PEMF Science and Medical Use!

Pulsed Electro-Magnetic Field (PEMF) Therapy is non-static, unlike therapy with standard magnets, which are constant or static. To create a PEMF, an electrical current is introduced into a looped wire thereby creating a magnetic field. The electrical current is then activated and then deactivated in cycles between one time per second to thousands of times per second. The cycles and frequencies are dependant upon the unique design of any particular PEMF device.

In the main stream medical fields Pulsed Electro-Magnetic Field Therapy is utilized in the two following ways:

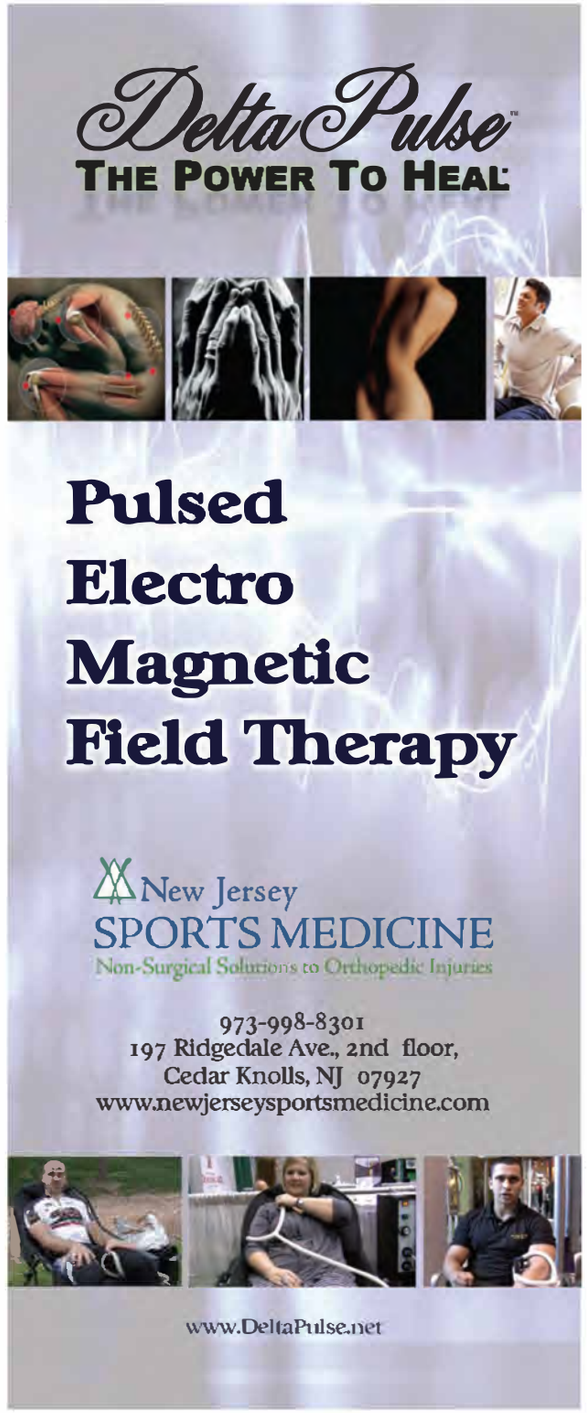
1.An specially engineered version of PEMF known as Repetitive Transcranial Magnetic Stimulation (rTMS). rTMS is designed specifically to treat the brain with low-frequency magnetic pulses. This special form of Electro-Magnetic therapy is undergoing additional studies (See page 18) and many of these studies suggest that rTMS might be beneficial for depression. It is also being studied for the treatment of Parkinson's disease, epilepsy, schizophrenia, and obsessive-compulsive disorder.

2.PEMF Therapy has been used to stimulate bone repair in non-union and other fractures since the 1970's. This is the specific use that has been registered by the FDA. Although bone has a remarkable capacity to heal from injury, in some cases the broken ends do not join: these are called "non-union" fractures.

Studies using PEMF have shown great promise for other conditions such as: healing soft-tissue wounds by suppressing inflammatory responses at the cell membrane level, alleviating pain, and increasing range of motion. Interestingly, vision has been shown to improve in some instances through PEMF, an area that is still undergoing study.

At this time, PEMF is being investigated for it's effect on osteoarthritis, stress, incontinence, migraines and a host of other conditions.

MAGNUS AGNETICA, LLC.



A Brief History of Pulsed Electro-Magnetic Field Therapy

Five hundred years ago, Paracelsus, a Swiss physician and alchemist, wondered if diseases could be treated by magnetism. He used natural lodestones as these were the best magnets available in those days. Unfortunately, since natural lodestones are quite weak the results were inconsequential and no-one paid much attention to his ideas until the discovery of carbon steel magnets in the 1700's.

