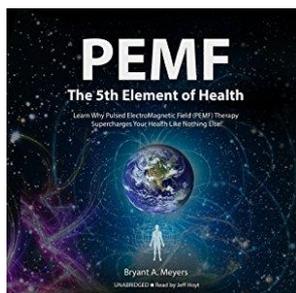


10 Ways PEMF Helps the Body to Heal – Bryant Meyers

"Healing energy", whether produced by a medical device or projected from the human body, is energy of a particular frequency or set of frequencies that stimulates the repair of one or



In 1933 Harold Saxton Burr PHD, discovered that measurable imbalances in the electrical field of an organ precedes the onset of pathology. He also stated, "if the electrical imbalance is corrected, the disease does not manifest."

PEMF is well researched.

Over 30,000 studies since late 70's & over 2,500 University double-blind studies

Approved (FDA) uses for PEMF

- Chronic non-malignant pain relief
- Post-operative pain and edema
- Bone growth/regeneration:
 - faster healing of delayed non-union fractures
 - clients with diabetes and vascular issues
- Depression – if anti-depressants ineffective
- Adjunct to cervical fusion surgery
- Brain cancer 2011

- Enhanced tissue repair (NASA) 2009
- Stimulate growth stem cells (NASA adjunct)

FDA approved for several conditions (a few listed to the right)

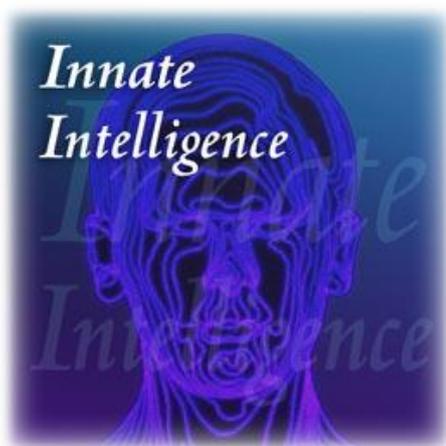
We are going to take a more energetic and holistic look at how PEMF works. Once you TRULY understand the basic mechanism you will see WHY it DOES help with A-Z health issues, but not in a curative way. It's more in an energetic and fundamental way of giving the body more energy so that it can heal itself by achieving homeostasis.

How is it that the iMRS or PEMF in general can help with all the 284 conditions in the iMRS iGUIDE? We can boil it down to 10 Main Fundamental Actions that PEMF therapy has on the body... These actions *stimulate the body to heal, repair, and regenerate itself from nearly every health condition.*

PEMF works Not as a cure, **but as a helper, assistant and catalyst to stimulate the body's innate intelligence to heal itself.**

Whenever PEMFs are healing the body it is working through these 10 fundamental actions.

We need to correct the fundamental functions of the body that became impaired and resulted in disease or injury AND HELP/SUPPORT the body's ability to heal itself. The body, organs, tissues and cells have an innate intelligence or BLUEPRINT of health. The body KNOWS how to heal itself, but sometimes despite its best efforts it just gets stuck or it literally doesn't have the energy or voltage it needs.



PEMF is perhaps one of the best tools because it fundamentally gives the cells the energy they need PLUS more. PEMF has research proven benefits on most or all of these fundamental actions.

- 1) [**Increase Prana/Chi Flow**] Acupuncture/Nerves and Nerve conductivity/Living Matrix
 - 2) [**Production Energy**] ATP and Mitochondria/TMP/Energy/Enzyme Activity
 - 3) [**Improved Microcirculation**] Heart/Circulation/Anti-coagulant Effects (blood thinning naturally)/Nitric Oxide/Anti-Oedema/Red Blood Cells/Oxygenation/Water. (transfer of nutrients and oxygen)
 - 4) [**Detoxification**] Protection from environment. Elimination of waste, toxins and dead skin cells
 - 5) [**Improved Immunity**] Immunology, Antibacterial, Antibiotic and Antiviral, anticancer.
 - 6) [**Endorphins and Pain Relief and better mobility**] Anti-Inflammatory/Pain
 - 7) [**Healing and Regeneration**] **Stem Cell Stimulation and Regeneration**
 - 8) [**Stress Reduction, Anxiety & Depression**] Psychological and Cognitive Function/Stress/Anti-spasm/Relaxation
 - 9) [**Better Sleep/Hormones**] Circadian Rhythms/Better Sleep/Melatonin/HGH
 - 10) **Bio-Regulation and Cell to Cell Communication**
- [**PEMF Makes All the Elements Work Better**] - PEMF is Integrative Medicine

