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Evaluation of papers and studies submitted to the III World Congress on Bio - Electro - Magnetic - Energy - Regulation conducted by the **Medical Practitioners Advisory Council of the AFB**

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Status on the 3rd June 2002

The scientific and clinical evaluation of the trials and studies was undertaken within the framework of the guidelines of **GCP (Good Clinical Practice)**. As part of the GCP standard, the clinical trial design, trial results, their analysis and their subsequent reporting have to be submitted in sufficient detail to audit the studies judiciously.

GCP Studies are assessed in accordance with the following criteria:

- Part I: Toxicological effect (on animals)
- Part II: Effects on healthy subjects
- Part III: Effects on patients (people afflicted with ailments)
- Part IV: Practical Applications - Studies and Observations

Documented BEMER trials are available with respect to all four parts.

Part I: Studies, Toxicological effects (effects on animals)

First Paper - "The Modification of Teratogen-induced effects by means of the BEMER 3000 electro magnetic field" Richard Jelinek, Prof. Dr., Faculty of Medicine, Karls University, Prague; Jiri Blaha, Dr.; Jaroslav Dbaly, Dr., Third Medical Faculty, Karl University, Prague

Objectives:

Investigation into the effect of application of the BEMER 3000 electro magnetic field pulse on the development of chicken embryos with emphasis on the sensitive, initial development phase of the embryos. The question is asked, if the BEMER 3000 electro magnetic field pulse can produce a positive effect on the development of chicken embryos that have been given the Teratogen Cyclophosphamide.

Hypothesis:

1. The electro magnetic field of the BEMER 3000 does not normally have an adverse effect on the development of the chicken embryos.
2. The electro magnetic field of the BEMER 3000 does not promote a second order damaging effect of the Teratogens (i.e. e. it does not accentuate the negative effects).
3. The BEMER 3000 electro magnetic field does have an effect on the development of the chicken embryos if administered before the introduction of the Teratogen into the embryos.

Results:

- Stimulation of the chicken embryos by means of the BEMER 3000 electromagnetic field has had no adverse influence on the development of the embryos during their most sensitive development stage.
- The stimulation of the chicken embryos with the BEMER 3000 electromagnetic field also did not induce any additional secondary adverse effects when treated with the Teratogen Cyclophosphamide.
- Above the no-effect level the pulsating electro magnetic field stimulation of the BEMER 3000 resulted in a statistically significant reduction of malformations when compared to the control group. The application of overdose threshold Teratogen levels is lethal, i.e. normally a doses of over 50 units. This implies that the application of the BEMER 3000 electro magnetic field reduces the potential for a spectrum of malformations and that, to some extent; it thus counters the effect of the Teratogen s.

Discussion:

Over the past 10 years numerous studies and trials have shown that weak, short duration, low frequency electro magnetic filed pulses can in some measure protect against the negative effects of UV light, ionized gamma radiation and the destructive effects of a variety of chemical Teratogen s. The positive effect of exposure to such an electro magnetic field is likely to be due to the induced effect of the release of the repair protein HP 70. In the present study the results indicate that similar effects are realized with the BEMER 3000 electro magnetic field pulse, so that here too one could deduce the positive effects are due to the release of the HP70 repair protein.

Second Paper -"Improved Wound Healing by means of BEMER 3000 electromagnetic field pulses combined with LED light therapy as demonstrated on standard surgical wounds such as Ovario - Ectomy on cats" Wolfgang Kafka, Prof. Dr., Maximilian Preissinger, Dr. Veterinary

Objectives:

Investigation into the clinical influence of the electro magnetic field pulse of the BEMER 3000 in combination with a pulsating monochromatic LED light source.

Results:

- The treatment of all animals with the BEMER 3000 electro magnetic field pulse resulted in an extremely shortened wound healing process.
- For all treated animals the wounds healed very well with no significant scar tissue and scab formation remaining.

