible for him to sit, stand and drive for 10 hours - with brief interruptions - with no problem; no more injections necessary for three months.

• *Patient F.N., male, 35 years old. Diagnosis: Severe intervetebral disk symptoms in the area of L4/L5, pain radiating into the feet. Results of MRS therapy: "Improvement after the first treatment, the pending surgery was no longer necessary, magnetic field therapy brought an immediate improvement. I was almost free of pain after six weeks."*

• *Patient Dr. B. A., male, 44 years old. Diagnosis: Pain throughout the entire spinal column. Prolapsed disk several years ago: L4/L5, S1/S2, marked degenerative changes in the area of the cervical spine. Depression, headaches, dizziness, tingling in the right leg, hair loss on the legs. Results of MRS therapy: Freedom from symptoms in the area of the lumbar spine. Significant improvement in general well-being, only very rare dizziness attacks and mild headaches, hair completely grown back in on the legs, improvement in mobility in the area of the cervical spine, no more pain at night after 4-5 weeks.*

8. Thanks to Mr. Ludwig Müller

• *Patient B. J., male, born 1939. Diagnosis: Bilateral prolapsed disk (sciatic nerve) in 1994 - thereafter almost completely disabled occupationally. "I could not sleep at night for several months, the piercing pain in my foot forced me to get up and walk around for one or two hours. I had to take pain pills regularly." Results of MRS therapy: December 3, 1996 start of therapy. "On December 11, 1996 I observed an improvement and was able to get up in the morning without pain. Eight days later, the piercing pain in my feet had disappeared completely. After 3 months, I was able to sleep through the entire night without pain and since then I have been able to return to work. In December 1997 I completely stopped using pain pills."*

• *Patient, female, 52 years o[illegible] Diagnosis: severe back "While on vacation I experience[illegible]cks through pain (from the right half of the bu[illegible]use of carry- the thigh down into my feet) be[illegible]in for a long ing baggage and sitting on the [illegible]lapsed disks, time. The doctor diagnosed two p[illegible]ion and the the lower disk showing calcific[illegible]le prescribed nerve canal was very constricted[illegible]MRS therapy: pain pills to help me." Results o[illegible]y helped me, "Since the pain pills no longer re[illegible]st, I could lie I decided to stop taking them. At[illegible] and my toes on my back only with severe pai[illegible]ent. After a would cramp up with any mov[illegible]be, the first week of using the mat and the [illegible]hile. After 3 effects were apparent. I felt n[illegible] my stomach weeks, I was again able to lie o[illegible]urning to my when going to sleep and enjoy n[illegible] for any ex- old habits; standing and walki[illegible]ociated with tended period of time were still c[illegible]ause I knew great pain, but I was satisfied, [illegible]ure. Patience that I was on the right path to c[illegible]in anyway. I is necessary when dealing with [illegible] look behind used the time on the mat to t[illegible]till. After 4-5 my situation, to meditate and b[illegible]w treat my- weeks of intensive therapy, I can[illegible] move nor- self. I can do my housework, I [illegible] through the mally again and usually slee[illegible] in a short pe- night. This is an enormous succe[illegible] strong as an riod of time. Although I'm not c[illegible] life again." ox, I still feel ready to handle dai[illegible]*

9. Thanks to Mrs. Urusla Lange

• *Patient, female, 59 years c[illegible]. Diagnosis: Since 1983 back and skeleton p[illegible]blems in the cervical spine, the second verte[illegible] was shifted inward (corrected 3 times by a c[illegible]opractor); re- peated phases of dizziness and [illegible]uses lasting for several weeks at a time. The [illegible]tient could lift her head (to look up) only with [illegible] support of a hand. She had to wear a nec[illegible]brace for 3-4 weeks repeatedly over the years.[illegible]adiating pain into the left shoulder, arm, han[illegible]and wrist. Results of MRS therapy: Absolute[illegible]free of symp- toms after one week, even in ath[illegible]lic activity.*

10. Thanks to Mrs. Taege

• *Patient W., male, 59 years [illegible]. Diagnosis: Prolapsed disk, surgery 1993/[illegible] Pain in the lower lumbar spine area with [illegible]mboischialgia on the left. Orthopedic treatme[illegible] (therapeutic injections) did not yield any im[illegible]provement. Results of MRS therapy: "After [illegible]days October*

17, 1998) there was a slight improvement. Two weeks later, I experienced intense pain when using the mat. One week later, the pain stopped. Since the middle of December, I have been free of pain and I have continued to use the mat 3 times a day."

Appraisal of MFT: **70 % good to very good results**

1.6. Bekhterev's disease

This chronic inflammatory spinal diseases affects more men than women. It usually begins at a very early age (back pain in the post-puberty years) and affects the entire spinal column, starting from the lumbar spine. X-rays and blood samples are needed for diagnosis. The typical morning stiffness of the back disappears after about one hour of movement. In the course of the disease, however, the entire spinal column may become completely stiff. Since this disease cannot be cured, an attempt is made to postpone the total stiffening as long as possible through movement exercises, medication and treatment such as magnetic field therapy.

Effect of magnetic field therapy on Bekhterev's disease:

promoting mobility, relieving pain, reducing morning stiffness

Correct use of MRS in Bekhterev's diseases

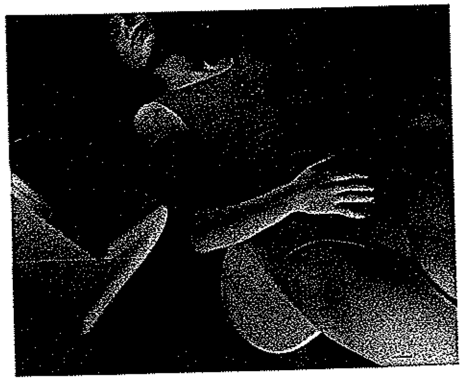
• Whole-body mat: twice a day for 8 minutes each time: 25 % level in the morning, 10 % level in the evening

• Pad: 2-3 times a day for 16-24 minutes each time; 100-150 % level (increasing gradually), in the lumbar spine area

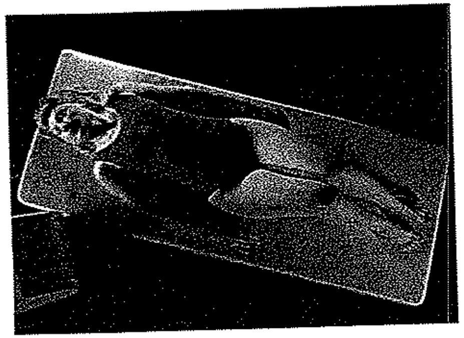
• Special instructions on use: Keep knees bent and be sure to be in a painless position.

• Duration of treatment: Treatment is long-term, success is manifested in the first three months.

• Notes on the initial reaction: Approximately 15 % of patients experience a brief flare-up of symptoms (increase dose gradually!)



[illegible] for Bekhterev's disease



[illegible] in Bekhterev's disease

• Forms of therapy that support MFT: enzymes, acupuncture, neural therapy, saline therapy, cognitive therapy, a lot of movement

Scientific studies on the treatment of Bekhterev's disease with MFT

• D. C. Laycock: "Biological Effects of Natural and Pulsed Magnetic Fields," MBES. - This study describes the pain-relieving effects of magnetic field therapy.

• Additional studies: "Rheumatic Diseases"

Physician reports on the treatment of Bekhterev's disease with MF

1. Dr. W. R. Maus, M.D., Überlingen

• *"An 80-year-old friend was suffering from Bekhterev's disease and could no longer fall asleep due to the pain. After three months of treatment with MRS, he was no longer experiencing any pain."*

2. Dr. Alfred Lohr, M.D., General Practitioner

• *Patient A.K., male, Diagnosis: Spondylogenous neuralgia of the spinal cord, especially the thoracic and lumbar spine. Sinubronchial syndrome, prosthetic hyperplasia. Results of MRS therapy: A significant improvement in symptoms occurred during the period of observation with regard to the spondylogenous spinal pain.*

3. Dr. Manfred O. Eder, M.D. Anger, Bavaria

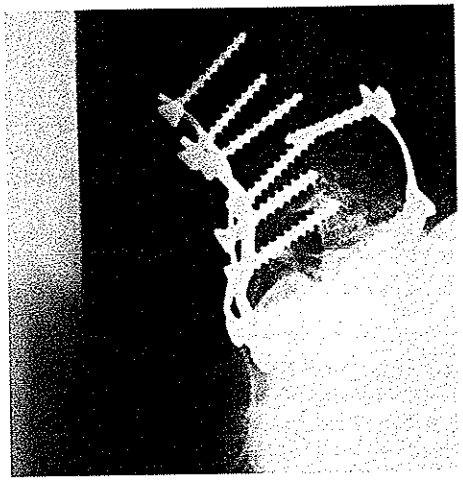
• *Patient F.H., male, 76 years old. Diagnosis: Chronic recurrent cervical-thoracic-lumbar spine complaints with blockage, recurrent symptoms throughout the entire spinal column. Results of MRS therapy: The patient is free of symptoms in the area of the spinal column and the iliosacral joints.*

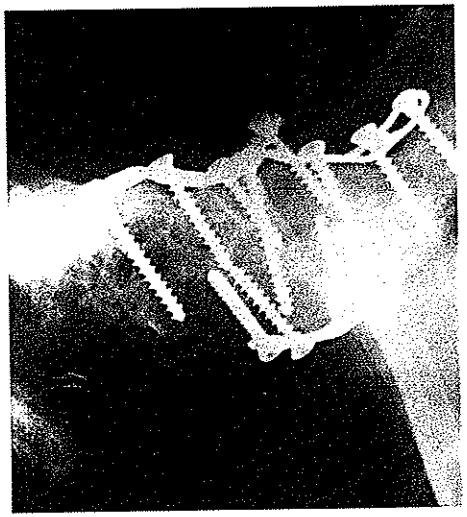
Patient reports on with MRS in Bekhterev's disease

1. Thanks to Mr. Dieter Frey

• *Patient H.R., male, 72 years old. Diagnosis: Rhumatoid spondylitis (Bekhterev's disease) since 1970 had led to stiffening of the entire spinal column. In 1986 this patient had an accident resulting in a cervical spine fracture; in 1997 accident with thoracic and lumbar spine fractures. In surgery, a corrective procedure was performed. Since then, the patient has had 12 screws in the cervical vertebrae and 18 screws in the remaining vertebrae. "I always had severe pain, suffering from circulation disorders in the head, arms and hips, and I always had cold hands and feet. Since then, I have had 100 % impairment in walking. Pain pills attacked my stomach, and I was always suffering from severe headaches and equilibrium disorders." Results of MRS therapy: "After the start of treatments (several times a day) the pain initially became worse. A few days later, there was a slight improvement which continued progressively. After longer treatment, I was able to move better. Today I rarely need pain pills. My equilibrium disorders and headaches have mostly disappeared. As an additional success, I have noticed that my kidney cysts have become smaller or disappeared."*

Appraisal of MFT: **70-80 % good to very good results**





X-ray of cervical spin with screws

1.7. Cervical syndrome

Cervical syndrome involves sensory and motor disorders in the neck, shoulder and upper arm areas, often as a result of wear phenomena on the cervical spine due to frequent excessive stress, such as sitting for a long time at a typewriter or at a computer. In the neck area, the nerves and blood vessels run much closer to the bones and ligaments than in the remaining spinal column. Changes in the intervertebral disks or bones (bone spurs) therefore, rapidly result in severe pain. In addition, exposure to cold also leads to muscle cramps and thus to nerve irritation. Typical signs of cervical syndrome include pain radiating from the neck and shoulder into the back of the head or into the fingers. This may be associated with a disturbance in sensation, loss of strength and paralysis of the musculature.

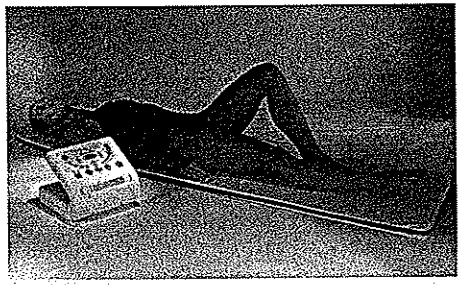
Effect of magnetic field therapy on cervical syndrome:

supporting, relieving pain. Serious destruction is irreversible.

Proper use of MRS for cervical syndrome

• Whole-body mat: once a day for 8 minutes: 100 % level in the morning (gradually increasing from 10 %)

• Pad: 3 times a day for 16 minutes each time: 25-50 % level, on the cervical spine (up to 100 % in exceptional cases)



Basic treatment in cervical syndrome

• Forms of therapy that support MFT: movement therapy (the simplest exercise is to bend the head a couple of times to each side several times a day, as if greeting someone).

• Duration of treatment: Please consider that treatment in the shoulder and neck area can be especially prolonged. We speak of therapeutic success in small steps here.

• Notes on the initial reaction: Due to the low dose, the initial reaction occurs only in approximately 3 % of the cases.

Local treatment for cervical syndrome

Scientific studies on the treatment of cervical syndrome with MFT

• L. L. Butenko: "The Use of Alternating Magnetic Fields in Spinal Osteochondrosis," Mechanisms of biological action of electromagnetic fields, USSR Academy of Sciences, Research Center for Biological Studies, Institute of Biological physics, October 27-31, 1987, coordination Council of Comecon Countries and Yugoslavia for Search in the fields of Biological Physics, p. 183. This study investigated patients with osteochondrosis of the spinal column in treatment with magnetic fields and conservative therapy. The results show that 95 % of the patients receiving this combination treatment (i.e., with magnetic field) experienced an improvement in symptoms, whereas only 30 % of those receiving the conservative treatment alone achieved the desired effect.

Physician reports on the treatment of cervical syndrome with MF

1. Health Center of Wolfgang, Kropshofer, Doctor of Chiropractics, 1080 Vienna, Alserstrasse 43/8a, tel. +43/(0)1/40 373 80

• *Patient A.H., female, born 1935. Diagnosis: Cervical syndrome, dizziness, tinnitus for 30 years, blockage of the cervical spine. Results of MRS therapy: The patient experienced extreme fatigue after the treatment but her dizziness was better. Results of treatment with tinnitus with the probe: no more ringing in the ears.*

2. Dr. Christoph Scherer, M.D., Dr. Christian

Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 01/40 666 00

• *Patient E.B., female, 72 years old. Diagnosis: Cervical syndrome after an automobile accident 15 years previously. Results of MRS therapy: The paresthesias (disturbances in sensation) were greatly reduced after the fifth treatment, the patient felt more vital and full of energy, the pain was reduced and mobility increased.*

3. Dr. Gerhard Beck, M.D., Aspach

• *Patient, female, 85 years old. Diagnosis: Lower cervical syndrome and multiple vertebral fractures, osteoporosis, dorsolumbago with degenerative spinal cord changes. The patient came to the treatment center with a support corset and could walk for short distances only with the help of two crutches and analgesics. Parallel: physical therapy and medical training therapy. Results of MRS therapy: "Surprisingly, the patient was again able to walk almost without symptoms and without the use of a support corset or crutches by the end of the rehabilitation stay (three weeks) and was also able to sit for longer periods of time. This was impossible at the beginning. The patient reduced her reliance on pain medication on her own. She was very fortunate because she is alone and can now maintain her independence.*

4. Dr. Werner Raufelder, M.D., Bad Endorf

• *Patient G.B., male, born 1940. Diagnosis: Cervicobrachial syndrome, scoliosis, shortening of the left leg, sleep disorders, gastritis, condition after a whiplash injury of the cervical spine. Results of MRS therapy: after the first treatment, his sleep improved; after the seventh session, the cervical spine improved with only slight to moderate residual complaints and improved mobility. Follow-up examination revealed the patient to be almost free of symptoms to the current date (January 8, 1998).*

5. Dr. Paukner Ernst, M.D., General Practitioner

• *Patient H.P.P., male, 36 years old. Diagnosis: Cervical and lumbar spine syndrome. Results of MRS therapy: After just a few treatments, the patient experience a definite subjective improvement in overall well-being, following which he also improved in the local cervical symptoms.*

Patient reports on the treatment with MRS in cervical syndrome

1. Thanks to the company Vita-Life

• *Patient B.N., male, 63 years old. Diagnosis: Cervical syndrome, severe pain and tension in the cervical spine and shoulder area. Results of MRS therapy: Almost free of pain after two treatments.*

• *Patient M.L., male, 49 years old. Diagnosis: Cervical syndrome for three years with radiating pain into the right arm (especially at night), feeling of numbness in the fingers, loss of strength. X-ray showed severe wear phenomena in the cervical spine area. Results of MRS therapy: Improvement after six weeks; patient can sleep at night again undisturbed, the pain and numbness have disappeared. "I have energy again and can return to work."*

Appraisal of MFT: **60 % good to very good results, pain-relieving effect**

1.8. Heel spur

A heel spur is a spur-like bone formation that develops on the lower side of the heel or in the attachment area of the Achilles tendon. This usually affects older people and people who are overweight, people who stand while they work or have (congenital) foot deformities. When load is placed on the heel, these patients very often experience severe pain; therefore, they shift their weight to the ball of the foot. A cushioned heel and shoe inserts can reduce the pain. Surgery is usually out of the question because of the feared scarring complication.

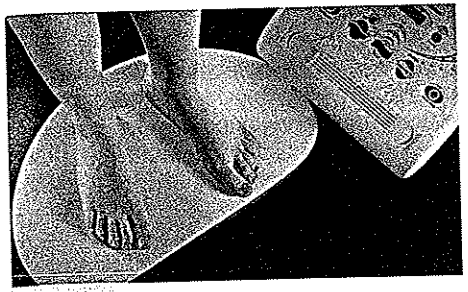
Effect of magnetic field therapy on heel spurs:

controlling the calcium deposits, relieving pain

Proper use of MRS on heel spur

• Pad or probe: highest intensity levels

• Notes on the initial reaction: none



Local treatment of heel spur

Scientific studies on the treatment of heel spur with MFT

• C. A. Bassett, Fitton-Jackson: "The Response of Skeletal Tissues to Pulsed Magnetic Fields," CAL (Oxford), 1980.

Physician reports on the treatment of heel spur with MFT

1. Dr. Peter Aluani, M.D., Theresienhof Hospital, Frohnleiten

• *Patient, female; diagnosis: heel spur. Results of MRS therapy: The patient was free of symptoms after completing the treatment.*

2. Dr. Lutz Ammerer, M.D.

• *Patient, female, 48 years old. Diagnosis: Patient has been experiencing pain in the sole of the left foot for a long time; X-ray shows a heel spur. Results of MRS therapy: "This patient was initially extremely skeptical because she could not 'feel' anything. To her amazement, her symptoms improved after just a few sessions. After twenty treatments, she was discharged free of pain."*

Patient reports on the treatment of heel spur with MRS

1. Thanks to the company Vita-Life

• *Patient K.T., male, 78 years old. Diagnosis: Heel spur. "For years, I have been suffering from severe symptoms when standing and walking, especially when placing weight on my heel. The pain became worse and worse, and despite strong medication, I could not sleep at night because of the pain." Results of MRS therapy: "After approximately six weeks, I felt a definite relief. The heel spur has become smaller today after half a year (no longer swollen) and causes me almost no problems anymore."*

Appraisal of MFT: **50 % good to very good success**

1.9. Fibromyalgia:

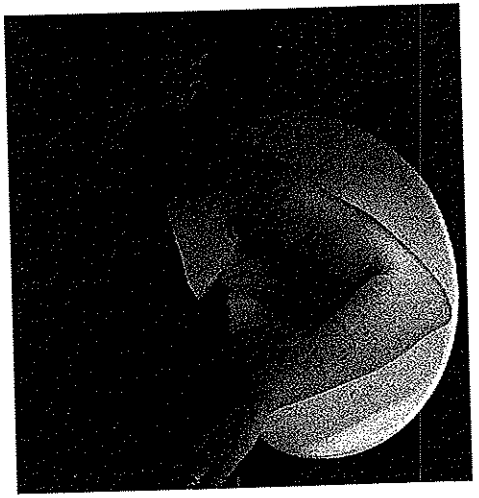
see "Soft tissue rheumatism"

1.10. Frozen shoulder:

see "Soft tissue rheumatism"

1.11. Hydrarthrosis

Hydrarthrosis refers to a collection of fluid in the joint space formed by the joint capsule. The collection of fluid causes a painful stretching of the capsule. Because of the pain, the patient automatically assumes a position that minimizes the stress (middle position or slight flexion). Externally, the contour of the joint is usually slightly extended and local heat is discernible. Depending on the type of the fluid, the following are differentiated: 1. A serous effusion (clear serous joint fluid) with



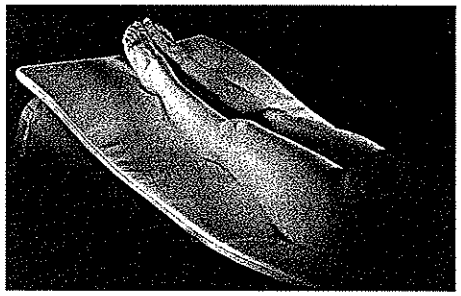
Local treatment for hydrarthrosis

inflammatory irritation of the synovial membranes due to, for example, rheumatism, trauma, cartilage damage, arthrosis. 2. Em-

pyema of the joint, a purulent infection caused by open wounds or a septic invasion of microorganisms, leading to rapid destruction of the cartilage. Surgery is necessary, opening the joint, administration of antibiotics and drainage with lavage. 3. Hemarthrosis (blood) with a joint fracture or a serious internal injury to the joint. This symptom also occurs in hemophiliacs. Treatment depends on the precise type of injury.

Effect of magnetic field therapy on hydrarthrosis:

relieves pain and reduces swelling. In general, the regeneration phase, i.e., the period of time required for the patient to recover completely, is reduced, especially in sports injuries and rheumatism injuries.



Basic treatment in hydrarthrosis

Proper use of MRS for hydrarthrosis

- Whole-body mat: twice a day for 8 minutes each time: 50 % level in the morning, 10 % level in the evening
- Pad: several times a day for 8-24 minutes each time (varying according to the age of the patient and the joint affected), shoulders and hips: 100-150 % level, knees and elbows: 150-200 % level, hands and feet: 200-400 % level
- Special instructions on use: whole-body mat: elevate the affected joint!

Scientific studies on the treatment of hydrarthrosis

◦ A. A. Pilla: "State of the Art in Electromagnetic Therapeutics: Soft Tissue Applications," Second World Congress for Electricity and Magnetism, June 8-13, 1997, Bologna, Italy. - This review article points out that treatment with electromagnetic fields manifests its effect relatively rapidly in injuries involving connective tissue and muscles. The especially strong effect on pain and edema in the joints is noteworthy.

◦ L. Kloth et al.: "Effect of Pulsed Radio Frequency Therapy on Edema in Ankle Sprains: A Multsite Double-blind Clinical Study," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy, p. 300. - The results of double-blind, placebo-controlled study showed that treatment with magnetic fields is very effective in swelling with lateral hydrarthrosis on the ankle.

Patient reports on the treatment of hydrarthrosis with MRS

1. Thanks to the company Vita-Life

• *Patient H.I., male, 39 years old, former professional soccer player. Diagnosis: "Recurring fluid on the right knee caused me pain and greatly limited my mobility. Although cortisone injections helped, I did not want to be taking cortisone in the long-term." Results of MRS therapy: "After four weeks, the fluid was gone from my knee. Since then, I have been free of pain and I can put my weight fully on my knee again."*

• Additional reports: see individual diseases of the rheumatic group

Appraisal of MFT: **80 % good to very good results**

1.12. Joint replacement (prosthesis)

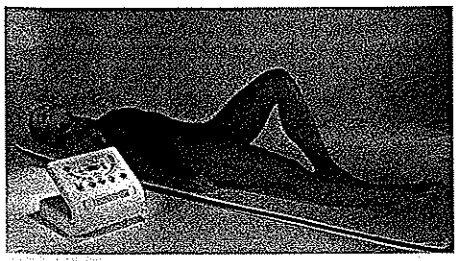
Artificial joints are always understood to be an emergency measure and are used only when the patient suffers intolerable pain due to various wear phenomena or poor posture. This pain results from the chronic wear on the joint surfaces. The most common joint to be replaced due to arthrosis, for example, is the knee. With the patient under general anesthesia, the knee joint is reinforced by pieces of metal that are screwed or cemented in place. These metal pieces are in the shape of the natural joint and are usually made of titanium. Although previously the joints were mostly cemented, this is an exception today. The most common joint prostheses involve the hip joint, more precisely the head of the hip bone. Problems that can occur after hip joint surgery include mainly the feared complication of the loosening of the artificial joint, in addition to chronic pain. The surgery itself is generally tolerated well, although the desired results (pain relief, improved mobility) are not always achieved.

Effect of magnetic field therapy on a joint prosthesis:

relieving pain, loosening the surrounding muscles, promoting mobility, strengthening the artificial joint in the natural bone shaft.

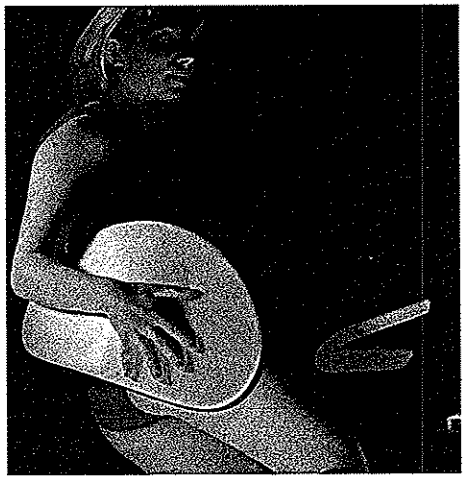
Proper use of MRS for patients with a joint prosthesis

- Whole-body mat: once or twice a day for 8 minutes each time, 50 % level in the morning, 10 % level in the evening
- Pad: knee joint: 2-3 times a day for 24 minutes each time, 150 % level (gradually increasing);
- hip joint: 3 times a day for 16-24 minutes each time, 100 % level (gradually increasing)
- Therapy forms supportive of MFT: enzymes, acupuncture, neural therapy and movement therapy (important!)



Basic treatment in joint replacement

• Special instructions on use: in principle, treatment should include not only the joint with the prosthesis, but also the healthy joint which is usually under greater stress. The treatment time for local treatment with the pad should amount to at least one hour each day. Titanium prostheses generally react better to magnetic field therapy than a cemented artificial joint. It is advisable to begin treatment even before the surgery to guarantee that the course of treatment will be as free of complications as possible.



Local treatment for joint replacement with pad

- Duration of treatment: at least six months, varying from one individual case to the next.
- Notes on the initial reaction: A brief increase in pain may be expected in 5 % of the cases.

Scientific studies on the treatment of artificial joints with MFT

◦ On the topic of artificial joints (prostheses) and MRS, studies are currently underway at three renowned German University Clinics. The studies were initiated on the basis of preliminary studies that were extremely positive.

◦ G. Gualtieri et al.: "The Effect of Pulsed Electromagnetic Field Stimulation on Patients Treated of Hip Revisions With Trags-femoral Approach," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - This double-blind study investigated the effect of pulsating electromagnetic fields on patients in

whom the hip prostheses had become loosened. The results demonstrate an increase in bone density in all patients treated with MF, whereas only about half those in the control group showed an increase in bone density.

- K. Konrad et al.: "Therapy with Pulsed Electromagnetic Fields in Aseptic Loosening of Total Hip Prostheses: A Prospective Study," Budapest, Hungary, Clin. Rheumatol., July 1996. - MFT was used on 24 patients with a loosened hip prosthesis. After six months and after one year, follow-up examinations were performed, showing that the patients treated with MF had experienced pain relief and a definite improvement in hip movements. The isotope scan and ultrasonic tests also confirmed these positive results.

- W. F. Kennedy et al.: "Use of Pulsed Electromagnetic Fields in Treatment of Loosened Hip Prostheses. A Double-blind Trial," Clin Orthop., January 1993 (286), pp. 198-205. - This study with 37 patients with cemented hip prostheses demonstrates that 53 % of the loosened hip prostheses had fused again after six months of magnetic field therapy, whereas only 11 % in the control group had a similarly positive effect.

Physician reports on the treatment of artificial joints with MF

1. Dr. Karl Gruber, M.D., Medical Director of the Hospital of the City of Weiz

- *"We have used the MRS mat with 40 patients and the pad with 55 patients. The areas for use in our hospital were limited primarily to arthrosis of the large joints of the body, loosening of implants, especially in hip endoprotheses." Results of MRS therapy: "In more than 70 % of the cases, we received positive feedback from the patients. They observed a reduction in muscle tension and complaints due to arthrosis, an improvement in mobility and a definite improvement in gait pattern."*

2. Thomas Drach, non-medical practitioner, Bermatingen Ahausen

- *Patient, male; diagnosis: use of an artificial knee joint, edema. Results of MRS therapy: Mobility has definitely improved. The edema is disappearing progressively.*

Patient reports on the treatment of artificial joints with MRS

1. Thanks to the company Vita-Life

- *Patient A.U., female, 83 years old. Diagnosis: Hip endoprothesis: "After my surgery, I had more symptoms than before. I could not sleep from the pain. My doctor told me that the prosthesis might not be sitting properly and might have loosened. A second surgery would have had little prospects for success." Results of MRS therapy: "For nine months, I have been using the MRS system, and my pain became much less after the first 6-8 weeks. One week ago I went for a follow-up examination. To my great joy, the prosthesis now sits securely in the bone, and I can move without assistance and almost without any pain."*

Appraisal of MFT: **60-70 % good to very good results, long-term therapy**

1.13. Lumbago and muscle strain

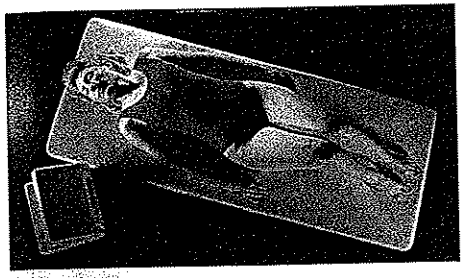
A special form of back pain is known medically as lumbago. Lumbago can affect almost any part of the spinal column. Frequent causative factors include blockage of the vertebrae in combination with nerve irritation, wear or damage to the disks, muscle strain caused by poor posture or problems with internal organs such as kidney disease or intestinal diseases. Characteristically, lumbago occurs suddenly, accompanied by severe pain in the lumbar area. Lumbago often makes the person unable to walk and may occur repeatedly at different intervals. The ideal preventative measure is to strengthen the back muscles.

Effect of magnetic field therapy on lumbago and muscle strain:

relieving pain, relaxing muscles (by raising the stimulus threshold in the area of the nerve-muscle transition), reducing pressure on the nerve endings at the joints in the spine.

Proper use of MRS for lumbago and muscle strain

- Whole-body mat: twice a day for 8 minutes each time, 25 % level in the morning, 10 % level in the evening
- Pad (for acute strain): 3-5 times a day for 16 minutes each time, lumbar area 100-150 % level, thoracic area 100 % level, cervical area 25-50 % level
- Special instructions on use: Keep knees bent!



Basic treatment in lumbago and muscle strain

- Notes on the initial reaction: none

Scientific studies on the treatment of lumbago and muscle strain

see "Myogelosis," "Ischialgia"

Local treatment of thorocic spine with pad

Physician reports on the treatment of lumbago and strain with MFT

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

- *Patient R.T., male, 56 years old. Diagnosis: "Lumbago" (lumboischialgia) caused by driving with an open window. Results of MRS therapy: The patient was free of symptoms after three treatments.*

2. Dr. Helmut Ornig, M.D., head physician of the Elisabeth Hospital of Graz

- *Patient M.G., female, 55 years old. Diagnosis: Lumbago. Degenerative neurologic muscular dystrophy, cover plate fractures of the thoracic and lumbar spine, difficulty in walking, frequent falls with contusions, treatment: daily use of analgesics (3-4 pills). Results of MRS therapy: Use of pain medication reduced to one pill a day after the first week of therapy. The patient is now practically free of pain, is no longer taking any medication, definite improvement in gait pattern (no more limping, can walk faster), subjective well-being.*

Patient reports on the treatment of lumbago and muscle strain with MRS

1. Thanks to Mr. Reinhard Schlag

- *Patient U., female, diagnosis: lumbago. "This patient could hardly move and was extremely pale." Results of MRS therapy: After two days of treatment, a definite improvement in pain was observed, and after one week she was completely free of pain and could also sleep better. The patient can now carry out all her work again without any pain, can sleep through the night, every night and feels rested in the morning. Her general well being is very good.*

2. Thanks to Mr. Karl Garber

- *Patient T.G., female, 56 years old. Diagnosis: Nerve tension, pain in the shoulder and neck area radiating down into the fingers, which go to sleep at night, leg cramps up to twice a night. Results of MRS therapy: Nerve tension in the shoulder and neck area has greatly improved, no more leg cramps and her fingers no longer go to sleep at night. Her headaches (initial reaction) disappeared after a few days.*
- *Patient A.W., male, 30 years old. Diagnosis: Always problems with his back, total disability; the therapist found muscle strain and a dislocated pelvis. Results of MRS therapy: "After three weeks I was more relaxed all over and had less*

pain. After eight weeks, I could do 50 % of my work as a painter in the workshop, and after another five weeks 80 %. I have been pain free for a long time now."

3. Thanks to Mrs. Doris Paunger

• *Patient B.J., female, 61 years old. Diagnosis: Muscle strain in the neck, acute abdominal pain, back pain, migraine attacks, shoulder and joint pain, wear on the cervical and lumbar spine, varicose veins, poor general condition. Results of MRS therapy: "The acute abdominal pain improved after just a few days and after 14 days I was free of symptoms. The muscle strain improved. I feel a significant relief from pain due to the wear in the cervical and lumbar spine. My quality of life has improved greatly and I enjoy working again."*

4. Thanks to Mrs. Verena Singer

• *Patient M.M., female, 78 years old. Diagnosis: Muscle strain in the shoulder and back area, cracked and chapped skin on the fingertips, extreme sensitivity to weather, circulation problems, age-related impairment in motor system. Results of MRS therapy: "The muscle strain was improved quickly, and my mobility improved. The cracks on my fingertips have not returned. My sensitivity to weather has improved and I feel more balanced. My circulation disorders have greatly improved and the age-related impairment has changed to a better quality of life."*

5. Thanks to Mrs. Gabriele Friedrich

• *Patient E.B., male, 29 years old. Diagnosis: Muscle strain in the neck and shoulder area, joint pain, nervous agitation, sleep disorders, circulatory problems, high blood pressure, headaches. Results of MRS therapy: "I felt a pleasant warm feeling and relaxation with the very first treatment and my headaches disappeared. I now feel more balanced and calmer. My sleep disorders, circulatory problems and high blood pressure have normalized. The muscle strain in my neck and shoulder area and my joint pain have disappeared."*

6. Thanks to the company Vita-Life

• *Patient F.T., female, Diagnosis: Severe muscle strain in the shoulder area, painful neck vertebrae, already two injection cure therapies; lower back pain after any activity, sleep disorders. Results of MRS therapy: After two weeks of use, significant improvement in muscle strain, after two months pain free in the shoulder area, significant improvement in lower back pain. "I can do sports - play tennis, ski, ride a bicycle without pain. Since the treatment I feel especially fit."*

7. Thanks to Mrs. Anneliese Kürzl

• *Patient L.M., female, 31 years old. Diagnosis: Permanent muscle strain in the neck, headaches (3-4 times a week), very severe menstrual complaints, lack of energy. Results of MRS therapy: In the first month the symptoms exacerbated, then she became completely symptom free after two months of use. "My quality of life has improved by 200 %."*

Appraisal of MFT: **80-90 % good to very good results, has a relaxing and pain relieving effect.**

1.14. Ischialgia

Ischialgia is the most common form of nerve pain (neuralgia). Possible causes of this condition include rheumatic diseases, prolapsed disk, chronic constipation, congestion of blood in the vessels of the pelvis due to tumors, ovarian inflammations, gout, diabetes, sexually transmitted diseases and the like. The pain begins in the lumbar and low back area, radiating into the buttocks and the backs of the thighs to the back of the knee and from there along the outer edge of the calf to the outer edge of the foot and the back of the foot. Under unfavorable conditions, the wrong movement and either cold or pressure can cause the pain to increase. When elevating the leg in an extended position, severe pain occurs in the area of the buttocks due to the stretching of the leg nerve affected. It is important to begin treatment as soon as possible. Medication merely controls the symptoms but not the causes. Heat often relieves the pain; massage and physical therapy can lead to a faster recovery. Leg packs at night (wrapping a hot, damp towel around the lower body and covering it with blankets) can help these patients to sleep calmly without pain pills.

vature of the spine

Effect of magnetic field therapy on ischialgia:

supporting the therapy, relieving pain, relaxing muscles, promoting circulation and having a positive influence on the autonomic nervous system (the underlying mechanism here is hyperpolarization).

Proper use of MRS for ischialgia

• Whole-body mat: three times a day for 8 minutes each time: 100 % level in the morning (gradually increasing from 25 %), 50 % level at noon, 10 % level in the evening

• Pad: 2-3 times a day for 24 minutes each time, 150 % level

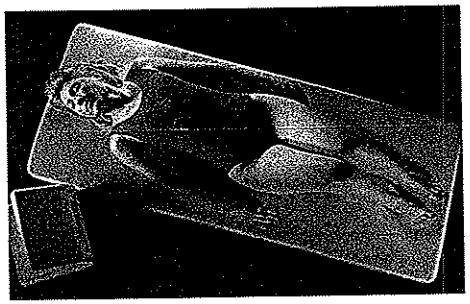
Local treatment for ischialgia

• Special instructions on use: Keep knees bent! Roll over on your side before standing up.

• Duration of treatment: Preliminary results will be manifested after 4-6 weeks, but in exceptional cases, this may also take longer.

• Notes on the initial reaction: none.

• Forms of therapy supportive of MFT: muscle relaxing substances and exercise, acupuncture, neural therapy.



Basic treatment in ischialgia

Scientific studies on the treatment of ischialgia with MFT

◦ D. Foley-Nolan et al.: "Low Energy High Frequency Therapy for Persistent Neck Pain. Double-blind Placebo-controlled Trial," Bioelectromagnetics Society, 12th annual meeting, July 10-14, 1990, San Antonio. - This double-blind, placebo-controlled study investigated the effect of low energy pulsating electromagnetic fields on patients with persistent back pain. The results show a definite improvement after a three-week period of treatment.

◦ A. Binder et al.: "Pulsed Electromagnetic Field Therapy of Persistent Rotator Cuff Tendinitis. A Double-blind Controlled Assessment," Lancet, 1 (8379), March 31, 1984, pp. 695-698. - Results of study: definite improvement with a statistical significance in the treatment of patients with tendinitis with MF.

Physician reports on the treatment of ischialgia with MRS

1. Health Center of Wolfgang Kropshofer, Doctor of Chiropractics, 1080 Vienna, Alserstrasse 43/8a, tel. +43/(0)1/40 373 80

• *Patient G.C., female, born 1929. Diagnosis: Since November 11, 1998 burning radiating pain from the lumbar spine into the right heel. Results of MRS therapy: November 18, 1998 pain still radiating somewhat into the legs, but the shoulders, arm and lumbar spine are free of*

pain. On November 24, 1998, the patient had a severe reaction: pain in the joints, high-grade lumbar pain and headaches. Since November 26, 1998 the patient has been free of symptoms.

2. Dr. Gunter Zenz, M.D., General Practitioner, Graz

• *Patient O.A., male, 72 years old. Diagnosis: Complaints in the lumbar spine area, lumbar symptoms, degenerative intervertebral disk damage. Results of MRS therapy: The symptoms improved in the first week, no more pain pills, long-lasting good results.*

3. Hospital of the Rudolf Foundation in Vienna

• *Patient, male, 84 years old. Diagnosis: Lumbago (lower back pain), shortening of leg, severe coxarthrosis (arthrosis of the hip). Results of MRS therapy: Significant trend toward an improvement after seven treatments.*

4. Dr. Harald Eckardt, M.D., Dr. Gero Krause, M.D., Dr. Holger Lorenz, M.D., Dr. Josef Kapellmann, M.D., Orthopedic Surgeons, Rosenheim

• *Patient K., female, Diagnosis: Chronic lumbar syndrome, static complaints in both legs, sleep disorders. Results of MRS therapy: Mrs. K. reported being free of pain after just half of the scheduled treatments. The reported sleep disorders have also been eliminated.*

• *Patient, female, 33 years old. Diagnosis: Lumboischialgia (mediolateral prolapsed disk L3/L4), few complaints at the present time. History: prolapsed mediolateral disk L3/L4 with bony support approximately two years ago, verified by CT scan. In addition, juvenile myoclonic epilepsy, but patient has been free of attacks for several years and is not currently taking any medication. Results of MRS therapy: Subjective stabilization of patient in a symptom-free condition.*

Patient reports on the treatment of ischialgia with MRS

1. Thanks to the company Vita-Life

• *Patient R.S., male, 43 years old. Diagnosis: ischialgia. Results of MRS therapy: The pain is gone and the feeling of numbness in his leg has disappeared.*

2. Thanks to Mr. Reinhard Schlag

• *Patient B., female, Diagnosis: Severe pain in her hip as well as ischialgia with numbness extending into her right leg, medical visits with ten analgesic injections did not bring any relief. "Mrs. B. could climb the stairs only with great pain at the time of the first treatment. She had to hold onto the railing with both hands." Results of MRS therapy: "After the very first treatment, there was a definite improvement. After three treatments, there was an increase in pain at night in the area of L4/L5. The next day the patient was pain free. After the fifth treatment, she was able to climb the stairs without pain, after the sixth treatment, Mrs. B. was able to go up and down stairs without holding the railing and without pain. She told me that she could once again sleep very well and felt better than she had felt for several years."*

3. Thanks to Mrs. Inge Magg

• *Patient, female, 53 years old. Diagnosis: Sciatic complaints since her pregnancy (at the age of 30), shoulder and neck problems, allergy for 30 years, especially on the hands; inflammation of Achilles tendon on both sides. Results of MRS therapy: After two months of treatment, the patient no longer had an allergy and the Achilles tendon inflammation had cleared up, as had the shoulder and neck problems. The sciatic complaints continued for a short period of time; renewed treatment: the pain disappeared again immediately.*

• *Patient J.K., male, 54 years old. Diagnosis: Tension in the neck and shoulder areas, problems with the sciatic nerve. Results of MRS therapy: The pain from the hip area to the calf through the sciatic nerve has mostly disappeared and the muscle strain has been greatly relieved.*

• *Patient N.J., female, 39 years old. Diagnosis: Prolapsed disk with slight paralysis of the foot and sciatic pain - three weeks of outpatient treatment and three weeks of hospitalized treatment: strong analgesics, approximately 40 infusions, acupuncture massage, mud packs, underwater massage, individual physical therapy and electrotherapy - no improvement. Severe pain in the lumbar spine area and the shoulder area, sleep disorders since 1996 and depression despite the use of medication. Results of MRS therapy: After two weeks of use, no more sleep disorders, depression only occasionally, less frequent pain in the area of the disk, the lumbar spine and shoulder, the left foot paralysis has disappeared and the sciatic pain is less common. "I was able to stop taking medication after one month of magnetic field therapy."*

Appraisal of MFT: **80 % good to very good results**

1.15. Carpal tunnel syndrome (CTS)

In carpal tunnel syndrome, a pressure is exerted on the median nerve in the muscle-bone canal (tunnel) of the wrist. The pain occurs because the tissue around the median nerve swells up due to constant repeated movements and exerts pressure on the nerve. The pain usually occurs at night and is accompanied by paresthesias (tingling, numbness) in the propagation region of the affected nerves. The causes of carpal tunnel syndrome may also include injury to the wrist or an inflammation of the tendon sheath. Treatment consists of immobilizing the wrist or surgery.