** Also Bone Health and Converse Piezoelectric Effect

How is it that the iMRS or PEMF in general can help these 284 conditions?

Well, we can boil it down to 10 Main Fundamental Actions that PEMF therapy has on the body... These actions stimulate the body to heal, repair, and regenerate itself from nearly every health condition. Not as a cure, **but as a helper, assistant and catalyst to stimulates the body's innate intelligence.**

TEN Fundamental Ways that PEMFs Helps/Support/Assists the Body to Heal Itself

Because PEMFs work at basic levels of the body, they can be used to stimulate the body's ability to heal itself of almost any illness, imbalance or disease whether it's chronic or acute.

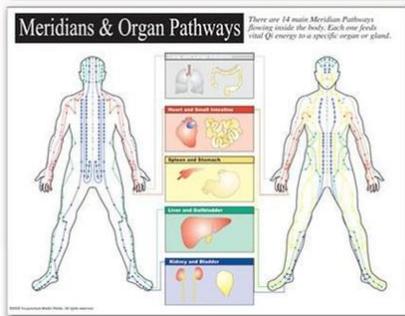
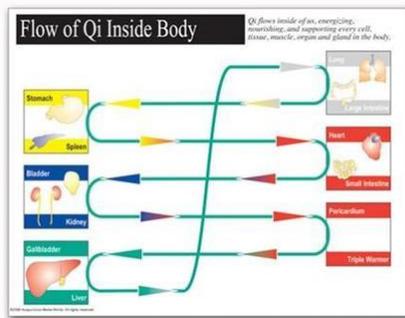
- 1) [**Increase Prana/Chi Flow**] Acupuncture/Nerves and Nerve conductivity/Living Matrix
There are 10's of thousands of scientific articles on acupuncture on the biological actions and clinical benefits of acupuncture.
Acupuncture points have electrical characteristics, which means they are susceptible to both electrical and magnetic stimulation. The primary mechanism is that of Qi or Chi, also called life energy flow, with the meridians being the paths that this energy flows through. Acupuncture points lie along the meridians and have shown corresponding electrical conductivity. Stimulating these acupuncture points with PEMFs can improve the flow of charge, clearing out any blockages.

When whole body PEMF therapy is used, all the acupuncture points and meridians in the body will be stimulated at the same time, creating a balance of the meridian system and an improved flow of Qi or Chi.

There is research to support for example, an improvement in benefit of PEMFs over acupuncture stimulation for muscle recovery after exercise.
Another study compared Acupuncture to PEMF to laser therapy.

And another important point, PEMFs penetrate deeper than acupuncture. This is why I sometimes call PEMF needle-less WHOLE BODY acupuncture.

2) [Production Energy] ATP and Mitochondria/TMP/Energy/Enzyme Activity
PEMF helps in both directions to release energy from ATP->ADP and also ATP synthesis ADP-> ATP\



1) ATP->ADP

ATP needs to be broken down in ADP to release the stored energy. This process is called ATP hydrolysis and the enzyme that performs the task is ATP-ase. PEMF has been research proven to enhance ATP-ase activity/. PEMF helps to directly increase the release of energy from ATP-ADP via ATP-ase (enhancing ATP hydrolysis).

Important to our consideration of energy medicine is the fact that ATP synthesis by mitochondria is increased by exposure to weak pulsating magnetic fields that are delivered within certain biological windows. Pulsating magnetic fields do this by increasing ATPase activity.