Whilst the group treated only with the electro magnetic field showed occasional slight scarring, this was completely absent in the group that was subject to additional light therapy treatment.

Discussion:

The effect of the electro magnetic field pulse in combination with the light therapy could be due to a direct or indirect catalyst activation of a physical-chemical interaction.

Part II: Effects on healthy subjects

First Paper - "The effect of weak pulsed electro magnetic field treatment on indications and symptoms of delayed muscular pain: A randomized, placebo controlled clinical double blind study"
Krzysztof Spodaryk, Prof. Dr., Institute for Rehabilitation, AWF, Krakow, Poland.

Objectives:

Investigation of the influence of the BEMER 3000 electro magnetic field pulse on standardized, experimentally induced muscular pain and the related limitations of movement.

Results:

- Significant reduction of pain threshold in the trial subjects as a symptom of a delayed onset of muscular pain.
- Significant improvement in the degree of movement of the arms

Discussion:

Improved mobility of the arms could be due to the reduction of the pain threshold in the subjects, a delay in the onset of muscular pain and due to the reduction in muscular swelling usually associated with the type of standardized exercise carried out by the subjects. The reduced pain sensation could be due to metabolic processes in the muscles and / or an activation of the endogen Opiad-System of the body.

Second Paper - "Metabolism of Red Blood Particles and the Hemoglobin - Oxygen Affinity: The effect of the BEMER 3000 electro magnetic field pulse on healthy adults"
Krzysztof Spodaryk, Prof. Dr., Institute for Rehabilitation, AWF, Krakow, Poland.

Objectives:

Investigation into the influence of the BEMER 3000 electro magnetic field pulse on the metabolism of red blood particles.

Results:

- A significant increase in ATP (18%) and an increase in 2,3-DPG (10%) were observed under the influence of the BEMER 3000 electro magnetic field.

Discussion:

It is well known that highly energetic components such as ATP and 2,3-DPG in red blood particles play a leading role in the oxygenation of tissue. The significant increase of these components when the person is subject to the BEMER 3000 electromagnetic field leads to the conclusion that an increased and more effective oxygen supply takes place. Paradoxically the increase in 2,3-DPG did not influence the Hemoglobin-Oxygen affinity so that no shift in the oxygen dissociation curve could be shown. This may be due to the rather small increase in 2,3-DPG.

Third Paper - "Placebo-controlled study as to the effect of the BEMER 3000 electro magnetic field pulses on the blood circulation of the human organism"

Horst Michaelis, Director of the Academy for Bio Energetics, Liechtenstein

Objectives:

Investigation into the influence of the BEMER 3000 electro magnetic field pulse on the capillary blood volume.

Results:

- Under the influence of the BEMER 3000 electro magnetic field a significant increase in the capillary blood volume (29%) was observed when compared to the control group.

Discussion:

Under the influence of the BEMER 3000 electro magnetic field the micro vascular blood volume improved significantly. Simultaneous thermo graphic recordings by means of an infrared sensitive camera showed that the improvement in blood circulation was not limited to the area under the electro magnetic coil applicator but rather that it eventually affected the whole body. The effect of the BEMER 3000 pulse can, based on these reactions, be due to the general influence of the endothelial-controlled nitrogen monoxide system.

Part III: Effects on patients (people afflicted with ailments)

First Paper - "The reduction of anxiety in some people prior to dental examinations through the non-invasive effect of weak pulsed electro magnetic field treatment of the BEMER 3000: a clinical placebo controlled quantitative blind study"

Susanne Michels-Weikili, Dr. Dental, Wolf A Kafka, Prof. Dr.

Objectives:

Investigation of the influence of the BEMER 3000 electro magnetic field pulse on the reduction in anxiety prior to dental examinations.

Results:

- Significant reduction of the state of anxiety in dental patients when subject to the BEMER 3000 electro magnetic field treatment prior to treatment.
- Significant lowering of the systolic and diastolic blood pressure as well as a decrease in the person's heart rate was observed.