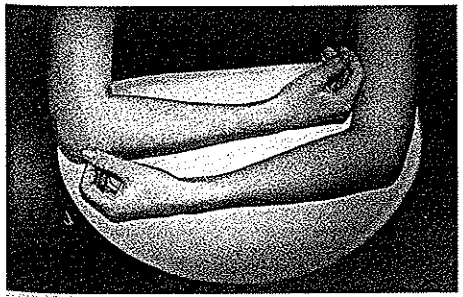
Effect of magnetic field therapy on carpal tunnel syndrome:

reducing swelling, relaxing muscles, relieving pain, stimulating nerves, supportive

Proper use of MRS for carpal tunnel syndrome

• Pad or probe: 3-4 times a day for 16 minutes each time, 150-200 % level (probe up to 400 % level), on the wrist.

• Special instructions on use: assume a protective position of the hand and forearm.



Local treatment for carpal tunnel syndrome

• Notes on the initial reaction: an initial reaction can be expected in approximately 2 % of the cases.

• Forms of therapy supportive of MFT: enzymes and other measures to reduce swelling, acupuncture and neural therapy

Scientific studies on the treatment of carpal tunnel syndrome with MFT

• M. J. McLean et al.: "Treatment of Wrist Pain in the Workplace With a Static Magnetic Device - Interim Report of a Clinical Trial," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-23, 1997, Bologna, Italy. - This double-blind, placebo-controlled study investigates the effects of magnetic field therapy in carpal tunnel syndrome. The results show a definite improvement in pain without any side effects.

Physician reports on the treatment of carpal tunnel syndrome with MF

1. Dr. Andrea Leute, M.D., Überlingen

• *Patient R.K., male, 42 years old. Diagnosis: Carpal tunnel syndrome in the right hand for several years, causing pain at night and tingling paresthesias in the hand after heavy manual labor, most recently every night during a two-week period when the patient was doing construction work. Results of MRS therapy: Now the symptoms have only occurred a total of 4 times in 14 days.*

Patient reports on the treatment of carpal tunnel syndrome with MRS

1. Thanks to the company Vita-Life

• *Mr. L.L., 58 years old. Diagnosis: Carpal tunnel syndrome for two years. "I don't want to have surgery and I would like to continue my occupation (truck driver). Until I used the MRS, I would wake up every night and often could not go back to sleep again because of the pain." Results of MRS therapy: "For eight weeks I have been receiving MRS treatments, and the pain has been reduced greatly and I am beginning to sleep through the night again."*

Appraisal of MFT: **60 % good to very good results**

1.16. Knee injury

The knee consists of many moving parts, each of which can be injured in different ways. Injuries occur especially frequently in sports activities. A distinction is made between injuries to the meniscus, for example due to a fall with a twisted knee, and injuries to the ligaments, tendons and the capsule (see "Sports medicine").

Effect of magnetic field therapy on knee injuries:

promoting circulation, relieving pain and relaxing muscles (due to hyperpolarization)

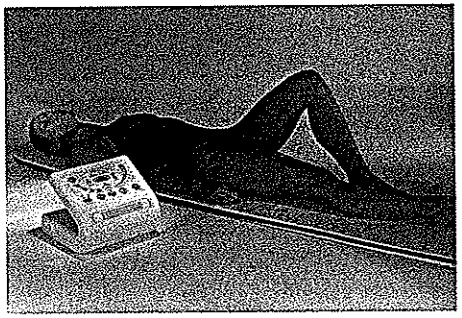
Proper use of MRS for knee injuries

• Whole-body mat: once to twice a day for 8 minutes each time, 100 % level in the morning (gradually increasing from 10 %), 25 % level in the evening (gradually increasing from 10 %).

• Pad: 2-3 times a day for 24 minutes each time, 150 % level, locally on the knee with the closest possible contact

• Special instructions on use: Before standing up, swing your knee lightly (without applying pressure to it).

• Notes on the initial reaction: in approximately 10 % of the cases of chronic knee complaints, there is brief intensification of pain (increase the dose gradually!).

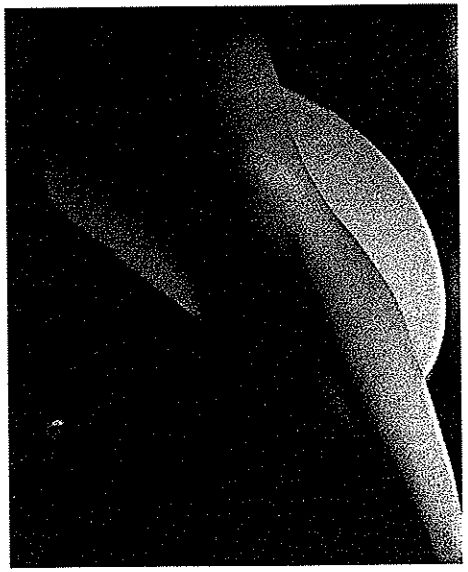


Basic treatment in knee injuries

• Forms of therapy supportive of MFT: enzymes, acupuncture, neural therapy, laser, ultrasound, homeopathy, glucosamine sulfate, shark cartilage extract

Scientific studies on the treatment of knee injuries with MFT

◦ A study with the MRS 2000+ MED in the Klagenfurt District Hospital has shown a definite improvement in pain symptoms in patients with knee problems.



Local treatment of the knees with a pad

◦ G. Annaratone et al.: "Magnetotherapy in Clinical and Ambulatory Practice," Minerva Med, April 1983, pp. 823-833. - This study demonstrates the positive effects of MFT in various orthopedic problems in a review of the last 10 years on more than 350 patients.

Physician reports on MRS therapy in knee injuries

1. Dr. Annegret Wennig, M.D., General Practitioner, Sports Medicine, Erfurt

• *Patient E.V., male, 36 years old. Diagnosis: September 18, 1998 recurrent knee complaints. Results of MRS therapy: September 21, 1998: the knee joint is better but on the whole the patient is experiencing pain in all the major joints. September 25, 1998: The pain in the knee joint has disappeared, there are slight residual symptoms in the hip joint right and left, patient no longer taking medication. The patient is very satisfied with the treatment.*

2 Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient S.W., female, born 1921. Diagnosis: Knee joint pain on the left. Result of sonogram: Baker's cyst 2 mm large. Results of MRS therapy: reduction in pain sensitivity and frequency in the course of treatment, after approximately three treatments, the pain shifted into the calf, and after the last treatment the patient became pain free, continuing till today.*

• *Patient B.W., female, 42 years old. Diagnosis: Recurrent pain in the left knee since 1990, especially after applying weight to the knee and when the knee is bent; 1992 tumor removed, angiofibromyoma. In the following years, repeated complaints in the knee joint when applying weight to the knee in exercise such as mountain climbing, hiking, etc. Results of MRS therapy: Hardly any symptoms in the knee joint after ten days of treatment, so the patient could also go on longer hikes in the mountains with no problem.*

Patient reports on the treatment of knee injuries with MRS

1. Thanks to Mrs. Dagmar Weissenbacher

• *Patient A.W., male, 58 years old. Diagnosis: After a meniscus operation with cartilage damage in the middle of March 1996, the patient was prohibited from putting weight on his knee for six weeks (crutches); problems with cholesterol levels and obesity, occasional severe lumbar pain - treated with injections by physician. Results of MRS therapy: Patient had already begun hikes in the mountains at the beginning of May (longer distances involving walking for 8-10 hours), proof of performance in bicycling: despite extreme stress, the patient has never had knee pain again and no longer has any pain after muscle exertion. His cholesterol levels have improved. "I have also lost some weight."*

2. Thanks to Mrs. Christina Glausch

• *Patient I.C., male, 64 years old. Diagnosis: Occasional severe pain in the knees and hips for several years. Results of MRS therapy: The pain has almost disappeared through these treatments (approximately 5 times a day).*

3. Thanks to the company Vita-Life

• *Patient T., female, 48 years old. Diagnosis: Pain in the left knee in the cervical and lumbar spine and in the right shoulder blade, menopausal symptoms, arrhythmias. Results of MRS therapy: First week: Intense reactions in all areas except in the knee, definite improvement after 3 days. Second week: Patient still experiencing initial reactions except in the hands. Third week: Perceptible improvement in the cervical spine; sixth-seventh week: cervical spine much better, lumbar spine much better, knee completely healed, shoulder not yet entirely healed, but much better. Wrist completely healed. Almost no more arrhythmias.*

4. Thanks to Mrs. Angela B. Boykow

• *Patient Dr. E.B., male, 49 years old. Diagnosis: Severe knee and lumbar spine complaints, especially under strain such as climbing stairs. Results of MRS therapy: He now has almost complete mobility of the spinal cord again and has hardly any pain. The knee symptoms are milder, although he still experiences pain in climbing stairs when carrying a heavy briefcase. Patient can also ski again.*

5. Thanks to Mr. Ludwig Müller

• *Patient K.J., female, 58 years old. Diagnosis: For about five years, severe lower back pain and complaints in the knee. "I could hardly climb the stairs any more. I had to take various therapies but none of them yielded an improvement except for a short time." Results of MRS therapy: "The knee pain improved after five weeks and I was also able to climb stairs again. After one year, the knee problems were completely gone and I could stop all the pain pills that I had been taking previously in large numbers. Today my general health is very good and I can do all my work again."*

6. Thanks to Mrs. Beate Martina

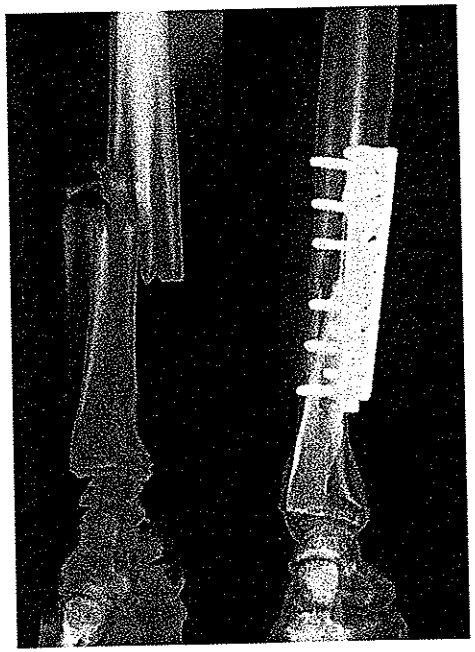
• *Patient I.G., female, 63 years old. Diagnosis: Since 1993 severe pain in the right knee, migraine attacks with vomiting, frequent angina with severe pain; rheumatic symptoms since the age of 22, frequent eye infections. Results of MRS therapy: Pain reduced after the sixth week, now free of pain.*

• *Patient H.P., male, 93 years old. Diagnosis: Knee pain on the left for many years (almost 80 years!). Results of MRS therapy: "I sleep well, and the pain in my left knee has improved greatly. I have more energy and enthusiasm. My health has largely stabilized."*

Appraisal of MFT: **80-85 % good to very good results**

1.17. Bone fracture

The human skeleton consists of more than 200 bones. Bones are extremely stable - for example, the femur, the bone in the thigh, can withstand a pressure of 1.5 tons, and the tibia or shin bone can actually carry 20 times the total body weight. Thus, an enormous force is required to break a bone. In its interior, a bone consists of numerous tiny struts and supporting pillars, so-called trabeculae, which uniformly distribute the compressive and bending forces acting on the bone tissue. The trabeculae impart an enormous strength and high elasticity to bone.



Fracture

Ossification of the skeleton is concluded only toward the end of puberty. A bone fracture in childhood where the periosteum is not perforated is called a greenstick fracture. Any bone fracture is characterized by pain, swelling, a loss of strength, abnormal movement and a rubbing noise made by the bone fragments. Complications may include infections, nerve damage, damage to bloods vessels or injury to internal organs.

A broken bone must be realigned properly and set. In the past, a bone would be kept immobilized after a fracture. Today we know that the resting phase should be as short as possible. In order for healing to progress more rapidly, in certain cases a bone will be nailed, screwed, set with plates and wired and additionally also stabilized with bone cement and artificial shavings. There are more than 100 different types of bone fractures.

Once a fracture has occurred, a process which is called fracture healing begins. This is one of the miracles of human nature. In the healing of a fracture, a so-called callus is formed; this is replacement tissue whose final structure is not reached until after about 60 days. This ridge can be seen on an x-ray for the rest of the person's life; in some cases it can even be felt through the skin.

Magnetic fields can easily penetrate through a plaster cast and can also be used on fractures using nails and wire without any problem.

Effect of magnetic field therapy on a bone fracture:

promotes the development of callus, i.e., new bone synthesis, influences the parathyroid hormone PTH and thus inhibits the loss of calcium from bone. Piezoelectric effects play an important role.

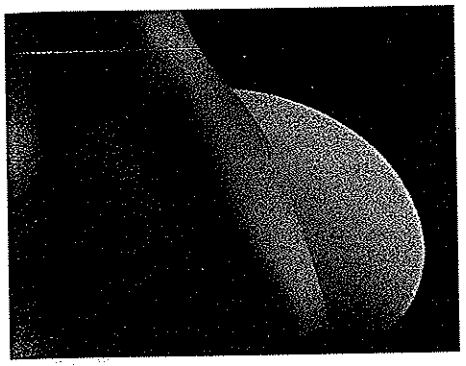
Proper use of MRS for a bone fracture

• Pad: 3-5 times a day for 24 minutes each time at the 200-400 % level, at the site of the fracture

• Duration of treatment: after eight weeks at the latest, a callus should be discernible in the x-ray. With poorly healing bone fractures, the treatment time may easily extend to six to nine months (pseudarthosis).

• Notes on the initial reaction: none

• Forms of therapy supportive of MFT: enzymes, herbs (field horsetail extract)



Local treatment of a bone fracture

Scientific studies on the treatment of bone fracture with MFT and on the topic bone growth

Bone fractures and bone growth are definitely one of the best researched areas of magnetic field therapy. At our central IGEM office alone, approximately 800 clinical studies are available on this topic. It is impossible to thoroughly cover this multitude of data in this book. We shall simply attempt to give an up to date overview.

• At the present time a study is underway at the District Hospital in Graz on the topic of greenstick fractures in children in treatment with MRS 2000+ MED. The initial results are positive.

• M. Quittan et al.: "New Indication For a Known Treatment Method: Magnetic Field," University Clinic for Physical Medicine and Rehabilitation, AKH Vienna, 1998, ÖZPMR. - The author analyzed 22 randomized controlled double-blind studies in conjunction with disturbed and normal bone healing. The result: with regard to bone healing, the efficacy of therapeutic pulsed magnetic field can be regarded as proven.

• G. Fischer et al.: "Improved Fracture Healing and Changes in Biochemical Blood Parameters in Rabbits After Artificial Femurosteotomy in a Low Frequency Magnetic Field," University of Graz, 1998. - This single-blind study on rabbits has shown that development of a callus was greatly improved in comparison with the control group (observation of alkaline phosphatase, creatinine kinase and development of callus under CT).

• K. L. Grace et al.: "The Effects of Pulsed Electromagnetism on Fresh Fracture Healing: Osteochondral Repair in the Rate Femoral Groove," Department of Orthopedics, UMDS, London Orthopedics, March 1998, 21 (3), pp. 297-302. - This study shows that pulsating electromagnetic fields cause an early vascular reaction in bone and wound healing and thus promote bone growth.

• G. Borsalino et al.: "Electrical Stimulation of Human Femoral Interochanteric Osteotomies. Double-blind Study," Department of Orthopedics and Traumatology, Montecchio Hospital, Reggio Emilia, Italy. Klin Orthop (237), pp. 256-263. Low-frequency pulsating electromagnetic fields ielded a statistically significant improvement in bone healing (even after surgery) in this double-blind study on 32 patients with x-ray monitoring and measurement of callus density.

• G. B. Holmes Jr.: "Treatment of Delayed Unions and Non-unions of the Proximal Fifth Metatarsal with Pulsed Electromagnetic Fields," University of Orthopedics, Chicago. Foot-Ankle-Int. 1994. - This study shows that pulsating electromagnetic fields are an effective alternative in supportive treatment of poorly healing bone fractures.

• A. T. Barker: "Pulsed Magnetic Fields Therapy of Tibial Non-union. Interim Results of a Double-blind Trial," Sheffield University, 1984, Lancet. - The active magnetic field group had an 87 % success rate.

• C. A. Basset: "Beneficial Effects of Electromagnetic Fields," Journal of Cellular Biochemistry 51 (4), April 1993, pp. 387-393. - This study investigated among other things the effect of MFT on complicated bone fractures that would not heal as part of the natural recovery process.

Physician reports on the treatment of bone fractures with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient O.O., male, 26 years old, sports student, semiprofessional soccer player and ski instructor. Diagnosis: Collision and tibia fracture on the right in a beach volleyball tournament on December 5, 1998. Operation on December 5 with locking titanium nails in the tibia marrow (2 screws proximally and 2 screw distally). Discharged from the hospital 10 days later, on crutches for 4 weeks. On the 11th day after surgery, MFT was begun. Results of MRS therapy: Rapid subsidence of swelling, patient free of pain after one week, could go skiing cautiously with weight on one leg (healthy leg) after eight weeks. "The success of the treatment was considered a clinical sensation."*

2. Dr. Gerhard Antensteiner, M.D., General Practitioner, Kindberg

• *Patient, male, 10 years old. Diagnosis: Complicated elbow fracture. After conservative treatment, mobility in the elbow joint was limited to approximately 20 %. After extensive physical therapy, hardly any improvement in mobility was achieved. Results of MRS therapy: A significant improvement in mobility was achieved within a short period of time and the pain the patient had experienced until then disappeared almost completely.*

• *Patient H.W., male, 48 years old. Diagnosis: Comminuted fracture of right heel bone: after more than two years, the patient was still experiencing swelling and pain on movement in climbing stairs. Results of MRS therapy: Definite improvement in mobility after just a few days, meanwhile almost free of pain, no more swelling, increased load-bearing possible again, scar became lighter and more delicate, definite improvement in well being.*

3. Dr. Otmar Rainer, M.D., General Practitioner, Graz

• *Patient, female, 51 years old. Diagnosis: Fracture of left antebrachialis bone (forearm left). In the acute hospital, AO plating of the radius was performed. Because of excessive callus production and the radius. Surgical revision was necessary. Subsequent poor bone healing tendency. Unsatisfactory mineralization and development of Sudeck's dystrophy and throbbing pain, especially in the evening hours. Despite several weeks of calcium therapy, no significant improvement. Results of MRS therapy: "On my advice, this patient, who was already very confused, decided to try magnetic field therapy. After 30 sessions, there was excellent consolidation of the fracture of the ulna and mineralization of the fracture of the ulna and radius. The pain was virtually gone after eight sessions. This amazed even the treating surgeon."*

• *Patient, male; diagnosis: bilateral rib fracture. Results of MRS therapy: The patient became completely free of pain without any additional therapy within a period of approximately three weeks. According to empirical observations, this is 30-40 % faster than with any other form of therapy.*

4. Dr. Michael Pommer, M.D., specialist in orthopedics and orthopedic surgery, Graz

• *"Magnetic field therapy has proven to be excellent in my practice. In bone fractures the cure results are greatly improved. Loosening of a prosthesis can be corrected again. Due to the cell regenerating, anti-inflammatory and circulation-promoting effects, it has yielded excellent therapeutic results in osteoporosis and arthrosis."*

5. Dr. Monika Harrer, Dentist, Heideck

• *Patient F.M., male, 24 years old. Diagnosis: Fatigue fracture in the head of the tibia on both sides. Severe pain (piercing) in the area of the tibia (shin bone), inflammation in the calf muscles, in the tendon attachments and the Achilles tendon. Results of MRS therapy: Pain in the area of the fatigue fracture is greatly reduced, muscles have normalized and the inflammation in the other areas has almost completely disappeared.*

6. Dr. Lutz Ammerer, M.D.

• *Patient, female, 30 years old. Diagnosis: Fall on the right forearm with typical bayonet-like malpositioning: comminuted fracture. Results of MRS therapy: Excellent callus formation apparent after 20 treatments, surgery and application of the fixative became unnecessary and her hand became fully load-bearing again in the proper axial position.*

7. A study report from the Graz University Clinic for Pediatric Surgery (director: Professor Dr. M. E. Höllwarth) with MRS

All the children and young people discussed below were treated with magnetic field therapy at home after receiving detailed instruction in proper technique, obtaining a signed consent form and after the child plus at least one of the parents received training in physical therapy; outpatient physical therapy was continued.

• *Patient; W.S., 10-year-old girl: closed greenstick fracture in the middle of the shaft of the ulna with partial disturbance in consolidation, magnetic field therapy was conducted to protect against a recurrence of the fracture, because the fracture gap was only partially reconstructed after a conservative 5-week treatment with a plaster cast. After the plaster cast was removed, magnetic field therapy was begun because of incomplete healing of the fracture. Under 2-month magnetic field therapy, a circular callus developed. Magnetic field therapy was used at home by the mother with no problem, and the child found the treatment to be pleasant. The girl fell again shortly after the end of therapy and again suffered a fracture of the same bone, but this time in a different location. The mother (a physician) was also convinced that a recurrence of the fracture (at the old location) was probably prevented by the magnetic field therapy.*

• *Patient; H. S., 13-year-old girl: closed fracture of the tibia with massive soft tissue contusions (pedestrian accident). After surgical treatment of the fracture with an external fixation device and an intramedullar splint, fracture healing was delayed and there was a trend toward incipient development of a hypertrophic pseudarthrosis with an ugly distension of the tibia in the area of the fracture. At this point, magnetic field therapy was initiated and within three months a stable reconstruction of the fracture was achieved with ongoing magnetic field therapy. The girl reported that she felt a pulling sensation in the fracture area when magnetic field therapy was being used. Her lower leg had resumed its normal shape at the end of therapy.*

• *Patient, S. K., 10-year-old girl: After a lower arm fracture in the middle of the shaft (the child was knocked over by a goat), within a few months she suffered a new fracture at the same location. It was treated surgically with a medullary splint on both lower arm bones, but open repositioning of the ulna was necessary because of damage to the medullary space. Fracture healing of the ulna was delayed postoperatively while the medullary splint was still in place. Aftertreatment without a plaster cast; magnetic field therapy begun postoperatively after six weeks. One month later, reconstruction of the ulna was already definitely discernible. Magnetic field therapy was continued for approximately four more weeks, at which point reconstruction of the fracture was satisfactory. Skiing and ballet were allowed, and for family reasons, they waited six months before the removal of the metal. At that time, she was free of pain, had free mobility of the forearm and was able to participate in sports. It is currently six months after removal of the metal. Her family is very satisfied with the results on the whole.*

• *Patient, female; S. N., 16-year-old girl: Injured as a moped passenger in a traffic accident. Third-degree open multi-level tibia fracture with fracture of the tibia plateau: vascular and nerve damage and compartment syndrome. Treated with vascular reconstruction, external fixation, bone screws, fasciotomy, gastrocnemius flap graft, split skin graft and spongy tissue graft (in the area of the distal tibia fracture zone). Because of delayed fracture healing in the area of the distal comminuted fracture, magnetic field therapy was begun three months after the trauma while the external fixation was still in place. Tender callus bridging could be discerned in the distal fracture area six months after the injury. Magnetic field therapy was continued for a total of three months. The patient reported that she felt a pulling sensation in the distal fracture area while using magnetic field therapy. Nine months after the accident, she can walk well with a peroneal splint without pain and she has started a new apprenticeship.*

• *Patient, E.S., 12-year-old girl: At the age of 12 years, she had osteochondritis dissecans of the trochlea of the talus. The osteochondral fragment was removed surgically two years ago and Bridie bores were created. Relief for three months postoperatively and then partial loading. Radiology revealed further reconstruction in*

the following year, but the patient still experienced constant pain when putting load on the ankle. Magnetic field therapy begun in January of 1999; tolerated well so far.

- *Patient; C M., 7-year-old boy: In September 1998 he fell on the road, suffering a proximal greenstick fracture of the radius with slight faulty positioning. Immobilized with a plaster cast on the forearm for four weeks. A soft plaster cast was used for 1.5 weeks more because of partial osseous consolidation disturbance in the area of the fracture. The child removed the plaster cast himself. magnetic field therapy was begun because the fracture gap was still partially visible after the cast was removed. One month later, the fracture area was uniformly reconstructed, magnetic field therapy was stopped and gymnastic exercise was allowed.*

- *Patient; E. B., 10-year-old girl: In the summer of 1998, she suffered a third degree open multiple fracture of the forearm and multiple injuries due to a traffic accident. Initial treatment after vascular/neurological revision and debridement with external fixation on the forearm, transfixation of the distal radio-ulnar joint because of detachment of the epiphysis of the distal radius and luxation in the radio-ulnar joint. Temporary coverage of the defect with Epigard(R); after follow-up debridement, the proximal forearm defect injury was treated with free microvascular scapula flaps (with parascapular widening as a replacement for the lack of periosteum of the ulna in the area of the open ulna fracture). Simultaneous deposition of spongy tissue in the area of the ulna fracture. Removal of metal and of the external fixation after three months. Shortly thereafter, the patient suffered a recurrence of the fracture in the area of the spongy tissue graft at the location of the original ulna fracture. Treated with an elastic, stable medullary splint (titanium splint) of the ulna. At the same time, magnetic field therapy was begun because of delayed fracture consolidation of the repeat fracture of the ulna. Since then, the repeat fracture has shown increasing osseous reconstruction. The child was able to return to school without symptoms just one week after the medullary splint was introduced and she can already write with her injured hand with no symptoms. The magnetic field therapy was continued at home for three months with no problem, at which time the repeat fracture showed progressive osseous reconstruction. There are plans to remove the medullary splint during the coming summer vacation period.*

- *Patient: L. A., 9-year-old girl; fell on her right hand 13 months ago with distal, closed meta- and diaphyseal fracture of the forearm, which was treated with an upper arm [sic; forearm] cast for five weeks. When the plaster was removed, the fracture gap could still be seen to some extent. Two weeks after the plaster was removed, the girl fell on her hand again when playing on a slide and suffered a repeat fracture. Treated again with a forearm cast for five weeks; fracture gap still clearly discernible after 3.5 weeks of wearing the plaster cast. Therefore, magnetic field therapy was begun and the patient was advised to continue to wear an inline skater hand brace on her injured arm when playing outdoors after removal of the cast. At the follow-up, the child was free of symptoms and the fracture gap could not be seen - therefore, she no longer needed to use the inline skater hand brace and she was allowed to participate in sports again. Since then, she has not had another fracture.*

- *Patient: B. A., 6-year-old boy; greenstick fracture of the forearm in the transition area between the middle and proximal thirds; treated with a forearm cast under local anesthesia at another hospital. After four weeks, incomplete callus bridging despite good positioning of the fracture. This was followed by treatment for two weeks with another upper arm plaster cast, then the cast was removed. Three months later, the bone was fractured again after falling when playing soccer. Repositioned under anesthesia and an upper arm cast was applied for the period of six weeks. When the plaster was removed, there was again an incomplete callus fracture of the ulna. Therefore, magnetic field therapy was initiated. After six weeks, adequate circular callus had developed at the site of the ulna fracture. The patient had free mobility of the wrist and elbow joints, so treatment was terminated.*

Patient reports on the treatment of bone fracture with MRS

1. Thanks to Mr. Ludwig Müller

- *Patient K. J., male, 58 years old. Diagnosis: Double ankle fracture, 14 days in the hospital, then four weeks of a walking cast. Still severe pain due to screws and plates. Results of MRS therapy: "Due to the excellent healing after use of this treatment, the screws were removed six months early. After the start of treatment, it was no longer necessary to remain in the hospital. I was able to stop taking all the pain pills, which I previously had to take in large quantities. My ankle is very good again and I can do all my work."*

2. Thanks to Mr. Ewald P. Müller

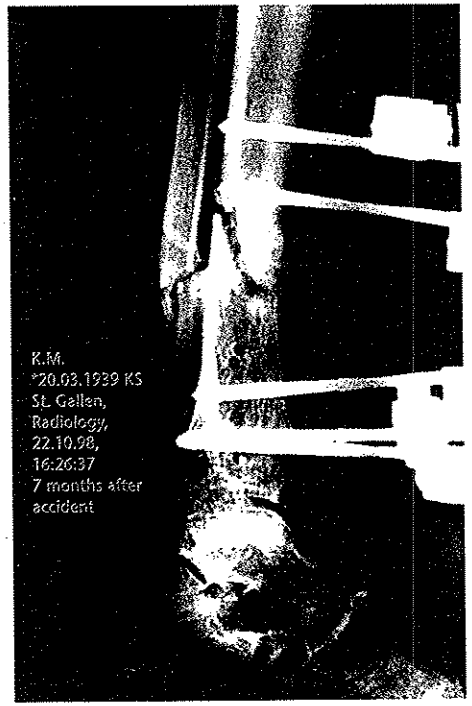
- *Patient F. M., female, 27 years old. Diagnosis: Fracture of the left metacarpal bone, blood lipids very high, protein in the blood very high, hypothyroidism and thyroid nodes, severe scoliosis of the entire spinal column, painful cesarean section scar. Results of MRS therapy: The fracture healed very well. After only three weeks, the plaster cast was removed (originally planned for four weeks). Blood tests after two months: very good values. Thyroid function: normal. The scar caused burning pain after the treatment but has now become much less obvious and looks better.*

3. Thanks to Mrs. Dagmar Weissenbacher

- *Patient S. R., female, 48 years old. Diagnosis: Fracture of the neck of the femur, diabetes mellitus: insulin dependent since 1979. Results of MRS therapy: Improvement in blood sugar values after approximately three weeks, i.e., less basic insulin required. More rapid healing of the fracture of the neck of the femur, no pain, patient able to walk without crutches after two weeks.*

4. Thanks to Mrs. Maria Pfeifer

- *Patient G. A., female, 33 years old. Diagnosis: Severe riding accident: eight broken ribs, contusion of liver, bleeding of liver, dehiscent wound on the head, all vertebrae and almost all bones with severe contusions. The physician had predicted that it would take about 8-9 weeks until the patient would be pain free, about 10-12 weeks (with physical therapy) until the patient would be able to work and at the soonest 3-4 months to resume athletic activity (riding, skiing, tennis). Results of MRS therapy: "After four weeks of therapy, I was able to work again, all my ribs were fused again satisfactorily and I had no pain in movement. My liver is completely normal. Five weeks after the accident I was able to ride again, in the sixth week I was able to ski and now I am already playing tennis."*



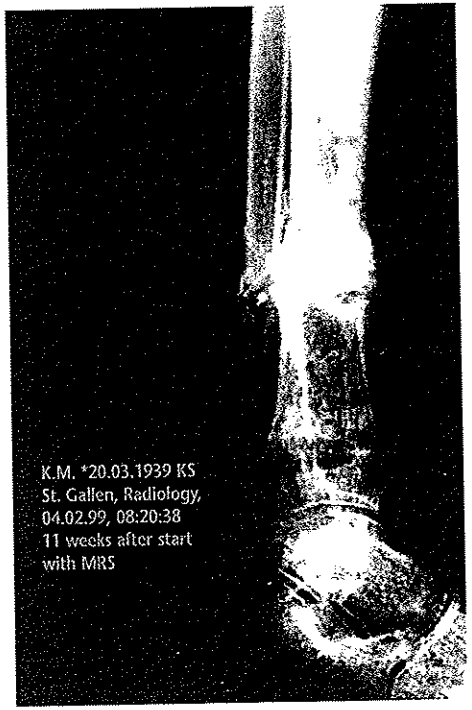
Fracture of lower leg before MRS

5. Thanks to Mr. Felix Sachs

- *Patient M. K., male, 60 years old. Diagnosis: Fracture of left leg: "The patient enjoys a relatively good attitude which has enabled him to tolerate the consequences of a severe accident in Easter 1998 relatively well. He was driving in Southern France. When he had to leave the car briefly, another car hit him on the left lower leg, throwing him into the ditch at the side of the road. Result: left leg completely broken approximately in the middle of the tibia down to some muscle flesh."*

Hospitalization: two weeks in Nimes: tibia sutured up again and nails used for fixation; two months in the St. Gallen Canton Hospital: nails replaced by fixator (with six puncture points from the front). Transplantation of muscle flesh from the upper arm into the calf and "chip" from the hip bone into the tibia. On July 17, patient discharged with crutches, although the tibia was not yet showing any signs of repair. Oc-

tober 26 to November 6 at the Canton Hospital of St. Gallen: removal of the fixator and wound treatment with strong antibiotics to counteract infections in the fixation wounds - still no repair of the tibia. Patient discharged with crutches and plaster cast despite infection in one of the six fixation wounds. The treating physician, a skilled hand surgeon, stated that the leg would probably have to be amputated because there was little hope of bone healing and a prosthesis would be a more reasonable alternative in view of the advanced technology today.



Fracture of lower leg after MRS

MRS therapy begun on November 24, 1998 (more than seven months after the accident). Results of MRS therapy: "Mr. K. has completed eight weeks of treatment consistently. A recommended reduction in the intensity of treatment because of severe pain was not necessary. Progress during the therapy: within one week, the wounds, which had previously still been infected, healed completely; after three weeks a slight elevation appeared on the shin bone (sign of callus on the growing bone). X-ray on January 7, 1999 (seven weeks after the start of treatment): tibia completely healed with a thick callus; he can put his weight on his leg, but it is still being protected with a final plaster cast, presumably for four weeks."

6. Thanks to the company Vita-Life

- *Patient M. T., male, 23 years old. Diagnosis: Forearm fracture, plaster dressing for two months, no improvement, renewed surgery imminent. Results of MRS therapy: Healing of the fracture.*

7. Thanks to Mrs. Verena Zwahlen

- *Patient L.G., female, 55 years old; automobile accident on September 6, 1998. Diagnosis: Comminuted fracture of humerus with torn tendon. After surgery: no feeling in thumb and forefinger. After eleven weeks, the patient still could not lift his arm. Results of MRS therapy: "After the first treatment, Mrs. G. felt a pleasant warm feeling throughout her entire body; she can now lift a full glass again (impossible before the treatment). On the second day she was able to raise her right hand up to her head. Mrs. G. also feels that the cramps in her thigh and kidneys has stopped. She no longer has any pain in her knee when climbing stairs. Her digestion has normalized. She feels much better in general and is happy to have had such great success after this brief treatment."*

Appraisal of MFT: **90 % very good results**

1.18. Meniscus injuries:

see "Sports medicine"

1.19. Perthes' disease (osteochondrosis)

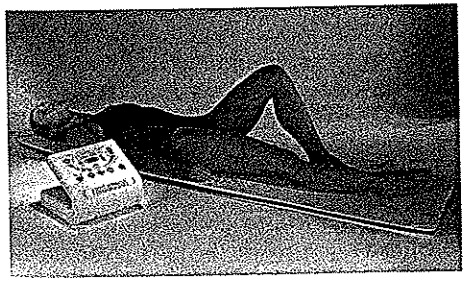
Perthes' disease involves destruction of bone tissue because of an oxygen deficiency in the area of the head of the hip. The precise cause of this tissue destruction is not yet known. This disease affects mainly children (boys four times more often than girls) with the age peak being between the ages of 5 and 6. The onset of this disease is usually gradual. At first, the child will limp slightly but this favoring of one leg often leads to transient pain in the knee and groin. Movement of the hip is greatly restricted. The longer the disease goes undiagnosed, the more likely it is to lead to an actual shortening of the leg. The younger the child is at the start of the disease, the more favorable the prognosis. It is important to take the child to an orthopedic specialist to have an x-ray made as soon as the least suspicion arises. Treatment depends on the stage of the disease and usually consists of relieving the pressure or performing surgery on the neck of the femur. It is often necessary to use analgesics to treat the pain, which becomes worse and worse as the disease progresses. Magnetic field therapy can bring some relief here.

Effect of magnetic field therapy on Perthes' disease:

supporting, promoting circulation, relieving pain, relaxing muscles

Proper use of MRS for Perthes' disease

- Whole-body mat: twice a day 8 minutes each time: 100 % level in the morning, 10 % level in the evening
- Pad: twice a day for 24 minutes each time, 100 % level on the head of the hip
- Special instructions on use: Be patient! The treatment takes a long time - it may require up to three years.



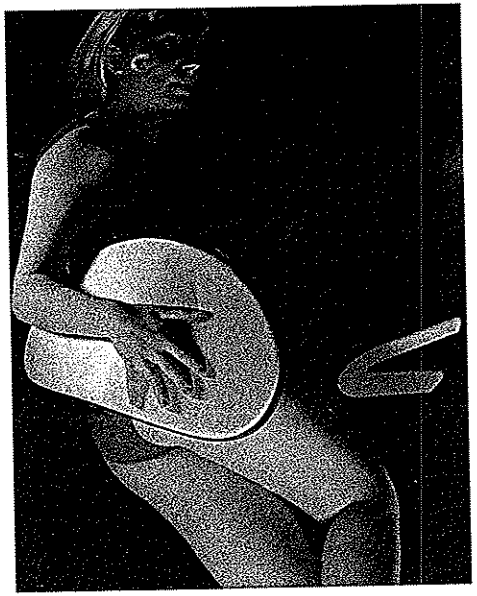
Basic treatment for Perthes' disease

- Notes on the initial reaction: there is an initial reaction in 2-3 % of the cases
- Forms of therapy supportive of MFT: physical therapy, acupuncture

Scientific studies on the treatment of Perthes' disease with MFT

A study is currently underway at the District Hospital in Graz on the topic of the MRS 2000+ MED in Perthes' disease. Individual results are positive, but we will still have to wait for the overall result of the study.

- M. H. M. Harrison et al.: "The Results of a Double-blind Trial of Pulsed Electromagnetic Frequency in the Treatment of Perthes' Disease," Royal Orthopedic Hospital Birhimgham, Journal of Pediatric Orthopedics, 1997. - This double-blind study investigated the treatment of Perthes' disease with pulsating electromagnetic fields. Twenty-one boys with Perthes' disease were divided into two groups, with one group being treated with MFT. The time until reconstruction of the head of the femur was recorded. The healing time in the group receiving MFT was 12 months, and in the second group was 12.5 months.



Local treatment for Perthes' disease

- S. D. Schvchenko et al.: "Experience with Treating Some Orthopedic Diseases with Millimeter Range Radiation of Non-thermal Intensity," Millimeter Waves in Medicine and Biology, Moscow 1997. - This study investigated

Perthes' disease in children and found a significant improvement in complaints.

◦ S. A. Schastnyi et al.: "A Contact-free, Biologically Adequate Electromagnetic Stimulation of Repair Regeneration of Osseous, Cartilaginous and Muscular Tissues in Children," Vestn Ross Akad Med Nauk (3), 1994, pp. 38-42. - This article reports on the efficacy of electromagnetic fields in the treatment of Perthes' disease and describes the good results.

Patient reports on the treatment of Perthes' disease with MRS

1. Thanks to the company Medline

• *Patient H.J.K., male, diagnosis: "In May 1993 I had an accident as a result of which I developed severe pain in my left leg and hip area. A hematoma in the left hip area and a hip joint necrosis were diagnosed. From this time on, various specialists reported to me that this disease is considered incurable medically and that my pain could be eliminated only by an artificial hip joint prosthesis. I received only medication and physical therapy for pain treatment because at the age of 40 I still did not want the hip joint surgery. Because of the pain I could only move within my home and I had increasing circulatory and metabolic problems, besides being severely depressed. In this condition, I was looking for alternative treatment methods with the support of my regular physician." Results of MRS therapy: "I obtained initial positive results through trial use of the device. In the beginning, during the first 14 days, there was an initial exacerbation of pain. Thereafter, my general condition improved significantly. Today I am again experiencing subjective well-being, I am mostly pain free and I am again pursuing my employment. Meanwhile I have stopped all medication and can do things that I considered impossible at the beginning of this year (long walks, climbing stairs, swimming, even going dancing in August)."*

Appraisal of MFT: **75 % good to very good results**

1.20 Sudeck's disease

Sudeck's disease involves a painful destruction of tissue in the extremities in combination with local circulation disorders in the soft tissue and bones. This disease often affects psychologically and autonomically labile people with a history of disappointment and loss (divorce or death). With an appropriate predisposition, certain external influences such as an injury or surgery can lead to inflammation. The causative factor is unknown in approximately 20 % of the cases. The most common cause of Sudeck's disease is a bone fracture, which is why the disease is also known as the so-called "fracture disease." This disease takes place in three stages over a period of several weeks: at first is strong circulation in the extremity with a thick swelling which is very painful. This phase lasts 2-8 weeks. In the second phase, the swelling subsides, but there remains a severe and unpleasant pain during movement. The skin is pale and shiny. After 3-6 months, the patient experiences increasing functional disorders because the muscles around the inflammation deteriorate. There is no uniform therapeutic recommendation. However, active physical therapy and psychotherapy are important in any stage.

Effect of magnetic field therapy on Sudeck's disease:

supporting, promoting circulation, relieving pain, having a positive influence on the autonomic nervous system

Proper use of MRS for Sudeck's disease

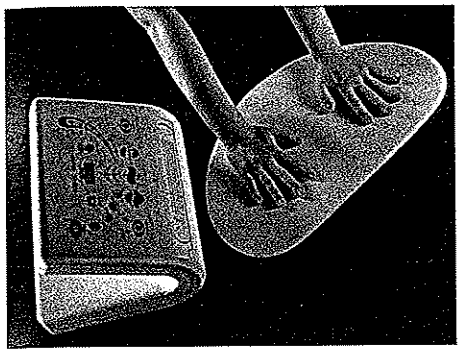
• Whole-body mat: 3 times a day 8 minutes each time: 100 % level in the morning (gradually increasing from the sensitive level), 50 % level at noon, sensitive level in the evening

• Pad: twice daily 24 minutes each time: 200 % level

• Special instructions on use: Increase the dose gradually! Increase the intensity level only once every 10-14 days.

• Notes on the initial reaction: There is an initial intensification of pain in approximately 25 % of the cases (increase dose gradually!).

• Forms of therapy supportive of MFT: acupuncture, relaxation training, autogenous training



...al treatment for Sudeck's disease

Scientific studies on the treatment of Sudeck's disease with MFT

◦ E. Betti et al.: "Effect of Electromagnetic Field Stimulation on Fractures of the Femoral Neck. A Prospective Randomized Double-blind Study," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - This double-blind and placebo-controlled study demonstrates the positive effect of electromagnetic pulsating fields after bone fractures, with the course observed being uncomplicated.

◦ V. Sollazzo et al.: "Effects of Pulsed Electromagnetic Fields (PEMF) on Human Osteoblast-like Cells and Human Chondryocytes: In Vitro Study," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy.

◦ N. Haimovici: "Magnetic Field Therapy in Clinic and Research," Herder Clinic Bremen, therapy week 31, 1981, pp. 7317-7330. - This study describes 102 cases of Sudeck's dystrophy and the positive results of using MFT on this condition.