During the 1800's, early pioneers of our modern technical world such as Gauss,Weber, Faraday and Maxwell made many of the discoveries relating electricity to magnetism, one of the more interesting theories being that of the "Magnetic Field Deficiency Syndrome." This idea was picked up in our century by Dr. Kyochi Nakagawa of Japan who offers this phenomenon as an explanation of bio-magnetics.

Over the last hundred years, the earth's magnetic field has weakened on average by about 6 percent and in the last thousand years it has fallen nearly 30 percent. Due to this decline in strength of our planet's magnetic field, Dr. Nakagawa suggests that there is a human health side-effect. He argues that a falling magnetic field puts us at risk since humans evolved in a magnetic field, thus it is necessary for proper health, and magnetic therapy can make up the deficit.

The areas of scientific and medical inquiry into the relationship between magnetism and human health is as complex and ripe for new discoveries as the anatomical functions and variety of components that make up the human being.

To date, there appears to be no common consensus on the mechanisms by which magnetic fields affect human health but there is ample scientific evidence that the effects are powerful and diverse.

Some of the world's most important and enduring scientific and medical breakthroughs took a long time to gain acceptance or be granted certain developmental permissions. Electro-Magnetic medicine is no exception to this rule.

For two hundred years, Electro-Magnets have been built from loops of wire powered by electricity; Nikola Tesla being the first to introduce the powers of this technology. We all know of the "Tesla Loop." Through pulsing Electro-Magnetic energy, it is possible to produce rapidly changing magnetic fields. This opens a whole new world of medical applications for as has been discovered, by changing magnetic fields, we can induce tiny electrical currents in human tissue.

As far back as 1890, the American Electro-Therapeutic Association conducted annual conferences on the therapeutic use of electricity and electrical devices by physicians on ailing patients. All the years of persistence in this field are finally coming to fruition as Pulsing Electro- Magnetic therapy is now FDA approved for non-healing human bone fractures. Powerful electro-magnets are also often used in brain and muscle research to generate currents which can stimulate nerves to trigger sensations and flex
muscles.

The interest in PEMF upon health is steadily building in medical sectors as attested to by the variety of research studies and clinical trials using Pulsed Electro-Magnetic Field Therapy. Literally thousands of such tests have been conducted internationally, including over 2,000 University level doubleblind studies using PEMF for a wide array of ailments ranging from Arthritis to Vision.

An Introduction to Pulsed Electro-Magnetic Field Therapy

Every single day people are discovering and enjoying new benefits of using PEMF (Pulsed Electro-Magnetic Field) therapy. As many people already know, the human body comes naturally equipped to repair itself. It is not the PEMF that heals the body in any way. It is the effect that the PEMF has on your body that is nonspecific, because every cell in your body is positively affected by the magnetic resonance and is empowered to perform its many functions with greater speed and efficiency. If provided with the right intracellular conditions, physical materials, enzymes, and a strong connection to Earth frequecies, almost any ailment can be easily overcome.



Basic facts you'll want to know:

1.PEMF therapy is non-invasive, physical contact with the device is not even required.

2.PEMF therapy regenerates damaged and diseased tissue, repairs torn tendons and fractured bones.

3.PEMF therapy enhances the synthesis of protein within cells, allowing the body to take advantage of all the protein available.

4.PEMF therapy improves circulation, not by increasing heartbeat or blood pressure, but by opening and dilating the arteries and capillaries.This also reduces swelling.

5.PEMF therapy increases the cellular level of oxygen absorption. Studies have shown that oxygen partial pressure can be increased by 200%. This reduces pain associated with a lack of sufficient oxygen, in cells, which often causes lactic acid buildup under strenuous exercise.

6.PEMF therapy is particularly effective in treating deep muscle soreness because of its penetration.

7.Published, scientific studies on PEMF are in abundance. PEMF has been registered by the FDA and widely used in the treatment of human nonhealing bone fractures for over three decades, and there is a growing body of literature concerning the biological and clinical effects of this technology. Recent studies using pulsed magnetic fields reminds us that in clinical studies conducted over a 22 year period, millions of patients have been safely treated with PEMF.

The 10 Most Frequently Asked Questions about High-Powered PEMF

1.I feel like I am being treated with an Electro-Stimulator or "TENS" dvice. Why do my muscles contract?
If you've ever used an Electro-Stim or "TENS" device, your first treatment on a highpowered pulsed electro-magnetic field (PEMF) device may feel very similar. An electro-stim device actually conducts electrical current through the selected area of the body. This electrical current is what causes your muscles to contract. However, because an electrical current seeks the fastest route to ground itself, this indicates that the electrical current may not adequately penetrate the specific area which requires the most amount of stimulation. A high-powered PEMF device radiates a very strong pulsed electro-magnetic field through the entire area which the magnetic loop is placed over. Thus, the nerves of all the muscle tissue lying deep beneath the magnetic loops are stimulated,

2.How are high-powered PEMF devices different than other PEMF devices on the market?
Most PEMF devices are low powered and operate anywhere from 3-40 volts, creating a very low gauss output. A gauss is the measurement of magnetic strength. Treatments with such devices can span hundreds of hours. In most cases the user does not even feel a pulse due to a lack of penetration and gauss output. A high-powered PEMF device uses between 10,000 to 15,000 volts of low current electricity and produces a high gauss output. A higher gauss output reduces treatment cycles to a fraction of the time normally required with a low powered PEMF device. Most low powered devices remain an effective treatment method and should not be overlooked as an alternative to more costly, highpowered PEMF devices.