Discussion:

The reduction in anxiety could be due to the electro magnetic field's influence on the nervous system.

Second Paper - "Fibromyalgia: Multi-centric, clinical comparative study between ozone-treatment and the BEMER 3000 electro magnetic field pulse therapy" Karin Freitag Perez, Dr. Med; Nelly Albesa, Dr. Med.

Objectives:

Investigation into the influence of the BEMER 3000 electro magnetic field pulse on the medical treatment of fibromyalgia.

Results:

- A statistically significant improvement of all patients subject to the BEMER 3000 treatment when compared to the standard medical treatment and the control group was recorded.

Discussion:

Hypothesis for this disease are diverse and many. These include a Serotonin deficit, a shortage of Somatomedin C etc. Latest studies suggest anatomical-pathological changes in vascularisation.

Part IV: Practical Applications - Studies and Observations

First Paper - "Clinical Study conducted at the SzentAndras Klinik, Hungary" Maria Homoky, Dr. Med; Chief: Dept Rheumatology - Rehabilitation, Szent Andras Clinic, Hungary.

Objectives:

Investigation of the influence of the BEMER 3000 electro magnetic field pulse on degenerative diseases of the joints, degenerative changes on the spine as well as muscle pain and spasms as a result of hip- and knee joint surgery.

Results:

- Significant improvement from their initial conditions were recorded for 42 patients over the therapy duration of 16 days. Two patients experienced no change at all during the therapy and another four patients dropped out of the trials for a number of reasons.
- The BEMER 3000 treatment is strongly recommended for the Hungarian Health Industry

Discussion:

The improvements of the patients after BEMER 3000 therapy are probably due to the blood vessel dilatation effect of the electro magnetic field with a resulting improvement of the metabolism. The improvement of the inflammation effects in the joints and the resulting pain reduction can be explained in connection with the release of the HP70 repair protein.

Second Paper - "Treatment of a variety of orthopedic ailments with the BEMER 3000" Hans Hartling, Dr Med., Specialist Orthopedics.

Objectives:

Investigation into the influence of the BEMER 3000 electro magnetic field pulse on orthopedic illnesses.

Results:

- The response of 387 patients with a variety of orthopedic ailments to BEMER 3000 therapy were documented with the aid of a pain-level scale (Pain at rest, pain sensitivity to pressure, pain sensitivity to loading effects). From every value 30% were subtracted to adjust for possible placebo effect.
- After 10 days treatment 62% of the patients indicate complaint free, 18% as having experienced some improvement and 18% claim their condition is unchanged.

Discussion:

The positive effect of the electro magnetic field treatment of the BEMER 3000 is most likely due to the blood vessel dilation and a consequent improvement of the metabolism. The reduction in inflammatory and joint pains can be accorded to the release of the HSP70 repair proteins.

Third Paper -"Pre- and Post-Operative treatment of clinical patients with the BEMER 3000 electro magnetic field" Pavel Sedlacek, dr Med.; Miloslav Cerny, Dr. Med.; Jaroslav Dbaly, Dr. Med.; Third Medical Faculty, Karl University, Prague.

Objectives:

Investigation into the influence of the BEMER 3000 electro magnetic field pulse on the recovery rate of 100 surgical and gynecological patients.

Results:

- Post surgical pain, post surgical edema and wound healing was investigated.
- 88% of the patients experienced accelerated reduction of edemas, less pain and improved wound healing. 9% of the patients reported a subjective improvement of their condition. 3% of the patients stopped participating in the trials at various stages due to perceived non-improvement.

Discussion:

The effect of the BEMER 3000 electro magnetic field therapy was assessed as very effective by both patients and medical practitioners. Due to the absence of an objective measuring criteria no objective and conclusive evaluation can be given. The application of BEMER 3000 Therapy for surgical and gynecological patients as well as patients with other ailments is never the less highly recommended.

