

Pulsed ElectroMagnetic Field Technology (PEMF)

There are over 10,000 research studies on PEMF (Pulsed Electro-Magnetic Therapy) on Pubmed.com. (Go to pubmed.com and search PEMF. Also go to www.pemfinfo.com, www.pulsecenters.com and www.youneedthepulse.com).

PEMF has been proven effective for:

- 1: Pain relief by increasing endorphins
- 2: Increased energy via increasing ATP levels
- 3: Nerve and tissue degeneration
- 4: Improved Immunity
- 5: Better Oxygenation and circulation
- 6: Better sleep and Human Growth Hormone (HGH)
- 7: Relaxation and stress reduction
- 8: Builds stronger bones
- 9: Better prostate and/or bladder function

What is PEMF?

Pulsed ElectroMagnetic Field Technology generates a pulsing magnetic field that many find beneficial for supporting the body's natural healing ability.

PEMF directly affects the systems responsible for healing the body -

No healing, repair or growth takes place in the body without the signals, or electrical impulses, sent by the central and peripheral nervous systems. PEMF directly impacts the nervous systems.

PEMF has also been found to induce GABA (an inhibitory neurotransmitter that calms and relaxes) in certain parts of the brain. When the body relaxes, the parasympathetic nervous system, takes control, and the body can start to continue its natural healing ability.

The science of PEMF is based on the fact that humans are electrical beings.

Your body's cells and the surrounding fluid carry charges that permit the flow of important nutrients into and out of your cells. Voltage imbalances, either too high

or too low, can cause the cell to malfunction. Dr. Harold Saxton Burr, a professor at Yale University, School of Medicine, discovered that cell voltage imbalances preceded the onset of disease.

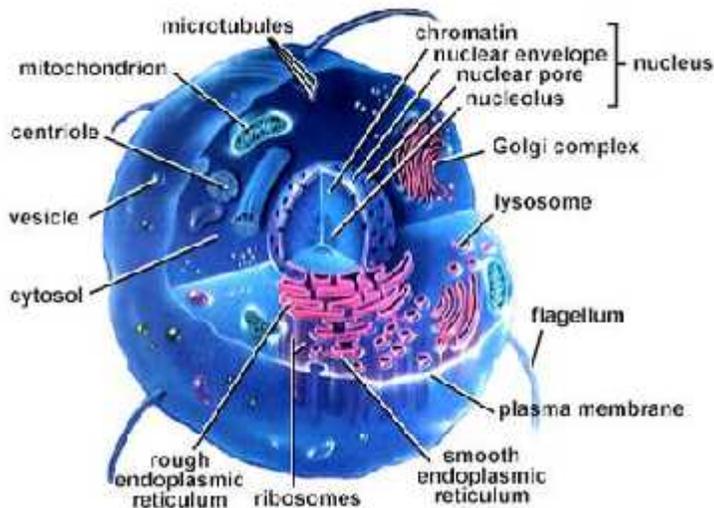
Cellular Circuit:

A cell can be thought of as a circuit made up of capacitors and resistors. The cells' membrane and those of its organelles, such as the nucleus, act like capacitors. The briny liquid encased within the membranes, the cytosol and nucleoplasm, is conductive and so can be modeled as resistors.

PEMF works to level the playing field. Studies using PEMF show this technology may normalize the cells potential and stimulate repair response.

Check out these websites and watch the videos...

www.youneedthepulse.com and www.pulsecenters.com



All energy is electromagnetic in nature, and nothing happens in the body without an electromagnetic exchange between cells. We are all familiar with the electrocardiogram (EKG) and electroencephalograph (EEG) tests, which measure the electromagnetic activity of the heart and brain, respectively. When electromagnetic activity ceases, life ceases. Electromagnetic energy controls our chemistry. Disruption of this energy in cells causes impaired cell metabolism, and if our cells are not healthy, our body is not healthy, in whole or in part. The following is an introduction to magnetic fields, PEMFs, and their therapeutic actions in the body.