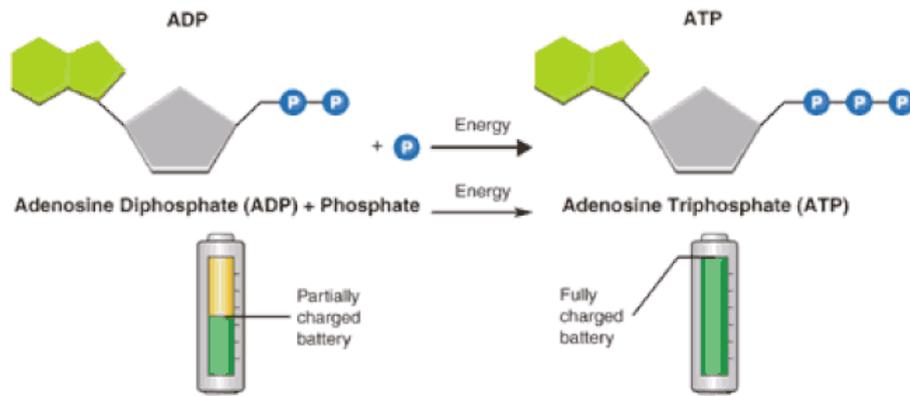
Blank M. Electric and magnetic field signal transduction in the membrane Na-K ATPase. Adv Chem 1995b; 250: 339–348.

Bbbb Lednev, V. V., & Malyshev, S. L. (2001). Effects of weak combined magnetic fields on actin-activated ATPase activity of skeletal myosin. In Abstract Collection of the Bio-electromagnetics Society Annual Meeting. St Paul, Minnesota, USA, p. 3–4.

2) ADP-> ATP

PEMF stimulation has been shown to improve mitochondrial function and ATP synthesis in a variety of studies. Oxidative phosphorylation is the process in which ATP is formed as a result of the transfer of electrons from NADH or FADH 2 to O 2 by a series of electron carriers. This process, which takes place in mitochondria, is the major source of ATP in aerobic organisms. Because PEMFs increase microcirculation, it assists in delivering the glucose, co-enzymes, minerals and oxygen needed in the complex process of ATP production. But you can think of it simply as RECHARGING the ATP battery.

ATP synthesis is also increased by electro- magnetic signalling of the cell membrane to open the ion pumps. The increased ATP synthesis continues for a time even after the ion pumps become inactive. (Dertinger/52)



Everything in Your Body Needs Energy!

- 1) Movement - self initiated change in position, motion of internal parts
- 2) Responsiveness (irritability) - Ability to sense

changes within, or around the organism and react to them

- 3) Growth - increase in body size
- 4) Reproduction - Parents produce offspring / producing new individuals
- 5) Respiration - Obtaining oxygen (O₂), using it to release energy from food substances, and getting rid of wastes
- 6) Digestion - Chemically changing (breaking down) food substances, and getting rid of wastes
- 7) Absorption - Passage of Digested products (food substances) through membranes and into body fluids
- 8) Circulation - Movement of substances throughout the body
- 9) Assimilation - Changing absorbed substances into chemically different substances
- 10) Excretion - Removal of wastes
- 11) Immunity / Protection

3) **[Improved Circulation/Microcirculation]** Heart/Circulation/Anti-coagulant Effects (blood thinning naturally)/Nitric Oxide/Anti-Oedema/Red Blood Cells/Oxygenation/Water. (transfer of nutrients and oxygen)

Three Ways How PEMF helps circulation and microcirculation:

Three Components - Vessels/Tubes, Red Blood Cells, Plasma/water

- 1) Increasing Nitric Oxide/Vasodilation (WIDENS VESSELS)
 - 2) Improving RBC (Red Blood Cell) Voltage/ Reducing Rouleaux (MAKES BLOOD MORE ENERGETIC AND LESS VISCOUS = RBC Effect)
 - 3) Lowers Viscosity of Water/Plasma/Blood/Lymph
- ALL THIS COMBINED Enhances Oxygen and Nutrient transport AND elimination waste