Fourth Paper -" General Practitioners User Study in connection with the BEMER 3000" Horst Michaelis, Director Academy for Bio Energetics.

Objectives:

Evaluation of health related effects of the BEMER 3000 signal in a typical Medical Practice.

Results:

- For the entire patient group, an average therapy duration of 6 weeks yielded a result of 69% complaint free, 21% improved and 10% as no change in the conditions of the group of patients under consideration.

Discussion:

The positive effect of the electro magnetic field treatment of the BEMER 3000 was achieved in a large number of diverse ailments in terms of accelerated healing process and in terms of the regeneration process. The effects are most likely due to better circulation (Michaelis), a higher energy level and improved metabolism (Spodaryk) as well as the activation of the HSP70 (Jelinek)

Fifth Paper -"Quality of the results of the BEMER 3000 Therapy - Results of a multi centric user study" Winfred E Banzer, University - Prof. Dr.; Head Of Sport Medicine Dept, Johann Wolfgang Goethe University, Frankfurt a. Main.

Objectives:

Evaluation of the quality level of the results obtained within a multi centric user study in terms of the therapeutic effects by utilizing the BEMER 3000 electro magnetic field signal in the case of different illness conditions.

Results:

- It is well known that user studies have the disadvantage that they are considered as less conclusive when compared to evidence based medicine.
- The advantage of a multi centric user study however, lies in its practicality. The evaluation process is essentially of the same quality as the expertise of the participating medical practitioners experienced in their practices.
- Validation occurs internally through competent and experienced doctors.
- The selected evaluation criteria is commensurate with the specific illness condition

Discussion:

Despite some shortcomings in the methodology, some potential placebo effects and sometimes also trial specific considerations, it is never the less not difficult to recognize the positive results achieved with the BEMER 3000 electro magnetic field therapy. If one also considers that for all the different treatments no single negative side effect was ever recorded, and that, furthermore the general regeneration effects are beyond doubt, then it stands to reason that based on current results, this type of therapy can only be recommended.

SUMMARY AND CONCLUSION (AFB)

The following statements concerning the BEMER 3000 are considered scientifically valid:

- *No adverse influence due to the electro magnetic field treatment in the normal development of chicken embryos, not even during the most sensitive developmental phase, was observed. (Jalinec)*

Conclusion:

Chickens are warm-blooded vertebrates; hence results obtained can be transferred to other living beings, especially vertebrates. Hence, it is also generally valid for human beings. This would imply that there is also no reason to consider human pregnancy as a contra indication of BEMER 3000 treatment.

- *The electro magnetic field treatment of below lethal threshold quantities of Teratogen s produces no negative side effects.*

Conclusion:

Toxic substances that have not produced any traceable effect in the organism are not activated by BEMER 3000 treatment.

- *There are fewer malformations of chicken embryos which were subjected to toxic substances due to the effect of released HSP70 repair enzymes.*

Conclusion:

The activation of HSP70 gives a reasonable explanation for the scientifically studied wound healing process (Kafka / Preissinger) and the reduction of muscular pain (Spodaryk) and wound pain (Sedlaeck)

- *Delayed treatment of muscular pain and reduced sensation of pain after anaerobic sport induced stress conditions (Spodaryk). This is due to an improved metabolism of the muscle cells and is confirmed by Spodaryk's study of the improved metabolism of the red blood particles. The reduced muscle pain can be ascribed to the repair of the muscle cells (muscle fibers are torn during training etc) by means of the HSP70 repair proteins. (Jelinec)*

Conclusion:

Metabolism processes are positively influenced through the application of BEMER 3000 therapy, which in turn explains the large number of healing effects.