What is an electromagnetic field? What are PEMFs?

If you have ever held two magnets in your hands, tried to force them together, and felt a resistance between them, then you have experienced a magnetic field. The Earth has its own magnetic field, produced by fluxes in the molten

metal in the core of the planet. The presence of this field is what causes a compass to rotate so that the 'north pole' of the compass points roughly north. A changing magnetic field (such as a magnetic field moving through a coil) generates an electric field (which would drive a current in the coil). This forms the basis for many electrical generators and motors. Similar to the way that a changing magnetic field can generate an electric field, a changing electric field generates a magnetic field. This is a natural activity of the universe. An electromagnetic field is a physical field produced by moving electrical charges. It affects the behavior of any other charged objects in the vicinity of the field.

PEMF stands for Pulsed ElectroMagnetic Fields, which are widely used these days to improve circulation and cell metabolism. The body can become accustomed to nonmoving (or static) magnetic fields, which are generally unable to deeply penetrate the body. A pulsed electromagnetic field, however, is quite dynamic, is able to penetrate all the way through the body, and creates a cascade of effects within the body.

It is important to distinguish between the electromagnetic fields we use for therapeutic purposes, and other man-made electromagnetic fields from power lines, microwave ovens, cell phones, etc., which can cause damage to our bodies. The PEMF devices we recommend all produce safe, natural electromagnetic fields which are of lower frequency, and are complementary to the chemistry and functions of the body.

How can electromagnetic fields have an effect on my body?

As we now understand, an electromagnetic field affects the behavior of anything with charge in the vicinity of the field. Our bodies are electric – every heartbeat generates electromagnetic waves throughout the blood vessels of the body, stimulating tissues at a cellular level. External magnetic fields and the normal electric and electromagnetic fields produced by the body interact. So, a magnetic field passing through our whole body will have an electromagnetic effect on each of our 70 trillion cells. As a result, magnetic fields act in basic and fundamental ways on molecules and tissues. They affect the most basic functions of all cells—human, animal, and plant included.

What are some basic cell functions, and how do magnetic fields facilitate them?

Some of the basic actions of a cell are to generate energy to eliminate waste, to repair and regenerate itself, and perform its predetermined functions based on the cell's type and location in the body. Magnetic fields cause or increase motion of ions and electrolytes in the tissues and fluids of the body. It's both easy and quick to move an ion or electrolyte in a living organism using magnetic fields. This movement stimulates a vast array of chemical and electric actions in the tissues of the body, helping them to rebalance or heal themselves where necessary.

All cells need energy to function. Cellular energy requires ATP (Adenosine Triphosphate) and is fundamental to all cell and body functions and is necessary to sustain life itself. ATP regulates cell metabolism by transporting chemical energy within our cells. Low ATP levels cause our cells to be sick, and decreases their ability to heal, regenerate, or function properly. Through the increased motion of ions and electrolytes, magnetic fields help cells increase their energy (or "charge") by up to 500%.

Why do I need treatment at a cellular level?

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.

Can PEMF therapy protect me from future illnesses?

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 to you.

I thought magnetic fields were bad for me.

There are distinct differences in the effects of devices at various frequency ranges, from extremely low frequencies (ELFs), to very low frequencies (VLFs), to microwave level frequencies, radio frequencies, infrared and ultraviolet frequencies, and more. Most magnetic field exposure risk comes from power lines and cell phones, because of their particular exposure times or field strengths and frequencies. These frequencies and intensities, known as ‘electro-smog’, can induce heat in the tissues of the body and modify genes, and therefore can damage cells. Most PEMF devices we recommend produce frequencies in the ELF to VLF range, since they do not induce heating actions. They in fact form a great defense mechanism against magnetic field deficiency caused by electro-smog. The home-based devices we promote have carefully selected frequencies which are most natural and balancing to the body. Our recommended treatment devices have a very safe track record – even the much higher intensity and frequency diagnostic MRI machines have been found to be safe to the people that operate them daily, as long as the safety directions are followed.