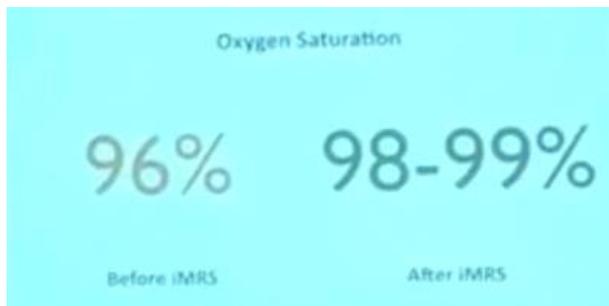
Improving circulation is considered one of THE most essential mechanisms of the healing effects of PEMF!

- Delivers Nutrients
- Increases Oxygenation
- Improves Cellular Hydration
- Boosts the Immune System

- Eliminating waste

NET EFFECT - INCREASES CELLULAR ENERGY!!

Oxygenation - Another Powerful Indicator of Enhanced Circulation

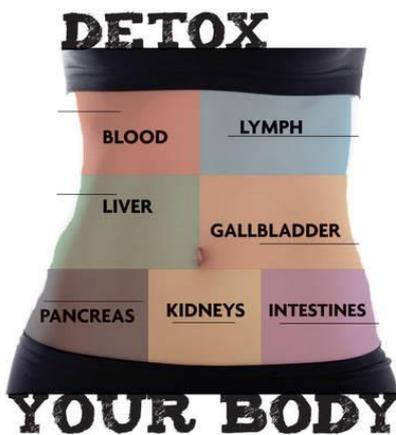


Low Oxygen levels cause cell injury, with the degrees of and lengths of time tissues are oxygen deficient determining the degree of damage. Almost ALL cellular functions depend on an adequate supply of oxygen.

PEMFs can significantly increase oxygen levels in tissues by improving circulation, helping the body transfer oxygen from the air into the lungs

and blood, affecting the ability of hemoglobin to carry oxygen, and helping the oxygen in hemoglobin to transfer into the tissues.

**One study focused on the effect magnetic fields have on the gas transport function of blood during oxygen deprivation. They found that PEMF therapy changed the shape of the hemoglobin molecule from a form that was less reactive to oxygen to a form that was more reactive, positively influencing the gas transport function.



4) **Detoxification.** protection from environment. Elimination of waste, toxins and dead skin cells

Detoxification is INTERNAL cleanliness (vs External cleanliness)

We are bombarded with toxins in our food, water, air and even energetically in unhealthy light and electro-smog.

Detoxification is what your body does naturally to neutralize, transform and get rid of unwanted toxins.

A large percentage of molecules made by our bodies every day are for getting rid of waste products. We need hundreds of enzymes, vitamins and other molecules to accomplish this.

The detox work is done by the liver, intestinal tract, kidneys, lungs, lymphatic system and skin. Our liver is perhaps the MAIN detox organ. Amongst many other duties the liver acts a filter for toxins and bacteria in the blood and chemically and energetically neutralizes these toxins (via enzymes and complex mechanisms**), converting them into substances that can go back in the bloodstream/lymph and be eliminated by the kidneys.

PEMF can improve liver, bowel, kidney and skin functioning by energising to these organs of elimination so the body can achieve and maintain INTERNAL cleanliness.

Besides enhancing Liver function, PEMF helps to open all the 4 main detoxification



pathways; 1- the Lungs - CO₂,
2 - Skin - we lose several pounds of waste every day, 3
– Kidneys, 4 - Colon - Removes blocks, stimulates peristalsis.
PEMF also enhances lymphatic circulation which is important because one of the roles of the lymph is acting as the body's sewage system.

5) [Improved Immunity] Immunology, Antibacterial, Antibiotic and Antiviral, anticancer.