- *Reduced mobility after anaerobic stress (Spodaryk)*

Conclusion:

Mobility restrictions occur as a result of swelling of muscle cells, due in turn to a shortage of ATP with a resulting effect on the sodium - potassium - ATP mechanism. The effect of the improved sodium - potassium - ATP mechanism can be directly ascribed to the BEMER 3000 electro magnetic field signal. The increased circulation (Michaelis) and the increase in ATP in the red blood particles (Spodaryk) supports this assessment.

- *Increase in circulation, including the micro circulation (Michaelis)*

Conclusion:

See summary overleaf

- ***Improvement of metabolism of red blood particles (Spodaryk)***

Conclusion:

It is well-known that highly energetic components such as ATP and 2,3-DPG in red blood particles play a leading role in the oxygenation of tissue. The significant increase of these components when the person is subject to the BEMER 3000 electromagnetic field leads to the conclusion that an increased and more effective oxygen supply takes place. Paradoxically the increase in 2,3-DPG did not influence the Hemoglobin-Oxygen affinity so that no shift in the oxygen dissociation curve could be shown. This may be due to the rather small increase in 2,3-DPG.

- ***Improved wound healing (Kafka / Preissinger / Sedlaeck)***
- ***Reduction of anxiety prior to dental examination / clinical intervention. (Michels - Waikili / Kafka)***

Conclusion:

The anxiety some people experience ahead of a dental examination can be transferred to other causes of anxiety. The BEMER 3000 appears to reduce anxiety symptoms and has a calming effect on the person by influencing the nervous system.

- ***Positive effects for a large and diverse number of indications (Studies & User applications)***

Comments on BEMER 3000 therapy, based on actual measurements and observations

- The breaking up of erythrocyte clusters results in improved blood viscosity as shown by Dark Field Microscopy (Malkomes et al)
- Relaxation effect of the nervous system with level MI (flexibility and agility of the micro capillaries) During the measurements, observation was made by means of photo plemysmography (Dikroty) and directly on the patient.
- Increase of partial oxygen pressure was shown with transcutaneous measurements

Summary:

Energy deficits, which are mainly due to oxygen starvation / shortages and poor blood circulation, are the direct cause of a surprisingly large number of illnesses, ailments and complaints. Oxygen starvation is largely the result of a number of different factors such as shallow breathing, lack of physical exercise, psychological stress, toxic contamination, environmental aspects as well as other factors.

The lack of energy also reduces the ability of the immune system to accomplish its purpose and makes the body more prone to viral infections, cancer and other diseases.

The body's energy sources are the energy rich phosphates ATP and CP (Lohmann). These phosphates cannot be stored by the body and explains why the energy status of a person depends mainly on their production rate. Under normal circumstances this production rate is not limited by the intake of food but by the ability of the tissue to absorb oxygen. An improvement in the energy status will consequently influence the degree of self-regulation of the organism and hence its state of health. All the studies above lead to the conclusion that:

Firstly, subject to the BEMER 3000 electro magnetic field signal, the circulation, oxygen supply, metabolism of the cells and their regeneration was improved. Specifically:

- Lowering of the blood pressure and heart rate (Michels Weikili / Kafka)
- Increase in ATP and the 2,3-DPG (Spodaryk). A number of effects take place: In connection with the improved blood circulation, an improvement in oxygen supply of the organs and vessels results. Potential improvement for self regulation of ATP synthesis, unproved cellular energy status, optimization of the Potassium - Sodium - ATP status as well as the metabolism.
- Reduced muscular pain after excessive exercise (Spodaryk) and a shortened period to regeneration.
- Improvement of the blood circulation specifically in the microcirculation area (Michaelis). Consequences are an improvement of the self regulation of the ATP synthesis, improvement in the cellular energy status, optimization of the potassium - sodium - ATP status, and metabolism as mentioned before.

Secondly, a significant effect of the BEMER 3000 electro magnetic field treatment is the stimulation of HSP70 repair protein production (Jelinek). This can also explain the delay in the onset of muscle sores and the subsequent reduction of muscle pain, improved wound healing as well as the regeneration of damaged cells.