Physician reports on the treatment of Sudeck's disease with MF

1. Salzburg District Hospital, Physical Medicine and Rehabilitation Department

• *Patient, female; diagnosis: Sudeck's disease after a fracture of the right forearm, femoral artery occluded more on the right than on the left. Treatment: The patient was treated with the MF mat from July 18, 1996 to August 12, 1996. Results of MRS therapy: "The patient was able to walk only a few meters with severe pain at the time of the initial examination and she also had a definite fist closing deficiency on the right. After 15 treatments (last treatment on August 12, 1996), the distance she could walk had increased to more than one kilometer, and the patient had no pain while walking. She was also able to close her fist."*

Patient reports on the treatment of Sudeck's disease with MRS

1. Thanks to Mrs. Maria Pfeifer

• *Patient G.S., male, Diagnosis: In an occupational accident, a door panel had fractured the inner ankle bone on the left foot, causing a double torsion fracture of the ankle bone plus a high fracture of the fibula. Four screws were used in the surgery, but the wound has not yet healed (despite approximately 600 different attempted therapies). Removal of the screws brought some pain relief but not the anticipated healing. A diagnosis of Sudeck's disease was made. Results of MRS therapy: After ten weeks, the patient was able to reduce his use of pain pills to one a day. The pulsating pain improved. After a treatment, the patient felt a "numb" or "dull" feeling (relief from pain).*

2. Thanks to Mrs. Beatrice Studer

• *Patient, female, 29 years old. Diagnosis: 1989 open fracture of right humerus. The bone was screwed, and second degree Sudeck's disease developed on the right hand. Adult-onset diabetes (above 50) - treated with medication. Hypothyroidism treated with medication. Her hand was shiny bluish whitish, always cold and very painful, the patient could not spread her arm away from her body. Her diabetes levels were very bad and she was soon to begin insulin injections. Results of MRS therapy: Today in January of 1999, the patient can use her hand for minor manipulations again and can grip with her thumb and forefinger; she has good circulation, can move all fingers freely and lift her arm 100 % from her body. Her diabetes has also improved enormously.*

Appraisal of MFT: **60-65 % good to very good results**

1.21. Muscle injuries:

see "Sports medicine"

1.22. Myalgia

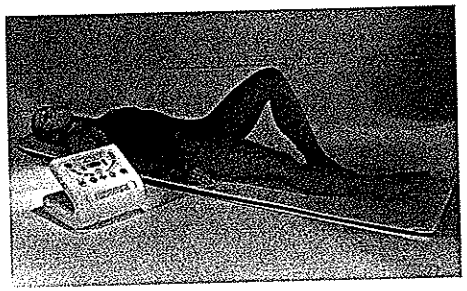
Myalgia is understood to refer to a painful muscle dysfunction which can affect the individual muscles or muscle groups or the entire body. Infections (such as colds), overexertion, metabolic disorders (such as diabetes, gout) or collagenoses lead to generalized myalgia.

Effect of magnetic field therapy on myalgia:

relieving pain, relaxing muscles, supporting

Proper use of MRS for myalgia

• Whole-body mat: 3 times a day for 8 minutes each time: 100 % level in the morning, 100 % level at noon, 25 % level in the evening



Whole-body treatment for myalgia

• Notes on the initial reaction: brief hardening of the muscle occurs in about 8 % of the cases.

Scientific studies on the treatment of myalgia with MFT

◦ V. I. Kovalchuk et al.: "Use of Extremely Low-frequency Magnetic Fields in Clinical Practice," Fizicheskaia Meditzina, 4(1-2), 1994, p. 87. - This study investigated the effects of extremely low-frequency magnetic fields in the treatment of 650 patients suffering from various symptoms. The analgesic effect of the magnetic field is especially emphasized with muscle pain.

Physician reports on the treatment of myalgia with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient H. B., female, 45 years old. Diagnosis: Generalized myalgia with a tentative diagnosis of lupus. The pain had increased to the extent of being intolerable. The patient was unable to sleep and was dispairing because she could no longer pursue her daily activities in the household. Results of MRS therapy: Definite improvement after three treatments, sleep normalized after two weeks, after three months Mrs. B. is again performing all her activities in the household and the garden herself.*

Patient reports on the treatment of myalgia with MRS

1. Thanks to the company Vita-Life

• *Patient R.V., male, 37 years old. Diagnosis: Myalgia with muscle pain and joint pain, piercing pain in the chest, dizziness. Results of MRS therapy: Considerable improvement in muscle and joint pain, dizziness has disappeared completely and the pain the chest has largely disappeared.*

Appraisal of MFT: **80 % good to very good results**

1.23. Myogelosis (hardening of muscle)

Myogelosis refers to a hardening of the muscles due to constant muscle strain. Myogelosis often occurs as the result of a spinal cord disease (such as a prolapsed disk) because the body is attempting to stabilize the injured area through the muscle tension. In addition to MFT, relaxing medication (muscle relaxants), application of heat and massage are prescribed.

Effect of magnetic field therapy on myogelosis:

relaxing muscles, relieving pain

Proper use of MRS for myogelosis

• Whole-body mat: 3 times a day for 8 minutes each time: 100 % level in the morning, 100 % level at noon, 25 % level in the evening.

• Pad: 2 times a day for 24 minutes each time, 50-100 % level, at the site of the muscle hardening

• Notes on the initial reaction: none

Scientific studies on the treatment of myogelosis with MFT

◦ F. Petrossi: "Physician Perceptions of the Value of Physical Modalities in the Treatment of Musculoskeletal Disease," Internet: Medline

Physician reports on the treatment of myogelosis with MF

1. Dr. Gustav Skreiner, General Practitioner, Graz

• Diagnosis: Muscle tension, chronic joint complaints due to wear, ischialgia, rheumatic complaints, migraines, chronic pain, autonomic dystonia, depression, circulation disorders, condition after a stroke, hypertension, exhaustion. Results of MRS therapy: Good results in all areas.

Patient reports on the treatment of myogelosis with MRS

1. Thanks to the company Vita-Life

• *Mrs. X.L., 54 years old. Diagnosis: "For years I have been suffering from recurrent myogelosis. This muscle tension in the area of the shoulder has interfered with my daily work as a gardener." Results of MRS therapy: "After six months, the tension is greatly reduced and now I no longer need any pain medication."*

Appraisal of MFT: **80 % good to very good results**

1.24. Necrosis

Necrosis is understood to refer to the destruction of tissue area or an organ. Necrosis develops due to inadequate circulation (e.g., myocardial infarction), chemical toxins (acids, bases), heat or cold, radiation (e.g., x-rays), mechanical effects (e.g., pressure), glandular secretions entering the wrong tissue (e.g., pancreatic secretion in pancreatitis), etc.

Effect of magnetic field therapy on bone necrosis:

supporting, stimulating bone cells, inhibiting inflammation, accelerating cell division.

Proper use of MRS for necrosis in the bones

• Pad: 3 times a day for 24 minutes each time: 200 % level, at the site of the necrosis

• Probe: 5 times a day for 16 minutes each time: 400 % level, on the wrist and tarsal bones

• Notes on the initial reaction: none

• Forms of therapy supportive of MFT: enzymes, homeopathy, medicinal herbs that promote circulation (gingko biloba, grape seed extract, gotu kola)

Scientific studies on the treatment of necrosis of the bones with MFT

◦ C. A. Basset: "Beneficial Effects of Electromagnetic Fields," Journal of Cellular Biochemistry 51 (4) April, 1993, pp. 387-393. - In this extensive review study, numerous double-blind studies are summarized and the possibilities of influencing osteonecrosis by using MT are discussed. An extremely positive effect was found.

Physician reports on the treatment of bone necrosis with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient, male, 25 years old, recreational soccer player; diagnosis: treatment-resistant necrosis in the area of the heel bone after an injury. Results of MRS therapy: The bone has been restored after four months of supportive MFT.*

Appraisal of MFT: **50-60 % good to very good results**

1.25. Osteochondrosis (damaged intervertebral disk)

The intervertebral disks consisting of fibrous cartilage with a pulpy nucleus in the middle serve as buffers between the individual vertebrae. In the course of a person's life, there is slight wear on the disks. The vertebrae may shift or become tilted due to a congenital weakness in the connective tissue, poor posture, curvature of the spine, spondylitis (an inflammation of the spine) and the like. This leads to irritation of the ligaments, the nerves, the blood vessels or the muscles of the back, resulting in severe pain. Once the spinal column is overstressed, a careless or faulty movement such as carrying a heavy load can result in slippage or protrusion of a disk. Healthy balancing exercise such as swimming can prevent this. Obesity and poor sitting habits and jobs which stress the intervertebral disks should be avoided.

The result of a damaged intervertebral disk is often the development of an edge bulge on the vertebrae (spondylosis deformans). Any change in the height of the disk (drying out) can result in nerves being pinched and irritated, which has effects on all parts of the body supplied by the affected nerve. Tears in the fiber ring cause the disk to swell toward the back, forward or side. Again in this case, nerves may be irritated. If a disk slips out completely, this is called a prolapsed disk (see "Prolapsed disk").

The sympathetic nerve plexus runs parallel to the spinal cord, with fibers of these nerves running in the hole in each vertebrae, so a damaged disk also has autonomic effects (e.g., circulation disorders, heavy sweating, disturbances in organ functions).

Since the cervical spine is the most mobile part, it also shows wear the easiest. This results in headaches, earaches, dizziness, lacrimation (tears) and vomiting. The shoulder-arm pain occurs mainly in the early morning hours. It is accompanied by a tingling feeling like "ants crawling over" the hands, which often "go to sleep." When the arm is extended, severe pain occurs (e.g., when carrying a purse or when letting the arms hang down).

The lumbar spine is affected by intervertebral disk damage the most frequently, or precisely the last disk (where the weight of the body is transferred from the spine to the sacrum). If it simply protrudes, the disk can slip back again at any time. This temporary disturbance is manifested by lower back pain (lumbago). If the nerve roots are irritated by the protruding disk, the leg nerve symptom (ischialgia) occurs with pain that can be felt as far as the big toe.

Effect of magnetic field therapy on osteochondrosis:

relieving pain, relaxing muscles, can prevent additional fiber destruction

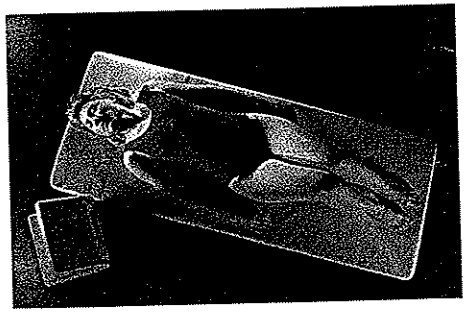
Local treatment of the lumbar spine

Proper use of MRS for osteochondrosis

- Whole-body mat: twice a day for 8 minutes each time: 50 % level in the morning, 10 % level in the evening
- Pad: 3 times a day for 24 minutes each time: cervical spine 25 % level, thoracic 50 % level, lumbar spine 100 % level
- Special instructions on use: Keep knees bent! Roll over on your side before standing up.
- Notes on the initial reaction: an initial reaction occurs in approximately 5-10 % of the cases. Therefore, increase dose gradually!
- Forms of therapy supportive of MFT: acupuncture, neural therapy, relaxation techniques and therapeutic movement

Scientific studies on the treatment of osteochondrosis with MFT

- L. L. Butenko: "The Use of Alternating Magnetic Fields in Spinal Osteochondrosis," Mechanisms of Biological Action of Electromagnetic Fields, October 27-31, 1987, Pushchino, USSR, USSR Academy of Sciences, Research Center for Biological Studies. - This study investigates the effects of magnetic alternating fields, compared and combined with conservative treatment in patients suffering from osteochondrosis of the spine. In 95 % of the cases, the combined variant was successful, whereas with conservative therapy alone, only 30 % of the cases showed a positive reaction.



Basic treatment in osteochondrosis

Physician reports on the treatment of osteochondrosis with MF

1. Dr. Kurt Pinter, M.D., Graz

- *Patient H. I., female, 53 years old. Diagnosis: Shoulder-arm syndrome. This patient is under great stress both professionally (lifting and cleaning work, etc.) as well as privately (care of a bedridden mother for a long period of time). The course of the syndrome became more complicated due to extremely bad posture of the spine. Degenerative changes: osteochondrosis of the lower cervical spine, extreme scoliosis of the thoracic and lumbar spine. Within the last three years, the patient also had radiculalgia (pain at the root of the nerve) in the area of the lower lumbar spine in addition to the shoulder-arm syndrome. An MRI performed subsequently showed protrusion of disks L4-S1 without any significant narrowing of the spinal canal. In addition to basic therapy with NSAIDs, paravertebral infiltrations were also administered to the patient when her symptoms were severe, but they yielded only a relatively brief improvement (2-3 days), probably also because of inadequate compliance on the part of the patient. Results of MRS therapy: After her initial skepticism, she experienced a definite relief of her pain symptoms.*
- *Patient K R., female, 62 years old. Diagnosis: Severe osteochondrosis and spondylosis with deformity of the entire spinal column. Results of MRS therapy: Patient free of symptoms after six sessions.*

2. Dr. Ernst Paukner, M.D., General Practitioner, Pasching

- *Patient, male, 36 years old. Diagnosis: Cervical and lumbar spine syndrome. Somatoform dissociative pain disorder in overload situations. Results of MRS therapy: Definite improvement in overall subjective well-being and local spine complaints after just a few treatments.*

3. Dr. Franz-Josef Albers, M.D., General Practitioner, Ottobrunn

- *Patient, female, 75 years old. Diagnosis: Shoulder-arm syndrome, gonarthropathy with knee surgery on both sides, pain and poor mobility. Results of MRS therapy: Patient stated that the treatments made her feel good and that she had less pain.*

Patient reports on the treatment of osteochondrosis with MRS

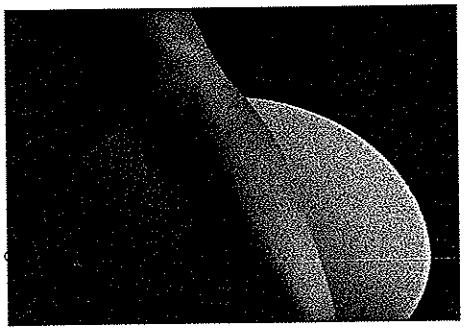
1. Thanks to the company Vita-Life

- *Mr. M. G., 66 years old. Diagnosis: Severe wear on the intervertebral disks in the lumbar spine area radiating out to the big toe, often impossible to walk because of muscle weakness. Numbness on the right outer shin bone. Results of MRS therapy: Definite improvement after four weeks: "I have had feeling in my calf again for the first time in two years. The pain is tolerable, I can walk from my house to the bus station myself. Even my doctor is pleasantly surprised at my improvement."*

Appraisal of MFT: **70 % good to very good results**

1.26. Osteomyelitis

In osteomyelitis, the bone becomes infected by bacteria (usually Staphylococcus aureus). The long bones of the extremities (tibia and femur, humerus). The infection can occur through the bloodstream or through an external injury. In children this disease is usually acute, with fever and chills, swelling, redness, heat and pain in the joints. The infectious process may extend into the soft tissue (abscess) or may spread outward (fistula). In adults, it often will not heal and the osteomyelitis becomes chronic, i.e., the infection will flare up again after years. Antibiotics should conquer the infection within a few days. If this is not the case, surgical opening and cleaning of the lesion is necessary. A rinsing and suction drain is used for mechanical cleaning, so the bone is rinsed with fluid for a few days (approximately 4-6 liters per day). Osteomyelitis is one of the most feared complications of bone fractures.



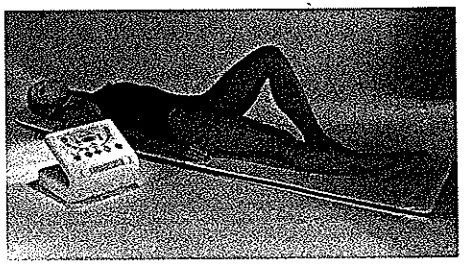
Local treatment for osteomyelitis

Effect of magnetic field therapy on osteomyelitis:

reducing inflammation, promoting bone growth (faster regeneration)

Proper use of MRS for osteomyelitis

- Whole-body mat: twice a day for 8 minutes each time: 100 % level in the morning (gradually increasing from 25 %), 25 % level in the evening (gradually increasing from 10 %).
- Pad or probe: 2-3 times a day for 24 minutes each time 100-200 % level (probe up to 400 %).



Basic treatment in osteomyelitis

- Special instructions on use: It is important to be aware that the healing time may be quite long especially with chronic osteomyelitis. Therefore, treatment times of up to one year or even more are not unusual.
- Notes on the initial reaction: none
- Forms of therapy supportive of MFT: enzymes, homeopathic remedies

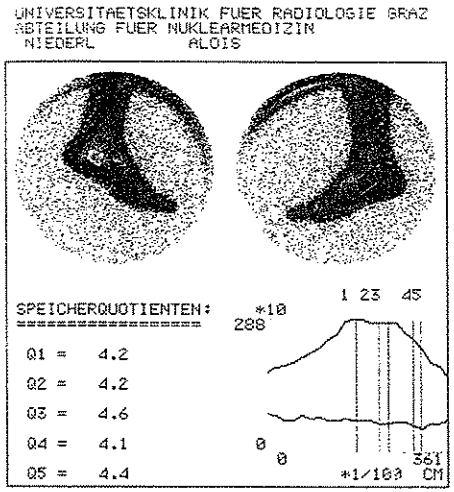
Scientific studies on the treatment of osteomyelitis with MFT

- J. Barovic, G. Fischer et al.: "Magnetic Field Therapy in Idiopathic Necrosis of the Head of the Femur," Marburg/Graz, Osteologie, Vol. 6, 1997, Supplement 1. - Eighty-one patients were tested; despite the severe course of the disease, 48 of these patients experienced a definite reduction in pain, greater mobility and increased bone density according to x-rays.
- T. Takano-Mamamoto: "Effect of Pulsing Electromagnetic Field on Demineralized Bone Matrix Induced Bone Formation in a Bony Defect in the Premaxilla of Rats," Osaka University.

Physician reports on the treatment of osteomyelitis with MFT

1. Dr. Franz Reinisch, M.D., St. Redegund

- *Patient, male, 21 years old. Diagnosis: In January 1987 the patient suffered an open fracture of the left tibia in an automobile accident; after surgical treatment, osteomyelitis with a fistula developed and had already been revised twice in an orthopedic hospital without any permanent success despite the use of antibiotics until the start of MFT in November of '87. A third surgery was planned. Results of MRS therapy: The wound healed after just 10 treatments with a relatively attractive scar.*



Scintiscan of the heel

Patient reports on the treatment of osteomyelitis with MRS

1. Thanks to Mr. Ludwig Müller

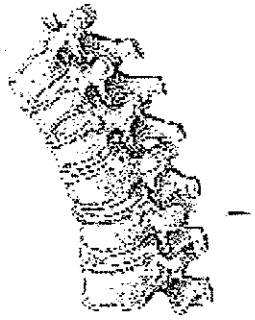
- *Patient N. A., male, 60 years old. Diagnosis: Chronic osteomyelitis after injury of the heel bone in 1964. Pain despite 25,000 pain pills taken in the last 30 years. In 1997, chronic osteomyelitis was diagnosed at the District Hospital of Graz and a partial amputation was recommended. Mr. N. asked for time to think it over. Treatment with MRS pad and mat according to the recommendation of Dr. Reinisch. Results of MRS therapy: Patient free of pain after 6 months, osteomyelitis 50 % better after 18 months. Amputation no longer necessary. "I no longer take pain pills. After 33 years with pain, I feel good again."*

Appraisal of MFT: **65-70 % good to very good results**

1.27 Osteoporosis

Bone tissue is some of the most stable tissue in the human body. So-called osteoblasts, the cells that produce bone, ensure that bone material will be replenished each day (whereas osteoclasts destroy old tissue). In a healthy adult, approximately 20 % of the bone mass is resynthesized each year. Bone density can be measured by densitometry.

Osteoporosis (literally: "porous bones") is one of the most common diseases of our time. Bone mass naturally declines in both sexes after middle age. Women are affected by osteoporosis much more often than men because the female body produces only small amounts of the sex hormone estrogen after menopause. Estrogen regulates the mineral balance in bones; a deficiency of minerals, especially calcium, therefore makes bones weaker and progressively more porous. Ultimately, this may reach such an extent that the bones are so fragile as to fracture even with an abrupt movement. 40 % of the women in Central Europe suffer from latent or manifest osteoporosis. Removal of both ovaries, smoking and poor diet can increase a person's susceptibility.



Curvature of the spine

Osteoporotic bone fractures are mostly vertebral fractures and fractures of the neck of the femur. When vertebrae fracture, the spine develops a forward curvature over a period of time and the patient develops a hunched (or hump) back, also known in the vernacular as

a "widow's hump." In a fracture, severe pain occurs at the point of the fracture and can last for several weeks or even months. This pain is caused by the shortening of muscles and cramps, because tendons and ligaments are suddenly being stretched, twisted or compressed. One woman in ten more than 65 years of age will suffer a collapsed vertebra. Bones weakened by osteoporosis not only break easily, but also heal badly.

The best treatment is prevention. A healthy lifestyle with a lot of activity (exercise, walking, dancing, jogging, swimming, bicycling, muscle stretching), avoiding smoking and drinking coffee while consuming a high-mineral diet (cheese, low-fat milk, lettuce, herbs and other green vegetables, nuts, mineral water) are guidelines that should be followed even by the young. To be avoided as much as possible: an extremely high protein intake and consuming substances that deplete the body of calcium, such as alcohol, fats and phosphates like those present in sausage products. To delay the onset of osteoporosis, doctors often recommended hormone replacement therapy from the beginning of menopause. The usual treatment options include analgesics (warning: side effects!), a combination of magnetic field therapy with neural therapy, various orthopedic techniques, a corset or spinal exercises (training in back health).

Magnetic field therapy has been used successfully as both a prophylactic and a therapeutic measure in treating osteoporosis.

Effect of magnetic field therapy on osteoporosis:

inhibits bone loss

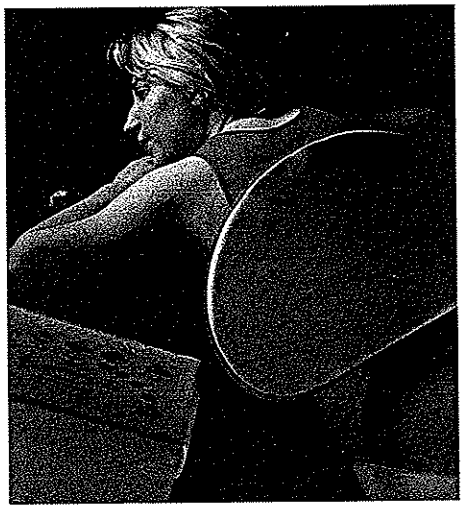
Proper use of MRS for osteoporosis

• Whole-body treatment: 3 times a day for 8-16 minutes each time: 100 % level in the morning (gradually increasing from 10 %), 100 % level at noon, 25 % level in the evening

• Pad: once a day for 24 minutes: 100 % level, chest and lumbar spine areas

• Special instructions on use: Assume a comfortable reclining position! For severe osteoporosis where lying on the back is painful, it may be necessary to adjust the dose.

• Duration of treatment: The treatment takes a long time, although patients experience some pain relief after an average of 4-6 weeks. Long-lasting success is achieved after 1 to 1 1/2 years of treatment. There is no point in measuring bone density before two cell cycles - in other words, the measurement should be performed at the soonest after 9-12 months. Even if bone density has not increased after one year, you should not conclude that the treatment has been ineffective. We know from experience that the progress of this disease can often be inhibited or even brought to a standstill.



Local treatment for osteoporosis

• Notes on the initial reaction: There is a slight intensification of pain in approximately 15 % of the cases of osteoporosis associated with pain, although this exacerbation usually disappears again within 7-10 days; the dose may have to be adjusted.

• Forms of therapy supportive of MFT: homeopathic remedies, muscle training, movement therapy, acupuncture, neural therapy, calcium preparations, vitamin D, shark cartilage extract, herbal remedies (field horsetail)

Scientific studies on the treatment of osteoporosis with MFT

A study is currently underway on the treatment of osteoporosis with the MRS 2000+ MED system at the University of Jena.

◦ W. Wang et al.: "Comparison of Dose-response and Mechanism(s) of Capacitive Coupling, Combined Fields and Inductive Coupling in the Proliferative Stimulated Bone Cells," Departments of Orthopedic Surgery and Bioengineering, University of Pennsylvania, Philadelphia, 1998. - This study was presented by the author himself under the moderator Michael Cho of the Harvard Medical School. The increase in bone cell mitosis activity was investigated and it was found that magnetic fields can increase this activity.

◦ F. L. Tabrah et al.: "Clinical Reports on Long-term Bone Density After Short-term EMF Application," University of Hawaii School of Medicine, Department of Physiology, Straub Clinic and Hospital, Honolulu. Bioelecromagnetics 1998, 19 (2), pp. 75-78. - This article resulted from the observation of patients who were treated with MFT for three months ten years previously. The bone parameters had definitely improved immediately after this treatment period but were not upheld. The scientists argue that the effect had disappeared ten years after the treatment because MFT was not continued for a long enough period of time.

◦ J. A. Spadaro, W. H. Bergstom: "Evidence that a Pulsing Magnetic Field Inhibits PTH-mediated Calcium Release From Bone in Vivo," Departments of Orthopedic Surgery and Pediatrics, State University of New York, Health Sciences Center, Syracuse, November 1998. - This study shows that the definite influence of MFT on bone calcium metabolism comes about due to the inhibiting influence on parathyroid hormone (PTH) and the related lower degradation of calcium.

◦ R. J. Fitzsimmons et al.: "Combined Magnetic Fields Increased net Calcium Flux in Bone Cells," Department of Medicine, Loma Linda University, California. Calcif-Tissue-Int November 1994, Vol. 55 (5). - This investigation revealed a definite influence on calcium uptake in bone cells while using MFT.

◦ Zati et al.: "Effects of Pulsed Magnetic Fields in the Therapy of Osteoporosis Induced by Ovariectomy in the Rat," Boll Soc Ital Biol Sper, 69 (7-9), July-August 1993, pp. 469-475. - This study shows that bone loss in women is reduced by 10 % on the average and bone mass degradation is decreased under the influence of MFT.

◦ Trabrah et al. demonstrated an increase in bone density with single-photon densitometry monitoring. 1990.

◦ John et al. treated a group of patients with MFT; a higher bone density was found four months after the start of treatment (quantitative CT). 1990.

◦ C. T. Rubin et al.: "Prevention of Osteoporosis by Pulsed Electromagnetic Fields," Journal of Bone Joint Surgery, 71 (3), March 1989, pp. 411-417.

Physician reports on the treatment of osteoporosis with MFT

1. Dr. T. Schütze, M.D., General Practitioner, Rosenheim

• *Patient, female, born 1921; diagnosis: chronic pain with osteoporosis. Results of MRS therapy: According to the patient, there has been a long-lasting improvement in pain.*

2. Dr. W. R. Maus, M.D., Überlingen

Patient, male, 90 years old. Diagnosis: severe osteoporosis and pain. Results of MRS therapy: The mat helped after eight weeks.

3. Dr. Michael Pommer, Specialist in Orthopedics and Orthopedic Surgery, Graz

• *"Magnetic field therapy has proven excellent in my practice; in bone fractures, the healing success is greatly improved and loosened prostheses can be stabilized again. In osteoporosis and arthrosis, excellent therapeutic results have been achieved due to the cell-regenerating, anti-inflammatory and circulation-promoting effects."*

4. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient H.M., female, 70 years old. Diagnosis: Osteoporosis for five years, fractured verte-*

brae, severe pain, restricted movement. Treated unsuccessfully for five years with infusions, acupuncture, massage and physical therapy. Results of MRS therapy: Patient largely free of pain after 12 treatments and can again do light gardening and normal household activities, walking without a cane is possible again for the first time.

5. Dr. Gerhard Beck, M.D., Aspach

• *Patient, female, 85 years old. Diagnosis: Multiple vertebral fractures, osteoporosis, dorsolumbalgia with degenerative spinal cord changes. The patient was wearing a support corset when she came to the treatment center and was able to walk for short distances only with the help of two canes and analgesics. Results of MRS therapy: The patient was again able to walk almost free of pain without the use of crutches or a support corset at the end of her rehabilitation stay (three weeks). She reduced her reliance on pain medication on her own initiative.*

Patient reports on the treatment of osteoporosis with MRS

1. Thanks to Mrs. Beatrice Studer

• *Patient, female, born 1938. Diagnosis: Osteoporosis in an advanced stage, rheumatism (caused by poor nutrition, spent a long time in cold damp cellars and bunkers in World War II), appendix surgery 10 years ago, tonsil surgery, removal of polyps from the nose, throat and bronchial tubes 13 years ago, menstrual periods with heavy prolonged bleeding and pain - since then, circulatory disorders, migraines and swollen legs. Radical hysterectomy at the age of 30, finding: malignant. Lumpectomy at the age of 31: left breast, benign. Cyst surgery at 48: removal of large and small cysts in the entire abdominal cavity, intestines and on the organs. Heart diagnosis at the age of 50: left bundle-branch block. At 57: sigmoid colon carcinoma: 50 cm. Removal of colon. At 58: lumbar disks 4-5 collapsed, no surgery. Results of MRS therapy: The osteoporosis measurement (bone density) after one year showed a bone improvement, stabile circulation, after three months no more migraine attacks, after four months good bowel habits. Heart symptoms only above a pulse of 150 (previously above 90). Back pain disappeared entirely after 6 months, rheumatism complaints have also disappeared.*

2. Thanks to Mrs. Beate Martina

• *Patient M.P., male, 83 years old. Diagnosis: Osteoporosis, immunodeficiency, sleep disorders, heart valve defect, low blood pressure 110/80, polyarthritis and severe rheumatism, hip joint pain, slight depression, chronic sinusitis, cysts in the jaw, ringing in the left ear; patient has had no sense of smell for 33 years, bronchial asthma until two years ago, torticollis (wryneck), 2/3 of the stomach removed after perforation of stomach, hepatitis B, total of 15 surgeries, including two faulty surgeries. Results of MRS therapy: Definite improvement in overall health: sleeping better, walking without a limp and without the use of a cane, mobility improved in general.*

3. Thanks to Mr. Karl Garber

• *Patient A.H., female, 54 years old. Diagnosis: Osteoporosis: 1994 bone density: 65 %. Results of MRS therapy: After four weeks, the pain in the hip joint had subsided greatly. In April 1997 the bone density had increased by 9 % and the bone had rebuilt itself.*

4. Thanks to Mr. Wolfgang Gasteiner

• *Patient H.W., female, 53 years old. Diagnosis: Osteoporosis, extreme pain in the pelvic area and in the right thigh, joint pain in the knee, elbow and shoulder, circulation disorders in the feet. Results of MRS therapy: Circulation in feet optimal after the initial use, extreme relief in climbing stairs and pain relief the next day. Sleep disorders eliminated due to the pain relief. After three days, movement therapy was possible (walking rapidly for 5-6 km). Stabilization of circulation after the first days - daily medication stopped. Medication for osteoporosis and gout stopped after 14 days. After four weeks, the patient experienced a pain-free state and physical well-being.*

5. Thanks to Mrs. Heidemarie Schäfer

• *Patient U.E., male, 72 years old. Diagnosis: Severe lower back pain and disk complaints. The patient could stand up only with assistance. The pain was caused by osteoporosis. Results of MRS therapy: The symptoms improved slowly, but a definite improvement was apparent only after about 20 weeks. "The patient is still not completely pain free. He was taking calcium pills for bone density."*

Appraisal of MFT: **70 % good to very good results**

1.28. Whiplash syndrome

Due to an accident, there may be overextension of the ligaments and capsules in the area of the cervical spine, leading to irritation of the nerve roots and the autonomic nerve plexus. It is characteristic of this syndrome that there is an interval of at least one hour after the accident when the patient is initially free of symptoms - thereafter, pain occurs in the neck and back of the head. This results in restricted movement of the cervical spine. A neck brace is usually used as treatment and should be worn for 10-14 days. The prognosis is good.

Proper use of MRS for whiplash syndrome

• Pad: 4-5 times a day for 8 minutes each time 100 % level in the area of the neck, the patient may sit or lie

• Special instructions on use: a maximum dose of 25 % should not be exceeded in those with hyperthyroidism.

• Notes on the initial reaction: none

Local treatment of the neck with a pad

Physician reports on the treatment of whiplash syndrome with MRS

1. Dr. Werner Raufelder, M.D., Bad Endorf

• *Patient G.B., male, born 1940. Diagnosis: Condition after cervical whiplash injury: cervicobrachial syndrome, scoliosis, left leg shortened, sleep disorders, irritable gastritis, dizziness, joint complaints in the shoulders. Results of MRS therapy: Cervical spine improved after the seventh session, only slight to moderate remaining complaints, mobility improved. Follow-up showed almost no symptoms until today (January 8, 1998).*

Patient reports on the treatment of whiplash syndrome with MRS

1. Thanks to Mr. Adolf Wohlgemuth

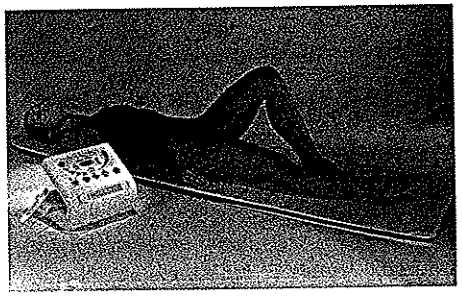
• *Patient S.M., male, 42 years old. Diagnosis: Traffic accident on December 9, 1997: cervical whiplash syndrome, head: contused-lacerated wound, both knees swollen thick, hematoma, index and middle finger of the left hand were severely swollen. Severe pain throughout the entire body. Results of MRS therapy: "After two days I was pain free (without medication). Then the swelling on the knee and hand went down, and my neck improved after 14 days. I feel better, more balanced and healthier."*

Appraisal of MFT: **70 % good to very good results**

1.29. Rheumatic diseases

In rheumatic diseases of the joints and soft tissue, intense pain occurs, migrating to various parts of the body. Rheumatic diseases are caused by focal infections which disperse bacteria (streptococci) into the bloodstream. The susceptibility for rheumatism may be hereditary (families of rheumatic patients) or acquired (certain occupational groups) with low-temperature stimuli, mechanical overexertion, obesity and tissue damage due to previous infections, accidents, etc., being possible causative factors. Rheumatic patients are sensitive to the weather.

The actual disease process takes place in the connective tissue, affecting muscles, cartilage, bone or tendons, forming chronic inflammatory small lesions of changes which may develop into nodules. The cartilage becomes loosened in the course of the disease, saturated and later disintegrates into small lumps. The joint capsules thicken, the joints becomes loose and finally become deformed. The nerves also undergo characteristic changes. Rheumatism proceeds in attacks, so that younger and older stages can be observed side by side. Supportive treatment options to relieve pain include baths, preferably mud



Basic treatment in rheumatic diseases

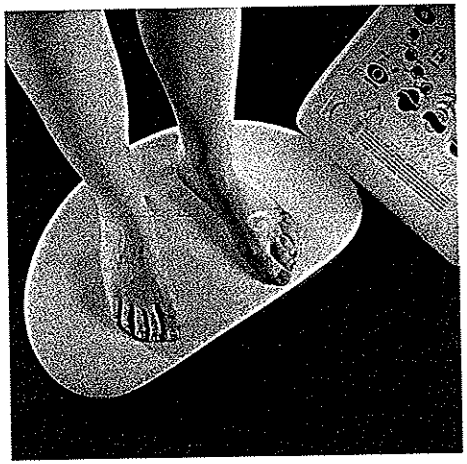
baths or sulfur baths as well as herbal baths (hayseed, oat straw), wrappings and in special cases hot packs (hay packs, mud packs, clay packs or wraps, etc.); hot potatoes are also used as a home remedy. Effective plants for rheumatism include arnica, echinacea and bryony. Varieties of tea that cleanse the blood and dietary changes (no meat, large amount of raw food in the diet) act to regulate the intestines. Liquid fasts promote detoxification and cleansing of the blood (including stinging nettle, equiseti or field horsetail, dandelion). Any attack of fever requires bed rest, and the acutely inflamed joint should be kept in a middle position until the temperature goes down. The joint can be stabilized with pillows, a rolled up towel or blanket or a sandbag.

Effect of magnetic field therapy on rheumatic diseases:

relieving pain, supportive. In individual cases, the rheumatic attacks may occur less often. The reason for this, however, is not yet known.

Proper use of MRS for rheumatic diseases

- Whole-body mat: 3 times a day for 8 minutes each time: 150 % level in the morning (gradually increasing from 25 %), 100 % level at noon, 50 % level in the afternoon, 25 % level in the evening
- Pad: 2-3 times a day for 16 minutes each time: shoulders, neck, hips and lower abdomen: 25-50 % level, elbow and knee: 100-150 % level, foot and hand: 150-200 % level.



Local treatment of the feet with a pad

- Duration of treatment: a spontaneous healing should not be expected. This is a therapy of small steps.
- Notes on the initial reaction: in approximately 10 % of the cases, patients with diseases from the rheumatic group may experience a brief intensification of pain. Such an initial exacerbation may last from 3-4 weeks and can be prevented for the most part by gradually increasing the dose.
- Forms of therapy supportive of MFT: acupuncture, homeopathy, enzyme cures, ayurvedic medicine, kinesiology, saline therapy, medicinal herbal extracts with a diuretic action (juniper berries, dandelion, stinging nettle, field horsetail, prickly bindweed), anti-inflammatory medicinal herbal extracts (rampion, white willow bark, yucca root).

Scientific studies on the treatment of rheumatic diseases with MFT

Various studies on this topic have already been discussed in the individual subsections of this chapter (arthritis, arthrosis, fibromyalgia, etc.). We shall report here on merely a few general studies in this field.

- W. Kobinger, G. Fischer, J. Barovic et al.: "Pain Relief and Increasing Mobility in Diseases of the Motor Apparatus Through the Use of Magnetic Field Therapy," Hygiene Institute of the University of Graz and the Marburg Teaching Hospital, AMA Acta Medica Austriaca, 1995. - Twenty-eight patients suffering from various diseases of the motor apparatus and supporting system were treated exclusively with magnetic resonance. A highly significant improvement was achieved.

Physician reports on the use of MFT in rheumatic diseases

1. Thomas Drach, non-medical practitioner, Bermatingen-Ahausen

- *Patient S.D., female, 78 years old. Diagnosis: Rheumatoid arthritis, especially in the shoulder, wrist and ankle on both sides, very inflamed, partial inability to move the middle finger and thumb. Patient has been experiencing pain for more than five years. She has taken pain pills which have had considerable side effects in the gastrointestinal tract and have caused hair loss. She could only stand up from a sitting position. For three years she has been suffering from sleep disorders. Results of MRS therapy: "Since I have had the magnetic field, I can sleep wonderfully again. Most of the joint pain has disappeared except when there are severe weather changes. The mobility of my joints is excellent. I have been able to completely stop taking the strong pain pills and rheumatism medication. I can stand up again without assistance."*

2. Dr. Annegret Wennig

- *Patient E. F., male, 70 years old. Diagnosis: Pain in the motor system for 15 years, especially in the area of the lumbar spine and in the joints due to rheumatic diseases. Results of MRS therapy: Perceptible decrease in pain in the lumbar spine after 4 weeks, feeling good on the whole.*

Additional reports: see individual diseases of the motor apparatus

Patient reports on the treatment of rheumatic diseases with MRS

1. Thanks to the company Vita-Life

- *Patient M.P., female, 73 years old. Diagnosis: Polyarthritis and severe rheumatism, pain in the hip joint. Results of MRS therapy: Improvement in overall health: sleeping better, rheumatism gone, general mobility improved.*

2. Thanks to Mrs. Sieglinde Kapun

- *Patient P.M., male, 70 years old. Diagnosis: Wear on the intervertebral disk, rheumatism, tension in the shoulder area, dizziness attacks with low blood pressure; when asleep: his right hand, left shoulder and right knee go to sleep. Results of MRS therapy: Circulation much better after seven days, likewise pain in the joints improved. After three weeks, tension in the shoulder area is much better. Hand, shoulder and knee no longer fall asleep, rheumatism pills no longer needed.*
- *Patient F.Z., female, 58 years old. Diagnosis: Rheumatic finger symptoms, back pain, shoulder and arm pain, pain in the knee joint after two surgeries, allergic to penicillin, sunlight, iodine. Results of MRS therapy: Significant improvement in shoulder, arm and knee symptoms, back pain less often. Rheumatic symptoms occurred previously mainly in the cold season - none at the moment (winter).*

3. Thanks to Beatrice Studer

- *Patient, female, born 1938. Diagnosis: Rheumatism since the age of 8 (caused by poor nutrition, staying in cold damp cellars and bunkers for a long time in World War II). Results of MRS therapy: The rheumatism symptoms have disappeared.*

4. Thanks to Mr. Dietmar Hauser, certified engineer

• *Patient, male; diagnosis: rheumatism symptoms in the right shoulder/upper arm. Diabetes, circulation disorders, nerve disease, ulcers on both legs, inflammation of the right foot, sleep disorders. Results of MRS therapy: February 4, 1998: feeling in the area of both soles for the first time in four years - after one week of treatment. Headache improved, tingling in the feet during treatment. February 9, 1998: continued feeling in the soles of the feet, slow progress in wound closure on the sole of the right foot, years of headaches disappeared after the second week of treatment. Rheumatism pain (acute) in the area of the right upper arm improved greatly after one week of treatment. May 5, 1998: diabetes: improved values. Circulation in the feet improved, healing of ulcer progressing well, inflammation subsided, sleep improved, rheumatism in the shoulder gone.*

5. Thanks to Mrs. Giovanna Fakin

• *Patient R.F., male, diagnosis: PCP (rheumatoid immobilization syndrome), i.e., constant rheumatic fever attacks, gouty deformation, stiffening, spots on the face, on the neck, lower arm and between the fingers resembling burn wounds. The bronchial tubes were also affected. Additional infections caused by streptococci, extreme lymph node swelling on the neck, under the arm and in the groin. Results of MRS therapy: An improvement in general condition of 80 % is apparent after four weeks of treatment. The rheumatoid fever has disappeared completely, the bronchial tubes have stabilized and there is no longer any apparent lymph node swelling. Patient has been able to stop taking medication.*

Appraisal of MFT: **65-75 % good to very good results.**

1.30. Backache

In our civilized society, back pain is one of the most common complaints. Sitting too much while working, too little movement, mattresses that are too soft, improperly adjusted office chairs, general poor posture as well as osteoporosis and obesity can lead to tension and cramping of the back muscles. Back pain also occurs frequently during pregnancy. Psychological reasons, stress, heart disease, lung problems, kidney diseases or disorders in the intestinal area are also known to cause back pain. In addition, changes in tendons, ligaments or muscles may also cause back problems.

If part of the spinal system is disturbed, in the long run this has a negative effect on the entire spinal column. The resulting pain may occur suddenly or may increase slowly. This may be a piercing pain or a dull pain which may increase to the point of being intolerable. Backaches caused by tense back muscles usually disappear on their own within 1-2 weeks, but sometimes they may last for months. Muscle training and weight loss relieve the stress on the back. Hot compresses may help in severe acute pain.

