

PULSATING ELECTROMAGNETIC FIELD THERAPY (PEMFT)

PEMFT has been used extensively for decades for many conditions and medical disciplines, and results can be seen in animals as well as humans. The National Institutes of Health have made PEMFT a priority for research. In fact, many PEMFT devices have already been approved by the FDA, some specifically to fuse broken bones, promote wound healing, pain, treat many inflammatory diseases such as arthritis, and even to treat depression. There are over 1600 published studies about the beneficial effects of PEMFT available in the national library of medicine.

PEMFT works to:

- Reduce pain, inflammation, the effects of stress on the body, and platelet adhesion.
- Improve energy, circulation, blood and tissue oxygenation, sleep quality, blood pressure and cholesterol levels, the uptake of nutrients, cellular detoxification and the ability to regenerate cells.
- Balance the immune system and stimulate RNA and DNA.
- Accelerate repair of bone and soft tissue.
- Relax muscles.

What is PEMFT and how does it work?

PEMFT uses electrical energy to direct a series of magnetic pulses through injured tissue, whereby each magnetic pulse induces a tiny electrical signal that stimulates cellular repair. Many studies have also demonstrated the effectiveness of PEMFT in healing soft-tissue wounds, suppressing inflammatory responses at the cell membrane level, and to alleviate pain and increase range of motion. The value of pulsating electromagnetic field therapy has been shown to cover a wide range of conditions, with well-documented trials carried out by hospitals, rheumatologists, physiotherapists and

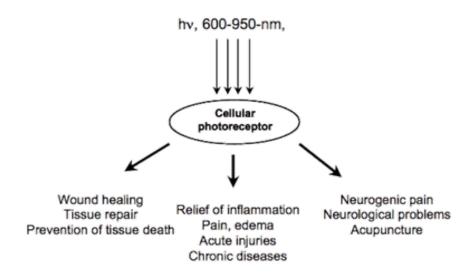
neurologists. In years past this has been a very expensive form of therapy using sophisticated equipment, but that has all changed.

PEMFTs and Magnets: What's the difference?

PEMFTs are frequency-based, applied to either the whole body or parts of the body. PEMFTs may only be needed for short periods of time, while the effects last for many hours, setting in motion cellular and whole-body changes to restore and maintain balance in metabolism and health. The body does not acclimate, or "get used to," the healthy energy signals of therapeutic PEMFTs, even if used for a long time, compared to magnets.

Stationary (or "static"), non-varying, magnetic fields from magnets have fixed strengths. They are used in mattresses, bracelets, knee wraps and the like. Most have very shallow penetration into the body, resulting in a very limited ability to affect deeper tissues, and they rarely treat all the cells of the body simultaneously.

PEMFT provides stunning regenerative effects, because these magnetic fields result in cells generating so much naturally derived energy, they are able to heal themselves. A magnetic switch turbocharges cellular energy production and reduces oxidative stress.



Magnetic fields also affect the charge of the cell membrane, which allows membrane channels to open up. These channels are like the doors and windows of a house. By opening cell channels, nutrients are better able to enter the cell, and waste is more easily eliminated from the cell. This helps to rebalance and restore optimum cell function. If you restore enough cells, they will all work more efficiently. Cells of the same type come together to make tissues, and those tissues come together to make organs. So, by restoring or maintaining cellular function, you will, in turn, restore or maintain

organ function, allowing the entire body to function better. We all know that the body ages over time. Maintaining the function of every individual cell at an optimal level every day is an important part of slowing aging.

Cellular "injury," the state of a cell when it is not healthy, leads to disease conditions. Magnetic fields protect against cell injury by improving circulation, repair processes and energy, and increasing special stress proteins in the cells. These proteins are used to prevent cell breakdown and wear and tear as well as help speed recovery from injury. Magnetic fields balance cells, tissues and bodily functions at very fundamental levels, even before damage and problems become obvious.

Pulsed magnetic devices now have FDA approval as a medical instrument in the healing of a variety of conditions including:

- Non-union bone fractures
- Muscle stimulation
- Urinary incontinence
- Depression and anxiety
- Migraine headaches
- · Post-operative pain and swelling
- Brain cancer

Cellular Effects of PEMF Therapy:

- Improves intercellular fluid & blood flow
- Stimulates the production of ATP
- Increases cellular energy levels
- · Increases cellular oxygen levels
- Promotes cellular healing
- Stimulates intercellular communication
- stimulates electron transport in cells

Biological Effects of PEMFT:

- Significant pain relief
- Accelerates tissue repair
- Accelerates cell growth
- Promotes faster healing of injuries
- Reduces fibrous tissue formation
- Reduces swelling & inflammation
- Stimulates release of endorphins

The usefulness of PEMFT has been shown in clinical usage to be systemic to all functions of the body. The treatment works by addressing the underlying cause of all disease: stagnation at the cellular level. PEMFT improves cellular metabolism through

encouraging a flow and release of cellular constipation. Bodily traffic jams are restored to an even flow of orderly transport of oxygen and nutrients to the whole system. Thus, PEMFT both detoxifies and promotes better absorption of nutrients.