In the context of the above, the studies of Banzer, Freitag-Perez, Hartling, Homoky and Michaelis, concerning the numerous successful treatments, these correlate well with the generally valid, scientifically observed effects. These can be further elucidated by the literally thousands of successful applications by many doctors and their respective case studies.

Conclusion:

The electro magnetic field of the BEMER 3000 can be used extensively to counteract the appearance of ailments and damaging environmental situations. Furthermore, it alleviates sickness and can lead to a complete recovery and maintenance of vitality and health.

Appendix

The case studies listed below are of *less scientific significance* due to limited number of patients involved and sometimes due to the methodology that has been applied. ***The case studies do however confirm some of the statements concerning the scientific findings above.***

BEMER 3000 User Study at the Center for Sports Medicine, Tarnobreg, Poland. Witol Furgal, Head of the Center for Sports Medicine, Poland.

Results:

- Fifteen patients with torn muscles and/or ligaments were treated post surgically with the BEMER Intensive Applicator. In each case the post operative edema after the removal of stitches decreased significantly faster than those in the control group. Hematomas and general pain also disappeared relatively quickly. The normal consequence of muscle atrophy was largely prevented in the treated group of patients.
- Fifteen sports persons utilized the BEMER 3000 electro magnetic field treatment after stringent training sessions. The treated patients acknowledged a faster recovery than normal, less exhaustion effects, no muscular pain and a subjective feeling of complete regeneration and recovery from the training.

Discussion:

This study makes a meaningful contribution in solidifying the findings of Kafka / Preissing concerning wound healing as well as the study by Spodaryk concerning the onset of muscular pain.

BEMER 3000 User Study with regard to regeneration effects in different types of sports after stringent performance training. Armin Dirschauer, Lecturer in Sport Physiotherapy at the Sport Hochschule, Cologne.

Results:

- Sport disciplines where the BEMER 3000 electro magnetic field was applied straight after competitions included swimming, triathlon, soccer and athletics. All BEMER treated sportspersons expressed a subjective feeling of complete regeneration when compared to the non treated control group. Objectively this could be confirmed by actually measuring consistency, elasticity, mobility and pain sensitivity of the muscles by means of a muscle functionality test.

Discussion:

The above user study confirms the result of Spodaryk's study concerning 'decrease in muscle pain'.

BEMER 3000 User Study: Influence of the insulin medication rate of diabetics when subject to the electro magnetic field of the BEMER 3000. Donata Soppelsa, dr. Med., Medical Head of the Old Age Home Pergine Valsugana (Italy)

Objective:

Investigation into the effect of the amount of insulin taken by four patients when subject to the BEMER 3000 electro magnetic field.

Results:

Three out of four patients were able to terminate their normal insulin therapy and this was replaced by an oral anti - diabetica medication. The fourth patient achieved a reduction of 80 in the amount of insulin medication previously necessary.

BEMER 3000 User Study: Evaluation of psychophysio performance levels of Old Age Home patients subject to BEMER 3000 therapy. Donata Soppelsa, dr. Med., Medical Head of the Old Age Home Pergine Valsugana (Italy)

The following criteria were evaluated:

1. To be able to bath oneself
2. To be able to dress oneself
3. To be able to use the toilet by oneself
4. To be able to move about autonomously
5. To be able to be continent
6. To be able to feed oneself

Over a period of five months (Jan - May 1999), five patients who were limited in their autonomy in terms of the criteria above to various degrees of severity, were subject to the BEMER 3000 electro magnetic field therapy. All the patients were however completely unable to perform criteria 1 to 3.

Result:

During the therapy there was a gradual improvement in the situation for all five patients. After the completion of the five months study two patients were able to comply with all six criteria and three were able to perform five of the set criteria. Hence a significant improvement in the quality of life of these patients was achieved.