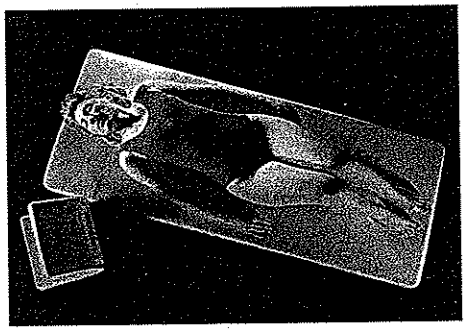
Effect of magnetic field therapy on back pain:

muscle relaxing, stopping cramping, relieving pain (by raising the stimulus threshold of the nerve endings), supportive

Proper use of MRS for back pain

• Whole-body mat: once daily for 8 minutes: 100 % level in the morning (gradually increasing from 25 %)

• Pad: 2-3 times a day for 16-24 minutes each time: cervical spine area: 25-50 % level, thoracic spine area: 50-100 % level, lumbar spine area: 100-150 % level



Basic treatment for back pain

• Special instructions on use: Keep knees bent! (Stabilizing the pelvis, relaxing the back muscles)

• Notes on the initial reaction: in 1-3 % of the cases some form of initial reaction is experienced.

• Forms of therapy supportive of MFT: relaxation exercises (such as Jacobson training), biofeedback, chiropractics, homeopathic remedies, shiatsu massage, neural therapy

Local treatment of the thoracic spine with a pad

Scientific studies on the treatment of back pain with MFT

• D. Foley-Nolan et al.: "Low Energy High Frequency Therapy for Persistent Neck Pain. Double-blind Placebo-controlled Trial," Bioelectromagnetics Society, 12th Annual, June 10-14, 1990, San Antonio, p. 73. - In this double-blind, placebo-controlled study, the effects of low-energy pulsating electromagnetic electric fields on persistent back pain were investigated. Clearly positive results were demonstrated.

Physician reports on the treatment of back pain with MRS

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient M.W., female, 67 years old. Diagnosis: Lower black pain, migraines. Results of MRS therapy: After the initial treatment, her headaches just "disappeared." The patient felt a definite relief of the lower back pain. After the third treatment, a further improvement was confirmed.*

2. Ute Sigel, non-medical practitioner and traditional osteopathic practitioner, Würzburg

• *Patient, male, 32 years old. Diagnosis: Recurrent pain in the lower back/pubic bone joint and the lower lumbar spine for approximately 10 years, very severe pain at the time of the initial treatment, especially when standing up from a sitting position or from lying down, slight pain with inactivity. Results of MRS therapy: The patient felt very relaxed after the MF treatment. He felt a great deal of warmth and pain in the affected areas during the initial treatment with the mat. Thereafter, he felt warmth and tingling in the problem zones with each MF treatment. On the second day, the pain had virtually disappeared and has not returned since.*

3. Dr. Ernst Baumann, M.D., Munich

• *Patient, male, 49 years old. Diagnosis: Severe lumbar and knee symptoms, especially with any exertion such as climbing stairs, greatly restricted mobility of the lumbar spine. Results of MRS therapy: After four weeks, the patient has almost free mobility of the lumbar spine again and hardly any pain. The knee symptoms are less, but the patient still has pain when climbing stairs with a load (a briefcase), but skiing is not painful.*

4. Dr. Gerhard Antensteiner, ~~M.~~D., General Practitioner, Kindberg

• *"I have been using magnetic field therapy for slightly more than one year in my practice. The main areas for use were for pain states involving the motor apparatus, in particular the spinal column which responded very well to the treatment. The second main area of indications was for circulation disorders and peripheral arterial occlusive disease in stage IV was also treated, and a definite improvement was achieved even in severe cases. Increased vitality during the day and better quality sleep at night were also*

achieved in patients with mild to moderately severe depression."

5. Dr. Hoffmann Kuhnt, M.D., Orthopedic specialist, Nuremberg

• *"In the period from June 2, 1997 through July 25, 1997, I treated 26 patients in my practice as often as possible, i.e., on successive days, at least 3 times a week, treating the specific pain region on the extremities or the spinal column. Of 26 patients, 9 patients reported that they were free of pain after conclusion of the treatment, 7 reported a definite to significant improvement in symptoms. Six patients have not had any headaches or rheumatic joint pain since the treatment. Four patients terminated the treatments after two to six sessions and did not report either a positive or negative reaction."*

6. Professor Dr. P. Schwarzfischer, M.D., specialist in Internal Medicine and Nuclear Medicine, State Sanitarium "Im Sonnenfeld", Bad Wiessee

• *Patient E.O., male, 74 years old. Diagnosis: Tendomyotic and degenerative spinal syndrome with recurrent neck pain and back pain, coronary heart disease, condition after a myocardial infarction, cardiac insufficiency NYHA stage III; diabetes mellitus (insulin dependent), renal insufficiency, stage II. Results of MRS therapy: Patient reported a perceptible relief of his back pain. The other physical therapy consisted of relaxing massage and fango packs.*

Patient reports on the treatment of back pain with MRS

1. Thanks to Mrs. Ursula Lange

• *Patient M.W., male, Diagnosis: Back pain (lumbar spine syndrome) and pain in the right forearm into the wrist. Results of MRS therapy: "After a few minutes I felt the pain worsen in my right forearm, but it subsided by the end of the treatment and the pain is now definitely reduced."*

• *Patient S.I.W., male, 39 years old. Diagnosis: General back complaints. Results of MRS therapy: No more back complaints, very good relaxation, improved situation in falling asleep.*

• *Patient G.K., male, 72 years old. Diagnosis: Variable condition (completely exhausted to daily inability to cope), diabetes, high blood pressure, renal failure - dialysis three times a week, back pain (lumbar spine syndrome) due to spinal displacement, signs of paralysis, painful knee joint inflammation, severe impairment in walking and in movement, regular use of analgesics, nausea, dizziness, sluggishness of the bowels, constipation, only 30 % visual acuity, lack of drive, numbness in the feet. Results of MRS therapy: Mobility improved (easier to climb a hill and easier to climb stairs), back: much better, sometimes can do without pain medication for days at a time. Right knee: swelling somewhat subsided, numb feeling in the legs reduced, tingling felt again. General condition better, dizziness only in turning, cholesterol level dropped from 390 to 356 (in four weeks), no longer needs laxatives.*

2. Thanks to Mr. Karl Garber

• *Patient J.G., male, 45 years old. Diagnosis: lower back pain. Results of MRS therapy: Lower back pain eliminated.*

• *Patient C.F., female, 50 years old. Diagnosis: Severe pain in the lumbar and cervical spine areas, on the right leg, in the area of the sole of the right foot and the left shoulder. Results of MRS therapy: Nine days after the start of treatment in combination with acupuncture, the pain in the lumbar area has disappeared, likewise the pain in the thigh (after two days). The pain in the sole of the foot also subsided after five more days.*

3. Thanks to Mr. Adolf Wohlgemut

• *Patient M.M., female, 40 years old. Diagnosis: "My main problem was my lumbar spine. For several years I have repeatedly suffered from severe pain which was relieved in part with medication. I was often fatigued and drained. When playing tennis in September 1997 I tore muscle fibers on the right calf." Results of MRS therapy: "My problems in the lumbar spine disappeared in the course of the first three months. I felt much more vital and energetic. Today, two years later, I no longer have any back problems. I was able to put weight on my leg with the torn muscle fiber again normally after two weeks."*

4. Thanks to Mr. Reinhard Schlag

• *Patient F., female, 45 years old. Diagnosis: Complaints in the area of L4/L5. Hardly any movement possible without pain. Results of MRS therapy: Reduction in pain during the very first treatment. The patient no longer felt any more pain during the remaining treatments.*

• *Patient R., male, 71 years old. Diagnosis: Back pain, arthrosis in the right knee, severe pain. Shoulder pain, circulation disorders in the arms (feeling of numbness), prostate problems. Results of MRS therapy: After three treatments, all symptoms improved. After two weeks of treatments, Mr. R. is completely free of symptoms. He can now walk without pain and the pain in his shoulder and back have disappeared. He sleeps very well and no longer has any prostate problems. The feeling of numbness in his arms has disappeared completely.*

• *Patient, female, 65 years old. Diagnosis: Severe painful back problems. Results of MRS therapy: Improvement up to complete stoppage of pain after the treatment.*

5. Thanks to Mrs. Heidemarie Schäfer

• *Patient S.L., female, 50 years old. Diagnosis: Severe, acute pain in the lumbar spine area, recurring at intervals of approximately four weeks. Mrs. S. was therefore receiving cortisone injections. Results of MRS therapy: "Since using MF, I have not needed any injections, fango therapy or massages. Whenever the pain returns, I use the pad more. Since using MF I have felt fresher and more energetic."*

6. Thanks to Mrs. Maria Pfeifer

• *Patient K., male, 67 years old. Diagnosis: Lumbar-thoracic pain, high blood pressure, coughing for 6 months. Results of MRS therapy: After 14 days, the spinal pain stopped and the tedious coughing also disappeared.*

7. Thanks to the company Medline

• *Patient H.F., female, Diagnosis: "I was having problems in the autonomic nervous system, nervous heart symptoms and constant back pain since the birth of my son." Results of MRS therapy: "After just a few weeks, the back pain had improved significantly. Today I am mostly free of pain, although my treating physician had said 'I regret to tell you that you will always have back pain.' My autonomic nervous system has also stabilized to the extent that the heart symptoms associated with these problems have disappeared."*

• *Patient S., male, 44 years old. Diagnosis: severe back pain. Results of MRS therapy: complete improvement.*

• *Patient J.M., female, diagnosis: Lower back pain. Results of MRS therapy: "After three weeks of regular use, I have already noticed a significant improvement in my lower back pain, which I had been experiencing regularly until then, and also a significant improvement in circulation and activation of my digestive system. Although I have been concerned with my health, preventive health care and following a balanced high vitamin diet for several years, my overall well-being and vitality have improved greatly since using this device. The pain of a broken bone five years previously which recurred whenever the weather changed has now disappeared completely."*

8. Thanks to Mrs. Gabriele Kothmayer

• *Patient G.K., male, 38 years old. Diagnosis: Extreme pain and muscle cramps after fracture of vertebrae in the area of the thoracic and cervical spine (especially after sitting for a long time and in damp, cold weather), often associated with headaches due to tension in the neck area. Results of MRS therapy: Significant improvement in back pain after one month, almost pain free after two months and therefore much greater mobility, no more headaches since the neck area is much more relaxed.*

9. Thanks to Mrs. Franziska Engeli

• *Patient M.K., female, born 1960. Diagnosis: Back pain, very fatigued, no energy, list lessness. Results of MRS therapy: Now balanced, more energy, no more back pain, menstrual symptoms disappeared, menstrual cycle has stabilized, headaches only rarely. The patient can work with a great deal of energy. Her blood pressure is normal.*

10. Thanks to Mr. Gerold Pfann

• *Patient K.J., male, 71 years old. Diagnosis: "I have had lower back pain for 50 years; I was supposed to have surgery 20 years ago, but I would not consent to it. I was going to non-medical practitioners who took me through the rounds." Mr. J. was also suffering from sinusitis in the frontal sinus. Results of MRS therapy: "After 10 days, the frontal sinus no longer caused me any problems. After the fifth week, the pain in the low back area had disappeared. This treat-*

ment has been excellent for my internal diseases (intestine, liver). I can again eat things that I have not been able to eat for several years."

- *Patient U.M., female, 52 years old. Diagnosis: Severe lower back pain and intervertebral disk complaints. Results of MRS therapy: "The complaints improved gradually, with a definite improvement after about 10 weeks."*

11. Thanks to Mr. Helmut Pein

- *Patient M.M., male, 37 years old. Diagnosis: "I had permanent lower back pain, especially after a hard day of work. The treatments prescribed by doctors had not been successful. In addition, I had a type of skin allergy on both hands for about 10 years." Results of MRS therapy: "After treatment for 3 weeks, my lower back pain disappeared completely. The condition of my hands has improved significantly."*

12. Thanks to Mrs. Helga Kohlhuber

- *Patient H.K., male, 57 years old. Diagnosis: Shoulder pain, lower back pain, digestive problems. Results of MRS therapy: "In the first week my shoulder pain became much worse. Amazingly, the lower back pain subsided in the first week and the shoulder pain in the second week. After a few months they had disappeared completely. My digestive problems (I was often able to go to the bathroom only once or twice a week) improved in the second week (now I go once or twice a day), so my frequent gastrointestinal pains have also disappeared."*

Appraisal of MFT: **75-80 % good to very good results**

1.31. Torticollis

Torticollis (wryneck) is hereditary in most cases. Muscular torticollis is due to a shortening of the major sternocleidomastoid muscle on one side. The head is inclined toward the affected side and bent slightly to the rear and the face turns towards the healthy side. The best time for surgery is at the end of the first year of life; until then a plaster cast must be worn. Torticollis can also be caused by changes in the spinal column (e.g., cervical ribs or fused vertebrae), due to paralysis of the neck muscles, contraction of scars or infections. Rheumatic torticollis is caused by a disease of the muscles of the throad and neck.

Effect of magnetic field therapy on torticollis:

relaxing muscles, anticonvulsive effect (influencing the stimulus threshold at the nerve endings)

Proper use of MRS for torticollis

- Whole-body mat: twice a day for 8 minutes each time: 50 % level in the morning, 10 % level in the evening
- Pad: once a day for 24 minutes: 100 % level
- Probe: once a day for 24 minutes: 200-400 % level, with soothing massage movements at the origin and attachment of the muscle
- Notes on the initial reactions: none

Local treatment for torticollis

Scientific studies on the treatment of torticollis with MFT

◦ I. E. Detlav: "The Influence of Constant and Pulsed Electromagnetic Fields on Oxidation Processes in Muscle," in I. E. Detlav (ed.), Electromagnetic Therapy of Injuries and Diseases of the Support Motor Apparatus, International Collection of Papers, 1987. - This study shows the accelerated recovery phase in muscle injuries using MFT.

Physician reports on the treatment of torticollis with MRS

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

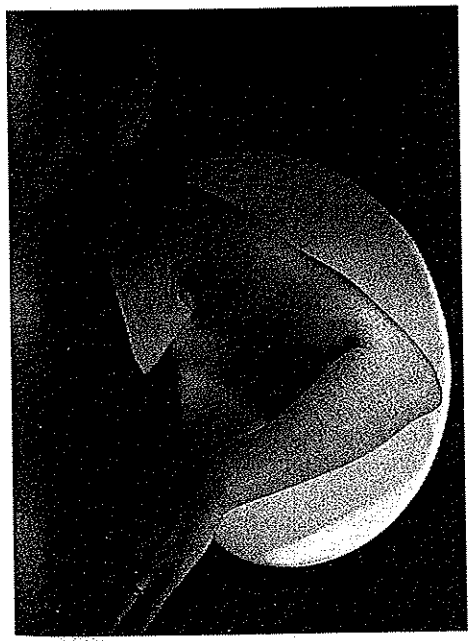
- *Patient, female, 8 years old. Diagnosis: muscular torticollis on the left side. Results of MRS therapy: findings six months after surgery and MFT: almost complete recovery from torticollis.*

Appraisal of MFT: **40 % good to very good results**

1.32. Bursitis

The synovial bursa is a sac filled with fluid that serves as a shock-absorbing cushion between the bones and the muscles or tendons. It can become inflamed due to unaccustomed exercises and activities, bad shoes, gout or rheumatic diseases. The knees are affected most commonly; people who kneel a lot are especially susceptible. An inflammation may develop at the elbow if one puts weight on this joint too often. Bursitis of the Achilles tendon occurs in athletes whose shoes are too tight.

Treatment of bursitis depends on the cause. If pressure or unaccustomed movement is the reason for the inflammation, then these causes can be avoided easily. Ice packs and anti-inflammatory drugs support more rapid healing.



Local treatment of the synovial bursa

Effect of magnetic field therapy on bursitis:

anti-inflammatory, relieving pain, supportive

Proper use of MRS for bursitis

- Pad: 2-3 times a day for 24 minutes each time: 150 % level for the knee and elbow, 100 % level for the shoulders and hip joints.
- Notes on the initial reaction: approximately 5 % of these cases will experience an intensification of pain for 1-5 days.

Scientific studies on the treatment of bursitis with MRS

◦ A. A. Pilla: "State of the Art in Electromagnetic Therapeutics: Soft Tissue Applications," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - This study provides information on the positive influence on pain and swelling in the area of the joints and bursa using MFT.

◦ Weinberger et al.: "Treatment of Experimental Inflammatory Synovitis with Continuous Magnetic Field," 1st Journal of Med Sci, 32 (12), December 1996, pp. 1197-1201. - This study investigates the effects of MFT on inflammation of the joint capsule in rats. The result shows a definite anti-inflammatory effect of MFT.

Physician reports on the treatment of bursitis with MRS

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient T.C., male, 28 years old, soccer player; diagnosis: bursitis with severely impaired movement and pain in the right knee. Results of MRS therapy: Mr. C. was free of symptoms within three days, the swelling went down greatly and he was able to put his weight on the knee again after one week.*

Patient reports on the treatment of bursitis with MRS

1. Thanks to Mr. Ewald P. Müller

• *Patient F.M., male, 29 years old. Diagnosis: stress due to shift job, old injury of the synovial bursa in the knee occasionally painful. Results of MRS therapy: "I feel much fresher in my work, especially at night. My knee hurt more for the first week, but after the third week it was almost completely pain free, especially when applying weight to it."*

Appraisal of MFT: **70 % good to very good results**

1.33. Snapping finger

Snapping finger is due to a disease of the flexor tendon and its sheaths, leading to distension of tendon sections and to constriction of the tendon sheath. Due to this circumstance, sliding of the tendon is prevented, resulting in a characteristic snapping when the finger is bent. In most cases, surgery is necessary.

Effect of magnetic field therapy on snapping finger:

relaxing, relieving muscle cramps, supporting

Proper use of MRS for snapping finger

• Pad or probe: 3-4 times a day for 16 minutes each time: 200-400 % level, massaging the entire course of the tendon up to the point of muscle attachment with a circulating motion using the probe.

• Duration of treatment: this treatment may take a very long time. One must not become discouraged here, initial results occur at the soonest after 9-12 months of regular treatment.

• Notes on the initial reaction: none

Local treatment of the fingers with a probe

Scientific studies on the treatment of snapping finger with MFT

◦ Binder et al.: "Pulsed Electromagnetic Field Therapy of Persistent Rotator Cuff Tendinitis. A Double-blind Controlled Assessment," Lancet, 1 (8379), March 31, 1984, pp. 695-698. In this double-blind placebo-controlled study, the positive effect of electromagnetic fields on tendinitis in the area of the rotators is discussed.

Patient reports on the treatment of snapping finger with MRS

1. Thanks to the company Vita-Life

• *Mr. R.T., 58 years old. Diagnosis: Progressive shortening of the tendons for the last six years. Results of MRS therapy: "The first improvements were apparent after three months: I was again able to open my finger with my other hand. Two months later, I was almost able to straighten the finger out for the first time. Today, eight months after the first treatment with MRS, I can move my finger normally and I have problems only in the morning."*

Appraisal of MFT: **50 % good to very good results**

1.34. Tendon injuries:

see "Sports medicine"

1.35. Scoliosis

Scoliosis is understood to be a fixed lateral bend in the spinal column associated with rotation of the vertebrae. In 90 % of the cases the causes are unknown (idiopathic scoliosis). The known causes include neuromuscular diseases, with paralysis on one side leading to the lateral bending, primary muscle diseases, bone deformations of the vertebrae or metabolic disorders.

Idiopathic scoliosis develops during growth, mainly in girls between the ages of 10 and 12. The curvature causes a shortening of the soft parts on one side, the growth joint is damaged and consequently, asymmetrical vertebrae develop. This results in a "hump" of the ribs, i.e., the ribs stand out further in the thorax area, especially when bending forward. In the area of the lumbar spine, the extensor muscle of the back is predominant, forming the "lumbar bulge." Scoliosis itself is not painful but it can lead to premature wear phenomena. The treatment depends on the patient's age and the cause and extent of the scoliosis (scoliosis angle). There is a possibility of physical therapy (up to an angle of 20°), use of a corset (angles between 20° and 50° in growing children, to be worn the entire day) and surgery (angle more than approximately 50°).

Effect of magnetic field therapy on scoliosis:

relaxing muscles, relieving cramping, relieving pain

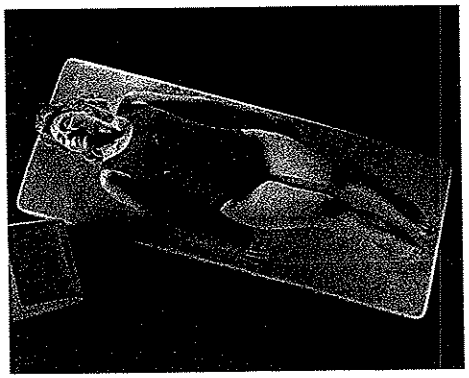
Proper use of MRS for scoliosis

• Whole-body mat: 2-4 times a day for 8 minutes each time: 100 % level in the morning, 50 % level at noon, 25 % level in the afternoon, 10 % level in the evening

• Special instructions on use: Keep knees bent!

• Notes on the initial reaction: none

• Forms of therapy supportive of MFT: movement therapy and instruction in proper use of the back



Whole-body treatment for scoliosis

Scientific studies on the treatment of scoliosis with MFT

◦ M. Marinkev et al.: "Therapeutic Effects of Pulsating Energy Resonance Therapy in Vertebrogenic Diseases," instructor at the higher medical institute - Plovdiv., 1995. - The result of this study demonstrates that well-being, physical endurance and sleep can all be improved with the use of MFT, and the perception of pain decreases.

Physician reports on the treatment of scoliosis with MF

1. Dr. Barbara Adolf, M.D., gynecologist, Fürstenfeldbruck

• *Patient C.W., female, Diagnosis: Severe scoliosis. Results of MRS therapy: The back pain has disappeared completely, slight improvement in nasal symptoms.*

Appraisal of MFT: **60-70 % good to very good results**

1.36. Talipes equinus:

see "Splayed foot"

1.37. Spondylolisthesis

In true spondylolisthesis, the vertebrae cannot get any hold because of a hereditary defect in

the vertebral arch and the vertebrae slide forward. This process usually begins in childhood and stops in puberty. It most commonly affects the fourth and fifth lumbar vertebrae. In the extreme case, one vertebra will slip directly in front of the other. This causes extreme lower back pain which defies treatment. Another form is secondary spondylolisthesis, where one vertebra is twisted out of the spinal column under a high load. The prerequisite for this is intervertebral disk damage associated with a curvature of the spine. Surgery is then usually unavoidable. In mild cases, it may help to strengthen the muscles or use a support corset.

Effect of magnetic field therapy on spondylolisthesis:

relieving pain, relaxing muscles, promoting circulation, supporting. Spondylolisthesis itself cannot be treated, only the pain can be treated.

Proper use of MRS for spondylolisthesis

- Whole-body mat: once a day for 8 minutes: 50 % level
- Pad: twice a day for 24 minutes each time: cervical spine area: 25-50 % level, thoracic spine area: 50-100 % level, lumbar spine area: 100-150 % level

Local treatment for spondylolisthesis

- Special instructions on use: Keep knees bent!
- Notes on the initial reaction: Young women may experience an initial painful reaction (rare).

Scientific studies on the treatment of spondylolisthesis with MFT

◦ M. Marinkev et al.: "Therapeutic Effects of Pulsating Energy Resonance Therapy in Vertebrogenic Diseases," Instructor at Higher Medical Institute - Plovdiv. 1995. - The result of this study has shown that the use of MRS improves well-being, physical endurance and sleep quality while reducing the perception of pain.

Physician reports on the treatment of spondylolisthesis with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

- *Patient C.S., male, 19 years old. Diagnosis: Massive problems due to spondylolisthesis for two years. Previously: muscle training with moderate success, daily pain. Results of MRS therapy: After one month of treatment, the pain occurs only occasionally with faulty distribution of weight.*

Patient reports on the treatment of spondylolisthesis with MRS

1. Thanks to the company Vita-Life

- *Patient M.H., female, 45 years old. Diagnosis: Spondylolisthesis L5/S1, thoracic/lumbar osteochondrosis, prolapsed disk, pain for many years, especially when lying down at night, often severe disorders in the left leg with severe pain in the ball of the foot, pain in the left shoulder." Results of MRS therapy: "I can again sleep through the night, I no longer have piercing pain in my leg. The pain in my left shoulder has partially disappeared and in general I feel good and feel a lot of energy and vitality."*

Appraisal of MFT: **60-70 % good to very good results**

1.38 Splayed foot (hammer toe, hallux valgus, claw foot) and talipes equinus

1.38.1. Splayed foot

In splayed foot, the front transverse arch of the sole of the foot is flattened, resulting in a broadening of the forefoot so more weight is placed on the heads of the metatarsal bones. This results in the development of calluses and severe foot pain, especially when walking and standing. Splayed foot (it may develop on its own or it may be a concomitant manifestation of flatfoot and talipes cavus or hollow foot) is the most common deformity of the foot, especially in large cities. Risk factors include connective tissue damage, obesity, improper shoes (high heels), deformity of the calcaneal part of the foot and the metatarsus or inflammatory rheumatic diseases. Deformity of the toes occurs due to the fact that spreading of the forward part of the foot causes tension on the tendons, pressing the toes together. The change in static condition causes a shift in the direction of tension of the tendon and the toes become deformed.

Hammer toe: The toe is flexed in a fixed position in the end joint.

Hallux valgus: The big toe is twisted outward.

Claw foot: There is a fixed flexion in the middle and end joints with the metatarsophalangeal joint being overextended. Calluses and so-called corns develop due to the pressure on the shoe.

Splayed foot is treated with massage and physical therapy to strengthen the muscles of the foot and to stretch tendons that have become shortened. If the symptoms persist, surgery on the soft tissue or on the bone is necessary.

1.38.2. Talipes equinus

Talipes equinus develops due to paralysis of the fibula, e.g., after childhood paralysis or after an injury. Talipes equinus may also develop due to improper positioning of the foot in rheumatic patients or patients who must spend long periods of time in bed. The talipes equinus position is characterized in that the foot is always placed with the tip first. This results in the typical "stepper gait." Orthopedic shoes or devices and physical therapy can contribute greatly toward an improvement in symptoms. In some cases, surgery is helpful.

Effect of magnetic field therapy on splayed foot or talipes equinus:

promoting circulation, supporting

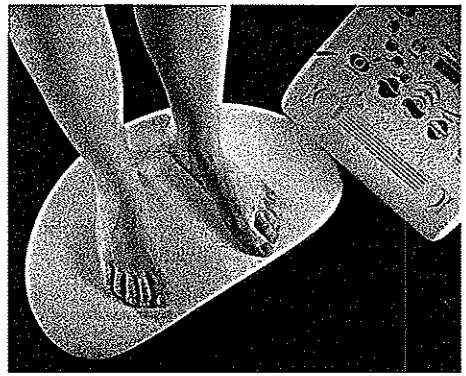
Proper use of MRS for splayed foot or talipes equinus

- Pad: three times a day for 16-24 minutes each time: 200 % level (Med device: 400 %), placing the pad on the floor and then placing the feet on the pad
- Special instructions on use: Use regularly!
- Notes on the initial reaction: none
- Forms of therapy supportive of MFT: orthopedic measures

Scientific studies on the treatment of splayed foot or talipes equinus with MFT

◦ D. C. Laycock: "Biological Effects of Natural and Pulsed Magnetic Fields," Bioelectronic Engineering consultant. - In an analysis of more than 1,000 scientific studies on the topic of MFT, the definitely positive effect on muscle pain, tendon injuries and bone problems was found.

Physician reports on the treatment of splayed foot or talipes equines with MF



Local treatment for splayed foot and talipes equines

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfelderg. 10, tel. 0043/1/40 666 00

• *Patient, female, 60 years old. Diagnosis: splayed foot: pronounced hallux, clawfoot second and third degree, both sides. Results of MRS therapy: after surgery and MFT: definite improvement, rapid healing*

Patient reports on the treatment of splayed foot and talipes equines with MRS

1. Thanks to the company Vita-Life

• *Patient M.S., male, 3 1/2 years old. Diagnosis: talipes equines on the left. This small patient has only been able to crawl and has never used his left foot. He was receiving physical therapy regularly. Results of MRS therapy: "Magnetic field therapy did him a lot of good because he has begun to walk a few steps since then."*

Appraisal of MFT: **40-50 % good to very good results**

1.39. Tennis arm:

see "Sports medicine"

1.40. Synovial cyst

A synovial cyst is a benign cystic tumor filled with a gelatinous material on the hand. It is found most commonly in women between the ages of 20 and 30. Perhaps a chronic overexertion of the joint is the cause. The cysts may become very painful and sometimes require surgery.

Effect of magnetic field therapy on a synovial cyst:

relieving pain, promoting circulation, influencing the calcium metabolism.

Proper use of MRS on a synovial cyst

• Pad: 2-4 times a day for 24 minutes each time: 200-400 % level

• Probe: 2-4 times a day for 24 minutes each time: 400 % level

• Notes on the initial reaction: none

• Forms of therapy supportive of MFT: acupuncture, neural therapy

Local treatment for synovial cyst

Physician reports on the treatment of a synovial cyst with MF

1. Dr. Thomas Batze, M.D., General Practitioner, Kirchheim

• *From May 5, 1997-June 6, 1997 (1 month) I treated 16 patients with MFT. Ten treatments were prescribed for each patient, with two sessions a day each lasting 8 minutes. In addition to many other syndromes, hyperostosis syndrome also occurred among these patients. Results of MRS therapy: Some of the patients, namely approximately 35 %, showed a definite improvement in their symptoms. In approximately 45 % of the cases, the results were not convincing. In 20 % there was no improvement in symptoms.*

Patient reports on the treatment of a synovial cyst with MRS

1. Thanks to the company Vita-Life

• *Patient M.M., male, 64 years old. Diagnosis: "I have had a synovial cyst for four years. The pain is sometimes unbearable and I have been taking medication on a daily basis without experiencing any significant relief." Results of MRS therapy: "For more than six months I have been treating myself with the pad, at first with moderate success. For two months, I have been pain free, the synovial cyst has become smaller according to my physician and according to my own perception."*

Appraisal of MFT: **40 % good to very good results**

1.41. Injuries and rehabilitation

Rehabilitation serves to restore a patient's usual occupational ability and general capacity after severe chronic or acute diseases, after surgery or after a serious accident. Rehabilitation measures may be carried out on an outpatient basis or in a hospital.

Effect of magnetic field therapy on injuries and rehabilitation:

anti-inflammatory, reducing swelling, relieving pain, promoting circulation, mainly through the autonomic nervous system, shortening regeneration time

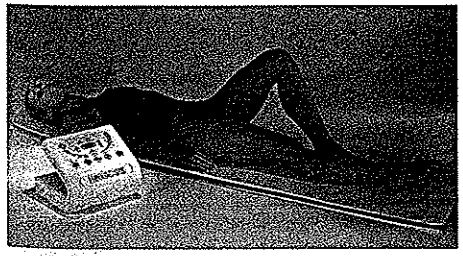
Proper use of MRS for injuries and rehabilitation

• Whole-body mat: twice a day for 8 minutes each time: 50 % level in the morning, 10 % level in the evening

• Pad: several times a day for 16 minutes each time: 50-100 % level (need not be increased gradually)

• The sooner magnetic field therapy is used, the better its effect will be.

• Special instructions on use: Lie down on the mat and relax!



Basic treatment for injuries and rehabilitation

• Duration of treatment: In treatment of pain, the first results will be apparent after 1-2 weeks, but treatment must be continued until the injury is healed.

• Notes on the initial reaction: in 6-8 % of the acute injuries, there was a brief painful initial reaction lasting a few hours or a few days.

• Forms of therapy supportive of MFT: enzymes, acupuncture

Scientific studies on the treatments of injuries and rehabilitation with MFT

◦ S. A. Schastnyi et al.: "A Contact-free, Biologically Adequate Electromagnetic Stimulation of Repair and Regeneration of Osseous, Cartilaginous, and Muscular Tissues in Children," Vestn Ross Akad Med Nauk (3), 1994. - This article reports on 508 patients who were treated with MFT mostly after traumatic injuries. The treatment was effective in 75 % of the cases.

◦ A. M. Begue-Simon, R. A. Drolet: "Clinical Assessment of the Rhumart System based on the Use of Pulsed Electromagnetic Fields with Low Frequency," International Journal of Rehabilitation Research, 16 (4), 1993, pp. 323-327. - This study documents the positive effect of magnetic field therapy on various injury-related problems. Definite improvements were observed, especially in soft tissue injuries and in injuries involving bones and joints.

Physician reports on the treatment of injuries and rehabilitation with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient H.M., male, 19 years old. Diagnosis: traffic accident on November 23, 1996: open fracture of the calcaneum (heel) on the right (first-degree open), fracture of the navicular bone on the right foot, contusion of the soft tissue at the heel and on the forefoot right with subsequent dry skin necrosis. Patient using crutches until March 22, 1997, poor gait pattern, still inadequate wound healing. Results of MRS therapy: After eight months of regular*

treatments with MF, this patient can walk normally again. Only when using MFT did the wound close completely within three weeks without any other aids. Healing of the wound with strengthening of tissue required approximately three months. The swelling in the injured area subsided after the second month, making it possible for the patient to wear normal shoes after three and half months, where it should be pointed out that the patient started out with an athletic shoe size of 54 (normally 46).

2. Dr. Manfred Zauner, M.D. and Professor Willi Dungl

• *Patient, male, ski racer; diagnosis: injury to the calf with a lacerated contusion wound (to put it mildly). Treatment: soft laser (helium-neon laser) at 633 nm, reflex therapy, special ointment dressings. Results of MRS therapy: Acceleration of healing in combination with Energy Pack. With this treatment it was soon possible for him to race again.*

Patient reports on the treatment of injuries and rehabilitation with MRS

1. Thanks to Mrs. Sieglinde Kapun

• *Patient, male, W.A., 29 years old. Diagnosis: prolapsed disk L5/S1, stiff knee after surgery (torn meniscus, cruciate ligament and collateral ligament). Results of MRS therapy: disks: minimal improvement after one week. Second to third week: reduction in pain and use of pain pills, injections were stopped completely; pain free after 12 weeks. Knee: first to third weeks: chondrification dissolved in the knee joint. "After the fifth week, I was able to complete a light running training again and after 16 weeks I could move my knee fully again. It is now pain free."*

4. Thanks to Mrs. Maria Pfeifer

• *Patient G. A., female, 33 years old. Diagnosis: Severe riding accident: eight broken ribs, contusion of liver, bleeding of liver, dehiscent wound on the head, all vertebrae and almost all bones with severe contusions. The physician had predicted that it would take about 8-9 weeks until the patient would be pain free, about 10-12 weeks (with physical therapy) until the patient would be able to work and at the soonest 3-4 months to resume athletic activity (riding, skiing, tennis). Results of MRS therapy: "After four weeks of therapy, I was able to work again, all my ribs were fused again satisfactorily and I had no pain in movement. My liver is completely normal. Five weeks after the accident I was able to ride again, in the sixth week I was able to ski and now I am already playing tennis."*

3. Thanks to Mrs. Susanne Büttner

• *Patient H.B., male, 41 years old. Diagnosis: after a bicycle accident contusions (thigh, arm, half of face), hematoma on the eye. Results of MRS therapy: "the patient was sent by his doctor to me two days after the accident for massage with stimulating use of electric current. He came to me limping and in great pain." Results of MRS therapy: "the patient returned in the afternoon with somewhat less pain. His symptoms improved each day, the hematoma in his eye disappeared after five days and the patient was able to slowly resume bicycle training. After four weeks he rode in a successful time trial in his club."*

Appraisal of MFT: **70-80 % good to very good results, depending on the type and degree of injury**

1.42. Tension

see "Lumbago"

1.43. Soft tissue rheumatism: fibromyalgia and frozen shoulder

Fibromyalgia is a special form of soft tissue rheumatism where muscles, tendons as well as nerves may be affected. In Germany alone, officially approximately 1.6 million people suffer from this disease, 80 % of them women - and several billion DM are spent for treatment. The disease occurs in attacks - with excruciating pain in varying body locations (back, shoulder or hip). In addition, fatigue states, sleep disorders and depression are not uncommon. The pain in the muscles and tendon attachments is especially great in cold damp weather. Heat can relieve these symptoms somewhat.

The cause of this disease has not yet been elucidated. Defects in the nerve switching points in the brain are suspected. Genetic and concomitant psychological factors (chronic mental or physical stress) can promote an outbreak. Often these patients are perfectionists who live up to the high demands they put on themselves.

Since the disease can hardly be detected medically, years of unnecessary surgery and disappointment often elapse before the disease is diagnosed. X-rays and blood tests do not give much information about this disease. The diagnosis is best made with the help of a patient history and very specific pressure points on the body, so-called tender points. So far, the only possibility is to relieve the symptoms of fibromyalgia. Physical activity (such as swimming, bicycle riding and walking), physical therapy, massage and hot packs are important supporting measures. Relaxation techniques (autogenous training, breathing therapy) also help in living with the disease better.

So-called frozen shoulder is often found today in conjunction with fibromyalgia. The person affected with this condition can no longer lift his/her shoulder because an almost intolerable pain does not allow this movement. The pain subsides only when the arms are pressed tightly against the body. To avoid the risk of stiffening of the shoulder, medical treatment is necessary immediately (in no case should this be treated with heat because heat will only worsen the pain). The only possibility of restoring mobility is to release the fused joints under anesthesia.

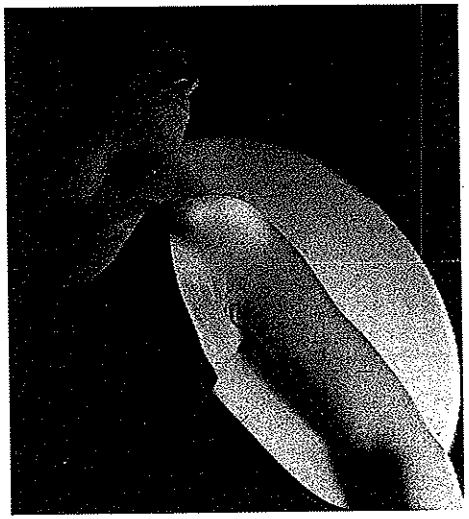
Effect of magnetic field therapy on soft tissue rheumatism:

relieving pain, increasing mobility, acting in the area of the autonomic nervous system, relaxing muscles

Proper use of MRS for soft tissue rheumatism

• Whole-body mat: 2-4 times a day for 8-16 minutes each time: 50 % level in the morning (gradually increasing), 25 % level at noon, 10 % level in the evening

• Frozen shoulder: additional use of pad: twice a day for 24 minutes each time: 50 % level



Local treatment for soft tissue rheumatism

• Forms of therapy supportive of MFT: breathing exercises and relaxation exercises

• Notes on the initial reaction: initial reactions can occur with any increase in dose (at 25 %). The remedy is to increase the dose very slowly.

Scientific studies on the treatment of fibromyalgia with MFT

◦ A. A. Pilla: "State of the Art in Electromagnetic Therapeutics: Soft Tissue Applications," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - This review article points out that treatment with electromagnetic fields manifests its effect relatively rapidly in injuries involving the connective tissue and muscles.

◦ K. R. Robinson: "Endogenous and Applied Electrical Currents," Natural and Applied Voltage in Vertebrae Regeneration and Healing (New York), 1989. - G. C. Coats: "Pulsed Electromagnetic (Short-Wave) Energy Therapy," British Journal of Sports Medicine, 23 (4), 1989, pp. 213-216. - These studies show a definitely positive influence on acute diseases of the connective tissue and muscle tissue through the use of pulsating electromagnetic fields.

Physician reports on the treatment of fibromyalgia with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient, female, 64 years old; fibromyalgia with 12 tender points. Concomitant autonomic symptoms. Results of MRS therapy: The patient feels better, her complaints have almost disappeared, the tender points are much less tender on pressure and less myogelosis.*

• General: A definite improvement in disease symptoms is observed as a result of MFT in patients with a concomitant diagnosis of autonomic dystonia and psychological exhaustion.

2. Health Center of Wolfgang Kropshofer, Dr. of Chiropractics, 1080 Vienna, Alserstrasse 43/8a, tel. 0043/1/40 373 80

• *Patient P.V., male, born 1927; diagnosis: April 1, 1997 radiology specialist: definite narrowing of the joint space with scoliosis of both hip joints, some small cysts and edge beating. In addition, a homogeneous soft tissue calcification 1.5 cm in size on the left. Another calcification of a similar size but with a slightly different configuration and vague outlines in the trochanter solids; otherwise normal findings. Results of MRS therapy: May 20, 1998 by the same radiologist: "the calcification described at that time on the left is no longer visible in the soft tissue. Since April '97, the calcification has regressed completely in the sense of the bursitis calcaria peritrochanterica."*

Patient reports on the treatment of fibromyalgia with MRS

1. Thanks to the company Vita-Life

• *Patient H.L., female, 56 years old. Diagnosis: "Three years ago I was diagnosed with fibromyalgia. My main problem was that it hurt everywhere, each muscle was extremely painful. It was impossible to think of doing housework or sports." Results of MRS therapy: "After seven weeks, I felt a definite improvement for the first time. Today, six months later, I am almost free of symptoms, I can swim again and I go jogging regularly. Life is a pleasure for me again and my sleeping problems have also disappeared. I would also like to mention that I at first did not want to believe in MFT, especially when I felt like my pain was getting worse, but after three weeks I had survived it all and today I am glad I kept with it."*

2. Thanks to Mrs. Giovanna Fakin

• *Patient F.G., male, Diagnosis: "I have been suffering from extreme soft tissue rheumatism for 11 years, constantly recurring hayfever, asthma attacks, elevated thyroid function and sleep disorders. The asthma attacks were especially strong at night. In addition, I suffered from a severe iron deficiency. Results of MRS therapy: "After three weeks of treatments, I no longer have any pain. I have been able to stop taking the various medications I had been perscribed. I would classify my overall physical condition as especially good."*

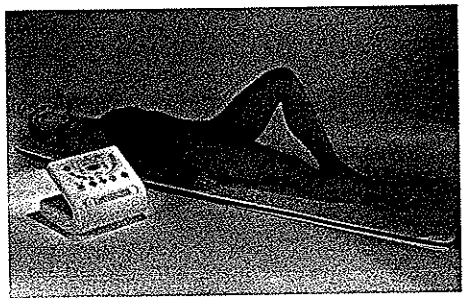
3. Thanks to Mr. Max Keiser

• *Patient V.S., female, , born 1948; diagnosis: in 1982 abdominal surgery to remove cyst weighing 1.5 kg, surgery on uterus, ovaries and fallopian tubes. Soft tissue rheumatism, allergy from February to the end of November (pollen), very severe neck problems, Scheuermann's disease, gastrointestinal problems, hemorrhoids. 1986 some varicose veins removed through an incision in the groin. Results of MRS therapy: "After one week, I felt that the magnetic field was doing something in my body. After a short period of time, I noticed an improvement in my neck problems which I had had for about 10 years. I was always under medical treatment: chiropractic doctors, electrotherapy, back and neck message, etc. After about three months, the pain in my left arm became worse, so I could hardly move it for about six weeks. But then from one day to the next the pain disappeared. The symptoms of the soft tissue rheumatism have subsided. Scheuermann's disease: after three days of treatment, I had pain in my back and shoulder worse than any I had ever had before. The next day I could not feel my back at all, it had become so light. When I have any pain today, it disappears immediately after a treatment with the magnetic field."*

Appraisal of MFT: **70-75 % good to very good results**

1.44. Sensitivity to weather

Approximately 30 % of all people are affected by the phenomenon of sensitivity to weather. This number should probably be higher, because far more people are influenced by changes in weather, at least in terms of moods. Recent studies at the University of Giessen (1998) prove that people react to all types of electromagnetic fields preceding a change in weather with different intensities. In patients with chronic symptoms, this often leads to a brief flare-up of their condition, resembling the initial reaction in a therapy.