3.What is pentration depth and is it important?
Penetration depth is a measurement of the distance that the magnetic field can effectively penetrate. Unfortunately, this number can be very misleading because most companies don't know what is truly "effective". Some companies simply make up a number so that their product looks stronger than their competitors. This can quickly lead to very exaggerated claims as companies try to outdo each other. The best way to find exactly how far a given magnet will penetrate, some basic principles need be kept in mind:

1. Magnetic fields decrease rapidly with distance. The further the distance the weaker the magnetic field.

2.The earth's magnetic field measures about ½ gauss (0.50 gauss). A basic law of physics and magnetism states that a stronger magnetic field will overpower and cancel out a weaker magnetic field. What this means is that any magnetic field that is ½ gauss (0.50 gauss) or less will be canceled out by the earth's magnetic field and have no therapeutic effect. Technically, any magnetic field stronger than ½ gauss will have a therapeutic effect.

4.What determines the efficacy of a PEMF device? To be effective, a device must create a PEMF strong enough to completely penetrate the injured area at a therapeutic level. The problem is that the strength of a PEMF dissipates rapidly with increased distance from a PEMF loop. Many times an injured area can be several inches below the skin. If a product is not properly designed, the PEMF will drop below therapeutic levels before reaching the site of injury, rendering the PEMF device less effective.

5.Other people being treated with similar injuries to mine, seemed to be less sensitive to the high-powered pluse than I was. Why was I more sensitive? Every person has a different level of sensitivity to a pulsing PEMF field. Some people are very sensitive on certain parts of their body, yet have no injury to that specific treated body part. Others have had severe injuries, yet are very receptive to higher intensity settings. Each person's own sensitivity and level of acceptable discomfort is what is most important when receiving highpowered PEMF Therapy.

6.Is more intensity better? Greater intensity (increased gauss levels) generally yields greater benefits. Deep blockages, scarring and trauma of connective tissue, ligaments, etc., may be present in the area being treated. The magnetic field radiates only so far, as the body's skin, muscles, sinew, fat, bone and muscle tissues hinder the penetration of the magnetic field.When using a high-powered PEMF device, maximum penetration can be achieved as the intensity setting and resulting gauss level is increased.

7.Should higher intensity settings ever be avoided?
Absolutely! If the head or face are to be treated, a much lower intensity should be employed. A lower intensity should be used when treating fresh injuries or recently operated areas to avoid additional tearing or aggravation of any already traumatized tissue.

8.With a relatively high increase in blood flow taking place in such a short amout of time, what physiological changes ensue during use of high-powered PEMF device? High-powered PEMF therapy accelerates vaso-dilation. In other words, the PEMF causes the body's venous system to dilate, instantly expanding the diameter of veins and capillaries. This action can cause one of two physiological events:

More blood can flow to the area being treated, which is critical to accelerating the healing process.

Around inflamed areas, vaso-dilation will helpdissipate excessive build up of blood and body fluid, thus reducing swelling and inflammation.

Vaso-dilation quickly enables many other of the body's healing mechanisms. Additionally, the scarring and trauma to muscles, connective tissues, sinew and cartilage start to break up. This provides the relief most users may experience after one or two treatments on an affected area.

9.Can a person be "over treated" with a high-powered PEMF device? Generally, the first treatment should be limited to no longer than about 6 minutes. After that, the answer is generally "no". When treating a particular area for more than about 10-12 minutes, a high-powered PEMF is no longer delivering any benefits. As the body's cells become more permeable, as a result of a PEMF treatment, toxins, which are locked away in the fat cells, are released. This is why it is very important to drink plenty of water in the hours which follow a treatment. Water helps to flush the system of these toxins. In some cases, a person receiving an extended first-time treatment may become nauseous, dizzy, etc., due to the volume of toxins being released into their system. Lowered blood pressure, resulting from vaso-dilation, may also cause dizziness.

10.How often should a body part be treated to achieve long term results? Each person's extent of pain or injury is unique. Therefore, there is no set treatment protocol for anyone or any one issue. Long-term chronic pain may require a dozen or more treatments, spread out over an extended time period. PEMF will almost always accelerate healing, however the rate of acceleration is generally related to the severity and extent of the injury. In many cases pain relief and/or increased range of motion is immediate, however these issues may return in 24 hours, in 2 days, or in 2 weeks. Pain relief from tendonitis may occur after one treatment, but returning to the activity which aggravated the condition in the first place, then more than likely, the condition or pain will quickly return.