Main Benefits to Immunity stem from

1. Improved circulation, microcirculation of blood and lymph via NO release, lower viscosity, increased cell charge, etc.
2. Increased cellular voltage
3. Improved Oxygenation (pathogens HATE oxygen)
4. Improved SLEEP - the body heals and repairs during sleep
5. Enhanced Cell to Cell communication
6. Improves Inflammation response (and turns it off when finished)



The body's immune response to disease, especially infection, requires nitric oxide for a variety of reasons, mainly because of its role in circulation and lymphatic flow and drainage. When the lymph is flowing it is like your soldiers are walking on land instead of wading through the mud.

More directly PEMFs energize ALL the cells in your body INCLUDING ALL immune cells, protect barriers and the inflammation response ALL of which of course require energy to fight infection. PLUS, by opening all blood, lymph, nerve and meridian pathways, PEMF helps to improve cell to cell communication.

Innate immune system

1. Surface barriers
2. Inflammation
3. Complement system
4. Cellular barriers
5. Natural killer cells

Adaptive immune system**

1. Lymphocytes
2. Killer T cells
3. Helper T cells
4. Gamma delta T cells
5. B lymphocytes and antibodies
6. Alternative adaptive immune system

**The adaptive immune response is antigen-specific and requires the recognition of specific

"non-self" antigens during a process called antigen presentation. Antigen specificity allows for the generation of responses that are tailored to specific pathogens or pathogen-infected cells. The ability to mount these tailored responses is maintained in the body by "memory cells". Should a pathogen infect the body more than once, these specific memory cells are used to quickly eliminate it.

6) [Endorphins and Pain Relief and better mobility] Anti-Inflammatory/Pain

Pain management is one of the most common applications for PEMFs. Whether the pain is acute or chronic, inflammatory or vascular, musculoskeletal or in the nervous system, PEMFs act in fundamental ways to help with both pain perception (pain blocking) and the cause of the pain itself (pain reduction).

PEMF therapy helps with pain relief in three, powerful ways:

1) PEMF therapy increases endorphins, serotonin, and other hormones help to relieve pain.



How does this work? Let's begin with endorphins, the "feel-good" or "happiness" hormones. Endorphins are your body's natural opiates. Your body makes opiates; you don't have to take morphine, oxycodone, Percocet or Vicodin. There are ways to naturally stimulate endorphins in your body. PEMF therapy is one of those ways, and there's research to prove that.

When your endorphin levels are high you naturally feel happier, more relaxed, less stressed, and you certainly feel less pain. Why do you think that most of the powerful pain killers are opiate-based? It's because endorphins have been shown to be the most effective form of pain relief. But your body can create them naturally. In addition to PEMF therapy, other methods that increase endorphins include massage, yoga, meditation, deep breathing, certain foods, good hydration, and even just smiling. Add PEMF therapy to those methods and you'll really notice some serious pain relief.

2) PEMF therapy reduces and temporarily interrupts the pain signal. Less signal equals less pain.

The second way that PEMF therapy helps is that it interrupts the signal that causes the pain. PEMF generates micro-currents that run through the neural pathways which reduces the signal needed to create the feeling or sensation of pain. Less signal equals less pain perception. PEMF not only helps to improve your "happiness hormones" but it directly decreases the triggering of the pain response. In doing so, it raises your threshold for pain so you don't feel pain as intensely.

3) PEMF therapy actually heals the problem. Using the analogy of the oil light coming on

in your car, PEMF therapy is like putting the oil back into your car so the light goes off. While the traditional medicine approach is like cutting the wire to the oil light so you don't know that there's a problem. PEMF actually heals and regenerates the tissue so the pain really goes away.

Pain mechanisms can be extremely complex, but on the most basic level involve a signal being transferred to a receptor and causing a change in cellular behaviour.