Whole-body treatment for weather sensitivity

Effect of magnetic field therapy on weather sensitivity:

Even though there have not been any studies in this regard, reports about the experiences of various patients and doctors who have dealt with this phenomena, suggest that MFT could help in reducing the symptoms associated with sensitivity to weather.

Proper use of MRS for weather sensitivity

• Whole-body mat: 3 times a day for 8 minutes at the sensitive level

Patient reports on the treatment of weather sensitivity with MRS

1. Thanks to the company Vita-Life

• *Patient, female, G.H., 36 years old. Diagnosis: joint pain, menstrual pain, weather sensitivity. Results of MRS therapy: All symptoms disappeared after twelve weeks.*

2. Thanks to Mrs. Verena Singer

• *Patient M.M., female, 78 years old. Diagnosis: severe weather sensitivity, tension in shoulder and neck area, circulation disorders, age-related impairment in motor apparatus. Results of MRS therapy: "The tension was rapidly relieved and my mobility improved. I no longer have cracks in the skin on my fingertips and my sensitivity to weather has improved and I feel more balanced. My circulation disorders have also improved greatly. The age-related impairments have changed into a better quality of life."*

3. Thanks to Mrs. Gabiele Heidt

• *Patient G.H., female, diagnosis: "I was having extreme circulation problems in my left leg and I was very sensitive to weather." Results of MRS therapy: "After two weeks of treatments, I had hardly any symptoms in my legs. Another 14 days later, changes in the weather no longer caused me any problems. I no longer had any menstrual complaints after two months. I now feel good all the way around. I no longer have difficulty in getting up in the morning."*

Appraisal of MFT: **80 % good to very good results**

1.45. Strains

see "Sports medicine"

SPORTS

Muskelkater

Muscular soreness

2. Sports medicine

by Dr. Piero Lercher, M.D.

Sports medicine is a medical specialty that can be divided in principle into three subareas: internistics sports medicine (e.g., a study of training, performance, diagnostics), sports traumatology (sports injuries, sports damage) and physical sports medicine (e.g., rehabilitation).

The most important concepts from all three subareas are presented and explained below in alphabetical order. Following the sports medicine terminology, the main possible applications of magnetic field therapy in sports medicine will be presented in keeping with this book.

With regard to treatment guidelines, individualization of treatment is important, especially in sports medicine, and a combination of several forms of therapy should be selected. In this way, it is not only possible to promote the cooperation and understanding of athletic patients in the healing process but also the highest possible success rate can be achieved.

2.1. What is warm-up training?

Warm-up is understood to refer to measures taken before training or a competition to achieve an optimum physical and mental attitude. The metabolism is stimulated and the mental attitude is trained in a movement sequence, so that performance can be improved.

In active warm-up training, it is advisable to begin with a slow warm-up or playing with one other person and then two others (e.g., in sports involving a ball) to activate the cardiovascular system and the muscles. This may be followed by stretching exercises of a medium intensity, also combined with coordination exercises. A short-term increase in intensity of the sport-specific movements optimizes the interplay of all organ systems involved in the exertion. A period of 20-60 minutes is considered an adequate warm-up time.

The best time for ending warm-up training is about 5-10 minutes before the start of the competition or actual training. The warm-up effect declines very rapidly and has disappeared completely after 45 minutes.

2.2. What is endurance?

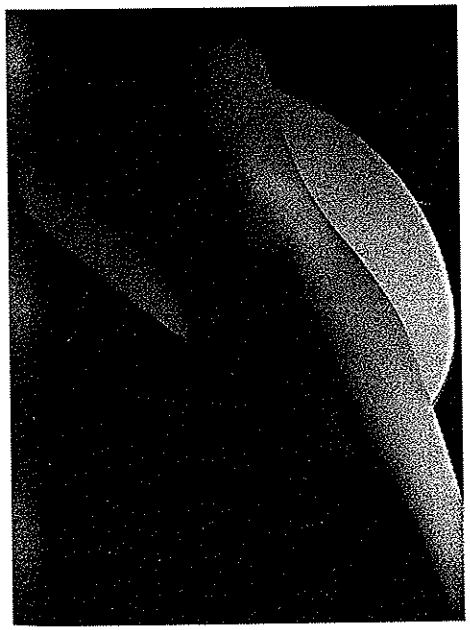
Endurance is a term used in sports to refer to an athlete's resistance to fatigue and the ability to execute an activity at a consistently high quality level for the longest possible period of time.

2.3. What is a torn ligament (ruptured ligament)?

Ligaments are tissue structures in the form of ribbons or strands that connect and hold together the moving parts of the skeleton.

With ligaments, the range of possible injuries is from a partial tear to a complete tear or detachment from the attachment points on the bone. Since ligaments together with the joint capsule form an autonomously functioning unit, torn ligaments are also combined with a torn capsule. Causes for this include non-physiological exertion such as a fall in skiing or a foul in soccer. Diagnostics poses considerable problems so that torn ligaments are often misdiagnosed as a sprain.

Treatment: depending on localization and extent of the tear, age of the injured person and the type of sport being engaged in, the treatment may be conservative (plaster cast) or surgical (suture of ligament, syndesmoplasty). Magnetic field therapy (MFT): supporting. Pad: 3-4 times a day for 16-24 minutes each time, maximum intensity



Local treatment for torn ligament with pad

Full load-bearing capacity can be achieved in six to twelve months after suturing a cruciate ligament (knee) or in about three months after a syndesmoplasty (ligament suture) in the ankle.

2.4. What is doping?

According to a definition by the International Olympic Committee from the year 1971, doping refers to the use of all substances - including those used for therapeutic purposes!! - that influence performance on the basis of either dosage or composition. Doped athletes experience a loss of protective physiological barriers (such as the feeling of exhaustion) which is in turn associated with the risk of collapse or failure of vital functions and can unavoidably lead to death. Side effects of doping preparations include, for example, development of secondary male sex characteristics (in women), impotency (in men) and early closure of growth joints of the bones (in juveniles).

Doping methods are becoming progressively more refined and it is becoming increasing difficult to detect them (e.g., blood doping). However, those using these methods must be aware that they are not only putting their health and their life on the line but they are also acting in an extremely unfair and unsportsmanlike manner.

The first documented case of doping was a swimmer in 1865. The first death due to doping occurred in a bicyclist in 1886.

2.5. What is a joint cartilage injury?

(see "Arthrosis" in the chapter "Diseases of the motor apparatus and supporting system")

2.6. What is a fracture?

Fractures occur relatively commonly as part of sports training. They have a certain sport-specific tendency and constitute the majority of sports injuries in children and juveniles.

So-called stress fractures or fatigue fractures are observed very commonly in adults (for more detailed information, see "Fractures" in

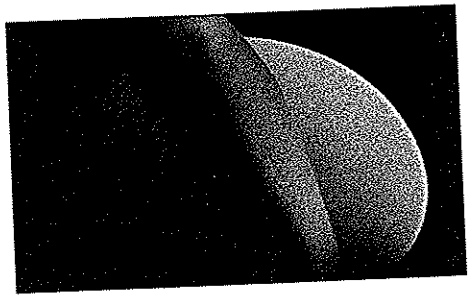
the chapter "Diseases of the motor apparatus and supporting system").

2.7. What is periostitis?

The periosteum is a connective tissue membrane that covers all the bones; this is where the muscles are attached. Increased tensile force or stress on the muscle can cause the periosteum to become detached, thus causing minor bleeding and inflammation. This form of inflammation is observed very frequently in runners.

Treatment: pause in training, physical medicine

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity



Local treatment for periostitis

2.8. What is condition?

From the standpoint of sports medicine, this is understood to be instantaneous physical and mental readiness for performance; more precisely, the sum of all physical capabilities that determine performance and their implementation through properties of the personality such as will and motivation.

2.9. What is strength (muscle strength)?

Strength is the ability of the muscles to develop tension. Due to the resulting muscle contraction, a movement occurs acting against a resistance and against gravity. In terms of sports physiology, different types of muscle twitch, force endurance, dynamic force, isometric force, etc.

2.10. What is lactate analysis?

Lactate (from lactic acid) is a degradation product of muscle metabolism. Using the measured lactate level, a person's training condition (short-, medium- and long-term endurance) and the anaerobic energy supplied at maximum exertion can be analyzed and evaluated. Thus, it is possible to find the ideal intensity of exertion for training while also monitoring the effectiveness of training.

2.11. What is performance ability?

Performance ability is the potential with which exertion (in sports) is accomplished. It embodies the totality of so-called basic motor abilities (flexibility, coordination, force and endurance).

Investigations of performance permit an evaluation of health stability and a determination of the efficacy of certain training methods. In addition, they make it possible to establish wealth-founded concepts for planning and management of training.

2.12. What is a meniscus injury?

The meniscus is a crescent-shaped disk of fibrocartilage located in the knee joint (also in the shoulder blade and ankle joints!). They have a shock-absorber function and may be damaged by a direct injury, chronic overloading (e.g., due to obesity) or due to degeneration and wear. People affected by this condition complain of load-related pain, restricted movement and joint blocks.

Treatment: The current treatment of choice is surgery (e.g., arthroscopy) to (partially) remove the meniscus. Recent research studies have run in the direction of preparing fibrocartilage cell cultures and reimplanting the cultured "replacement part." All attempts to use other types of tissue as replacement parts have so far been unsatisfactory.

MFT: supportive postoperative use. Pad: 3-4 times a day, 16-24 minutes each time, maximum intensity

2.13. What is torn muscle fiber?

see "Strained muscle"

2.14. What is myogelosis (hardening of a muscle)?

Myogelosis refers to defined nodular or bead-like hardening of a muscle. It is a result of a disturbance in muscle metabolism caused by overexertion, overfatigue, cold or overacidification and results in swelling (edema) and dull spontaneous pain. The muscle sections affected depend on the specific type of sport (for example, upper body muscles for batters, hand muscles on free climbers).

Local treatment of the neck with a pad

However, myogelosis may also occur as a reaction in joint diseases (such as arthroses), malpositioning of a joint and postural problems involving the spinal column.

Treatment: local heat (hot air, fango packs), avoiding cold and drafts (caution when wearing clothing damp from perspiration!), gentle massage techniques (also lymph drainage), friction treatments, active and passive stretching, electric current therapy (short wave, ultrasound)

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.15. What is muscle soreness?

Muscle soreness is characterized by pain, pulling, sensitivity to touch, hardening and often slight swelling of the muscles. These symptoms occur at the latest two days after an unaccustomed muscle stress or high-exertion sports activities. There are different theories regarding the causes of this condition. One model to explain it describes a metabolic disorder with a subsequent inflamation in the muscles caused by an increased buildup of lactic acid (= lactate). Other research articles have reported on microtrauma (extremely small injuries) in the area of the muscle fibers and reduced capillary circulation. It is precisely here that the circulation-promoting effect of magnetic field therapy can be used as a supportive measure.

Treatment: application of heat, especially agitated baths in hot water (optimal: thermal water), loosening exercises and autogenic training are recommended for treatment of muscle soreness. Pain-relieving gels and ointments are available in pharmacies and drugstores.

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

Massage or new exertion should absolutely be avoided! To effectively prevent muscle soreness, balancing gymnastics, warm-up and stretching exercises are recommended. Training or any other athletic activity should be terminated immediately whenever pain occurs.

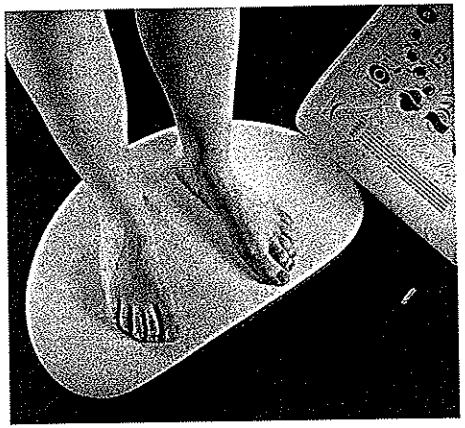
2.16. What are muscle cramps?

Muscle cramps are involuntary muscle contractions which can occur in people of all age classes after athletic activity or when the person is at risk (mainly at night). They are considered to be signs of fatigue caused by electrolyte loss, hyperacidity and circulation disorders.

Treatment: anticonvulsive medication and/or magnesium.

MFT: pad: 3-4 times for 16-24 minutes each time, maximum intensity

The best preventive measures against muscle cramps after athletic activity have proven to be thorough warm-up and loosening exercises in the meantime and also drinking isotonic beverages.



Local treatment for muscle cramps

2.17. What is bruising of a muscle (contusion)?

Bruising of a muscle is caused by a direct action of force or a fall with impact. The extent of the injury depends mainly on the circulation in the muscle section affected while the traumatizing force is in effect. High circulation rates such as those occurring under extreme exertion can cause increased bleeding into the surrounding tissue.

Treatment: in the acute phase, i.e., immediately after the accident: local application cold, immobilization, functional dressing, puncturing the blood effusion, possibly pain medication. After approximately 2-3 weeks: heat therapy, ultrasound, iontopheresis, movement therapy and gentle massages to increase circulation and metabolism.

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.18. What is a torn muscle?

This injury pattern occurs more frequently on bicipital muscles (e.g., musculus gastrocnemius, m. rectus femoris, m biceps femoris, m. gracilis). Externally, a visible and palpable dimpling or indentation is immediately apparent, forming a gap so to speak, which cannot be overlooked when the muscles are exerted. In addition, those affected complain of sudden piercing pain and loss of function. This type of injury is caused by inadequate stretching of the muscles, inadequate warm-up as well as poor technique and the wrong type of athletic equipment.

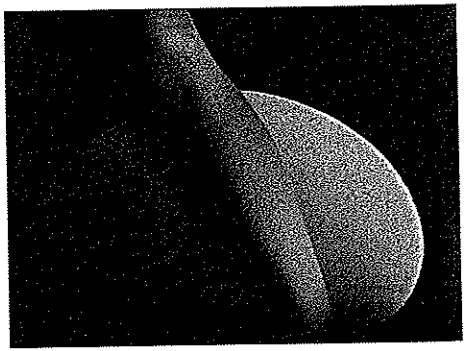
Treatment: surgery; supportive physical medicine postoperatively

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

Warning: Late complications are often observed when muscle injuries are treated inadequately at first: healed scars with loss of function, load-dependent pain, increased tendency to cramp, development of cysts, ossification (myositis ossificans) and new tears.

2.19. What is a strained muscle?

This involves overstraining of individual muscle fibers, which represent the smallest functional unit of the muscle (in the extreme case, individual muscle fibers may actually be severed! = torn muscle fiber). In addition, microtears in the connective tissue membrane or sheathing of the muscle have also been described. In addition to poor warm-up and overestimating one's own training condition, other causes include external factors such as cold. Fatigue is an important pathological factor; for example, long distance runners often develop strains in the final spurt due to lack of coordination in muscle regulation.



Local treatment for strained muscles

Symptoms of strained muscles include pain, relieving posture, possibly local blood effusions. It should also be pointed out that no palpable dimpling can be detected.

Treatment of strained muscles and torn muscle fibers: convalescence, supporting compression dressings, application of cold, compresses, gels, ointments; a pause in the sport, physical therapy, electric therapy, ultrasound

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

Full load-bearing capacity of the muscles is generally restored after three to six weeks.

2.20. What is a bruise (contusion)?

Bruises occur either due to a direct, blunt force (hit, strike, fall) or indirectly due to the propagating effective of force as part of a compression. Visible signs include: swelling, blood effusions and restricted function. This most commonly involves the major joints (e.g., hip or knee joints). Bruising of the back may even result in brief respiratory paralysis; those so affected then often attempt to cry out in vain.

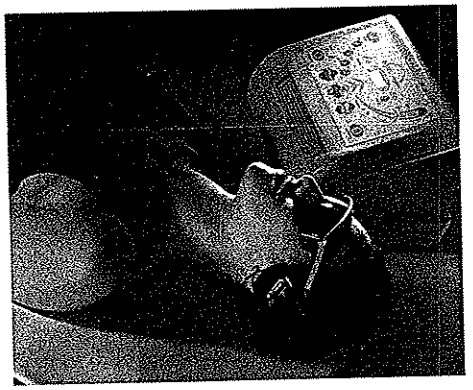
Treatment: cold compresses (e.g., ice pack, cold pack), immobilization, optionally functional and stabilizing dressings

MFT: pad: 3-4 times a days for 16-24 minutes each time, maximum intensity

2.21. What does regeneration mean?

Regeneration means biological restoration or healing. Especially after increased stress and strain on the body, it is important to remove the metabolic products and slow down the increased activity of the cardiovascular system. Another important point is to restore the depleted reserves of energy through an intake of suitable nutrients. If nutrition is imbalanced, electrolytes, essential amino acids and vitamins should also be administered. Adequate time to sleep and relax are essential. Especially in high-performance athletes, a little more pause means a greater training effect. Training too intensively can actually lead to so-called overtraining (see below). MFT can be used very effectively as part of regeneration, but it is absolutely important for the electrolyte balance to be restored.

MFT: mat: 3-4 times a day, 25-50 % level



Whole-body treatment for regeneration

2.22. What is the resting pulse?

Depending on the exertion situation, the heart reacts with an increase or reduction in performance. This is manifested by a change in heart rate or blood pressure.

At rest, the heart rate is 60-70 beats per minute. Endurance athletes even have a resting heart frequency of 32 beats per minute. The resting heart frequency (= resting pulse) is best measured early in morning immediately after waking up.

2.23. What is bursitis?

The bursae (synovial bursae) are membrane sacks in the area of the joints filled with mucous or "joint lubricant." They cushion and absorb shock at the pivot points and pressure points where moving elements (e.g., bones and muscles, tendon or skin) may cause friction or impact. Bursitis can develop due to direct damage or as a result of an ongoing inflammation process.

Treatment: immobilization, physical therapy, possibly surgery (bursectomy)

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.24. What is inflammation of a tendon (tendinitis)?

Tendons are the connecting pieces between muscles and bones. The tendons may become inflamed due to an acute or chronic overexertion or due to a bruise or contusion. The symptoms include pain and loss of function in the area of the inflammation.

Treatment: protective therapy, immobilization, local cold therapy, ultrasound, iontopheresis, optionally pain medication (e.g., NSAIDs = non-steroidal anti-inflammatory drugs)

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.25. What is a torn tendon (ruptured tendon)?

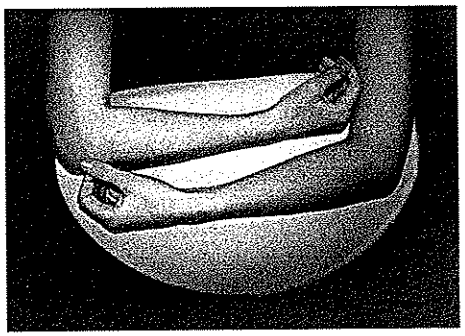
A torn tendon may occur either due to a directly acting force or sudden passive movements where the muscle is immobilized. Promoting factors include metabolic disorders, advanced age and a muscle cross section that is too large (= disproportion between the tendon cross section and the muscle force in favor of the muscle). Inadequate healing of previous injuries or continued exertion despite symptoms may also be causative factors. A distinction is made between complete tears and incomplete tears (= partial tears) of the tendons. This affects mainly the Achilles tendon, patella or ankle tendons. In a torn tendon, pain suddenly occurs, often accompanied by a loud snapping noise. Those affected by this condition experience an immediate loss of function; in addition, swelling and blood effusions also occur. A partially torn tendon, however, will often be manifested by chronic symptoms, initially manifested as a load-dependent pain which disappears in warm-up but occurs again after brief increased loading.

The recommended treatment is immediate surgery.

MFT: postoperative: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.26. What is an inflammation of a tendon sheath (tendovaginitis)?

As a result of an inflammation process, there is a reduction in mobility or impaired passage of the tendon in its sheath. However, if further load is applied to it, this will lead to severe mechanical irritation, resulting in a "viscous cycle" which again exacerbates the inflammatory process.



Local treatment for tendovaginitis

Patients complain of pain on movement in the tendon area, pain on pressure, movement-dependent rubbing noise ("snow crunching"), redness and swelling. Visible signs include functional impairment and a protective posture.

Tendovaginitis occurs most commonly in the wrist, shoulder and ankle joints.

Treatment: protective positioning, immobilization, cold treatments, underwater massage, ultrasound, iontopheresis, magnetic field therapy, percutaneous therapy with analgesics and optionally the administration of non-steroidal anti-inflammatory drugs.

In chronic forms, functional dressings combined with heat therapy or magnetic field therapy have proven to be especially effective. In rare cases, surgical measures must be taken.

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.27. What is a strained tendon?

see "Strained muscle"

2.28. What is a "stitch in the side"?

This refers to cramp-like pain occurring on one or both sides of the lower rib cage.

The cause is often inadequate supply of oxygen to the diaphragm muscle due to improper breathing technique. Likewise, eating too much before engaging in athletic activity or inadequate adaptation to an increased load level can lead to a pain in the side. The pain symptoms can be relieved very effectively by simply reducing your tempo and practicing forced breathing.

2.29. What is an athletic heart?

This term was defined by S. Henschen in 1899 when he observed an enlargement of the heart when examining endurance athletes. An athletic heart is a physiological adaptation of the heart to an increased level of functional load. This results in enlargement (= dilatation) of the heart cavities and also an increase in muscle mass (= hypertrophy) with the original heart muscle cells becoming enlarged, but not multiplying, as is often falsely assumed. The processes described above result in an increase in the capacity of the heart from 700-800 mL to 1400-1600 mL. The increase in heart muscle mass may lead to doubling of the normal weight of the heart. However, the so-called "critical heart weight" of 500 grams is not exceeded in this physiological adaptation process. When this limit is exceeded, which occurs due to many heart diseases, it means that the supply of energy to the heart muscles is no longer guaranteed. The quality and quantity of the adaptation phenomena of the heart are determined genetically and depend on the age at which regular training was begun. It is noteworthy that not all types of sports lead to development of an athletic heart, but the main ones that do are the endurance sports (e.g., bicycling, cross-country skiing, boating, long-distance running), team sports (football, handball, basketball) and forms of training that greatly emphasize the endurance component. Changes taking place in the athletic heart in comparison with a "normal" heart are quickly and continuously reversible to different extents after the athlete stops the (high) performance sport. However, if the athlete stops the performance sport suddenly, this results in an imbalance between the suddenly reduced demand on the heart and the body's reactions, which are adapted to a higher performance level. Features of this condition include reduced performance, a feeling of dizziness, heavy sweating, cardiac complaints and feeling poorly in general. Resumption of moderate athletic activity, however, can lead to a rapid improvement in these complaints. Therefore, it is advisable not to end an athletic career suddenly but rather to taper off gradually to allow the adaptation processes of the cardiovascular system to reverse themselves.

2.30. What is training?

Training refers to regularly, repeated, scheduled exercises to maintain and increase physical and intellectual abilities. The body reacts with organic growth processes and optimization of organ performance and metabolic processes. The best known forms of training in sports are endurance training, strength training and technique training.

2.31. What is a synovial cyst (ganglion)?

Synovial cysts are new growth originated from joint capsule structures or from tendon or synovial tissue. They occur mainly on the extensor side of the hand and finger joints, but also in the area of the back of the foot and the knee. Symptoms include pain on movement and sensitivity to touch or pressure.

The recommended treatment is surgical removal, but they very often recur.

2.32. What is overtraining?

Overtraining is a hormonally induced, mental and physical overwork syndrome which can occur in very poorly trained people as well as in high-performance athletes. It is caused by recovery phases that are too short, lack of sleep, overdone technique training or inter-

vals between competition that are too short. The symptoms of overtraining can be recognized on the basis of various measured values for performance medicine, but also by the fact that the athlete cannot endure exertion at maximum force or speed and his/her athletic performance is declining. Warning: Overtraining is often not recognized immediately in training methods that work at a low intensity.

Treatment: Regeneration (see that section) and an active pause for a period of one to two weeks.

2.33. What is a dislocation (luxation)?

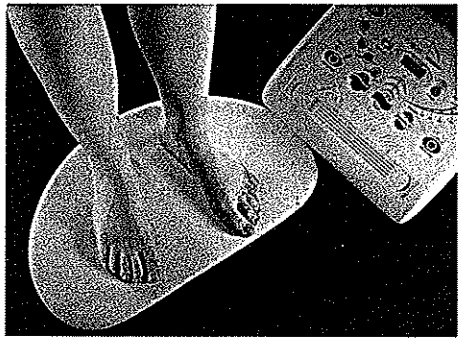
This is shift or dislocation of two bones connected by a joint (often favored by straining of the ligamentous apparatus). The main symptoms are severe pain, swelling and a functional disturbance. Visible signs include deformation and faulty positioning of the joint ends and blocked joint fixation. The joint most often dislocated is the shoulder joint.

Treatment: repositioning must be performed only by a physician!

Additional: brief immobilization.

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.34. What is a sprain (distortion)?



Local treatment for sprain (distortion)

Sprains usually occur due to an indirect action of a force. The classical example is spraining the ankle when running due to twisting it on uneven ground or twisting the wrist due to a fall. This results in strain on the capsule-ligamentous apparatus and/or to hydrarthrosis (fluid on the joint). Additional symptoms include pain and functional impairment.

The main aspect of treatment is to protect and immobilize the affected extremity and/or use supportive magnetic field therapy.

MFT: pad: 3-4 times a day for 16-24 minutes each time, maximum intensity

2.35. What is an appropriate way to prepare for a competition?

Essentially any athletic competition should be initiated with a suitable examination done from the standpoint of performance medicine. Professional training requires long-term training planning (in this regard, the reader must refer to technical literature for lack of space here) combined with good lifestyle planning (family, school and occupational training, etc.) and healthy eating habits. With regard to training planning, the training phases must be followed correctly with regular performance medicine checkups. It is essential to grant the body sufficient resting intervals in order to guarantee the exertion-associated adjustments (cardiovascular function, muscle buildup, etc.). In principle, it is better to train somewhat less rather than too much in order to prevent the risk of "overtraining" (see that section) and to still permit enjoyment along with the desired athletic success.

2.36. How is MFT used in training buildup?

Preparatory and transitional period: mat: 2-3 times a day, 100 % level

Before a competition: mat: 8 minutes, 200 % level

After a competition and for regeneration: mat: 16 minutes at 25-50 % level

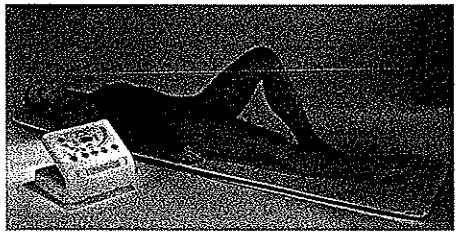
Important! In overtraining, mat: 8 minutes at 10 % level at most

2.37. What is a strain?

see "Muscle strain"

Effect of magnetic field therapy on the field of sports medicine:

- regeneration (removal of metabolic products, increased supply of nutrients and oxygen in the damaged and affected body sections and types of tissue)



Basic treatment

- stabilization of the sleeping and waking rhythm (e.g., due to jet lag)
- strengthening innervated or reinnervated muscles
- promoting mobility after atrophy due to inactivity
- relieving pain
- promoting muscle metabolism by increasing the supply of oxygen and nutrients.

Proper use of MRS for patients with sports medicine indications

In principle, a distinction must be made between use as part of internistic, surgical orthopedic and physical sports medicine. A general treatment recommendation could not be taken seriously and should depend on the respective injury pattern and the phase of inflammation. It has been found that for injuries to extremities, the pad should always be used at the highest intensity, even with several sessions a day lasting for 16-24 minutes each time. With regard to whole-body use (= mat), however, caution is advised if the athlete suffers from an overtraining syndrome. Otherwise, the treatment guidelines described there also apply to preparation for competition and regeneration.

- Forms of therapy supportive of MFT:

The recommendations listed with the respective specialty term are applicable. It should be emphasized here again that an appropriate combination of several therapeutic forms represents an optimum recipe for success, especially in sports medicine.

- Special instructions on use:

The injury or disease symptoms should always be diagnosed by a specialist. Do not make any self-diagnosis!!!

Especially in injuries, rapid and adequate first aid is essential. Before using MFT, it is advisable to hydrate the athletic patient adequately (e.g., isotonic beverages, infusions). In the case of an overtraining syndrome, the intensity of treatment should not be more than 10 %.

Scientific studies on the use of MFT in the area of sports medicine

To avoid repetition, the reader is referred to the chapter "Diseases of the motor apparatus and the supporting system."

- A. Binder, G. Parr, B. Hazelman, S. Fitton-Jackson: "Pulsed Electromagnetic Field Therapy of Persistent Rotator Cuff Tendinitis. A Double-blind Controlled Assessment," Lancet, March 31, pp. 695-698, 1984. - Top publication of a double-blind study with a very high informational relevance, explaining how pulsed MFT helps to effectively shorten a tedious convalescence procedure involving the rotator cuff (shoulder girdle muscle).

- C. Mabit, C. Pecout: "Non-union of a Mid-shaft Anterior Tibial Stress Fracture: A Frequent Complication," Knee Surg. Sports Traumatol. Arthrosc. 2 (1): 60-61, 1994. - In fatigue factors of the tibia, a conservative combination therapy with pulsed MFT is recommended. Surgery should not be performed unless the fracture resist treatment for a period of more than four to six months.

- G. M. Pennington, D. L. Danley, M. H. Sumko, A. Bucknell, J. H. Nelson: "Pulsed Non-thermal, High-frequency Electromagnetic Energy (Diapulse) in the Treatment of Grade 1 and Grade 2 Ankle Sprains," Mil. Med. 1993 Feb. 158 (2) : 101-4, 1993. - This randomized double-blind study shows that in first and second degree ankle injuries, the treatment time is significantly shortened under the influence of pulsating MFT, and pain and swelling are eliminated rapidly, so that rapid resumption of training is possible.

• G. Untea, I. Stojan (Department of Sports Medicine, Bucharest, Rumania), lecture delivered as part of the World Congress on Sports Medicine in Florida (United States) 1998.- After using magnetic field therapy on performance athletes, sleeping was promoted, regeneration times were shorter and lactate was degraded more rapidly.

2.38. Use of MFT in peak sports

Physicians, therapists and even athletes themselves report on their positive experiences with MFT in peak sports as follows:

A comprehensive search among athletic associations and the performance athletes themselves has yielded some impressive reports of experiences in healing and athletic per formance. All these statements have been checked for accuracy, but of course a certain subjective approach cannot be ruled out. The detailed written reports of the various athletic physicians and team physicians, physical therapists, masseurs and colleagues of the company vita.life® constitute a significant contribution to this section and we want to express our sincere appreciation to them for providing this information.

The variety of user examples presented below demonstrates impressively the therapeutic options for use of magnetic field therapy in sports medicine.

2.38.1. Beach Volleyball:

Swiss beach volleyball team, German National Team (men and women)

2.38.2. Bobsledding

First use of magnetic field therapy in the World Cup in Calgary (Canada 1997): eliminating sleep disorders (jet lag).

2.38.3. Body building

Frank Manz, Jens Biebeg (Mister Universe 1995): Results of MRS therapy: pain reduction in muscle soreness and degenerative joint and muscle inflammations.

2.38.4. Soccer

For example: 1. FC Nuremberg, FC Zürich, AS Rome, Sturm Graz, Herta BSC, Casino Austria Salzbug, Baumit Admira Wacker, FC Tirol, DSV Leoben, TSV Pöllau, Austrian Physicians' Soccer National Team

Use of magnetic field therapy (MRS): tension, regeneration, combination treatment for injuries and chronic complaints involving the motor apparatus, accelerating the healing process after bone injuries.

It is noteworthy that many soccer players complained of headaches after a brief magnetic field treatment, whereas the subjectively positive effects were manifested after a longer period of treatment.

Results of MRS therapy: Freedom from pain after a sprained muscle, building up endurance

2.38.5. Handball

Example: Lower Austrian Hypo

Results of MRS therapy: more rapid regeneration, elimination of sleep disorders, promoting concentration (before the start of a match), combination treatment for irritation and injury to the motor apparatus, relieving stress headaches

Example: Olaf Skirde (Germany), former professional hand ball player

This case is cited because an interesting side effect occurred in the course of long-term use of magnetic field therapy for chronic back pain: his fingers which had been broken repeatedly because of his performance sports training and had become stiffer to some extent in the joint area suddenly developed a significantly better mobility again!

2.38.6. Light athletics

(see also Olympic Games)
Example: A. Partika (Poland), high jump:
Results of MRS therapy and use: shortening of the warm-up phase by 40 %, treatment of sore muscles

2.38.7. Motor Sports (Formula 1)

Ayrton Senna and the legendary McLaren - Honda Team were familiar with and utilized the possibilities of MFT as part of preparation for the following Grand Prix season. Use for example by the Benetton-Renault Team (G. Berger, J. Alesi), the Sauber team (Johnny Herbert)

Results of MRS therapy: adjuvant therapy for friction blisters on the hands and the consequences of burns (G. Berger), reducing stress, faster regeneration, promoting sleep (J. Herbert)

2.38.8. Olympic Summer Games (Atlanta 1996):

The performance by the Polish Olympic Team should be mentioned here in particular. Their sports medicine advisor was Dr. Kuch, a pioneer in magnetic field therapy. To the amazement of the professional world, this team won 6 medals.

Harry Maier

2.38.9 Cycling

Example: Carrera, Mapei, Gewiss (= teams)

Example: Claudio Chiappucci, Toni Rominger, Pavel Tonkov (= cyclists)

Results of MRS therapy: faster generation, greater resistance to colds, treatment of muscle tension, increasing the effect of manual massage, use of MFT by the AMS team (D. Friedrich, A. & M. Goschier, P. Herz) during the "Race Across America 1997"

Harry Maier: winner of the "Crocodile Trophy 1998 Australia:" The hardest and longest mountain bike race in the world, 2,006 km divided into 14 stages with one day of rest, extremely bad roads, deep passages in the sand for several kilometers at a time, slopes of up to 35 %, hazardous downhills, temperatures of up to 40 °C in the shade. One stage amounts to about 6-10 hours.

Results of MRS therapy: Supporting wound healing after an injury due to a fall and large areas of abraded skin, promoting regeneration - especially crucial to a victory because of the long duration of each stage and the short regeneration times.

P.M., hobby bicyclist (terrain). Results of MRS therapy: Freedom from pain after a strained muscle

2.38.10. Wrestling

German National Team, Leo Betschart (Swiss Swinger)

2.38.11. Tobogganing

Austrian National Team (natural tobogganers)

2.38.12. Boating

Example: Uschi Profanter (world master in white water rafting), Pia Vogel (Switzerland)

Results of MRS therapy: more rapid regeneration after training

2.38.13. Skiing

a) Alpine:

Austrian Ski Association, men:

Example: Hans Enn: after a fall and a torn muscle in the thigh area, the healing process was accelerated by a combination including magnetic field therapy.

Example: Michael Tritscher: results of MRS therapy: relieving pain and improving mobility after a severe falling injury (splitting the patella tendon), faster adaptation in altitude training in the United States (altitude approximately 4,000 meters!)

ÖSV Austrian Ski Team, women:

Results of MRS therapy: initiation of sleep (jet lag in overseas racing), significant improvement in healing processes (e.g., in sore muscles, torn and strained muscles), increased body consciousness.

US Ski Team: the women:

Example: Hillary Lindh (1997 Sestriere downhill world master)

Results of MRS therapy: relieving intense back pain and restoring competitive condition for the world master in Sestriere in 1997. (H. Lindh had been previously resigned to ending her career). Optimum counseling and a combination therapy with pulsed magnetic field therapy permitted the apparently impossible to be accomplished nevertheless.

German Ski Association team: Junior German Team

b) Nordic:

Austrian Ski Association: ski jump:

Example: T. Innauer, K. Schnabl, H. Neuper, A. Kogler ('80s)

MFT: for accelerating the healing process of tendon and ligament injuries

2.38.14. Biathlon

In the German master teams in Eisenstein in 1997 (Bavaria), magnetic field therapy was performed as a prophylactic measure on 14 German athletes. Unexpected success of these athletes: 3 titles, 2 silver and 2 bronze!

Of course it is impossible to evaluate the extent to which this is related to the magnetic field therapy sessions, but the fact is these impressive results were achieved.

2.38.15. Squash

Example: Pamela Panzis (National master, European junior master):

Results of MRS therapy: regeneration time shortened, psychological well-being before the competition improved, much less muscle pain after the end of the match.

2.38.16. Tennis

Example: T. Muster: After the accident in Key Biscayne (United States) and the resulting knee injury, it was feared that he was at the end of his career. A combination therapy (electrotherapy, chiropractic manipulations, special movement therapies, reflex zone massage, magnetic field therapy, special diet, etc.) at the Dungl Center (Gars am Kamp) and the iron discipline as well as the indefatigable will and ambition of the athlete permitted his return to the performance sport, with the result: Number 1 in the 1995 World Ranking List and "king of the hill."

Salzburger Tennis Association, Rif Performance Center

Results of MRS therapy: shortened regeneration phase

2.38.17. Triathlon

Stefan Holzner (2-time winner of the New Zealand Triathlon)

Use of MRS therapy: to improve regeneration ability, for treatment of chronic injuries of the motor system

2.38.18. Volleyball

Austrian Men's National Team, German Volleyball National Team for men

Use of MRS therapy: as concomitant therapy in follow-up treatment of traumatic injuries, supporting the regeneration phase, stimulating the immune system

This list makes no claims at thoroughness; several prominent users did not want to be named for reasons associated with competition and advertising. In conclusion, Dr. Jochen Gruber, team physician of the First FC Nuremberg: "The medical advantages cannot be disregarded. Unfortunately, however, there are still some 'mystical' views regarding magnetic field resonance therapy among our medical colleagues, so that it is still necessary to publish a lot of reports of experience and research data so that the advantages and disadvantages of magnetic field resonance therapy can be made accessible to a broader group of medical colleagues."

Headache

3. Pain

Pain is vital to humans because it signals imminent damage to the body. Thus, pain is not a disease, but rather it is an important warning sign to protect the body. How pain is perceived is always subjective, depending on the constitution and disposition of the individual person, the individual biorhythm as well as the time of day. Pain is usually perceived as being more intense during the night than during the day. Pain itself has many manifestations. It may be manifested as throbbing, cutting, piercing, pressing, dull or paralyzing; it may occur suddenly or periodically. The causes are also varied: heat, pressure, stretching, injuries and other factors can cause pain.

The perception of pain involves so-called pain receptors or nociceptors which receive and relay the stimuli. There are approximately three million such tiny receptors in varying density in our body. Most receptors are located beneath the skin and a very few are located on the soles of the feet. In some body areas such as the head, fingertips or mucous membranes, each square centimeter of skin contains more than 300 nociceptors. There are also receptors in the muscles, ligaments, bones and in the organs - but organs such as the brain, lungs and liver do not have any such receptors, which is why diseases in these areas often go undetected for a very long period of time.

In order for the pain message to reach the brain rapidly, the pain is relayed at a rate of several meters per second. A switching point in the area of the spinal cord decides whether the complaint is important enough to be relayed to the brain. The cerebrum reacts to the message by secreting opium-like substances, so-called endorphins, which inhibit the transfer of the pain stimulus to the brain. The result: the pain is no longer perceived at all or is perceived to a weakened extent.

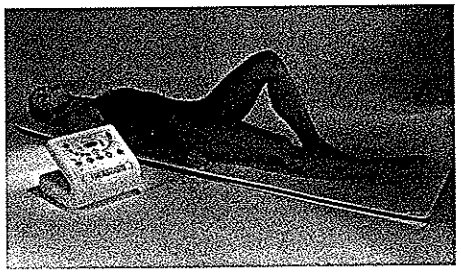
The effect of magnetic field therapy lies in the fact that the stimulus threshold is raised by hyperpolarization and pain conduction is interrupted for a brief period of time.

Effect of magnetic field therapy on pain:

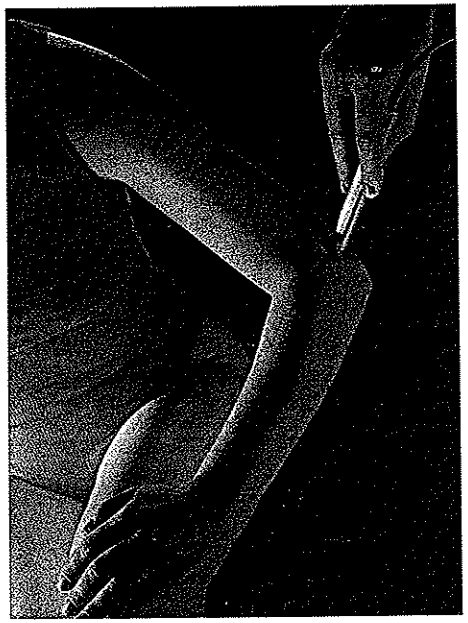
supporting, relieving pain. Due to the fact that the stimulus threshold is raised, the pain must be much more intense to be perceived by the brain. By no means does this mean that the warning signal is eliminated, but instead the chronic pain is relieved. The extent to which an influence on the autonomic nervous system plays a role here remains to be elucidated.

Proper use of MRS for pain

- Whole-body mat: 2-3 times a day for 8 minutes each time; 50 % level in the morning, 25 % level at noon, 10 % level in the evening
- Pad or probe: 4-5 times a day for 16-24 minutes each time; 200-400 % level (do not increase gradually), locally
- The more acute the pain, the more frequent and more intense the treatment should be.



Basic treatment of pain



Local treatment of pain

- Forms of therapy supportive of MFT: acupuncture, relaxation training neural therapy, osteopathy, chiropractic manipulations, Kneipp cure, biofeedback
- Notes on the initial reaction: an initial reaction (in approximately 7 % of the cases) depends on many influences; usually occurring with chronic pain.

Scientific studies on the treatment of pain with MFT

These studies on the topic of pain are discussed individually with the respective health problems.

◦ F. Sartucci et al.: "Human Exposure to Oscillating Magnetic Fields Produces Changes in Pain Perception and Pain-related Somatosensory Evoked Potentials," Second World Congress for Electricity and Magnetism in Biology and Medicine, 8-13 June 1997, Bologna, Italy. - This double-blind placebo-controlled study investigates the effects of weak pulsating magnetic fields on pain patients. The result: a definite reduction in the perception of pain. Corresponding measurements have shown that fewer pain stimuli are relayed to the brain.

◦ V.I. Kovalchuk et al.: "Use of Extremely Low Frequency Magnetic Fields in Clinical Practice," Fizicheskaia Meditzina, 4(1-2), 1994, p. 87. - The analgesic effect of the pain treatment was investigated on more than 650 patients treated with MF.