Can I overdose on a magnetic field?

Low frequency, low intensity magnetic fields have minimal effect on healthy cells. In healthy cells, these magnetic fields seem to be ignored. A cell cannot make more energy than it is capable of. In other words, it cannot be “overcharged” with PEMFs. Only unhealthy or unbalanced cells need and use the extra energy from therapeutic PEMFs to get better.

How quickly will my illness or health issue improve?

Minor imbalances in individual cells can be rebalanced very easily before they become an obvious problem. Regrettably, many people wait until they have a significant health issue before they seek treatment with a PEMF system or get a magnetic system for their own home use. By this time, some problems have become too deep-seated to reverse, and only symptom control remains possible. It is important to say that PEMFs are not expected to cure disease. Their role is to stimulate the various functions of the body so that the body can better support and heal itself. Understanding the extent of a health problem will help the individual to have realistic expectations of the time required to produce expected or desired results. If the problem took a long time to get to where it is now, PEMFs may take a long time to give the greatest benefit – and may never produce hoped-for results if the damage is too great. That doesn't mean they won't work, and it doesn't mean you won't get significant health benefits. We need to respect the body's healing timelines and processes, and work positively with them. When treatment is begun, the order of healing will follow the body's own wisdom of what tissue and symptoms will be cleared first, second, etc. Patience and acceptance of this natural order will aid in the healing process.

Will magnetic fields replace my medication?

While PEMFs will not cure diabetes, heart disease, arthritis, or cancer, they still can make a huge improvement in overall function and symptom relief, and can be used alongside other treatments, including medication, for even better results. In many cases, PEMFs can be used to replace or reduce pain medications and other anti-inflammatories, but they should not be depended on as the primary treatment without discussion with an appropriate health care professional. They can become a primary treatment once a proper diagnosis and treatment plan are developed and the need for medication is reduced or eliminated.

How often should I do treatments? Daily, or only as problems arise?

Magnetic fields selected for treatment simultaneously provide health maintenance, not just treatment. PEMFs used in the home daily would be an important part of any prevention or health maintenance program, in addition to any treatment program. Magnetic therapies are usually complementary to other therapies, and they usually enhance each other's benefits.

What can I do to improve the effects of PEMFs in my body?

Since most of the effects of magnetic fields happen because of how they act on ions, especially calcium, sodium, potassium, and magnesium, these ions and electrolytes need to be at the right levels in the body. It is difficult to heal depleted tissues without sound nutrition. Supplements may also be quite helpful for magnetic therapy to be most effective. Additionally, some individuals (particularly women) need extra melatonin to optimize health while using PEMFs.

What are some of the basic beneficial actions PEMFs will have in my body?

Increased Circulation

One of the most basic functions magnetic fields have in the body is to increase circulation. When a cell (such as a red blood cell) is injured or ill, it does not hold its ideal charge. This causes red cells to "stick" together, making circulation slow. When a magnetic field passes through the red cell, the membrane becomes

properly charged, allowing the cell to repel itself and keep itself separate from other red cells, thereby increasing circulation. In addition, PEMFs increase various chemicals in the blood vessel walls that cause the blood vessels to dilate, improving the amount of blood flowing through the vessels and therefore increasing the amount of oxygen delivered to the tissues.

Poor circulation makes tissues unhealthy and prone to disease and breakdown. Improved circulation helps tissues get the nutrition and oxygen they need, while expelling the waste they produce. Good circulation helps with tissue healing and regeneration. The result of improved circulation is the reduction of swelling and the removal of bruising.

Enhanced Muscle Function

Muscle energy, needed for muscles to work, is developed through a process called Myosin Phosphorylation. Myosin is muscle, and phosphorylation is energy (ATP) production. Optimal energy allows muscles to work harder and longer, and recover more quickly from their work. Muscles that are contracted or in spasm are better able to relax, decreasing tension and reducing the pain caused by spasm.