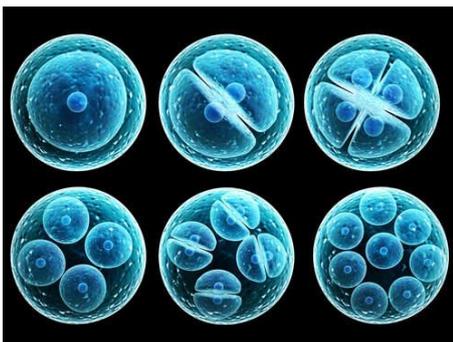
THE GOAL is to prevent cellular injury in the first place, which is WHY daily treatment of PEMF therapy is essential. But with acute injuries that have ALREADY happened, the goal is of course injury resolution and pain management.

The body normally does its own pain blocking in response to pain signals through an increase in levels of serotonin, dopamine, endorphin and enkephalin's along with a decrease in cortisol and noradrenaline.

The primary mechanisms for pain in response to cell injury are oedema, apoptosis or necrosis, diminished circulation, decreased cellular metabolism and impaired cellular repair processes.

PEMFS reverse ALL these

- Improve circulation/microcirculation
- Enhance cellular metabolism and energy
- improve detoxification and reverse swelling/oedema
- Stimulate Stem cells and cellular regeneration to ACTUALLY heal the problem so the pain GOES away and stays away.



7) [Healing and Regeneration] Stem Cell Stimulation and Regeneration

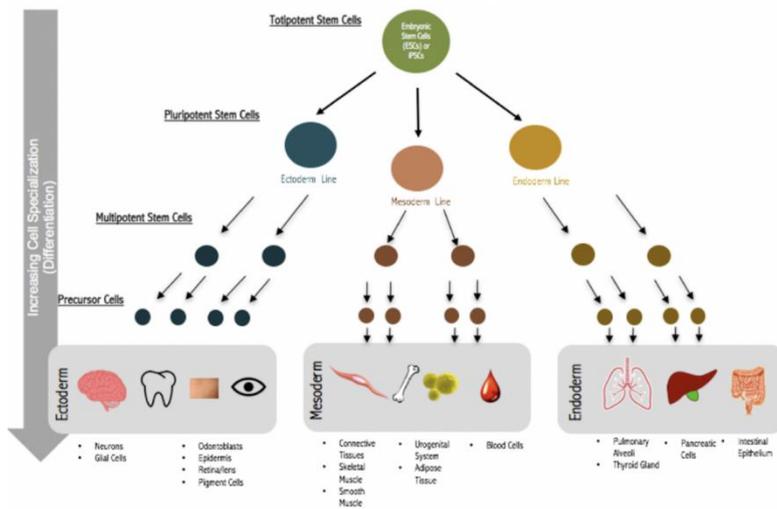
Stem cells are those cells able to become (differentiate into) specialized cells and can divide to produce more stem cells. In humans two main types of stem cells are embryonic (found in the developing foetus) and adult (found in various tissues). Adult stem cells act as the body's repair system, replenishing damaged tissues. They are found in the bone marrow, adipose tissue, and blood

and in the umbilical cord immediately after birth.

One of the goals of PEMF therapies is to help stem cells differentiate themselves into specific tissues to help with regeneration and healing. This can be used as a therapeutic modality to address an injury or disease state, but can also be used for health maintenance and prevention (it takes less energy to maintain health constantly than to repair or regenerate tissues after injury).

NOTE: it is much easier and more efficient to stimulate stem cells to differentiate into the

tissue they already exist within as opposed to trying to get a stem cell to differentiate into a different type of tissue. Every tissue has its own supply of stem cells available and ready to do the necessary regeneration and repair of tissues as they are injured or die off naturally.



There is significant evidence that PEMFs affect stem cells

- PEMFs increase RNA building blocks of neuronal embryonic stem cells.
- Human bone marrow stem cells can differentiate into nerve cells and PEMFs induce this differentiation. Also, human bone marrow stem cells have the ability to differentiate into multiple types of cells.
- PEMF stimulation increases the amount of viable stem cells by 40-

59% and results in up to 60% higher cell densities**.