Physician reports on the treatment of pain with MF

1. Dr. Birgit Kleber, M.D., General Practitioner, Rottach-Egern

- *Patient M.R., male, 44 years old. Diagnosis: severe pain in the cervical and thoracic spine area. Results of MRS therapy: A definite improvement after the very first treatment. The patient was free of pain after conclusion of the treatment block.*

2. Dr. E. Liebau, M.D., Novo Balance Clinic Bruneck, Kreuth/Tegernsee

- *Patient, male, 83 years old. Diagnosis: severe pain and restricted mobility on the left thumb joint (no arthrosis in the x-ray). The patient received special movement exercises and compresses. Results of MRS therapy: The pain and restricted mobility improved greatly and the patient can now play the piano again for up to two hours at a time.*

3. Dr. Udo Bloching, M.D. (dentist) Brannenburg

- *Patient, male; diagnosis: pain in the elbow and forearm with overexertion. Results of MRS therapy: Slight pain relief, less medication used, quality of sleep better (patient feels more rested in the morning). When the mat was used for about two hours before going to sleep, mobilization was achieved more easily, and when used for a short period of time before going to sleep, the patient fell asleep rapidly. With the acute overexertion of the arm, the pain was greatly relieved with three sessions with the pad at intervals of about six hours, and the pain disappeared after one and half days.*

4. Dr. Monika Grau, M.D., specialist in general medicine, Munich

- *Patient A.E., female, 70 years old. Diagnosis: old cervical spine and lumbar spine complaints, incipient arthrosis in the shoulder left and right, knee joint arthrosis on both sides. Results of MRS therapy: the patient described treatment (mainly the first week) as highly euphoric, because her general body feeling had improved greatly (she felt lighter and more energetic) and her symptoms had improved perceptibly. After ten days, the patient was able to move both shoulders again without pain in all planes. The knee and spine complaints are improving progressively.*

5. Dr. Robert Prisching, M.D., General Practitioner, Pernegg/Mur

- *Patient P.R., male, diagnosis: chronic pain in the neck-shoulder area. The patient always had to move cautiously so that he would not strain his neck. Frequent pulling in the iliosacral joint. Results of MRS therapy: The symptoms have almost disappeared. The patient felt practically nothing during use of the treatment. Additional effect: falling asleep more rapidly.*

6. Dr. Harald Eckardt, M.D., Dr. Gero Krause, M.D., Dr. Holger Lorenz, M.D. Dr. Josef Kapellmann, M.D., Orthopedic specialists, Rosenheim

- *Patient S., male, diagnosis: patient complains of pain in the shoulder blade and the entire lumbar spine. Prolapsed disk L4/5 on the left, protrusion L5/S1 with root irritation syndrome. Results of MRS therapy: After only five treatments, Mr. S. experienced an improvement in symptoms.*

Patient reports on the treatment of pain with MRS

1. Thanks to Mr. Karl Garber

- *Patient T.L., female, 42 years old. Diagnosis: pain in the shoulder area, making it difficult to inhale deeply (piercing pain). Pain in the pelvic area on the left extending down into the heel, sleep disorders due to pain in the motor system and supporting system. Results of MRS therapy: "After one week, I am sleeping much better and can breath deeply without pain, and the pain in my back area is gone."*
- *Patient J.I., male, 40 years old. Diagnosis: severe hip pain in the left pelvic area, occasional headaches (two days a month), low blood pressure. Results of MRS therapy: The severe hip pain has been eliminated (after about two weeks) and his blood pressure is normal (after four months).*
- *Patient H.K., female, 57 years old. Diagnosis: shoulder pain, lower back pain, digestive problems. Results of MRS therapy: "In the first week, my shoulder pain became much worse. Surprisingly, the lower back pain subsided in the first week and the shoulder pain also subsided in the second week. After a few months, both had disappeared completely."*
- *Patient T.G., female, 56 years old. Diagnosis: Pain in the shoulder-neck area extending into the fingers, her fingers would fall asleep at night, leg cramps twice a night, headaches for several days at a time, once at night. Results of MRS therapy: The neck strain in the shoulder-neck area has greatly improved, no more leg cramps, her fingers no longer fall asleep at night and the day-long headaches have disappeared.*
- *Patient L.F., male, 55 years old. Diagnosis: acute pain radiating out from the surgical area (L4/L5) into the hip joints, painful cramp-like tension in the chest and back muscles, sleep disorders and a certain confusion due to poor circulation in the head, accordingly, variable well-being. Results of MRS therapy: At the start of the treatments, the acute pain became much better after medical treatment. In parallel with the use of the MRS 2000+, physical therapy was also performed in the first four weeks. After two weeks of use, the pain shifted into the left calf with a numb and tingling feeling extending*

down to the big toe. After six weeks, the chest muscles were free in addition to the relief experienced in the back muscles. After eight weeks, his left leg still showed the same symptoms. However, his general condition had improved slightly, as had his sleeping habits.

2. Thanks to Mrs. Doris Paunger

• *Patient J.B., female, 61 years old. Diagnosis: acute abdominal pain, back pain, migraine attacks, shoulder and joint pain, tension in the neck area, wear on the cervical and lumbar spine, pre-existing varicose veins, very poor general condition. Results of MRS therapy: "The acute abdominal pain improved after a few days and after 14 days I was free of symptoms. The tension also improved. There was also a great pain relief from the wear on the cervical and lumbar spine. My quality of life has improved greatly and I again enjoy my work."*

• *Patient P., male, 15 years old. Diagnosis: knee pain, muscle soreness from soccer. Results of MRS therapy: A definite improvement was noticed after athletic activity. The pain due to growth also improved considerably.*

3. Thanks to Mr. Robert Baumann

• *Patient B.B., female, 43 years old. Diagnosis: constant pain in the shoulder and arm areas, especially at night, with the resulting impairment in mobility. 1994 prolapsed disk, no surgery performed. Despite treatment with acupuncture, massage and physical therapy, the prolapsed disk remained with constant pain especially in the right leg. In addition, premenstrual syndrome and menstrual complaints. Results of MRS therapy: Minor success noted in the fourth week: patient no longer stood with a humped back, the pain in the shoulder and neck area disappeared and the main pain in the right leg is greatly reduced and has already disappeared for hours at a time especially at night. No more menstrual complaints either.*

4. Thanks to Mrs. Maria Pfeifer

• *Patient K., male, 67 years old. Diagnosis: lumbar spine-cervical spine pain, high blood pressure, coughing for six months. Results of MRS therapy: The tedious coughing disappeared after 14 days. The spinal pain stopped. His blood pressure normalized due to MFT and medication.*

• *Patient T., male, 48 years old. Diagnosis: cervical spine and lumbar spine complaints, pain in the right shoulder blade and in the knee, menopausal symptoms, osteoporosis, arrhythmia. Beginning of December 97: fracture of the hand, end of December: cast removed. Results of MRS therapy: first week: intense reactions in all areas except in the knee; definite improvement after 3 days. Second week: patient still experiencing the initial reaction except in the hand. Third week: perceptible improvement in the cervical spine. Six-seventh weeks: cervical and lumbar spine much better, knee entirely healed, shoulder not completely but much better, wrist completely healed, almost no more arrhythmias.*

• *Patient C.G., female, 40 years old. Diagnosis: severe pain in the cervical area accompanied by attacks of dizziness. Diagnosis: cervical spondylosis. Results of MRS therapy: "After three days, the pain gradually subsided, then after three more days the pain and the dizziness attacks disappeared completely."*

• *Patient A.W., female, 57 years old. Diagnosis: occasional severe pain in the area of the cervical spine, lumbar spine and right and left arm joints for approximately 25 years, especially when sitting or when bending. This patient cannot do any work at all, cannot lift anything heavy and shoveling snow is impossible. Injections and pills have not helped for a long time and the pain returned even after a stay in a health spa. Low blood pressure (approximately 95/80). Results of MRS therapy: "I was free of pain after about three weeks. I did not experience any reactive pain. I have now had the MRS 2000 for 2 1/2 years and I am still pain free. My blood pressure rose to 125 after just one week and it has remained there."*

5. Thanks to Mr. Frank Robert Belewsky

• *Patient I.K., female, 67 years old. Diagnosis: constant pain in both hips (right hip worse, especially at night). The pain also becomes worse with extreme exertion. This patient has been taking pain pills, blood pressure pills and heart pills (arrhythmias since 1987) for about 30 years. Results of MRS therapy: "After about three weeks of using the MRS 2000, I was no longer having pain in my hip area. I am no longer taking sleeping pills. At the present time I am gradually tapering off my high blood pressure pills. In July, I experienced severe pain in my heels. After two days of treatment, this pain had disappeared completely. I have also begun to drink a lot of water."*

• *Patient A.S., male, 46 years old. Diagnosis: pain in the area of the right shoulder and in the left heel, causing problems in walking. Results of MRS therapy: The pain disappeared after ten sessions.*

6. Thanks to Mrs. Zita M. Spieler

• *Patient H.S., female, 49 years old. Diagnosis: "I had pain in my left ankle for about one year. When there was a temperature change or after exertion, the pain would increase to the point of being intolerable. None of the sports creams I used helped." Results of MRS therapy: "After exactly four weeks of use, all the pain disappeared. Despite intense exertion and long walks, it has not returned."*

• *Patient M.L., female, 40 years old. Diagnosis: For several years I had pain in the joints of my fingers, especially in the morning, and sciatic pain after certain jobs. Results of MRS therapy: "The pain in my joints disappeared after two weeks of treatments. I am treating acute sciatic pain successfully using the small mat."*

7. Thanks to Mr. Rudolf Frauenberger

• *Patient H.H., female, 61 years old. Diagnosis: increasingly severe pain in the finger, hip and knee joints, back pain, susceptibility to infections, weakened immune system. Results of MRS therapy: "A definite improvement has occurred on all levels. The arthritic complaints have subsided greatly. I can again move without pain."*

• *Patient F.C., male, 50 years old. Diagnosis: Severe pain in the lumbar and cervical region and in the right leg with functional inability, scoliosis, pain in the area of the right sole of the foot and the left shoulder. Results of MRS therapy: Nine days after the state of treatment in combination with acupuncture, the pain in the lumbar area disappeared and after two days the pain in the lower leg disappeared. The pain in the feet subsided after five more days of treatment.*

8. Thanks to Mr. Muhry

• *Patient G.H., female, 33 years old. Diagnosis: Joint pain, menstrual symptoms, her feet fell asleep, she was sensitive to weather. Results of MRS therapy: all symptoms have disappeared.*

9. Thanks to Mrs. Walter Ruprechter

• *Patient A.J., male, 24 years old. Diagnosis: Joint pain, headaches, stomach complaints, backaches, burning eyes, fatigues, loss of appetite. Results of MRS therapy: Improvement in almost all areas, appetite stimulated, stomach complaints disappeared, the fatigue, burning eyes and joint pains have become better and to some extent the headaches have disappeared.*

• *Patient R.V., female, 37 years old. Diagnosis: Muscle and joint pain, pain in the chest, dizziness. Results of MRS therapy: Considerable improvement in muscle and joint pain, the dizziness has disappeared completely and the chest pain has been mostly eliminated.*

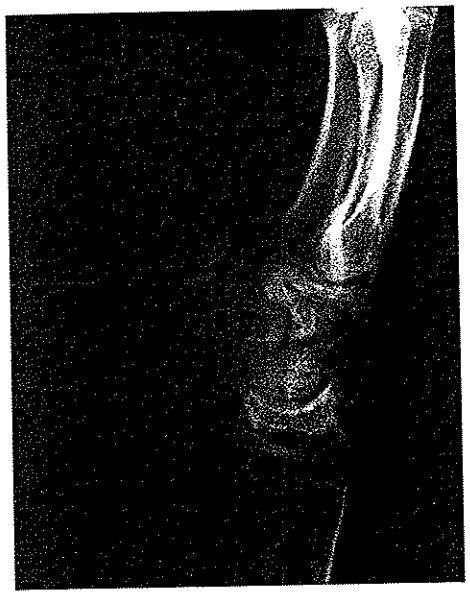
10. Thanks to Mrs. Gabriele Friedrich

• *Patient B.E., male, 29 years old. Diagnosis: Pain in an extremity, nervous agitation, sleep disorders, circulatory problems, high blood pressure, headaches, tension in the neck and shoulder areas. Results of MRS therapy: "I felt a pleasant feeling of warmth and relaxation with the very first treatment and my headache disappeared. I now feel calmer and more balanced. My sleep disorders, circulatory problems and high blood pressure have normalized. Tension in the neck and shoulder area has disappeared as has the pain in my limbs."*

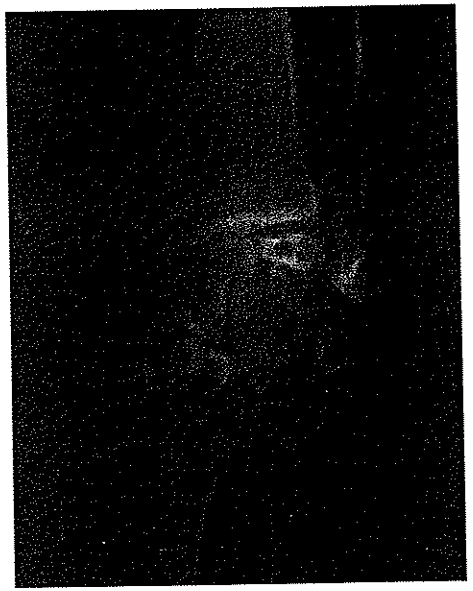
• *Patient W.H., female, 43 years old. Diagnosis: The patient's right hand was causing her severe pain and she could almost not move it at all, had been experiencing severe headaches for 18 years, even at night - regular use of pain pills, painful period. Results of MRS therapy: After two treatments, she began to have severe headaches which did not disappear until after two weeks. Within three more days she was free of pain and had completely mobility of her hand again, her periods were normal and without pain.*

11. Thanks to the company Vita-Life

• *Patient E.S., female, 76 years old. Diagnosis: Pain in the area of the left leg and left knee became worse at night, preventing her from sleeping. Previous treatments did not help. Results of MRS therapy: The pain would subside when she was resting, allowing her to sleep well again. The pain when walking is also slightly less than before.*



X-ray hand



X-ray hand

• *Patient T.F., female, Diagnosis: severe strain in the shoulder area, pain in the cervical spine, patient has already had two series of injections. Lower back pain after any activity. Sleep disorders. Results of MRS therapy: After two weeks of use, significant improvement in tension; after two months of treatment, patient is pain free in the shoulder area, significant improvement in lower back pain. Patient can again do sports - tennis, skiing, bicycling, without pain. "Since the use of this treatment, I have been feeling especially fit."*

• *Patient G.C., male, 58 years old. Diagnosis: Severe pain in the area of the right palm of the hand and the right fist with swelling, impossible to close his fist. Pain caused by fracture of the fifth finger, and the patient was unable to tolerate the plaster cast apparatus. Patient was able to tolerate acupuncture needles for only ten minutes. Results of MRS therapy: After the treatment he was able to sleep calmly. He tolerates the needles for 20 minute sessions and the swelling has reduced, the pain has subsided and disappeared almost completely after eight sessions.*

• *Patient E.H, female, 69 years old. Diagnosis: Extreme pain in both hands. Almost no movement possible without severe pain. When she tried to grasp objects they would fall to the floor. Results of MRS therapy: After the first treatment, the patient felt an intense, unpleasant tingling, and after eight weeks, the tingling feeling had disappeared and the pain was virtually gone. Despite her osteoporosis, she did not break a bone when she fell.*

• *Patient D.M., male, 51 years old. Diagnosis: Pain in left wrist: for 30 years, pain in bending the wrist or with a rotational movement of the wrist, occasional inflammation of the joint. Results of MRS therapy: Pain relieved after the sixth week, after six months, 90 % improvement, after one year, 100 % pain free and fully able to endure loads occupationally. Energy balance, concentration and attention have improved perceptibly. Acne pustules in the face which the patient had experienced since the age of 46 (cause: estrogen deficiency) stopped after the 8th week until today.*

12. Thanks to Mrs. Christiana Glaush

• *Patient, female, I.C., 64 years old. Diagnosis: Occasional severe pain in the knees and hips for several years. Results of MRS therapy: The pain has almost disappeared as a result of the use of this treatment.*

13. Thanks to Mr. Reinhard Schlag

• *Patient, male, R., 71 years old. Diagnosis: Severe pain in the shoulder and back, arthrosis in the right knee, circulation disorders in the arms, leading to feeling of numbness, poor sleep due to pain, prostate problems. Results of MRS therapy: After three treatments, improvement in all symptoms. After two weeks of use, Mr. R. is completely pain free. He can now walk without pain and his shoulder pain and backache have disappeared. He sleeps very well and no longer has any prostate problems. The feeling of numbness in his arms has disappeared completely.*

14. Thanks to Mr. Walter Jammernegg

• *Patient, female, D.T., 24 years old. Diagnosis: Pain in the abdominal area, weekly migraine attacks, lower back pain, low blood pressure and associated feelings of dizziness, constant tension in the neck area, acne, irritated skin, sensitivity to weather, circulation disorders - cold hands and feet. Results of MRS therapy: "I no longer had any pain in the abdominal area after the very first treatment. The lower back pain and tension improved after about two weeks. After eight weeks, the migraine attacks now occur only once a month."*

15. Thanks to Mrs. Antonia Aldrian

• *Patient, female, M.K., 34 years old. Diagnosis: Severe pain in the left shoulder area, muscle tension because of wear on the cervical spine (radiating pain), pain in the right lumbar area (especially when getting into and out of a car), feeling cold in the morning, low blood pressure. Results of MRS therapy: The pain in the shoulder area has been greatly reduced after one month of use. The pain in the lumbar area has disappeared. The cold feeling in the morning is better. Blood pressure normalized.*

• *Patient, male, A.T., 64 years old. Diagnosis: Pain in the lumbar area. After a period of hospitalization because of ischemic heart symptoms, the patient complained of agitation and sleeplessness. Results of MRS therapy: The pain in the lumbar area subsided after a few days. After six more days on the mat, the patient's agitation and insomnia disappeared.*

16. Thanks to Mrs. Verena Singer

• *Patient, female, E.D., 72 years old. Diagnosis: Shoulder pain, bronchial asthma, circulation problems, varicose veins, hip problems, colds. Results of MRS therapy: The shoulder pain occurs only rarely, the hip pain has improved, likewise the circulation problems, colds (sniffles, sinuses) have also disappeared. She can now stop taking various medications. Her lung activity has improved.*

Appraisal of MFT: **80-85 % good to very good results, pain relieving effect**

3.1. Headaches (cephalgia)

One out of two or three people in Central Europe has headaches regularly. 92 % of them suffer either from migraines or stress headaches.

Headaches are a puzzling phenomenon inasmuch as there are pain receptors only in the meninges and the blood supplying arteries of the base of the brain but in the brain itself. Headaches are caused by various factors: a tumor, alcohol poisoning, nervous agitation, toothaches, inflammations, pregnancy fever, rheumatism, spinal cord complaints, eye diseases and the like may cause a headache.

More than 170 forms of cephalgia are differentiated.

3.1.1. Migraine

A true migraine (not all headaches are considered a true migraine) is manifested as an intense pounding pain on one side of the head; nausea and sensitivity to light, smells and noise are typical concomitant manifestations. One out of ten people suffer from migraines, approximately 5 % of them are children. The reason why three quarters of migraine patients are women is believed to lie in the elevated estrogen level in the female body. It is assumed that a widening of the blood vessels and a resulting pressure against the nerves is responsible for the pain of a migraine. In the meantime, it is known that an overactive brain which processes incoming sensory stimuli up to seven times faster (than normal) is the reason for these attacks. The hyperactivation results in an intense overcontrol and inflammation of blood vessels in the brain, and estrogen can potentiate this effect.

The emotional condition of a migraine patient is extremely irritated. An attack will usually lasts several hours and will subside spontaneously. However, the susceptibility for a new attack remains. Therefore, migraine attacks are recurrent, although with intervals of weeks or even years. A migraine typically occurs in five phases: the first signs of an attack (yawning without fatigue, a heavy head, craving, especially for carbohydrates (chocolate), thirst, muscle heaviness and mood swings) appear approximately 24 hours in advance. Some people feel at their best, whereas others are depressed, confused and dejected. The next is the so-called "aura stage" which is characterized by a high sensitivity to light. In the third stage, the actual headache phase begins - usually within an hour. Many people can no longer pay attention to the simplest things in this phase, while others can bridge this period of time only by taking pain pills. In the fourth stage, the symptoms gradually subside within 2-72 hours. Although in the fifth phase the actual attack is passed, the patients feel drained and still need a while to recover completely.

The best type of prevention of migraine attacks is to avoid the triggering factors which include stress, physical and mental fatigue, environmental conditions (cold, hot, light, noise), dieting or missing meals, certain foods (chocolate, citrus fruit, cheese, coffee, tea, nut), alcohol (especially red wine), changes in daily schedule, too little or too much sleep, traveling, oral contraceptives (the pill).

Treatment: during a migraine, it helps to keep the room dark, stay away from noise, apply cold packs to the forehead and temples on the affected side. This is also recommended when using magnetic field therapy. In mild cases, sometimes a cup of coffee helps. The most common medication for treatment of migraines is Imigran which is very expensive but also very effective. Nevertheless, this preparation is not free of side effects!

Numerous studies have proven that magnetic field therapy (just like acupuncture or neural therapy) has very good results in treatment of migraines. Since magnetic field therapy can be added to the positive effects of acupuncture and can increase the effect of medication, it should absolutely be considered as an interval therapy.

3.1.2. Stress headaches

A stress headache is the most common cause of cephalgia and it is a collective term for all chronic headaches. The cause may be purely psychological in nature (e.g., long lasting stress situations) or (hence the name) it may be caused by muscle tension in the neck or in the spine (e.g., after driving a car for a long time or sitting at a typewriter or computer for a long time). Stress headaches usually radiate out from the neck over the head to the forehead. The actual risk here is that those affected by these headaches may reach for pain pills in their distress, but these pain pills may themselves cause headaches. The patient then rapidly becomes dependent upon stronger medication which can thus initiate a viscous cycle. Therefore, analgesics should by no means be taken for a long period of time for stress headaches!

Effect of magnetic field therapy on headaches:

relieving pain, relaxing muscles (neck muscles), promoting circulation, having a regulatory effect on the autonomic nervous system

Proper use of MRS for headaches

• Whole-body mat: 2-4 times a days for 8 minutes each time: 25 % level in the morning, 10 % level at noon, sensitive level in the evening.

• Pad: once or twice a day for 24 minutes each time: 25-50 % level, in the area of the neck muscles

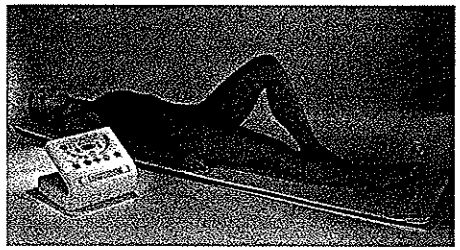
• Probe (migraine): once or twice a day for 24 minutes each time: 100-150 % level, in addition to acupuncture and local treatment

• Special instructions on use: regular breathing with the proper technique!

• Duration of treatment: The causes vary greatly and each person reacts differently to MFT: success is often manifested after just a couple of treatments, but sometimes it may take up to a few months.

• Notes on the initial reaction: an initial reaction may occur in 12 % of the cases (increase dose gradually!)

• Forms of therapy supportive of MFT: acupuncture, neural therapy, relaxation techniques, ayuredic medicine, biofeedback, homeopathy, chiropractics, kinesiology, NLP (neurolinguistic programming), TENS, shiatsu massage



Basic treatment for headaches

Local treatment for headaches

Scientific studies on the treatment of headaches with MFT

◦ B.M. Popov, T.A. Al'Shanskaya: "Use of Traditional and Non-traditional Methods in the Treatment of Headache," Millimeter Waves in Medicine and Biology. Digest of Papers of the 11th Russian Symposium with International Participation, 21-24 April 1997, Zvenigorod, Moscow Region, pp. 68f. - This study investigates the effect of therapy in the treatment of 107 patients who suffered from headaches of a wide variety of causes. Acupuncture points were stimulated electromagnetically. More than 80 % of the patients had a positive experience.

◦ R. Sankyk: "The Influence of the Pineal Gland on Migraine and Cluster Headaches and Effects of Treatment with Picotesla Magnetic Fields," International Journal of Neurosci. 67 (1-4), November-December 1992, pp. 145-171. - This article reports on a migraine patient with acute attacks who was treated and cured with external magnetic fields.

◦ Prusinski et al.: "Pulsating Electromagnetic Field in the Therapy of Headaches," Hungarian Symposium on Magnetotherapy, 2nd Symposium, May 16-17, 1987. - This study investigates the effect of pulsating electromagnetic fields on patients suffering from chronic headaches. Positive results were achieved in 88 % of the cases with stress headaches, in more than 60 % of those with classical migraines and in 68 % of those with so-called cervical migraines.

◦ J. Gicze, A. Guseo: "Treatment of Headache [with] Pulsating Electromagnetic Field, a Preliminary Report," Hungarian Symposium on Magnetotherapy, 2nd Symposium, May 1987. - This study shows the efficacy of pulsating electromagnetic fields in prophylactic and therapeutic use on migraine patients.

Physician reports on the treatment of pain with MFT

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0043/1/40 666 00

• *Patient, female, M.W., 26 years old. Diagnosis: Migraines. Results of MRS therapy: The headaches virtually disappeared after the first treatment.*

2. Treatment Center in Stuttgart

• *Patient P.L., female, 34 years old. Diagnosis: Frequent migraine attacks, necessitating bed rest. Results of MRS therapy: The first treatment was at the beginning of a migraine attack which then surprisingly failed to occur. After five months of regular use, her migraine attacks were much weaker and in much lower frequency.*

3. Dr. Ursula Miggitsch, M.D., General Practitioner, Graz

• *Patient H.J., male, 48 years old. Diagnosis:*

Headaches, severe pain in the finger joints for about 2-3 years, problems with the cervical spine, sleep disorders because of the pain, chronic constipation. Results of MRS therapy: The pain in the finger joints improved 70-80 %, the headaches about 90 %, patient has no more sleeping problems and his digestion is regular (without the use of laxatives).

4. Dr. Ira Mayrhofer, M.D., Garmisch-Partenkirchen

• *Patient W.K., female, 52 years old. Diagnosis: Frequent cephalgias in the sense of a stress headache, marked stress-induced fatigue (continuous stress for 3 months working 18-20 hours a day), paroxysmal dizziness; 1983: hepatitis A. Results of MRS therapy: First week of treatment: Rapid improvement in headaches and dizziness symptoms, increasing ability to concentrate and endure stress, hardly any difficulty in sleeping through the night. Second week of treatment: Subjective energy surge, high level of energy and enthusiasm, appetite and dizziness attacks have normalized, good intake of fluids, reduction in myogelosis in the area of the cervical spine and consequently also a reduction in recurrent cephalgia (in intensity and frequency).*

This obvious therapeutic success can be attributed to the MRS 2000 without restriction and can be classified as truly dramatic because the external requirements on this patient during this period of time did not change to the advantage of the patient nor did they allow a brief phase for convalescence. This energy surge was so impressive for the patient's colleagues that they were even speculating as to whether Mrs. K. was taking other (chemical) performance stimulants; it was also predicted that she would definitely collapse after this bout of hard work. However, two months after delivering her document project, Mrs. K. is still enjoying 100 % capacity.

Patient reports on the treatment of headaches with MRS

1. Thanks to Mrs. Christina Mühlegger

• *Patient C.M., female, Diagnosis: "In 1995, several total sequestrations were removed from my neck vertebra C6. After the surgery, I was constantly in pain and could never sleep through the night. The worst of all were my migraine attacks which I had once a week. They were so bad that I was no longer capable of performing any work, I had to lie down, keep the room dark and everything around me had to be quiet. Only when I was able to vomit did I feel somewhat better again. These attacks always lasted the entire day and I was not able to do my work again until the next morning." Results of MRS therapy: "When I began to receive the MRS 2000 treatments, my migraine attacks disappeared after about 14 days; the pain in my cervical spine virtually disappeared and I was again to sleep through the night. Over the course of time, my large ugly scar has become smaller and lighter."*

2. Thanks to Mr. Frank Maier

• *Patient M.B., male, Diagnosis: "I suffered from migraine attacks for many years, spreading from the back of my head up to my forehead. The non-medical practitioner was able to achieve only a brief improvement." Results of MRS therapy: "After the initial setback, in other words an initial exacerbation that was so severe I had to terminate the treatment, an improvement gradually occurred. After a few weeks, more success was apparent. My attacks are now rare and are no where near as bad as before."*

3. Thanks to the company Vita-Life

• *Patient L.O., male, 52 years old. Diagnosis: Brain tumor; pressure and pain in the head, equilibrium disorders, severe depression, epileptic seizures, concentration disorders, word finding problems, stiffness in the legs, no more control of the body, incontinence (highest nursing care level required). Results of MRS therapy: In the first four weeks, there was an exacerbation, and then a steady improvement in all the areas mentioned above. The patient's use of medication was reduced. Result of nuclear spin tomography: the tumor has not grown anymore.*

4. Thanks to the company Medline

• *Patient U.K., female, born 1965. Diagnosis: Migraines almost daily since childhood. "The pain was often so bad that I had to give up." The patient was unable to work at all during an attack. Results of MRS therapy: "I no longer am having migraines."*

5. Thanks to Mr. Siegfried Muhry

• *Patient K., female, 46 years old. Diagnosis: Recurrent migraine attacks. Results of MRS therapy: "I am using the mat regularly and I have reduced my use of pain pills to one a day. Meanwhile, I rarely need a pill. I am feeling much more vital, calmer and more balanced. I no longer have migraine attacks.*

• *Patient P., female, 36 years old. Diagnosis: "I have been having migraine attacks since the age of 8, headaches during or after my period (I would often take up to 3 pills a day). Doctors were unable to find a reason for my severe knee pain. In addition, shoulder pain, cold hands and feet, the feeling that I had not slept enough every morning (despite 8 hours of sleep)." Results of MRS therapy: "After three months, I no longer had any knee and shoulder pain, likewise no cold hands and cold feet. The headaches with my period are very rare due to additional regular treatments with the pad. My greatest problem was my migraine attacks: after 1/2 years, I have observed a definite improvement. The intervals are longer and the attacks are no longer so painful. I am finally able to get up in the morning feeling rested and fit."*

6. Thanks to Mrs. Franziska Engeli

• *Patient V.K., female, born 1984. Diagnosis: Migraine attacks once a month, cerebral stroke 1 1/2 years ago (blood clot), spastic cerebral paralysis on the left, sensitive to heat, hip pain. The patient had to go to school in a taxi. Results of MRS therapy: From the beginning, the patient experienced a strong pulling sensation in the left leg during the treatment (a benefit?), the stiffened hand was then opened and relaxed and the feet were tingling severely. Now the patient can walk much better and has good balance. Her migraine attacks occur rarely to none at all. She no longer has pain in her hips and she is able to walk to school."*

7. Thanks to Mrs. Beate Martina

• *Patient T.H., female, 71 years old. Diagnosis: After sleeping for six years close to a radio alarm clock, she experienced severe headache, no feeling in the tips of her fingers, severe fluid on her legs, excessively high blood pressure, no feeling in the legs. This patient could hardly walk at all. In addition, inflammations, bronchitis, back pain and in 1994 a stroke. Results of MRS therapy: After the first treatment with the pad, it has been much easier for her to walk. After three days: feeling returning to her fingertips, legs warm and with good circulation, easier to breath, no more headache and quality of sleep is better.*

8. Thanks to Mrs. Angela G. Boykow

• *Patient H.K.B., female, 42 years old. Diagnosis: Headaches, severe sleep disorders, problems in falling asleep and sleeping through the night, nausea. "I can no longer handle my work." Results of MRS therapy: "I no longer have any headaches, I do not feel any nausea, my sleep is almost normal again and refreshes me."*

9. Thanks to Mrs. Anneliese Kürzl

• *Patient M.L., female, 31 years old. Diagnosis: Headaches 3-4 times a week, permanent tension in the neck, very severe menstrual complaints, lack of energy. Results of MRS therapy: exacerbation of symptoms in the first months. After two months of use, completely pain free. "My quality of life has improved 200 % due to the daily use of the MRS 2000 system."*

10. Thanks to Mr. Dietmar Hauser

• *Patient P.Z., male, 51 years old. Diagnosis: Constant headaches for five years. Results of MRS therapy: His headaches have disappeared as have his sleeping problems and depression (no more medication needed).*

11. Thanks to Mrs. Manuela Hörner

• *Patient K.M., female, 60 years old. Diagnosis: Stress headache. Results of MRS therapy: the headaches disappeared rapidly.*

• *Patient M.R., female, Diagnosis: "I have very severe headaches at night; therefore I wake up five times every night." Results of MRS therapy: "After five treatments, the pain has almost disappeared permanently. After five weeks of daily use, my headaches are completely gone and I can now sleep through the night again."*

Appraisal of MFT: **Migraine: 70 % good to very good results**

Stress headache: 70-80 % good to very good results

3.2. Phantom pain

Phantom pain is a pain that usually occurs in attacks and may be either burning, a feeling of pressure or a cramping in the area of the phantom limb (the part of the extremity that no longer exists). This pain is one of the feared complications after an amputation.

Local treatment for phantom pain

Effect of magnetic field therapy on phantom pain:

relaxing, relieving pain

Proper use of MRS for phantom pain

- Whole-body mat: twice a day for 8 minutes each time: 100 % level in the morning (gradually increasing from 10 % level), 10 % in the evening

Local treatment for phantom pain

- Pad: twice a day for 24 minutes each time: 150 % level, for phantom pain of the lower extremities in the area of the lumbar spine, for pain in the upper extremities in the area of the cervical spine (if there is no hyperfunction of the thyroid gland).
- Duration of treatment: sometimes very rapid results are experienced, and sometimes results are not perceived until after many months.
- Notes on initial reaction: none
- Forms of therapy supportive of MFT: acupuncture, TENS

Scientific studies on the treatment of phantom pain with MFT

◦ V. M. Bogliubov, L. A. Skurikhina: "Therapeutic Application of Constant and Low-frequency Magnetic Fields," Vopr Kurortol Fizioter Lech Fiz Kult (2). - This review article investigates the efficiency of low-frequency electromagnetic fields in treatment of various diseases including phantom pain and it demonstrates the positive results.

◦ A. E. Kucherenko, V. I. Shevchuk: "Treatment of Diseases of Limb Stumps with Alternating Current Magnetic Field," Klin. Khir. 7, pp. 47-49.

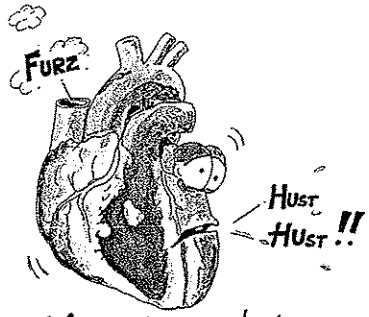
Patient reports on the use of MRS in phantom pain

1. Thanks to the company Vita-Life

- *Patient, male, 61 years old. Diagnosis: "I have been a heavy smoker. Two years ago my left forefoot was amputated after a vascular occlusion. Since then, I have constantly had the feeling of very severe pain in the left big toe, although that toe is no longer there." Results of MRS therapy: "For four months I have been using the MRS regularly. After two months, my condition improved for the first time. My pain is almost completely gone."*

Appraisal of MFT: **60 % good to very good results, relaxing effect, relieving pain**

CARDIOVASCULAR SYSTEM



Myokarditis

Myocarditis

4. Diseases of the circulatory system

The circulatory system consists of the blood vessels and the heart. The heart is located between the lungs, behind the breastbone and it has the size of a fist in an adult. With each beat (60 to 90 times a minutes) the heart muscle pumps blood through the body in rhythmic contractions. The heart itself has four chambers, with two chambers forming the left heart and two chambers forming the right heart. The two halves of the heart are separated strictly from one another by the cardiac septum and are joined by valves. These valves control the movement of blood in the heart. Blood comes from veins into the right atrium (upper right chamber) and then goes into the lower right ventricle. From there it is pumped into the lungs where the blood releases carbon dioxide (a waste product of cells) and absorbs the vital oxygen. The freshly enriched blood returns to the left atrium of the heart, flowing from there into the left ventricle. It then goes through the aorta, the main artery of the heart, through the thoracic cavity and stomach, continuing on to the arteries which carry the blood that has been enriched with oxygen and nutrients to all the tissues of the body. Carbon dioxide and toxins and waste products are again picked up and transported trough the veins back to the right heart, where the circle begins again.

The complex network of blood vessels consists of various types of vessels which are differentiated according to size, function and physical properties. Arteries may be large and elastic, medium sized and muscular. Small and narrow blood vessels are called arterioles. In the tissue, the arterioles thin out to even smaller vessels, so-called capillaries, which exchange the waste products of the cells for nutrients during the metabolism.

The blood which supplies the cells with oxygen and nutrients and is responsible for removing the waste product from the cells, consists of plasma, a light yellow fluid consisting of proteins and water. The plasma contains red and white blood cells as well blood platelets. One teaspoon of blood contains between 750,000 and 1,750,000 platelets, approximately 27 million red blood cells (erythrocytes) and between 25,000 and 50,000 white blood cells (leukocytes). Blood cells and platelets are formed in bone marrow, a soft tissue inside the bones. Red blood cells contain the pigment hemoglobin, a substance containing iron that, binds oxygen and releases it to the cells.

The function of white blood cells is to protect the body from pathogenic microorganisms (bacteria, viruses, fungi, etc.). When ever the body is wounded or becomes infected, these

white blood cells go into action: they attack and kill the disease-causing foreign substances. In addition, they also produce antibodies which render the invading microorganisms harmless. Since new white blood cells are formed with any infection, the number of white blood cells in the blood can be used to determine the corresponding inflammation

Blood cells/erythrocytes and leukocytes

4.1. Anemia

Anemia is a deficiency of red blood cells or hemoglobin. Since the red blood cells are responsible for the oxygen supply to the body, a reduction in the number of these cells always means an undersupply of oxygen. The various forms of anemia include iron deficiency anemia, post hemorrhagic anemia, folic acid deficiency anemia, pernicious anemia (vitamin B12 deficiency), aplastic anemia as well as various hemolytic anemias (pathological destruction of red blood cells) as well as sickle cell anemia and icterohemolytic anemia. Each type of anemia has its own cause and therefore requires it own treatment.

Sickle cell anemia

All forms of anemia have in common the loss of or destruction of red blood cells or inadequate production of red blood cells or hemoglobin. The causes for the development of anemia are varied, and include: blood loss, a vitamin deficiency or iron deficiency or a disturbance in the utilization of vitamins or iron, destruction of red blood cells, hereditary abnormalities in the blood, failure of the bone marrow to produce blood cells, drug allergies, cancer, radioactivity. Alcoholics and people with an unbalanced diet develop anemia more easily because of a considerable deficiency of vitamins and iron.

The most common form of anemia is iron deficiency anemia. Possible causes of this pathological deficiency of mineral iron include drastic blood loss, e.g., due to an accident, bleeder's disease (hemophilia), severe menstrual bleeding, hook worm infestation or dietary mistakes (avoidance of dark green vegetables and meat). Women are of course more often affected by iron deficiency anemia. Women not only lose blood each month through menstruation, but during pregnancy, the fetus can also consume the mother's iron reserves.

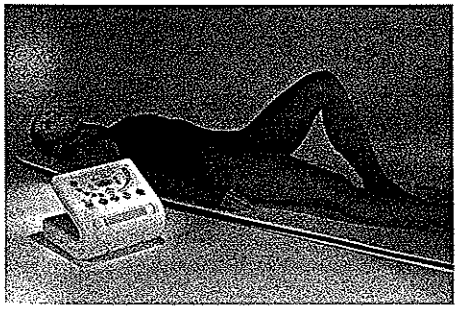
Anemia may go undetected or it may lead to a total loss of strength or even death. Exhaustion, shortness of breath, a rapid or throbbing heart beat, headaches, loss of appetite, depression, rings around the eyes, fatigue or weakness are the most common symptoms of anemia. One physical sign of anemia is pale skin in the folds of the palm of the hand, under the finger nails and at the edges of the eyelids. Anemia can be detected only by testing the blood. The treatment will depend on the causes and the specific type of anemia. Thus, in iron deficiency anemia, iron preparations and dietary changes are recommended, or in folic acid deficiency anemia, the vitamin reserves should be built up again. In order to control this disease, the causes must of course be discovered and then combated. Vitamin and mineral deficiency anemia can be prevented from the beginning by a balanced diet.

Effect of magnetic field therapy on anemia:

more efficient oxygen supply due to improved binding of oxygen to hemoglobin (the oxygen can leave the blood vessels more readily, and the energy thus saved is available to other areas), building up the energy reserves in the cells and improved well-being, but not a cure.

Proper use of MRS for anemia

• Whole-body mat: 3 times a day for 8 minutes each time: 100 % level in the morning, 100 % level at noon, 25 % level in the evening



Whole-body treatment for anemia

• Notes on the initial reaction: none.

• Forms of therapy supportive of MFT: herbal remedies (curled dock root, pollen), vitamin supplements (vitamin C, vitamin B6, vitamin B12, folic acid)

Scientific studies on the treatment of anemia with MFT

T.V. Golovacheva: "EHF Therapy in Complex Treatment of Cardiovascular Diseases," Millimeter Waves in Medicine and Biology, 10th Russian Symposium with International Participation, April 24-26, 1995, Moscow, pp. 29-31.

Patient reports on the treatment of anemia with MRS

1. Thanks to the company Vita-Life

• *Patient, male, M.E., 31 years old. Diagnosis: "I have suffered from extreme fatigue for a long time, especially with any physical exertion. Sports are especially difficult for me. One year ago, my doctor diagnosed Sickle cell anemia. A subsequent removal of the spleen with complications brought me relief only for a brief period of time." Results of MRS therapy: "Since I have been using the magnetic field mat regularly, I feel better and I again have more energy."*

4.2. Aneurysm

An aneurysm is a dangerous enlargement in a blood vessel (usually in an artery) due to a weakening in the vascular wall. Arteries consist of three layers: the intima (smooth inner membrane), the media (elastic, muscular middle layer) and the adventitia (resistant outer membrane). A true aneurysm is when all three layers are distended, whereas a false aneurysm involves only one or two layers. A fissured or dissociating aneurysm is when the blood penetrates through the middle layer of the vessel and forms its own blood path between the media and adventitia. This disturbance can develop within a matter of hours or days and leads to an inadequate supply of blood to the organs. If the aneurysm extends over the entire length of the artery, there is the risk of rupture of the artery. Because of the sudden extreme reduction in blood supply, the heart can no longer function on its own, so it stops and dies.

The causes of an aneurysm are varied. A genetic defect in the brain (a weakness or a hole in the media) may cause a vessel to suddenly rupture and initiate cerebral hemorrhage and stroke. In the small arteries, an infection is often the cause of a weakening in the arterial wall. Additional causative factors include wounds penetrating through the arteries or

syphilis, an inflammation of small arteries which then die off. If this infection spreads to larger arteries, the vascular walls are weakened. In older people, aneurysms usually develop in a stroke because of arteriosclerotic deposits. If an artery in the thoracic is affected, a sudden severe pain will occur, resembling a heart attack. There will be pain below the breastbone or on the back of the breastbone, leading to difficulties in swallowing, shortness of breath, hoarseness and heavy coughing. The person so affected may hear this pulsating, hissing noise himself or herself. Another sign of an aneurysm may be a soft pulsating mass in the intestine or on the back of the knee. Blood clots can form in the knee and migrate down into the toes, leading to dead tissue and gangrene. In the intestine, the symptoms of dissociation or rupturing of a blood vessel may occur suddenly - abdominal pain extending into the back, with only a little blood flowing into the legs, and circulatory collapse with unconsciousness, pale and damp skin and a rapid but weak pulse. Death can occur very rapidly.