Decreased Inflammation

Inflammation is a cascade of physiologic processes initiated by the body to repair cellular damage in tissues by increasing the blood flow to the damaged area and increasing the number of good inflammatory cells. The process of inflammation is generated and supported by the interaction of a number of immune cell types, with other cell types (like T cells) playing a regulatory role in the cascade effect. Inflammation is a necessary and beneficial process, but it often persists longer than necessary, resulting in chronic inflammation. Chronic inflammation is frequently a cause of chronic pain. PEMFs have been found to reduce chronic, damaging inflammation. Inflammation can be initiated by many causes, and knowing the nature of the cause is important in designing therapeutic approaches.

T cells are a major regulator of the inflammatory cascade. In bacterial infections, early infiltration of the affected tissues by white blood cells is followed by the arrival of T cells, which kill bacteria. In this circumstance, eliminating of T cells can delay or stop healing. Conversely, in trauma-induced injury, T cells are less important to the healing process, and may be harmful if present for too long. In this case, elimination of T cells can minimize the unwanted effects of inflammation, accelerate healing, and reduce the risk of chronic inflammatory diseases. In chronic inflammatory diseases such as rheumatoid arthritis, psoriasis, or tendinitis, T cells support the persistence of the disease state, and removing them would be favorable.

Research shows us that PEMFs can induce the appropriate death of aged, chronic T lymphocytes, by actions on T cell membranes and key enzymes in cells. For example, PEMFs affect ion flow through specific cell membrane channels (like those for sodium, potassium, and calcium), which positively affect these enzymes.

Stress Reduction

Stress is part of being human. Normal stress, called eustress, is necessary for survival. Too much stress is very harmful to the body, and accelerates aging. Stress is responsible for at least 65% of our illnesses, so stress reduction is necessary for all of us. Stress-reducing activities performed only now and then will allow too much stress-related damage to accumulate over time. Therefore, stress reduction must be a daily activity. Magnetic fields have many stress-reducing effects. Daily use of PEMFs help to wash away the negative effect natural stresses have on our bodies.

Bone Healing

Magnetic fields pass through the body – even the bones – as if the body wasn't even there. PEMFs work to repair bones, whether they are damaged by surgery, injury, or disease, and have been found to improve bone regeneration such as occurs with osteoporosis and osteopenia, among other bone destroying conditions.

Blood Oxygenation

Just as a fire cannot burn without oxygen, our cells cannot produce heat and energy without oxygen. Our lungs extract oxygen from the air we breathe. It passes into our blood and is carried by arteries away from the heart and delivered to the rest of the body, including all the organs. PEMFs help with the process of extracting oxygen out of the air we breathe and help it to be transported into the circulation. The absorbed oxygen is then transported through the body to all the cells, where it is absorbed into the individual cells. In the cells, enzymes and other basic cell energy production processes use the oxygen for cell metabolism, the energy necessary to function properly. The metabolism of an organism determines which substances it will find nutritious and which it will find harmful. Proper blood-oxygen levels at the cell level (not just in the blood) allow this process to continue quickly and efficiently. After the oxygen exchange takes place, veins carry deoxygenated blood and metabolic waste products away from those same cells and back to the heart for recycling again.

The purpose of this document is to provide a basic understanding of how magnetic fields, especially PEMFs, work in the body. In addition to these basic balancing actions, magnetic fields also help with many other functions and conditions, and new ones are discovered regularly. Some of these other actions include:

- reducing muscle tension
- improving tissue healing
- reducing pain/arthritis
- increasing energy
- improving clotting factors
- slowing the development of arthritis
- stimulating the immune system
- helping the body to detoxify
- improving the uptake of nutrients
- reducing blood pressure
- helping nerve function
- helping heart function
- helping liver function
- balancing the acupuncture meridians
- improving sleep
- making soft tissue more flexible