- PEMFs differentiate neural stem cells and neurons
- PEMFs induce bone cell development by increasing various factors in bone marrow and adipose stem cells. There are MANY studies showing PEMFs ability to assist in bone building via enhancing stem cell production and differentiation.
- PEMFs are known to affect cartilage tissue. Stimulating the stem cells existing within cartilage to differentiate into new cartilage.
- Based on one study, PEMFs seem to inhibit the development of fat cells.
- Enhances skin regeneration as the skin is one of the biggest reservoirs of stem cells. PEMFs enhance the production of epidermal stem cells in the skin. This helps the skin to repair and look younger.
- Even helps to stimulate tendon and ligament stem cells which are known to regenerate slowly. This is a VERY huge benefit as sometimes these tissues do not heal or repair at all. PEMF might be a solution!
- PEMFs may be even considered a tool to improve one's own stem cells obtained to enhance regeneration.

** Li Y, Zhao L., Xing X, et al. Effects of different frequency electromagnetic fields on the differentiation of midbrain neural stem cells. Space Med End (Beijing). 2002 Oct: 15(5):374

NASA studied the use of 10 Hz PEMF stimulation on the growth of nerve stem cells. With their particular 10 Hz square wave (which is what the iMRS pillow and probe use), NASA discovered a 400% increase in neural stem cells and this signal turned on about 150 growth and regeneration genes. Link to paper below...

<https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20030075722.pdf>

Conclusion: PEMF stimulation of stem cells not only helps for health maintenance, but it

ALSO helps with tissue healing. In the future we will see a lot more use of stem cells in therapies and to heal various parts of the body. It appears PEMFs can help with increased stem cells harvest, increased differentiation, better preservation of tissues into which the stem cells are being implanted, and likely will increase the ability of those stem cells to be successful.

8) [Stress Reduction, Anxiety & Depression] Psychological and Cognitive Function/Stress/Antispasm/Relaxation



Fundamentally PEMF helps the body to slow down and relax and directly shifts the nervous system to more of a parasympathetic response.

Stress is one of the leading causes of disease in this country, many times a hidden cause.

PEMF Helps with Stress in MANY ways:

- reduces the brains reaction to stress by helping with relaxation.
- PEMF acts positively on the functional state of the nervous and endocrine systems as well as on tissue metabolism.



- The heart rate and blood pressure decrease, which makes the body less reactive to stress hormones
- PEMF activates the parasympathetic system, which is the rest, digest and repair aspect of the nervous system.
- Also stimulating the spine reduces production of stress hormones
- PEMFs help the Body to eliminate the neurotransmitters and hormones produced by stressful fight or flight reactions (by stimulating the kidneys mainly)
- PEMFs defend the tissues and cells of the body from the physical changes induced by stress chemicals and hormones.

PEMF helps with Anxiety and other stress related disturbances (people with anxiety tend to be more easily triggered into fight or flight).

Low intensity earth-based systems like the iMRS work best because they use safe and natural intensities AND the primary frequencies work with relaxing the body (and helping with sleep at night).

PEMFs have been shown to have a dramatic effect on anxiety and depression in both chronic and acute forms. There is substantial research that PEMFs benefit mood disorders.

PEMF helps to increase endorphins and elevate your mood. Natural cure for depression. Similar to a "Runners High".

Also magnetic field therapy may also have an effect on depression through the improvement

of REM sleep, which has been shown to play an important role in the development of depression.

9)[Better Sleep/Hormones] Circadian Rhythms/Better Sleep/Melatonin/HGH

Many things are at play with sleep issues like insomnia, which includes stress and anxiety (which we have seen PEMFs help).

Mainly types of sleep disturbances

- People having trouble falling asleep
- People having trouble staying asleep
- Frequent urination and other physical urges
- environment or noise (spouse snoring for example)
- Pain keeping you awake
- Breathing issues (COPD, asthma, apnoea, etc)

PEMF actually assists ALL these and more.