Treatment of an aneurysm should be initiated as soon as possible. People who suffer from a dissociating aneurysm require especially careful and intensive care. Anti-hypertensive drugs can reduce the risk and permit spontaneous healing, especially in people on whom surgery cannot be performed. Although the surgery in which a damaged vessel is replaced by a synthetic or natural vessel is not without hazards, it does bring satisfactory results in almost all cases. New test methods permit early detection of an aneurysm and the risk of surgery can often be avoided by immediate treatment.

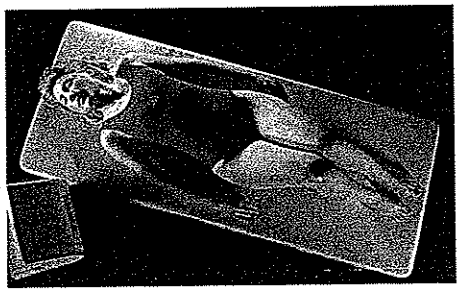
Effect of magnetic field on aneurysms:

strengthening the connective tissue (according to scientific studies), supportive

Proper use of MRS for aneurysms

• Whole-body mat: twice a day for 8 minutes each time: 50 % level in the morning, 10 % level in the evening

• Notes on the initial reaction: none



Whole-body treatment for aneurysms

Scientific studies on the treatment of an aneurysm with MFT

◦ V. M. Bogoliubov, L. A. Skurikhina: "Therapeutic Application of Constant and Low-frequency Magnetic Fields," - This article gives a review of various studies that have documented positive effects in the treatment of arterial aneurysms.

4.3. Angina pectoris - bypass

Cardiovascular diseases are the most common cause of death throughout the world. One out of two people will die of the results of cardiovascular failure, one out of three will die of a coronary heart disease (CHD). The best known risk factors are smoking (cigarette smoke reduces the oxygen content in the breath and thus in the blood), overly rich food (more blood consumption in the stomach), narrowing of the heart?, a high cholesterol level and high blood pressure.

The coronary vessels surround the heart in a ring, supplying it with blood. If a coronary heart vessel is obstructed by arteriosklerotic deposits, the blood supply is reduced and the oxygen supply is only sufficient for the work of the heart at rest. With any physical exertion or emotional agitation, the heart beats faster and the oxygen supply is not sufficient even for the heart itself. The result is an attack of angina pectoris. Such an attack lasts about 3-5 minutes and disappears when the physical exertion is stopped or when the person affected becomes calmer.

An attack of angina pectoris is a definite signal that the supply of blood and thus vital oxygen to the heart is deficient. The attack itself does not damage the heart but it creates the conditions for a myocardial infarction. The pain is also similar to that of an infarction, except that it is somewhat milder and shorter. It is usually described as like a belt around the chest, and many people experience it as a pressure behind the breastbone. It often radiates into the left arm down to the small finger or between the shoulder blades into the lower jaw. An attack is usually associated with a strong feeling of constriction and anxiety. Assistance of nitroglycerin (spray or pill) can stop the pain within minutes. If medication is no longer helpful, a bypass operation must be performed.

With the help of an EKG and blood test, a myocardial infarction can be ruled out. The best test methods are catheterization of the heart and an angiogram. Natural forms of treatment are aimed primarily at reducing the risk factors - reducing weight, stopping smoking, avoiding stress situations, etc. The patient becomes motivated to include rest pauses to maintain a low cholesterol low-fat diet and to engage in moderate physical activity which should stimulate the blood circulation.

Effect of magnetic field therapy on angina pectoris:

promoting circulation, widening the vessels (better supply of oxygen to the heart), supportive. Some studies indicate that it prevents deposits of calcium and cholesterol in the vessel walls and thus helps prevent classification of vessels. However, the actual relevance of MFT is in prevention!

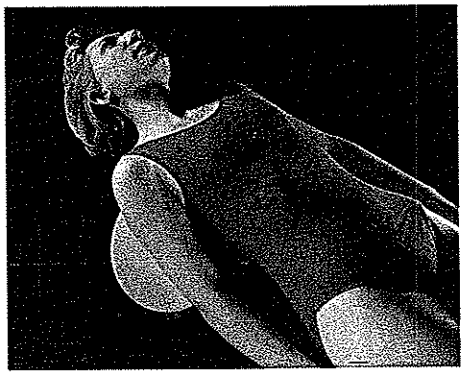
Proper use of MRS for angina pectoris

• Whole-body mat: 3 times a day for 8 minutes each time: 100 % level in the morning (gradually increasing from 25 %), 50 % level at noon, 10 % level in the evening

• Pad: once a day for 16 minutes: thoracic spine: 100 % level, chest: 50 % level (8 minutes each time)

• Forms of therapy supportive of MFT: relaxation techniques, normalization of weight, avoiding risk factors (such as smoking), coenzyme Q10.

• Notes on the initial reaction: none.



Local treatment for angina pectoris

Scientific studies on the treatment of angina pectoris with MFT

◦ L. D. Makoeva et al.: "Running Pulse Magnetic Field in Treating Stenocardia," Biofizika July-August, 1996, pp. 949-952. - This article reports on the use of pulsating MFT in treatment of angina pectoris in combination with and without medication. The flow properties of the blood, the cardiac output and clinical symptoms were investigated. It was found that magnetic fields have a definite antianginal action on class 1 and 2 angina patients. With the combination with several drugs on class 3 angina patients, a stronger and better effect of the medications was observed. The incidence of heart attacks was definitely reduced.

◦ L. L. Orlow et al.: "Evaluation of Antianginal Effects of Running Pulse Magnetic Field and Drug Therapy on the Physical Working Capacity and Hemodynamics in Patients with Stable Angina Pectoris," Kardiologiia, February 1992. - In this study the effect of pulsating magnetic fields and medication against angina pectoris and the combination thereof was investigated on 60 patients with stable first through third degree angina. A monotherapy (just one medication) with MFT had a good anti-anginal action on patients with class 1-2 angina pectoris. The efficacy of the treatment increased definitely when combined with several drugs.

◦ T. A. Kniazeva, R. Arutiunian: "The Effect of Low-Frequency Magnetic Field and General Iodobromide Baths with the Presence of Mole-

cular Iodine on the Blood Coagulation Processes and the Central Hemodynamics of Patients After an Aortocoronary Bypass," Zeitschrift für Kur- und Physiotherapie [Journal for Cure Therapy and Physical Therapy], 1990.

Patient reports on the treatment of angina pectoris with MRS

1. Thanks to Mrs. Verena Singer

• *Patient T.S., male, 84 years old. Diagnosis: Mild angina pectoris, arthrosis in the shoulder joint and in the knees. Results of MRS therapy: Improvement in the entire supportive system, more strength and mobility, narrowing of the blood vessels (angina pectoris) improved, no more gout attacks and no more pain in the hands and feet.*

2. Thanks to Mrs. Beatrice Studer

• *Patient, female, 61 years old. Diagnosis: Circulatory problems. Heart diagnosis at the age of 50: left bundle block. Results of MRS therapy: circulation stable, no more migraine attacks after 3 months, good bowel movements after 4 months, heart complaints only above a pulse of 150 (previously 90), her backaches completely disappeared after 6 months and the rheumatism complaints also disappeared; after 1 year the osteoporosis measurement (bone density) actually showed a bone improvement in addition to relief from her condition!*

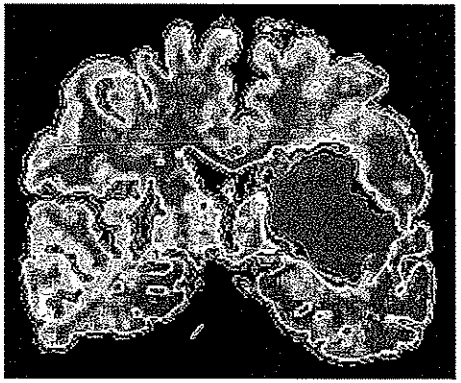
3. Thanks to Mr. Karl Garber

• *Patient H.L., male, 31 years old. Diagnosis: Circulatory complaints from working on the floor, pain in the area of the lumbar spine, sleep disorders once a month, foot "twisted" - therefore swelling in the area of the ankle. Results of MRS therapy: "The swelling in the area of the ankle was eliminated after about two weeks. I no longer have any circulatory complaints. My sleep disorders have disappeared."*

Appraisal of MFT: **60-70 % good to very good results**

4.4. Apoplexy or stroke

A stroke is one of the most feared complications of an arteriosclerotic circulation disorder. In western industrial countries, someone suffers a stroke almost once in every five minutes. Apoplexy is thus the most common cause for handicaps. It is estimated that one in two strokes could be prevented by reducing the risk factors.



Brain with bleeding

A stroke may be caused by various factors. If arteriosclerotic deposits have constricted the diameter of the carotid artery, less blood flows to the brain. If this main artery becomes completely obstructed, the portion of the brain supplied with blood by this artery dies. Likewise, a cerebral hemorrhage can cause a stroke. Then a clot develops, pressing against certain brain cells, which also leads to intense headaches. An aneurysm may also cause an apoplexy, with the dilatation of the artery suddenly interrupting the blood flow to the brain. This predisposition is the cause of stroke, especially in young people. People who have high blood pressure or arteriosclerosis are the first risk groups (the risk for a 40-year-old person with high blood pressure is 30 times greater than that of the same without high blood pressure). Smoking, diabetes, a high cholesterol level and stress also promote apoplexy. Oral contraceptives (the pill) represent a high risk factor, especially in combination with smoking.

As a rule, a stroke announces itself with certain warning signs, so-called TIAs (transitory ischemic attacks). Since these symptoms appear to be harmless, they are usually ignored. These are short attacks of dizziness (often lasting only a few seconds) transitory disturbances in perception or gait, sudden speech or vision disorders caused by brief circulation disorders. In most cases these signs disappear again within one day.

The diagnosis of a stroke is made on the basis of a patient's history and a physical examination. X-ray techniques show the damage to the corresponding blood vessel. Neither TIA symptoms nor strokes should be treated lightly. They require immediate treatment by an experienced physician. Suitable drugs can improve blood flow properties and thus reduce the risk of a cerebral infarction. Two thirds of the patients who reduce their risk factors after a stroke never experience another stroke. As soon as someone has noticed a TIA, preventive measures should be taken immediately to prevent a stroke.

Apoplexy can lead to serious paralysis. If large portions of the brain are affected, hemiplegia or paralysis on one side may occur, namely on the side opposite the dead brain cells. Additional consequences of a stroke may include loss of memory, difficulties in speaking or walking and problems with control of feelings and movement.

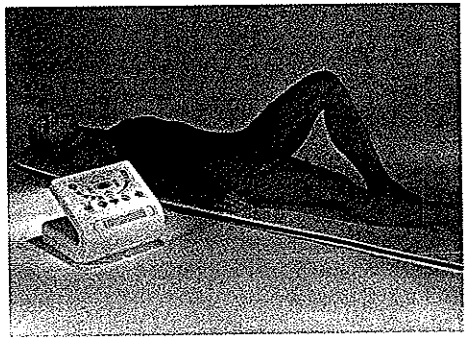
The restoration and buildup phase after a stroke is known as rehabilitation. Magnetic field therapy plays a very important role in this regard and is being used more and more frequently, especially in problems in walking, paralysis, spastic patients as well as in paresthesias and patients with tingling feelings in their limbs. Prompt use is crucial for the success of this therapy.

Effect of magnetic field therapy on apoplexy:

promoting circulation and therefore providing a better oxygen supply to the brain, improving regeneration of nerve cells, accelerating healing processes, activating brain cells that are just fatigued but have not died (restoring function); improving rehabilitation, important in prevention.

Proper use of MRS for apoplexy

• Whole-body mat: 2-4 times a day for 8-16 minutes each time: 150 % level in the morning, 100 % level at noon, 50 % level in the evening



Whole-body treatment for apoplexy

• Forms of therapy supportive of MFT: movement therapy and physical therapy, acupuncture, homeopathy, herbal remedies (gingko biloba, baldrian root, ginseng, gotu kola, grape seed extract, garlic), essential fatty acids (evening primrose oil, borage oil, currant oil), vitamins and minerals (vitamin C, B vitamins, vitamin E, selenium)

• Special instructions on use: Begin treatment as soon as possible!

• Duration of treatment: as intensely as possible for several months, the sooner the better. The older the stroke, the longer the treatment must be continued.

• Notes on the initial reaction: none.

Scientific on the treatment of apoplexy with MFT

Several studies are currently underway at renowned German-Language University Clinics on the topic of apoplexy using the MRS 2000+ med.

◦ B. Baychev et al.: "Evaluating the Effect of Alternating Magnetic Field on Vasculo-Vegetative and Motor Disorders in Stroke Patients," Kurortol-Fizioter. 27/3 1990. - Thirty-five stroke patients were examined on the basis of various clinical test methods. After 15 days of treatment with MFT, an improved blood supply in both halves of the brain and a clinical improvement especially in the area of the hemiplegia were found. Motor abilities were restored more rapidly and the tendency to spastic symptoms was definitely reduced. MFT was tolerated very well by the patients

and proved to be quite beneficial both in the acute and subacute phases after a stroke.

◦ R. Cadossi: "Protective Effect of Electromagnetic Field Exposure on Acute Soft Tissue Ischemic Injury," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - Pulsating electromagnetic fields develop a protective mechanism against necrosis in acute ischemia. This experiment was proven on the brains of rats.

◦ G. Grant et al.: "Protection Against Focal Cerebral Ischemia Following Exposure to a Pulsed Electromagnetic Field," Department of Neurosurgery, Stanford University, California, Bioelectromagnetics 1994. - This study shows that electromagnetic stimulation leads to more rapid healing and repair of damage to cerebral arteries. Studies on rats have shown a positive effect of pulsating electromagnetic fields in the treatment of strokes.

◦ F. E. Gorbunov et al.: "The Effect of Combined Transcerebral Magnetic and Electric Impulse Therapy on the Cerebral and Central Hemodynamic Status of Stroke Patients in the Early Rehabilitation Period," Vopr Kurortol Fizioter Lech Fiz Kult (3), May-June 1996, pp. 21-24. - These study results prove that treatment of apoplexy patients with pulsating magnetic fields in combination with a stimulus current in the early phase of rehabilitation yields the best results.

Physician reports on the treatment of apoplexy with MF

1. Dr. Gustav Skreiner, M.D., General Practitioner, Graz

• *Patient, male; diagnosis: stroke, chronic joint complaints due to wear, sciatic and rheumatic complaints, migraines, chronic pain, autonomic dystonia, depression, circulation problems, hypertension, exhaustion complaints, muscle tension. Results of MRS therapy: Good results were achieved in all areas and the stroke symptoms improved.*

Patient reports on the treatment of apoplexy with MRS

1. Thanks to Mr. Max Keiser and Mrs. Verena Singer

• *Patient A.M., male, 53 years old. Diagnosis: Patient hospitalized because of a stroke (January 21, 1996). Renal failure due to overuse of medication. After March 1997: dialysis, which failed. Three infections of the peritoneum within one year. Results of MRS therapy: improvement in general condition. "Mr. M. was again able to urinate normally. Weight loss (8-10 kg), normalization of blood pressure. The patient's general well-being has been good to very good since using this treatment, he has more strength and he can walk without assistance, using just a cane, for two kilometers over hills and valleys, although that was previously impossible for him. He can drink more fluids and can eat all varieties of fruit. The hospital required Mr. M. to drink at least 7 dL per day, but he is able to drink up to 3 L a day with no problems."*

2. Thanks to Mrs. Maria Pfeifer

• *Patient T.T., female, 51 years old. Diagnosis: "In January 1997 I had my first stroke, and the next in March and the third in December. After this, I could not move my hands any more and I could only speak with difficulty, I was limited to a wheelchair and could no longer use the toilet - I had to rely on assistance totally. In addition, I was having enormous difficulty in speaking. I was taking 15-20 different drugs a day." Results of MRS therapy: "After about 3 months, I was able to walk again, move my left hand completely, eat on my own and my speech also functioned again. I no longer need the wheelchair or the drugs."*

3. Thanks to Mrs. Beate Martina

• *Patient T.H., female, 71 years old. Diagnosis: Stroke in 1994: severe headache, no feeling in the fingertips or legs ("I can hardly walk"), severe fluid retention in the legs, excessively blood pressure, eye inflammations, bronchitis, back pain. Results of MRS therapy: After the first treatment with the pad, walking already easier, feeling in the fingertips; in three days, her legs became warm and had circulation in them, breathing was easier, no more headache. "I can sleep better. In the third week I was able to go to the bathroom alone."*

Appraisal of MFT: **70-80 % good to very good results**

4.5. Arteriosclerosis - bypass

Arteriosclerosis is the most common cause of death in the western world. The blood vessels become constricted due to deposits of fat particles or calcium in the walls of the vessels, thus slowing the flow of blood. At the same time, the risk of a blood clot also increases. This affects the arteries of the heart and brain most commonly, which is why there is such a high incidence of myocardial infarctions and cerebral infarctions in the population.

Even the smallest injury to the wall of a blood vessel enable fat and cholesterol particles to become deposited there. The excess cholesterol is deposited under the innermost layer of the artery, the intima, in the form of crystals which form a small padding or so-called plaques over a period of time. Various components of the blood including calcium become deposited in these stressed positions, thus resulting in calcium deposits - only then do we speak of "calcification." Since this process is not reversible, the internal lining of the vascular wall gradually becomes rigid or brittle and the vascular clearance becomes smaller and smaller. If the intima is injured, blood clots or so-called thrombi can easily become attached here. Smoking, birth control pills (especially in combination with nicotine), a high fat and high cholesterol diet, consumption of too much alcohol, diabetes, certain metabolic disorders or liver diseases or high blood pressure can promote the development of arteriosclerosis. The consequences are circulation problems in the various organs. Arteriosclerosis itself does not have any visible symptoms. Therefore it often remains undiscovered until an artery is completely obstructed.

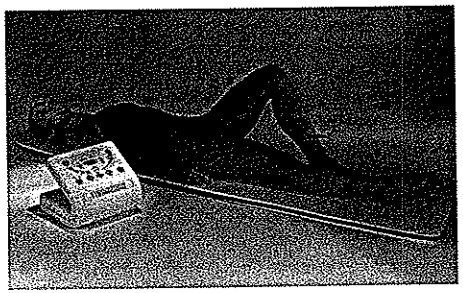
The goal of any treatment is to promote circulation. Physicians have several options in terms of medication, e.g., drugs that prevent platelets from aggregating such as acetylsalicylic acid (aspirin) or vasodilating substances (calcium antagonists). The most common side effects of these drugs include headaches, dizziness and a possible drop in blood pressure. If the oxygen supply through the obstructed artery is no longer sufficient even at rest, a bypass surgery may be performed as a remedy. In this surgery an artery is transplanted, diverting blood from the obstructed location. This procedure is not always possible - it depends on the extent of the obstruction in the affected region. In most cases, however, a definite improvement in the patient's situation can be achieved in this way. Natural treatment methods include movement training or weight reduction. The best known natural agent for promoting circulation is the standardized extract of the leaves of the gingko tree. Contrast baths and spa baths may also contribute to keeping vessels in good condition.

Effect of magnetic field therapy on arteriosclerosis:

influences the calcium content in the blood, improves oxygen supply in the tissues, help prevents complications, important in rehabilitation, converting the precipitated calcium carbonate into calcium aragonite (water-soluble). The protective mechanism on the vascular wall is currently being discussed. Studies are underway to determine whether MFT is capable of dissolving existing calcium deposits in the blood vessels.

Proper use of MRS for arteriosclerosis

• Whole-body mat: 3 times a day for 8 minutes each time: 100 % level in the morning, 50 % level at noon, 10 % level in the evening



Whole-body treatment for arteriosclerosis

• Forms of therapy supportive of MFT: vitamins and minerals (vitamin C, B vitamins, vitamin E, calcium, magnesium, selenium), coenzyme Q10, essential fatty acids (salmon

oil, flax seed oil, evening primrose oil, borage oil, nigella oil), herbal therapy (gingko biloba, gotu kola, ginseng, field horsetail, alfalfa, garlic, grape seed extract, oak bark)

- Notes on the initial reaction: none

Scientific studies on the treatment of arteriosclerosis with MFT

◦ C. Wallach: "Electromagnetic Therapy. A New Medical Discipline," California Institutional Review Board, Canoga Park, California, 1998. - This author shows that new areas of use for MFT are opening up and more and more biological effects are being studied and documented by scientists. In addition to the known broad spectrum in injuries, he also reports that current studies on arteriosclerosis patients are showing a positive effect on arteriosclerotic plaques.

◦ R. T. Gor et al.: "Selective Resolution of Plaques and Treatment of Arteriosclerosis Biophysical Alteration of Cellular and Intracellular Properties," Medical Hypotheses, 7(2) February 1981, p. 217. - In this article the new possibility of treatment arteriosclerosis by pulsating magnetic fields is discussed. The author emphasized that some of the arteriosclerotic plaques that have already formed can be dissolved again without injuring the vessels.

Physician and patient reports:

see the individual diseases

4.6. Bypass:

see "Angina pectoris"

4.7. Circulation disorders (peripheral) - Raynaud's syndrome

Peripheral circulation disorders on the hands and feet or fingers and toes may occur due to severe hypothermia (such as bathing in cold water, long walking in the snow, etc.). This results in a severe loss of color from the skin, often with only the thumb not being affected. In mild cases of circulation disorders, no treatment is necessary. Numbness in the fingers may occur due to excessive exposure to cold and psychological agitation, and then the fingers assume a gray blue color. Such circulation disorders occur in attacks, are painful and last for a few minutes to hours. In the initial stage, the patient's general well-being is hardly disturbed, but later headaches and heart complaints develop and in severe cases there may be destruction of the tissue at the tips of the fingers, finally leading to vascular occlusion (thrombangiitis obliterans). Doughy, swelling of the fingers, hardening of the skin and disturbances in nail growth are additional symptoms.

The cause of Raynaud's syndrome is usually a vascular disease involving the lower extremities. At the beginning of the disease, a feeling of heaviness or cold is often observed, most commonly involving the feet, plus disturbances in perception (furry feeling and tingling of the toes and the back of the foot). During cooling, the skin becomes very pale and later pain occurs (especially in walking) with muscle fatigue and cramps so the person so affected must limp. As the disease progresses, these symptoms are also manifested in the resting phase. The tissue begins to decay and dry or wet gangrene develops.

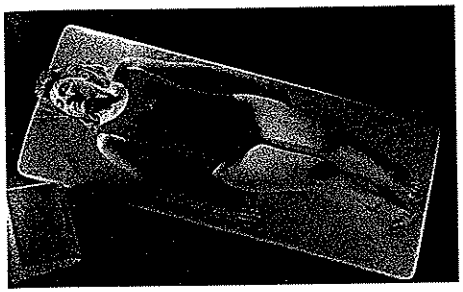
Raynaud's syndrome is treated by massage of the connective tissue, light baths baths on the trunks, arm and foot baths, brush baths, vitamin E treatments and drugs that promote circulation. NO local heat should be applied because this can result in an oxygen deficiency! Furthermore, movement exercises, sports and physical therapy can help to promote circulation; in summertime sun baths, air baths and light baths can also help. If surgery is unavoidable, the vascular nerve strands are removed by surgery. If a complete occlusion of arteries in the extremities has occurred and gangrene has developed, usually the only option is amputation.

Effect of magnetic field therapy on circulation disorders:

promoting circulation and thus improved oxygen supply, ideal for support of medication

Proper use of MRS for circulation disorders

- Whole-body mat: 3 times a day for 8 minutes each time: 100 % level in the morning, 50 % level at noon; 25 % level in the evening



Basic treatment for circulation disorders

- Pad: once or twice a day for 24 minutes each time: 150 % level, at the location of the poor circulation
- Forms of therapy supportive of MFT: acupuncture, TENS, saline solution, herbal remedies (gingko biloba, gotu kola, grape seed extract)
- Instructions on the initial reaction: initial manifestations of pain may occur in 1-2 %, especially cramps (magnesium!).

Scientific studies on the treatment of circulation disorders with MFT

◦ L. G. Vassilenko: "EGF Electromagnetic Radiation in Treatment of Obliterating Diseases of Inferior Limb Vessels," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy.

◦ A. P. Dovganiuk, A. A. Minenkov: "The Use of Physical Factors in Treating Chronic Arterial Insufficiency of the Lower Limbs," Vorp Kurortol Fizioter Lech Fiz Kult (5), 1996, pp. 7-9. - This study investigates the effects of MFT on 450 patients and shows positive results in almost 87 %.

◦ Y. B. Kirillov et al.: "Magnetotherapy in Obliterating Vascular Diseases of the Lower Extremities," Vopr Kurortol Fizioter Lech Fiz Kult (3), May-June 1992, pp. 14-17. - In this study the authors report on the positive results of MFT in patients with occlusive diseases of the smallest arteries. This positive effect is especially marked in pre-gangrene patients. The success rate is 75-82 %.

◦ N. Haimovici: "Magnetic Field Therapy in Clinic and Research," Herder Clinic, Bremen, Therapiewoche [Therapy week], 31, 1981, pp. 7317-7330. - Of the 2081 patients treated with low-frequency pulsating magnetic fields in this clinic and as outpatients, 253 cases involved arterial and venous circulation disorders. These tests yielded positive results.

Physician reports on the treatment of circulation disorders with MF

1. Practical team, Dr. Johnston, M.D., Borken

- *Patient, female, 35 years old. Diagnosis: For several years a tendency to cold hands and feet, accompanying irritable lumbago with known spondylolisthesis. Results of MRS therapy: warm hands and feet after three applications, no more back pain after 13 treatments.*

2. Dr. Sepp Fegerl, M.D., General Practitioner, Salzburg

- *Patient R.I., female, 62 years old. Diagnosis: Cold feet and hands, multiple sclerosis since 1954, enteropathy syndrome. Results of MRS therapy: her hands and feet, which had always been cold, became warm and the enteropathy syndrome reacted with rumbling in the abdomen and a bowel movement after each treatment; the patient has felt good and her circulation has shown a positive influence and her mobility seems to be better.*

3. Dr. Gerhard Antensteiner, M.D., General Practitioner, Kindberg

- *"I have been using MFT for slightly more than one year in my consultation practice. The main areas for application were for any pain states involving the motor system, in particular the spinal column, which responded very well to the treatment. The main area of indications was for circulation disorders and peripheral occlusive arterial disease in stage IV was also treated and a definite improvement was achieved even in severe cases. Even in mild to moderately severe depression, an increased vitality during the day and better quality of sleep at night were achieved."*

4. Dr. Kurt Pinter, M.D., Graz

• *Patient W.S., male, 73 years old. Diagnosis: "Mr. S. suffered from the consequences of circulation disorders after a 'vein operation', performed on his lower leg during the post war years, with complications such as eczema and hyperkeratosis, finally developing ulcers the size of a child's hand which could never be made to disappear completely despite countless treatments. Apart from the constant pain, the patient felt very impaired due to the constant dressings on his ulcers and the fact that he could not go to the bath by himself. Results of MRS therapy: after 14 MRS sessions, the patient experienced a massive improvement and the remaining defects the size of a fingernail were healed with supportive soft laser therapy.*

5. Salzburg State Hospital, Department for Physical Medicine and Rehabilitation, Dr. M. Burger-Rafael, M.D.

• *Patient, female, diagnosis: obstruction of the femoral artery, more on the right than on the left, condition after Sudeck's disease after a forearm fracture on the right in 1995. Results of MRS therapy: The patient could walk only a few meters with severe pain at the time of the initial examination. She also had a definite fist closing deficiency on the right. After 15 treatments (last treatment on August 12, 1996), her walking distance had increased to more than one kilometer and the patient no longer had any symptoms while walking.*

6. Dr. Ulla Sebastian, M.D., Kamen

• *Patient J.S., male, 85 years old. Diagnosis: Capillary occlusion in the left foot, venous occlusion in the left leg, open wound on the right toe. The toenail had to be removed because of infection. Results of MRS therapy: "At the time of the treatment, the wounds were six weeks old and were healing very slowly. The wound in the nail bed began to bleed after the first treatment. Two wounds on the tip of the toe closed within one week, and after another week scabs began to develop on the nail bed; after three weeks there is good circulation in the toe and the wound is almost healed. The leg is almost fully load-bearing again when running.*

7. University Fünfkirchner Clinic, First Surgical Department, Dr. Peter Horvath, M.D.

• *Fifteen patients, diagnosis: sympathectomy with arterial obstruction (occlusion) in the lower extremities, including one patient in whom the big toe had been amputated because of a wound that would not heal. Results of MRS therapy: positive influence on circulation in the lower extremities. The ankle pressure increased and circulation improved. The wound on the amputated toe caused tingling during the treatment. After three weeks, the healing process began, the wound developed a scab, which became smaller and regenerated. MFT is the only positive alternative for distal vascular occlusions.*

Patient reports on the treatment of circulation disorders with MRS

1. Thanks to Mrs. Beate Martina

• *Patient G.M., female, 85 years old. Diagnosis: Poor circulation, diabetes mellitus. Results of MRS therapy: significant improvement in circulation after two weeks, patient sleeps better, digestion improved. After five months: stable sugar values, the patient need no longer get up during the night, wound healing has improved enormously, she no longer requires surgery on her eyes because her cataracts have disappeared, the motor system is free of pain, her hair has grown back in darker than before, she no longer has digestive problems. This patient is now taking only one medication for diabetes.*

2. Thanks to Wolfgang Gasteiner

• *Patient H.W., female, 53 years old. Diagnosis: Circulation disorders in the feet, extreme pain in the pelvic area and the right thigh. Blood pressure 90/60; impossible for her to sleep through the night. Results of MRS therapy: circulation in the feet was optimum after the first treatment. Extreme relief in getting up and subsidence of pain the very next day. Her sleep disorder was eliminated because of the pain relief. Circulation stabilized after the first days, the daily pill could be stopped. After four weeks, the patient is painless and experiencing physical well-being.*

3. Thanks to Mrs. Sieglinde Kapun

• *Patient M.W., male, 67 years old. Diagnosis: Circulation disorders in the feet; on dialysis since August 1996. Results of MRS therapy: "The circulation disorders in the feet improved after 14 days. Digestive problems completely eliminated after one week. On October 27, 1997, I had severe pain due to a shoulder injury. After treatment with the pad at level 2, the pain was already much better on November 3."*

• *Patient M.P., male, 70 years old. Diagnosis: When he goes to bed, his right hand left shoulder and right knee fall asleep. Wear on intervertebral disks and cerebral vertebrae, rheumatism, gout, tension in the shoulder area, attacks of dizziness with low blood pressure. Results of MRS therapy: Circulation already much better after 7 days, joints pain also improved. After three weeks: tension in the shoulder area is much better, hand, shoulder and knee no longer fall asleep; no more rheumatism medication necessary.*

4. Thanks to Mr. Karl Garber

• *Patient B.I., female, 37 years old. Diagnosis: Circulation disorders, very severe digestive problems, menstrual problems, sleeping problems (heavy sweating), low blood pressure. Results of MRS therapy: no more digestive problems since the first treatment, the circulation disorders have improved, the sleeping problems have disappeared and the blood pressure is normal.*

• *Patient J.G., female, 35 years old. Diagnosis: Circulation disorders in the arms and legs, low blood pressure, 90/60, wear and cervical and thoracic vertebrae, therefore severe headaches 3-4 times a week (pills), sleep disorders. Results of MRS therapy: No more headaches, the sleep disorders and lower back pain are gone, and the circulation disorders in the arms and legs have improved greatly.*

5. Thanks to Mrs. Verena Singer

• *Patient M.M., female, 78 years old. Diagnosis: Circulation disorders, tension in the shoulder/back area, cracked skin on the pads of the fingers, severe susceptibility to weather changes, age-related impairment in motor system. Results of MRS therapy: The tension has been relaxed very quickly, mobility improved. No more cracks on the tips of the fingers and her sensitivity to weather has reduced. "I feel more balanced. The circulation disorders have improved greatly. The age-related impairment has changed into a better quality of life."*

• *Patient E.D., female, 72 years old. Diagnosis: circulation disorders, varicose veins, bronchial asthma, shoulder pain, hip problems, colds. Results of MRS therapy: the circulation disorders have improved and the shoulder pain occurs only rarely the hip pain has improved, and the colds (sniffles, sinuses) have disappeared; various drugs have now been stopped and lung activity has improved.*

6. Thanks to Mrs. Gabriele Heidt

• *Patient G.H., female, diagnosis: "I had extreme circulation disorders in the left leg and was very sensitive to weather along with having very severe pain in both legs. Menstrual symptoms (one week before my period started) and back pain combined with headaches as well as tension in the lower abdomen were other symptoms." Results of MRS therapy: "After two weeks of treatment, I had hardly any symptoms in my leg. Another 14 days later, changes in the weather no longer caused me problems. I no longer had menstrual complaints after two months. I am feeling good all the way around."*

• *Patient J.H., male, 52 years old. Diagnosis: circulation disorders in both feet, lower back pain (wear), tension in the shoulder area. Results of MRS therapy: The circulation disorders have improved greatly and the tension disappeared after six weeks. Gout: No longer taking pills, general condition very good.*

• *Patient P., female, 36 years old. Diagnosis: cold hands and feet, migraine attacks since the age of 8. "No doctor was able to explain my severe knee pain." Results of MRS therapy: "My hands and feet are no longer cold. After three months, my knee and shoulder pain disappeared. Now I very rarely have headaches during my period. Finally I am able to get up in the morning feeling very fit."*

7. Thanks to Mrs. Ursula Lange

• *Patient, female, 59 years old. Diagnosis: circulation disorders in the hands and feet: "As if dead." Restricted movement. Results of MRS therapy: Patient free of symptoms after one week. "I am again wearing shoes with higher heels, dancing, doing fitness training and walking again. My extremities are warm and with good circulation, and after 14 days my respiratory tract is free of mucous and secretions, continuing until today."*

• *Patient H.S., male, 58 years old. Diagnosis: circulation disorders in the thighs, pain, difficulty in walking, severe pain in the legs at rest. Vari-*

cose veins on the outside of the knee: 5 cm thick, thick as a thumb, very painful. Very painful lumbar spine syndrome, third and fourth vertebrae, also at night. Results of MRS therapy: "Circulation in my thighs is much better, and the varicose veins have been reduced to approximately 50 % of the original thickness, with a pain reduction in approximately 80 %. They have become soft and it no longer hurts to touch them, even with pressure. I no longer have any difficulty in walking."

Appraisal of MFT: **70-80 % good to very good results**

4.8. Embolism

Blood platelets in addition to red and white blood cells are one of the main components of blood, or more specifically, blood plasma. In a wound, the platelets coagulate, i.e., they stick together to seal the injured location and thus prevent us from bleeding to death.

Although these blood clots are helpful and can save a life, they can also be dangerous because platelets coagulate not only due to external injuries but also at various locations on the interior wall of the blood vessels which have been damaged by arteriosclerotic plaque. Under certain circumstances, a platelet clot (thrombus/blood clot) will become detached from the vascular wall and migrate through the bloodstream into a smaller artery. The thrombus may become stuck in a much narrower section of a blood vessel and cause an embolism. Emboli are usually caused by blood clots in the veins, because the blood flows more slowly in the veins, and therefore the platelets and the respective connecting proteins can come in contact with one another more easily and form aggregates. Thromboses are harmless when they affect only the skin. However, if a thrombus migrates into the lungs, heart, brain or intestine, the blockage of the blood vessel assumes a life-threatening extent. Obstruction of a central vessel not only means a sudden oxygen deficiency (hypoxia) but also an inadequate blood supply to the affected tissue (ischemia). The result is a complete loss of function of the respective organ, as is the case in an infarction, for example.

Three types of emboli are differentiated:

- a "solid" embolism (of tissue, tumor cells, blood clots)
- a "liquid" embolism (of bails of fat or "amniotic fluid")
- a gaseous embolism

Depending on the location of the thrombus, a distinction is made between an arterial embolism, a crossed embolism (the embolus develops in a vein and moves to an artery), a pulmonary embolism, an embolism in the coronary vessel and a cerebral embolism (in the heart or in the arteries in the neck leading to the brain). A fat embolism develops due to a bone injury or damage to the fat cells. An air embolism can occur due to injection of air or as a complication of surgery. A nitrogen embolism can occur with great differences in pressure underwater.

There are drugs that can dissolve an embolus, but they are reserved for emergencies. Physicians often prescribe the drugs heparin or warfarin to prevent an additional embolus. If the embolus is in an accessible artery, it can be removed surgically. If it is inaccessible, a "stopper" is inserted into the accessible veins above it, so that the embolus cannot reach organs such as the lung or heart. An embolism is definitely an emergency situation and the patient must absolutely be taken to a physician or a hospital immediately. Treatment with MFT plays only a subordinate role here or none at all.

4.9. Hematoma

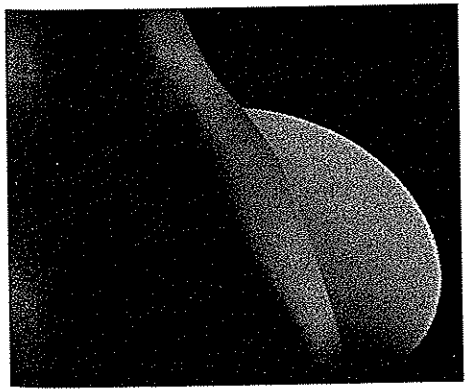
Bleeding of different extents is the unavoidable result of vascular injuries. In any trauma, minor blood vessels and capillaries are opened, but they close up again rapidly. If the main trunk vessels are affected, the peripheral blood supply is impaired, which may become life-threatening. Since loose tissue can absorb more blood than stiff tissue areas (the palm of the hand), the blood loss tendency varies accordingly. In a superficial hematoma, the swelling is at first palpable. Later the collected blood is dissolved and broken up by phagocytic cells. As part of this liquefaction, some of the fractions settle out, often reaching the skin surface, where they become visible as bluish spots. If bleeding occurs in a major body cavity, it usually results in a great blood loss. If the quantity of blood lost exceeds the compensation abilities of the body, it results in a drop in blood pressure and ultimately to hemorrhagic shock with organ damage. Bleeding can be limited by compression. Severed main trunk vessels, however, must be sutured surgically. Bruises and strains can also damage blood vessels. Then we speak of a blunt vascular injury.

Effect of magnetic field therapy on hematomas:

supporting, reducing swelling, relieving pain, improving removal of waste products

Proper use of MRS for hematomas

- Pad or probe: 3-5 times a day for 24 minutes each time: 200 % level, 400 % level with the MRS med, locally
- Forms of therapy supportive of MFT: enzymes
- Special instructions on use: elevate the affected location!
- Duration of treatment: 4-6 weeks, depending on the extent and any additional injuries
- Notes on the initial reaction: none



Local treatment for hematomas on lower leg

Scientific studies on the treatment of hematomas with MFT

- A. M. Begue-Simon, R. A. Drolet: "Clinical Assessment of the Rhumart System Based on the Use of Pulsed Electromagnetic Fields with Low Frequency," International Journal of Rehabil Research, 1993. - The research results of these extensive studies have shown positive effects on all traumatic events in the body.

Physician reports on the treatment of hematomas with MF

1. Dr. Sigrun Schaller, M.D., Zell am See

- *Patient O.S., female, 56 years old. Diagnosis: Gluteal hematoma on the left after a fall onto a concrete edge, extreme impairment of movement in climbing stairs, impossible to sit down, no pain-free position could be found lying down either. Treatment with high-dose Wob enzyme, arnica dressings. After six days, there was still no improvements. Results of MRS therapy: After one day, her pain was already reduced to the extent that her sleep at night was no longer disturbed. The next day, it was possible to climb stairs in an alternating step. After five days, the patient was healed and the swelling was no longer palpable.*

Patient reports on the treatment of hematomas with MRS

1. Thanks to Mrs. Zita M. Spieler

- *Patient E.W., female, 82 years old. Diagnosis: "I fell on a rock when hiking and my left foot was swelling up, forming a hematoma from the knee to the ankle. The entire thing was very painful." Results of MRS therapy: "I no longer had any pain and the swelling subsided. The hematoma subsided slightly. After one week, the hematoma disappeared promptly and the pain disappeared. In general, I feel very fresh and good."*

2. Thanks to Mrs. Susanne Buttner

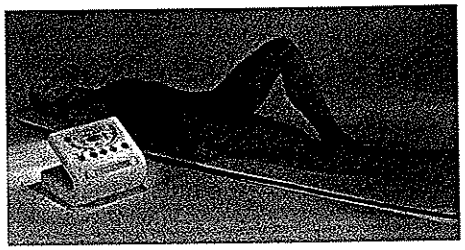
- *Patient H.B., male, 41 years old. Diagnosis: After a bicycle accident, contusions on the right thigh, right arm, right half of the face, hematoma on the right eye. Results of MRS therapy: Two days after the accident, this patient was sent to me by his physician for massage with a stimulating current. He arrived with*

a severe limp accompanied by intense pain. When he returned that afternoon, he was experiencing somewhat less pain. In addition to MFT, he received a light massage on the thigh. His symptoms improved each day and the hematoma on his eye disappeared after five days. The patient began bicycle training again slowly. After four weeks, he successfully rode in a time trial in his club.

Appraisal of MFT: **80-90 % good to very good results**

4.10. Hemorrhage (bleeding)

A hemorrhage is uncontrolled bleeding toward the outside or inside. The effects depend on the body part affected and the amount of blood lost and may be a symptom of many serious diseases or injuries. A hemorrhage occurs when blood vessels are damaged or there is a tendency to bleeding. Normally, coagulation of blood stops a hemorrhage within seconds or minutes. In a serious injury or a disturbance in coagulation function, however, the person affected may bleed to death. Such a disturbance in blood coagulation may be transient (as with many diseases) or it may be the result of another disease (hemophilia, platelet deficiency, peptic ulcer, cancer or diseases affecting the stomach, kidneys or urinary tract). Severe bleeding leads to a rapid pulse, dizziness, weakness, collapse, shock, an increase in blood pressure, an increase in heart rate and pale, cold, sweaty skin. Black tarry stool is typical from bleeding of the digestive tract. Blood in the vomit indicates bleeding in the stomach. Blood in the urine concerns the kidneys or urinary tract. You should always consult a physician immediately if you find blood in your stool, urine or vomit.



Whole-body treatment for hemorrhages

Effect of magnetic field therapy on hemorrhage:

supportive, reducing inflammation, reducing swelling, an the regulatory effect on the autonomic nervous system may play a role

Proper use of MRS for a hemorrhage

- Whole-body mat: once or twice a day for 8 minutes each time: 10-25 % level
- Notes on the initial reaction: none

Scientific studies on the treatment on hemorrhage with MFT

- V. V. Aleschenko, I. O. Pisanko: "EHF Therapy for Hemophilic Arthropathy and Hemarthroses of the Knee Joint," Millimeter Waves in Medicine and Biology, Digest of Papers, April 1995, Moscow. - In this study, hemophiliacs who have hemorrhaging into the joints are treated with electromagnetic fields. All the results indicate that treatment with magnetic fields clearly has a positive supportive effect on all other forms of treatment.