Articles on PMFT

Shupak, Naomi M., Frank S. Prato, and Alex W. Thomas. "Therapeutic uses of pulsed magnetic-field exposure: a review." *URSI Radio Science Bulletin* 76.4 (2003): 9-32. http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7909506

Bassett, C. A. "Fundamental and practical aspects of therapeutic uses of pulsed electromagnetic fields (PEMFs)." *Crit Rev Biomed Eng* 17.5 (1989): 451-529. http://www.pemf.ca/assets/pemf_fx_abstracts.pdf

Man, Daniel, Boris Man, and Harvey Plosker. "The influence of permanent magnetic field therapy on wound healing in suction lipectomy patients." *Plast Reconstr Surg* 104 (1999): 2261-2266. https://www.drman.com/articles/

Boopalan, P. R. J. V. C., et al. "Pulsed electromagnetic field (PEMF) treatment for fracture healing." *Current Orthopaedic Practice* 20.4 (2009): 423-428. http://journals.lww.com/c-orthopaedicpractice/Abstract/2009/08000/
Pulsed electromagnetic field PEMF treatment for.16.aspx

Fredericks, Douglas C., et al. "Effects of pulsed electromagnetic fields on bone healing in a rabbit tibial osteotomy model." *Journal of orthopaedic trauma* 14.2 (2000): 93-100.http://journals.lww.com/jorthotrauma/Abstract/2000/02000/
Effects of Pulsed Electromagnetic Fields on Bone.4.aspx.

Inoue, Nozomu, et al. "Effect of pulsed electromagnetic fields (PEMF) on late-phase osteotomy gap healing in a canine tibial model." *Journal of orthopaedic research* 20.5 (2002): 1106-1114. http://onlinelibrary.wiley.com/doi/10.1016/S0736-0266(02)00031-1/full

Markov, Marko S. "Expanding use of pulsed electromagnetic field therapies." *Electromagnetic biology and medicine* 26.3 (2007): 257-274. https://pdfs.semanticscholar.org/5839/c65f3976a1d98de2413041cc2e7e2218afb8.pdf

Markov, Marko S. "Pulsed electromagnetic field therapy history, state of the art and future." *The Environmentalist* 27.4 (2007): 465-475. http://www.total-health-kinesiology.co.nz/wp-content/uploads/PEMFenvironmentalist.pdf

lannitti, Tommaso, et al. "Pulsed electromagnetic field therapy for management of osteoarthritis-related pain, stiffness and physical function: clinical experience in the

elderly." *Clinical interventions in aging* 8 (2013): 1289. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3791961/

Trock, David H., et al. "Pulsed Electromagnetic Fields in Osteoarthritis." *The Journal of rheumatology* 20 (1993): 3. https://ozonoterapia.ozotec.pt/wp-content/uploads/2016/12/Estudo-sobre-Magnetismo-Trock-1993.pdf

Wuschech, Heinz, et al. "Effects of PEMF on patients with osteoarthritis: Results of a prospective, placebo-controlled, double-blind study." *Bioelectromagnetics* 36.8 (2015): 576-585. http://onlinelibrary.wiley.com/doi/10.1002/bem.21942/full.

Thamsborg, G., et al. "Treatment of knee osteoarthritis with pulsed electromagnetic fields: a randomized, double-blind, placebo-controlled study." *Osteoarthritis and cartilage* 13.7 (2005): 575-581. http://www.sciencedirect.com/science/article/pii/S1063458405000609

Tan, Lijun, et al. "Low-intensity pulsed ultrasound (LIPUS) and pulsed electromagnetic field (PEMF) treatments affect degeneration of cultured articular cartilage explants." *International orthopaedics* 39.3 (2015): 549-557. https://link.springer.com/article/10.1007/s00264-014-2542-4

Vavken, Patrick, et al. "Effectiveness of pulsed electromagnetic field therapy in the management of osteoarthritis of the knee: a meta-analysis of randomized controlled trials." *Journal of rehabilitation medicine* 41.6 (2009): 406-411. http://www.ingentaconnect.com/content/mjl/sreh/2009/00000041/00000006/art00002? crawler=true&mimetype=application/pdf

Ciombor, D. McK, et al. "Modification of osteoarthritis by pulsed electromagnetic field—a morphological study." *Osteoarthritis and Cartilage* 11.6 (2003): 455-462. http://www.sciencedirect.com/science/article/pii/S1063458403000839

Tatarov, Ivan, et al. "Effect of magnetic fields on tumor growth and viability." *Comparative medicine* 61.4 (2011): 339-345. http://www.ingentaconnect.com/ content/aalas/cm/2011/00000061/00000004/art00006

Crocetti, Sara, et al. "Low intensity and frequency pulsed electromagnetic fields selectively impair breast cancer cell viability." *PLoS One* 8.9 (2013): e72944. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0072944

The information in this monograph is intended for informational purposes only, and is meant to help users better understand health concerns. Information is based on review of scientific research data, historical practice patterns, and clinical

experience. This information should not be interpreted as specific medical advice. Users should consult with a qualified healthcare provider for specific questions regarding therapies, diagnosis and/or health conditions, prior to making therapeutic decisions.

© 2017 Dr. James Odell, OMD, ND, L.Ac. All rights reserved.

For more information, visit www.brmi.online.