4. 11. Myocardial infarction

In addition to a stroke, myocardial infarction is the most common cause of death. In a myocardial infarction, a coronary vessel is obstructed by arteriosclerotic deposits (vascular calcification) or by a blood clot so that no blood can flow through it. Due to the vascular occlusion, the oxygen supply to a certain area of the heart muscle is no longer guaranteed so the muscle is damaged. Hypertension, diabetes, a high cholesterol level, birth control pills, smoking, excessive stress, mini diets and a lack of physical exercise increase the risk of an infarction.

A myocardial infarction may remain unnoticed or it may be manifested with the typical intense pain behind the breastbone. This pain often radiates into one or both arms. In addition, a person experiencing a myocardial infarction will often experience difficulty in breathing, fatigue, heavy sweating, fever and a feeling of impending doom. The pain symptoms are the same as those occurring with angina pectoris, except that they last much longer and they are more intense. A myocardial infarction may follow a completely harmless course and not have any permanently negative effects on a person's quality of life or it can lead to immediate death. The consequences depend on the area of the heart muscle destroyed and the extent of the damage.

An ECG (also known as EKG) measures the electric pulses coming from the heart. Since the pulses must travel around the disturbed area, this is shown in the charts. The amount of white blood cells is also checked because the body produces more white blood cells to remove the dead cells. The blood is also tested for proteins which may indicate a disturbance in the heart muscle. However, these diagnoses do not yield results until 24-72 hours after the infarction. Therefore, whenever someone is experiencing any symptoms it is important to get that person to a hospital. Tests have shown that infarction patients wait on the average up to 3 hours before they consult a physician. Many deaths could be avoided if these patients were treated immediately. In the case of a myocardial infarction, hospitalization is hardly avoidable.

To train the damaged heart and to determine the limits of its load-bearing capacity, rehabilitation is enormously important after an infarction. In addition, medications which should prevent a second infarction are administered. Nitroglycerin is the best known and most commonly used of these drugs, but it has some very unpleasant side effects such as a drop in blood pressure or the typical nitroglycerin headache. Beta-receptor blockers are the second large group of drugs used by these patients; they counteract an attack of angina pectoris by regulating the heart's oxygen demand. The side effects include a slowing of the heart rate, cramps in the bronchial muscles (therefore beta-blockers should be used only with caution by asthmatics), nausea, fatigue and sleep disorders. Calcium antagonists form the third group which also lowers the heart's oxygen demand. Adverse effects include swelling, redness of the skin, constipation and headaches. Obstruction of coronary vessels can be dissolved to some extent with the help of thrombolytic drugs. However, these drugs must be injected as quickly as possible, at the latest 12 hours after an attack. In natural treatment, reducing the risk factors is the primary concern, i.e., losing weight, stopping smoking, avoiding stress situations and sudden temperature changes. The patient is motivated to observe resting pauses and to follow a low-cholesterol, low-fat diet.

Effect of magnetic field therapy on a myocardial infarction:

promoting circulation (with vessels that are still permeable) and thus improving the oxygen supply in the isolated portion of heart muscle, for prevention and rehabilitation

Proper use of MRS: see "Angina pectoris"

- Notes on the initial reaction: none
- Forms of therapy supportive of MFT: vitamins and minerals (vitamin C, B vitamins, vitamin E, calcium, magnesium, selenium), coenzyme Q10, essential fatty acids (salmon oil, flax seed oil, evening primrose oil, borage oil, nigella seed oil), herbal remedies (gingko biloba, gotu kola, hawthorn berries, ginseng, field horsetail, alfalfa, garlic, grape seed extract, oak bark)

Scientific studies on the treatment of myocardial infarction with MFT

- J. Jerabek: "Pulsed Magnetotherapy in Czechoslovakia - A Review," Rev Environ Health, April-June 1994, pp. 127-134. - In this article, the author describes the use of MFT in Czechoslovakia. He reports that MRS has been used successfully in his country for more than 10 years in treatment of rheumatism and ischemic diseases.
- C. A. Basset: "Beneficial Effects of Electromagnetic Fields," Journal of Cell Biochem, April 1993. - This summary report shows that already more than a quarter of a million people worldwide with chronic non-healing factors have been treated successfully with MFT. In addition, the author reports on the good effect of this treatment in other diseases including myocardial infarction and apoplexy.
- E. I. Sorokina et al.: "Use of Low-Frequency Magnetic Field in the Combined Treatment of

Middle-aged and Elderly Patients with Ischemic Heart Disease and Osteochondrosis of the Cervical-thoracic Spine," Vopr Kurortol Fizioter Lech Fiz Kult 1989 (2), pp. 18-22. - In this study, the effect of low-frequency magnetic fields on coronary heart disease is discussed. The results show a definite improvement in autonomic heart regulation and prevention is ischemic heart damage.

Physician reports on the treatment of myocardial infarction MF

1. Dr. Manfred O. Eder, M.D., Anger/Bavaria

• *Patient N.K., male, 73 years old; diagnosis: this patient has a known history of myocardial infarction. Several years ago he developed recurrent edema of both legs with incipient elephantiasis and attacks of erysipelas. This year he also developed a deep vein thrombosis on the right leg, followed by repeated attacks of erysipelas with variable edema on both legs. Results of MRS therapy: the patient again feels good and has no further complaints.*

2. Dr. W. R. Maus, Natural Healing Methods, Überlingen

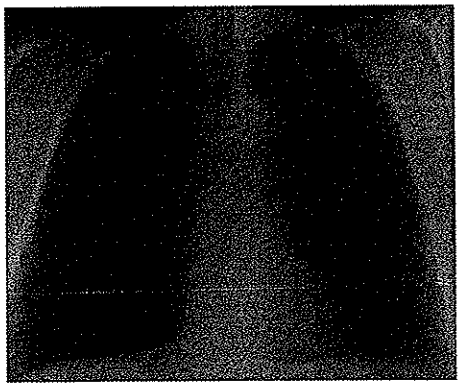
• *Patient, female; diagnosis: myocardial infarction, bypass surgery, renewed occlusion of the bypasses. Results of MRS therapy: after three weeks, the patient has experienced well-being and renewed surgery has been avoided.*

Patient reports on the treatment of myocardial infarction with MRS

1. Thanks to the company Vita-Life

• *Patient R.G., female, 59 years old; diagnosis: very poor general condition, daily headaches, back problems with pain extending into her right foot, ankle would give way uncontrollably, no longer psychologically well-balanced, restricted movement of the hands due to rheumatism. Since 1982, grapefruit-size cysts in the outer pericardium. Results of MRS therapy: her headaches have completely disappeared since using this treatment. She is psychologically more balanced again. After eight months of treatments, the cyst has regressed. Since the treatments, the patient has been able to stop taking drugs.*

Appraisal of MFT: **70 % good to very good results**



X-Ray with reconizisable heart cyst

X-Ray after 8 months with MRS ; cyst has healed

4.12. Cardiac insufficiency (heart failure)

The human heart beats approximately 90,000 times a day - that's more than 30 million beats of the heart per year. In an average lifetime of 70 years, a heart will have beaten more than two billion times. If the performance of the heart subsides in the course of the aging process or due to certain diseases, it results in a weakness of the heart muscle (cardiac insufficiency) which greatly restricts the pumping capacity of the heart. Consequently, blood from the heart congests in the minor and major circulation. In order to convey this volume of blood, the already overworked heart begins to beat even faster and

becomes enlarged. Because of its muscular weakness, the heart is pumping less blood through the body so the normal activity of the kidneys is impaired. The kidneys then attempt to produce even more blood and they withdraw less water and salt from the blood. In order to compensate for the pressure in the overfilled veins, fluid penetrates outward into the surrounding tissue. This results in an accumulation of water, called edema, which is manifested by swelling at the ankles and over the sacrum. If blood congests in the lungs, rales can be heard in breathing and shortness of breath develops due to the increased air pressure in the lungs. The liver and spleen may also become enlarged. It is typical for the swelling to subside during the night and there is a need for frequent urination.

Cardiac insufficiency usually develops due to heart damage. The causes of heart failure include: coronary heart disease, untreated high blood pressure (hypertension) which damages the heart muscle over a period of years, dysfunctional heart valves, rheumatic fever, aneurysms, arrhythmias or heart muscle diseases caused by toxins, alcohol or viruses.

For more than 200 years, cardiac insufficiency has been treated effectively with the help of red foxglove (Digitalis purpurea). Exercise, weight loss, normalization of blood pressure, a balanced low-salt diet, moderate physical activity, adequate sleep, avoiding nicotine and alcohol and regular follow-up examinations can prevent cardiac insufficiency and the resulting consequences for the heart.

Effect of magnetic field therapy on cardiac insufficiency:

supporting, promoting circulation, improving oxygen supply, calming, influencing the calcium metabolism, strengthening the heart muscle.

Proper use of MRS: see "Angina pectoris"

• Forms of therapy supportive of MFT: hawthorn, gingko biloba, coenzyme Q10.

• Notes on the initial reaction: none

Scientific studies on the treatment of cardiac insufficiency with MFT

◦ F. Petrossi: "The Effect of Combined Treatment with the Use of Magnetotherapy on the Systemic Hemodynamics of Patients with Ischemic Heart Disease and Spinal Osteochondrosis," Internet: Medline hyperlink .

◦ Z. Omura: "Basic Electrical Parameters for Safe and Effective Electrotherapeutics for Pain, Neuromuscular Skeletal Problems, and Circulatory Disturbances," Heart Disease Research Foundation, Brooklyn, 1987. In this study, a wide variety of physical therapy measures are investigated with respect to cardiovascular diseases and their effects on the body are described

Physician reports on the treatment of cardiac insufficiency with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0443/01/40 666 00

• *Patient A.A., female, 86 years old; diagnosis: this patient has been suffering from coronary heart with increasing cardiac insufficiency and severe angina complaints as well as massive circulation disorders for 10 years despite intensive treatment with medication. Third degree cardiac insufficiency (according to NYHA scale). The patient is unable to walk several steps in succession, cannot lie down flat and has shortness of breath at rest and extreme edema on her ankle and leg cramps. Results of MRS therapy: after nine weeks of regular adjuvant treatment with MRS, this patient is again capable of moving freely in her home. She can go shopping on her own again. The swelling of her ankles has improved considerably and she has less shortness of breath.*

Patient reports on the treatment of cardiac insufficiency with MRS

1. Thanks to Mr. Max Keiser and Mrs. Verena Singer

• *Patient H.F., female, Diagnosis: Cardiac insufficiency. Results of MRS therapy: "After only a few weeks, I again had more energy and more enthusiasm for life, I was able to go for walks and I am as fit as before."*

• *Patient M.K., female, 72 years old. Diagnosis: Angina pectoris, shortness of breath with exertion. Results of MRS therapy: "I cannot say that I had success immediately, but instead I initially experienced an exacerbation, e.g., pain in the area of my joints. Very soon, I had a feeling of relief in my body, I was able to breath better and I didn't have to go to the doctor so often. I feel so fit again that I am able to play ball with my dog."*

Appraisal of MFT: **60-70 % good to very good results**

4.13. Arrhythmias

Arrhythmias are a deviation from the normal steady heart beat (not due to sudden exertion). The cause is often a damaged heart (e.g., after an infarction). Hereditary heart defects, a left heart weakness, rheumatic fever, drug abuse, heavy smoking or high caffeine consumption can cause arrhythmias.

Arrhythmias are especially dangerous when they involve additional heart beats by the ventricles, so-called ventricular extrasystoles. These electric discharges may in the worse case trigger a type of short circuit in the stimulus conduction system and, if the chambers of the heart no longer contract properly and begin to flutter, this may be life-threatening. In the worst cases, this fluttering develops into atrial fibrillation. In fibrillation, the individual muscle cells of the heart contract in an uncoordinated manner and execute random movements, so the heart is unable to pump blood into the blood stream. This often occurs after a myocardial infarction, but it can also occur after an electric shock.

Anyone's heart may beat faster occasionally, but if it is beating irregularly, this may be due to an arrhythmia. A heart beating normally can hardly be perceived, but if it briefly loses the rhythm and if there is occasionally a pause or a type of misfiring, you will feel it immediately. If the heart "stumbles" frequently and over a long period of time, this is a dysfunction in the heart forming or conducting the pulses. If the ventricles contract outside the normal beating rhythm, we call this an extrasystole. If the heart beats more than 100 times a minute, this is called tachycardia. However, the heart may also beat too slowly. If it beats less than 50 times a minute, this is called bradycardia. This is completely normal in well trained athletes (physiological bradycardia). In case of disease, a slow heart beat is manifested by fatigue, inability to concentrate and attacks of dizziness. Those so affected will see black spots and feel weak. A heart beat of less than 40 beats per minute is dangerous. In most cases, such a phenomenon is based on a blockade in the stimulus conduction system.

The cases of arrhythmias can be detected with an EKG. The physician can draw inferences regarding the action currents which occur in stimulation of the heart muscle, and can thus detect any possible arrhythmias. Arrhythmias always require a medical diagnosis. These disturbances are often treated with a pacemaker. A pacemaker is a battery-operated pulse generator (clock generator) which stimulates the heart to beat in the proper rhythm and correct the disturbed sequence of beating. This electronic device is implanted near the heart.

Effect of magnetic field therapy on arrhythmias:

supporting, calming through the autonomic nervous system, influencing the calcium metabolism, direct influence on the stimulus of the heart (electromagnetic interaction).

Proper use of MRS: see "Angina pectoris"

• Forms of therapy supportive of MFT: hawthorn.

• Special notes on use: Increase the dose gradually! Use only when accompanied by a physician!

A pacemaker is a contra-indication for magnetic field therapy, i.e., one must not use a magnetic field for treatment under any circumstances. This is one of the few absolute contra-indications for magnetic field therapy. In severe arrhythmias, use of this treatment is still being disputed scientifically.

• Notes on the initial reaction: none. One exception here is an autonomic reaction on the part of the patient. This means that many patients experience anxiety and then feel a "palpitation of the heart" (their normal heart beat). This is usually due to the fact that they are completely relaxed when lying on the magnetic field mat and suddenly become aware of the beating of their own heart. This is a condition which is unusual and may cause anxiety if the patient has not previously been informed. The anxiety can then result in an accelerated heart beat, which increases the patient's discomfort.

Scientific studies on the treatment of arrhythmia with MFT

◦ F. Petrossi: "The Effect of a Low-Frequency Magnetic Field on Erythrocyte Membrane Function and on the Prostanoid Level in the Blood Plasma of Children with Parasytolic Arrhythmia," Internet: Medline hyperlink

◦ L. N. Budkar et al.: "Magnetolaser Therapy in Treatment of Ischemic Heart Disease and Heart Rhythm Disorders," Doktor Lending, 4(3), 1996, pp. 10-13.

◦ E. M. Vasil'eva et al.: "The Effect of a Low-Frequency Magnetic Field on Erythrocyte Membrane Function and on the Prostanoid Level in the Blood Plasma of Children with Parasystolic Arrhythmia," Vopr Kurortol Fizioter Lech Fiz Kult (2), March-April 1994, pp. 18-20. - This study reports on the results obtained on 23 children with parasytolic arrhythmia who experienced an improvement with MFT in both humoral and cellular processes which are involved in the regulation of the heart rhythm.

Patient reports on the treatment of arrhythmias with MRS

1. Thanks to Mr. Max Keiser and Mrs. Verena Singer

• *Patient G.H., male, diagnosis: infarction in 1969, cardiac arrest twice caused by a posterior wall infarction. Exercise EKG in February 1998 revealed arrhythmias. Results of MRS therapy: the follow-up examination in July 1998 revealed excellent results; no more arrhythmia and the blood picture is normal.*

2. Thanks to Mr. Felix Sachs

• *Patient F.S., male, 54 years old; diagnosis: aperiodic, medically unremarkable (no findings in the EKG) and undiagnosed arrhythmias manifested in an apparent "stoppage" of the heart beat lasting from 1-2 seconds. This first occurred when the patient was about 20 years old (about 3 1/2 decades previously), repeated at irregular intervals of 1-10 or 14 days up to practically everyday or night (typical reaction in chronic syndrome). Results of MRS therapy: First treatment on April 20: "About 2 hours later (after lunch) I began to experience a unique tension in the heart area with an increasing feeling of pressure which lasted about 3 hours and disappeared gradually. Renewed weaker occurrence on the following days. The heart disorders described here, however, had not yet been eliminated, but instead they occurred repeated, but at greater intervals and with a weaker intensity, for the next three months; after four months, the phenomenon seemed to have disappeared. A rare nosebleed in childhood had gradually developed to a chronic complaint after the age of 20. Practically everyday I experienced mild to occasional heavy nosebleeds on the right and left two to three times a day. I had tried everything to stop it. The MRS system at first seemed to produce no improvement over approximately half a year. Then in the fall I began to experience a definite improvement; since November, the right side of my nose has not lost a single drop of blood, and the left side is on the way to complete healing!"*

3. Thanks to the company Vita-Life

• *Patient T., male, 48 years old; diagnosis: arrhythmias. Results of MRS therapy: intense reactions in all areas in the first week, definite improvement after three days, today practically no more arrhythmias.*

• *Patient S.M., male, 37 years old; diagnosis: arrhythmias, circulation disorders. Results of MRS therapy: "After four weeks, I have the arrhythmias under control."*

Appraisal of MFT: **50-60 % good to very good results.**

4.14. Hypertension and hypotension (blood pressure problems)

Approximately 15-20 % of the population suffers from high blood pressure (hypertension), including 90 % so-called essential hypertension. The actual causes of this form of hypertension are still unknown, but it is assumed that a hereditary predisposition plays a major role. Essential hypertension is promoted by obesity, excessive salt consumption, excessive alcohol consumption, lack of exercise, elevated fat levels in the blood, stress and nicotine, especially in combination with oral contraceptives. High blood pressure is when the systolic (upper) value is more than 160 and the diastolic (lower) value is over 90 mm Hg. These values which have been established by the WHO (World Health Organization) are standardized.

Since hypertension does not have any "visible" symptoms, we often speak of it as the "silent disease." An elevated blood pressure is a causal factor in damage to the arteries and vascular walls and therefore it is partially responsible for the development of arteriosclerosis, where blood vessel in the brain, heart and kidneys are often especially affected. The inadequate circulation caused by narrowing of the vessels can be preparation for a stroke in the brain (apoplexy) or a narrowing of the heart (angina pectoris) or a myocardial infarction.

The results of blood pressure measurements can vary greatly within a short period of time. Agitation, e.g., due to visiting a doctor ("white coat phenomenon") and a person's moods have an effect on these values which should not be underestimated. Therefore, measurements should be performed frequently. In performing the measurement, it is essentially important to keep the arm horizontal and at the level of the heart and not allow the arm to hang down. Although the systolic value indicates the pressure in the beating of the heart (in contraction) the diastolic value indicates the pressure when the heart is filling. The diastolic value is always lower than the systolic. The normal blood pressure of an adult is approximately 120/80 (depending on age).

Mild cases of hypertension (up to 140/100) can be influenced in a positive manner by changes in lifestyles. In severe cases, drugs should be considered. In most cases, a physician will prescribe a diuretic or an antihypertensive drug, or a medication which has a positive influence on the blood pressure center in the brain. If this is not sufficient, a drug that enlarges the arteries will be prescribed or a combination of various medicines. A diet to reduce weight and avoiding an intake of more than five grams of salt a day are especially important. Foods with a high salt content include smoked meat, sausages, fish, nuts and pretzels. Mineral water with a high sodium content should also be avoided. However, a diet high in potassium (fruits, green vegetables, potatoes) tends to lower the blood pressure.

Hypotension or low blood pressure is manifested by fatigue on awakening, dizziness when standing up and a long warm-up time. Low blood pressure is defined as a systolic value in a women being below 100 or below 110 in a man. Hypotension is rarely treated with medication. Physical exercise (gymnastics, swimming, etc.) and an increased fluid intake (including caffeinated beverages) are simple means for counteracting low blood pressure.

Effect of magnetic field therapy on blood pressure problems:

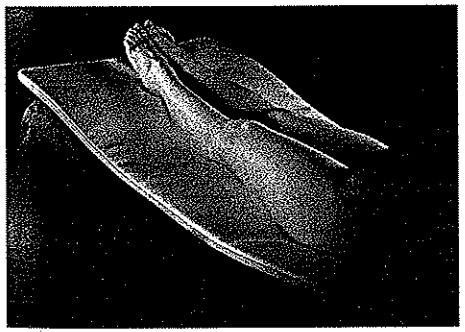
dilating the vessels (reducing the resistance and thus lowering the diastolic blood pressure reading), acidifying the vascular wall, regulating the autonomic nervous system, direct effect on pressure receptors in the area of the carotid sinus, stabilizing the blood pressure in patients with low pressure.

Proper use of MRS for blood pressure problems

- Whole-body mat: 2-3 times a day for eight minutes each time: 25 % level in the morning, 10 % level at noon, sensitive level in the evening
- Pad: twice a day for 16 minutes each time: 50 % level in neck area (up to the hairline)

cal treatment of the neck with a pad

- Forms of treatment supportive of MFT: weight reduction, low-salt diet, biofeedback, qi gong; for high blood pressure: vitamins and minerals (vitamin C, B vitamins, vitamin E, calcium, magnesium, selenium), essential fatty acids (salmon oil, flax seed oil, evening prim rose oil, borage oil, nigella seed oil), herbal remedies (hawthorn, grape seed extract)
- Special instructions on use: drink lots of fluid! For low blood pressure: elevate legs (to prevent the blood from settling and to promote the return of blood to the heart), placing a wedge pad under the treatment mat at the foot end.



Basic treatment for blood pressure problems

- Duration of treatment: Long-term treatment results will depend closely on weight reduction in obese patients. Blood pressure medicine must be taken in any case.
- Notes on the initial reaction: At the start of treatment, especially in patients with low blood pressure, there may be fluctuations, but they will disappear over the course of treatment.

Scientific studies on the treatment of blood pressure problems with MFT

- G. A. Pochechueva et al: "Effect of Running Pulse Magnetic Field on Certain Humoral Indicators and Physical Ability to Work in Patients with Neurocirculatory Hypotension and Hypertension," Biofizika 1995. - This study is concerned with the influence of pulsating magnetic fields on patients with hypertension and hypotension. These effects which have been observed and documented have shown on the average a drop in blood pressure in patients with hypertension and an increase in blood pressure and patients with hypotension. In addition, an improvement in physical endurance, general condition and concentration was observed in both groups.
- L. L. Orlov et al.: "Effect of a Running Pulse Magnetic Field on some Humoral Indices and Physical Capacity in Patients with Neurocirculatory Hypotension and Hypertension," Biofizika 41 (4), 1996, p. 944 ff. - This controlled study shows the positive effects of MFT in patients suffering from blood pressure that is either too high or too low. Patients which high blood pressure showed a definite improvement in symptoms such as headaches, chest pain, numbness of extremities, systolic and diastolic blood pressure and capacity for work.
- T. A. Kniazeva: "The Efficacy of Low-Intensity Exposures in Hypertension," Vopr. Kurortol Fizioter Lech Fiz Kult 1, 1994, p. 8-9. - This double-blind placebo-controlled study with low-frequency and low-intensity electromagnetic fields has shown that MFT can help to normalize blood pressure in patients with high blood pressure.
- S. G. Ivanov et al.: "Use of Magnetic Fields in the Treatment of Hypertensive Disease," Vopr. Kurortol Fizioter Lech Fiz Kult (3), 1993, pp. 67-69. - This placebo-controlled study found a very positive effect in the treatment of hypotension (stage 2) with pulsating magnetic fields (supportive effect in 78 %), whereas only 30 % in the control group showed an equivalent improvement.

- N. N. Bogdanov et al.: "Optimization of the Effects of Physical and Health Resort Factors in Ischemic Heart Diseases and Arterial Hypertension," Ter-Arkh 1986, pp. 108-111. This author presents the positive results when using MFT in prevention and rehabilitation of 300 patients with arterial hypertension.

- S. G. Ivanov: "The Comparative Effect of Non-drug and Drug Methods of Treating Hypertension," Ter Arkh, 65(1) 1003, p. 44f. - This double-blind, placebo-controlled study has shown that MFT is very effective in the treatment of symptoms of stage 2 hypertension patients (headaches, dizziness, etc.).

Physician reports on the treatment of blood pressure problems with MF

1. Dr. Christoph Scherer, M.D., Dr. Christian Thuile, M.D., Center for Energy Medicine, 1080 Vienna, Breitenfeldergasse 10, tel. 0443/01/40 666 00

• *Patient, female, B.B., 48 years old; diagnosis: hypotension, suffering from stress, tension and chronic fatigue. Results of MRS therapy: after the second treatment, a definite improvement was felt, lasting three days. After two months, the patient feels fresher and the initial dizziness has disappeared completely. Definite improvement in autonomic symptoms.*

• *Patient T.F., female, 56 years old; diagnosis: hypotension; blood pressure 90/55, menopausal symptoms and depression. Results of MRS therapy: her blood pressure has normalized and she is no longer depressed.*

2. Dr. Gustav Skreiner, M.D., General Practitioner, Graz

• *Patient, male; diagnosis: hypertension, autonomic dystonia, depression, circulation disorders, condition after stroke, exhaustion complaints, muscle tension. Results of MRS therapy: so far good results have been achieved.*

3. Professor Dr. P. Schwarzfischer, M.D., Specialist in Internal Medicine and Nuclear Medicine, State Sanatorium "Im Sonnefeld," Bad Wiessee

• *Patient A.W., female, 48 years old; diagnosis: arterial hypertension, condition after surgery for an aneurysm of the medial cerebral artery and a brain tumor (surgery 4 weeks previously), considerable degree of adiposity, reduced general health. Results of MRS therapy: Mrs. W. reported a tangible improvement in general condition.*

Patient reports on the treatment of blood pressure problems with MRS

1. Thanks to Mrs. Sieglinder Kapun

• *Patient S.K., male, 65 years old; diagnosis: high blood pressure, circulation disorders throughout his entire body. Results of MRS therapy: movement and sleeping difficulties greatly improved after one week. Blood pressure somewhat lower after two months, circulation disorders on the feet milder. In general, there was an improvement in movement.*

2. Thanks to Mr. Dietmar Hauser, Certified Engineer

• *Patient P.Z., male, 51 years old; diagnosis: hypertension. Results of MRS therapy: June 11: blood pressure tending to be too low at the moment (medication same as before), but headaches, sleep disorders and depression reduced or eliminated. Concomitant use of herbal remedies. July 15: blood pressure normalized with reduction in medication at the same time, while headaches, sleeping problems have disappeared (no medication being taken).*

3. Thanks to Mrs. Gabriele Friedrich

• *Patient B.E., male, 29 years old; diagnosis: high blood pressure, nervous agitation, sleep disorders, circulatory problems. Results of MRS therapy: "I felt a pleasant warmth and relaxation with the very first treatment and my headaches disappeared. I feel more balanced and calmer. My sleeping problems, circulatory problems and high blood pressure have normalized. The tension in the neck and shoulder area has disappeared, as has my joint pain."*

4. Thanks to Mrs. Franziska Engeli

• *Patient K.K., male, 50 years old; diagnosis: excessively high blood pressure (3 tablets), cystic kidney. Results of MRS therapy: blood pressure: after one year, the patient needs only 1 tablet a day, feels energetic and balanced.*

• *Patient M.K., male, 39 years old; diagnosis: excessively low blood pressure, very tired, no energy, listless. Results of MRS therapy: the patient is now more balanced, has a great deal of energy and can work with great energy and enthusiasm. Her blood pressure is good. Mrs. K has been using the MRS for 1 year.*

5. Thanks to Mrs. Karl Garber

• *Patient J.I., male, 40 years old; diagnosis: low blood pressure, severe hip pain in the left pelvic area, occasional headaches (twice a month). Results of MRS therapy: the severe hip pain has been eliminated (after about two weeks) and the blood pressure is normal (after 4 months).*

• *Patient B.I., female, 37 years old; diagnosis: low blood pressure, very severe digestive problems, menstrual problems, circulation disorders, sleeping problems (outbreaks of sweating). Results of MRS therapy: no more digestive problems since the first treatment, and her circulation disorders have improved, her sleeping problems have disappeared and her blood pressure is normal.*

6. Thanks to Mrs. Antonia Aldrian

• *Patient M.K., male, 34 years old; diagnosis: low blood pressure. Results of MRS therapy: her blood pressure has normalized, the pain in the shoulder area has greatly reduced after 1 month of treatments and the pain in the inguinal area has disappeared. The feeling of coldness in the morning is better.*

7. Thanks to Mrs. Maria Pfeifer

• *Patient A.W., female, 57 years old; diagnosis: "I had low blood pressure, approximately 95/80 and for about 25 years I had occasional severe pain when sitting or bending in the area of the cervical and lumbar spine and the right and left arms. I could not do my work, I could not lift anything heavy, I could not shovel snow. Injections and pills did not help for long and my pain returned even after a stay at a neath spa." Results of MRS therapy: "After three weeks of use, I was pain free. I did not experience any reactive pain. Now I have been using the MRS 2000 for 2 1/2 years and I am still pain free. My blood pressure rose to 125 after a week and it has remained there."*

8. Thanks to Mr. Wolfgang Gasteiner

• *Patient H.W., female, 53 years old; diagnosis: blood pressure 90/60 - 1 capsule. Results of MRS therapy: circulation in the feet optimal after the first treatment, extreme relief in climbing stairs, circulation stabilized after the first days - daily medication (1 capsule) and medication for osteoporosis and gout stopped after 14 days. After four weeks, the patient is pain free and experiencing physical well-being.*

9. Thanks to Mrs. Gabriele Kothmayer

• *Patient G.K., female, 38 years old; diagnosis: low blood pressure 90/60, circulatory complaints. Results of MRS therapy: significant improvement in backache, after one month no more headaches, and the neck area is much more relaxed and the blood pressure is relatively stable (repeated measurement: 10/70).*

10. Thanks to Mrs. Heidi Herrmann

• *Patient K.L., female, 50 years old; diagnosis: cold feet and hands due to low blood pressure. Results of MRS therapy: "I have needed much less sleep since October 1, 1998 (after three weeks of treatment). My blood pressure has normalized at 120/80. I no longer have cold hands and feet. I have more energy and feel full of 'power' despite hard emotional stress due to my family. A sore throat (influenza epidemic in October) disappeared immediately after a treatment. My varicose veins and a red scar on my right shoulder blade have faded. My beautician has confirmed that my skin has improved due to the good circulation. I can now sleep for eight hours without waking up."*

• *Patient C.K., female, 50 years old; diagnosis: high blood pressure, tension, circulatory disorders, sciatic nerve. Results of MRS therapy: definite improvement in blood pressure and circulation, less tension, patient has been able to stop medications and injections. Better general well-being.*

Appraisal of MFT: **70 % good to very good results**

4.15. Coronary heart disease (CHD)

In coronary heart disease, the heart needs more oxygen than it usually receives through the coronary arteries for the circulation through its own muscle. The poor oxygen supply is causally related to arterial sclerotic deposits which narrow the clearance in the coronary vessel. This vascular constriction in turn causes eddies to develop in the blood

stream which promote the development of blood clots which occlude the vessels. If left untreated, these occlusions become the cause of myocardial infarction, arrhythmias and cardiac insufficiency.

In western industrialized nations, coronary heart disease is the most common cause of death. It affects mainly men between the ages of 40 and 60 due to the professional and social stress, but women are being affected to a greater extent.

Four groups of drugs are available for medication of these patients: nitrates, calcium antagonists, beta-receptor blockers and platelet aggregation inhibitors. In balloon dilatation, a balloon catheter is advanced into the constricted area of the coronary artery and inflated with a high pressure in order to widen the constriction. If the existing constrictions cannot be reopened, a bypass is performed surgically (bridging the affected site). Veins from the person's own body (from the leg) are used for the small coronary vessels. The problem with a bypass is that the primary disease is progressive and even the transplanted vessels can become obstructed again. The annual occlusion rate is 2-3 %. To prevent this condition, absolute abstinence from nicotine, avoidance of obesity, hypertension and metabolic disorders and regular physical exercise is recommended.

Effect of magnetic field therapy on coronary heart disease:

promoting oxygen supply, preventing the formation of plaques (see also "Angina pectoris," "Cardiac insufficiency" and "Arrhythmias")

Proper use of MRS: physician and patient reports

see "Angina pectoris," "Cardiac insufficiency" and "Arrhythmias"

Scientific studies on the treatment of coronary heart disease with MFT

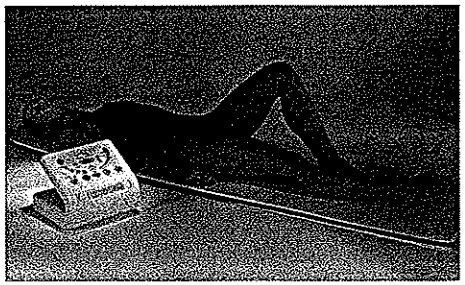
- N. N. Bogdanov et al.: "Optimization of the Effects of Physical and Health Resort Factors in Ischemic Heart Diseases and Arterial Hypertension," Ter-Arkh 1986, p. 108-111. - The author presents and discusses the results of MFT in prevention and rehabilitation in 280 patients with coronary heart disease and comes to very good combination results when using MFT together with the known drugs.

Appraisal of MFT: **65-70 % good to very good results**

4.16. Peripheral occlusive arterial disease

In peripheral occlusive arterial disease, there is continuous reduction in the clearance of arterial blood vessels. The risk factors are the same as those for coronary heart disease and stroke. Smoking plays an especially important role in the development of peripheral occlusive vascular disease.

According to Fontaine, four stages of the disease are differentiated, with I denoting the mildest stage and IV denoting the severest form (pain, tissue death). Advanced stages are characterized by inadequate circulation to tissue with a susceptibility to injury, reduced hair growth on the legs and feet and pain at rest. The first treatment measure should be to eliminate risk factors. In the advanced stage, the patient must lie down and be wrapped in warm cotton. Vasodilating medication is used for treatment. In necrotic tissue destruction (e.g., the so-called smoker's leg), amputation is often unavoidable.



Basic treatment for peripheral occlusive arterial disease

Effect of magnetic therapy on peripheral occlusive arterial disease:

promoting oxygen supply, preventing plaque from building up (see also "Angina pectoris," "Cardiac insufficiency" and "Arrhythmias")

Proper use of MRS for peripheral occlusive arterial disease

- Whole-body mat: 2-3 times a day for eight minutes each time: 100 % level in the morning, 50 % at noon, 25 % level in the evening
- Pad: once a day for 24 minutes: 150 % level, at the site of poor circulation
- Forms of therapy supportive of MFT: enzymes, herbal remedies (gingko biloba, gotu kola, grape seed extract, oak bark, field horsetail), vitamin C, vitamin E, essential fatty acids
- Notes on the initial reaction: none

Scientific studies on the treatment of peripheral occlusive vascular disease with MFT

- L. G. Vassilenko: "EHF Electromagnetic Radiation in the Treatment of Obliterating Diseases of Interior Limb Vessels," Second World Congress for Electricity and Magnetism in Biology and Medicine, June 8-13, 1997, Bologna, Italy. - This study shows a definitely positive effect on arteriosclerotic obstructions of vessels and the related symptoms.
- Additional studies: see "Circulation disorders" and the chapter "Diseases of the skin" under "Decubital ulcer"

Physician and patient reports:

see "Circulation disorders"

Appraisal of MFT: **70 % good to very good results**

4.17. Shop-window legs

Shop-window legs is a term referring to a circulation disorder of the leg arteries caused by arteriosclerosis. When the leg arteries calcify, become narrower and allow less and less blood to flow through, the amount of blood is no longer sufficient to adequately supply the legs and feet with oxygen in an active state of movement. This oxygen deficiency occurs with even the least exertion such as walking and causes severe pain. Only when the person affected allows his/her legs to rest for a while and stands still does the pain stop again because the oxygen demand at rest is met. For the observer it seems as if this person is standing to look in certain shop windows. If the disease progresses, the oxygen demand may not be covered even at rest. The toes may die and become gangrenous. Today this situation can be remedied by bypass surgery which allows a transplanted blood vessel to divert blood past the obstructed area.

Effect of magnetic field therapy on shop-window legs:

promoting circulation, see also "Circulation disorders"

Proper use of MRS, studies, physician reports and patient reports:

see "Circulation disorders"

Appraisal of MFT: **70-80 % good to very good results**

4.18. Dizziness

see chapter "Diseases of the nervous system"

4.19. Thrombophlebitis

see "Diseases of the veins"

4.20. Diseases of the veins

varicose veins, hemorrhoids, thro bophlebitis and other vein problems

4.20.1. Varicose veins

The veins are the blood vessels that bring the blood back to the heart from the various organs. They have valves in the interior which

open on the heart side, preventing the blood from flowing back. In a disease such as protrusion of veins, the venous valves may loose their ability to close and then the blood moves back and forth in that section of the vein and congests there. Since the tissue in the vicinity of the damaged vein is no longer adequately supplied with nutrients, brownish pigment spots develop on the skin, which can ultimately develop into an "open leg." If such an ulcer is on the lower leg, it is called a crural ulcer.

In varicose veins, the veins are so swollen that the venous valves no longer close properly. Consequently, more and more blood collects there, further expanding the veins. This congestion of blood can be seen as blue lines on the skin. As long as the varices are not inflamed, they do not hurt and do not cause any pain. With a great deal of movement, special gymnastic exercises and cold showers, the progression of the disease can be postponed. However, varicose veins become painful and even dangerous when they cause phlebitis, leg ulcers or thromboses. In phlebitis, the leg swells painfully, the skin turns a bluish color and bulges outward, the legs feel tired, especially at the end of the day and the skin itches at the affected location. In addition, there is a general feeling of sickness. Sometimes the ankles swell and cramps occur at night. Diseases of the veins always acquire immediate medical assistance. If varicose veins become inflamed, ointments containing horse chestnut (Aesculus hippocastanum) extract can help relieve the troublesome congestion symptoms.

Varicose veins often develop due to a hereditary weakness of the veins. Any stress such as lack of movement, an occupation standing on one's feet all day, sitting for long periods of time, especially with the legs crossed, can cause the walls of the vein to expand. Thin and damaged vein walls and a retarded blood flow due to this widening promote inflammation as well as the development of blood clots within the veins. The actual risk is of an embolism, where a clot is entrained by the blood stream into the lungs. This occlusion of a pulmonary artery can develop into an acute life-threatening event.

Today obliteration of varicose veins is a cosmetically satisfactory solution. In this procedure, a medication is injected into the varicose vein, causing the inside vascular wall to stick together, cutting off the vein. A vein can also be stripped, i.e., the diseased enlarged portion of the vessel is removed through a small incision in the skin. Compressions are another possibility for treating enlarged veins. Unfortunately, this simple and successful method is not carried out conscientiously in 50 % of the cases or it is terminated prematurely. The reason for this is that a compression dressing or support hose must be worn constantly.

In general, the formulation of the vein specialist Robert Mayer applies to treatment of varicose veins "Not SS (standing and sitting) but RL (running and lying)" are the keys to success. The burden on the veins is best relieved by elevating the legs above the level of the heart. Patients with varicose veins should never take hot baths because temperatures above 28 °C lead to a further dilatation of the veins. Magnetic field therapy can relieve the congestion symptoms and should be used as a supportive therapy. However, even magnetic field therapy cannot make varicose veins that have already become entrenched disappear.

4.20.2. Hemorrhoids

Hemorrhoids are pockets of small superficial veins inside or outside the anus. A diet containing a large amount of refined foods such as white flour and sugar promotes the development of hemorrhoids. Other reasons include a high venous pressure, liver or heart diseases or a tumor. Hemorrhoids often develop due to delaying evacuation of the bowels. If enlarged veins become inflamed, it causes intense pain. If the bowel movement is dry and hard, it irritates the inflamed veins even more. Hemorrhoids usually develop slowly. Typical of hemorrhoids is the itching, burning or weeping of the skin around the anus, possible swelling, pain with bowel movements and under some circumstances, bright red blood on the stool. If a great effort is made in evacuation, it is possible for a portion of the rectum to be pushed outward, but then slip back inside again because of its elasticity so the person does not even notice it. People who sit when doing their jobs, have a low-fiber diet and also have a hereditary weakness in the vascular walls have an especially high incidence of hemorrhoids.

Four stages are distinguished in hemorrhoidal symptoms. In the first stage, one usually does not feel any pain; in the second stage, pain occurs mainly in pushing. However, hemorrhoids usually disappear on their own and they only occasionally bleed. In this phase, treatment with creams and suppositories is still appropriate, but a causal treatment is no longer possible, i.e., the symptoms can be relieved but they cannot be cured ultimately.

Hemorrhoids of the third and fourth degree no longer retract and instead they protrude into the rectum. These hemorrhoids must be treated by a doctor. They can be obliterated or surgery can be performed. There is also the possibility of an injection that causes the veins to shrink or the use of an elastic girdle that keeps the hemorrhoids in place. Pain treatment with magnetic field therapy is possible in any stage of the disease, but the best results are obtained in stages 1 and 2.

4.20.3. Thrombophlebitis

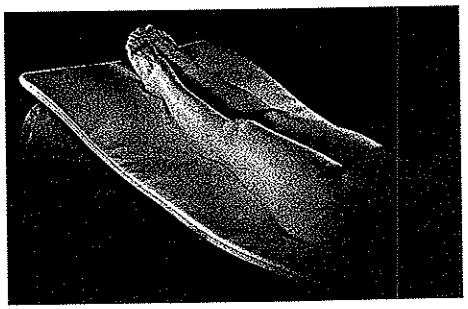
Thrombophlebitis is an inflammation of the wall of the vein with the development of a blood clot. Swelling, pain, a feeling of heaviness in the leg or in the affected region, an area of skin that is often red and hot and an extreme sensitivity to touch are characteristics of this form of phlebitis. This condition is often observed in deep veins in the legs but also in the pelvis and in the arms. If a leg is affected, the pain becomes intense when walking or when moving the foot back and forth. There are various factors which can promote this disease: among others, being bedridden for a long period of time, inactivity, a heart defect, injuries, taking birth control pills, pregnancy, sitting or standing for long periods of time, obesity, advanced age or chronic infections. In superficial thrombophlebitis, anti-inflammatory analgesics and elastic support hose for the legs are used. A deep thrombophlebitis can easily lead to a pulmonary embolism. Therefore, hospitalization and bed rest with elevation of the legs are necessary. An anticoagulant (an agent that prevents blood from clotting) is administered intravenously.

Effect of magnetic field therapy on vein problems:

Varicose veins and hemorrhoids: regulating effect through the autonomic nervous system, influence on the connective tissue of the veins (strengthening it), improving the flow properties of blood. Veins that have already protruded cannot be corrected (prevention). Effect of magnetic field therapy on thrombophlebitis: reducing swelling, counteracting inflammation

Proper use of MRS for vein problems

- Whole-body mat: 3 times a day for 16 minutes each time: 100 % in the morning (gradually increasing from 10 %), 50 % level at noon, 10 % level in the evening
- Forms of therapy supportive of MFT: enzymes, support hose, herbal remedies (oak bark, grape seed extract, gotu kola, gingko biloba), shark cartilage extract, essential fatty acids (evening prim rose oil, borage oil, flax seed oil, salmon oil), vitamin C, vitamin E.
- Special instructions on use: elevate the legs (wedge cushion at the foot end of the mat)



Whole-body treatment for vein problems

- Thrombophlebitis: Do not use MFT in the acute phase, use it only after the inflammation has subsided.
- Notes on the initial reaction: none