PEMFs that use low frequency and sleep frequencies at night like the iMRS have a very calming and relaxing effect. In fact, for me this was the FIRST thing I noticed with the MRS back in 2007. It very profoundly helped me sleep better and this is still one of our most frequent testimonials (better and deeper sleep).



The iMRS especially helps the body and brain through entrainment to synchronize to beta in the morning, and theta/delta before bed.

Several studies have been done to show how low frequency PEMF helps with improving sleep.

One study found 83% with sleep issues improved and another found 90%.

While healthy low frequency PEMFs help, harmful EMFS can cause sleep issues (Wi-Fi, mobile phones, etc). Because they are VERY high frequency.

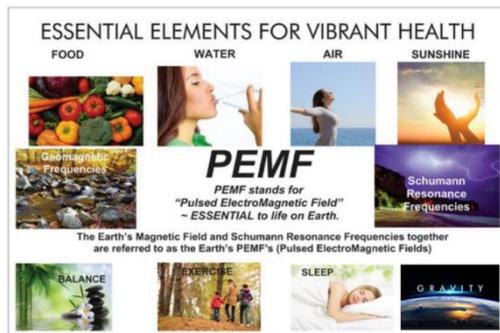
Make sure to check out a Much More in-depth discussion on how the iMRS and low frequency PEMF is perhaps one of the BEST solutions for sleep issues and insomnia.

PEMF Makes all the Elements Work Better

1. (Earth/Food) PEMF improves assimilation of food, increases absorption up to two - fold for supplements and medications AND decreases side effects. Plus, PEMF energizes stomach, and intestinal tract and helps with colon regularity and health.
2. (Water) PEMF lowers surface tension of water and energizes it so your body better absorbs the water you drink. PEMF also energizes the kidneys and assists water and urine elimination (to keep blood CLEAN).
3. (Fire) PEMF helps to synchronize your brain and body to day and night cycles. Helps the skin to detox and induces fever (hyperthermia) to assist the body in killing infections. We see this a lot, but seems to only happen to people who need it. It is a

GOOD thing. Your immune system is stronger when your temperature elevates. PEMF also opens the skin and helps with detox.

4. (Air) PEMF enhances breathing and oxygenation AT EVERY step from opening bronchial circulation, improving alveoli functioning, enhancing the hemoglobin's ability to bind to oxygen, microcirculation down to the cell, releasing oxygen and bring CO2 back. PEMF further enhances ATP production and delivery of oxygen to the mitochondria.



5. (PEMF - the 5th Element) - Gives the body much needed earth magnetic energy AND cleanses and clears Electro-smog. Especially earth-based

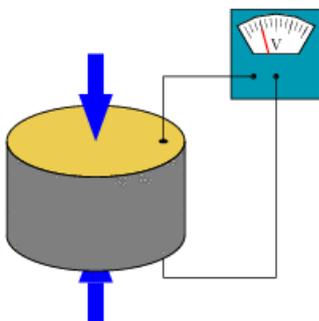
systems like the iMRS.

6. (Gravity/Structure) - Improves bones, tendons, ligaments, joints and increases flexibility. Heals injuries and is the ultimate in preventative medicine.
7. (Mind) - Elevates Mood, Reduces Stress, and More.

ALSO - BIOREGULATION AND CELL TO CELL COMMUNICATION

*****PEMF for Bone Health** - The Piezoelectric Effect (and Converse Piezoelectric Effect).

The pyroelectric effect, by which a material generates an electric potential in response to a temperature change, was studied by Carl Linnaeus and Franz Aepinus in the mid-18th century.



The first demonstration of the direct piezoelectric effect was in 1880 by the brothers Pierre Curie and Jacques Curie. [8] They combined their knowledge of pyroelectricity with their understanding of the underlying crystal structures that gave rise to pyroelectricity to predict crystal behaviour and demonstrated the effect using crystals of tourmaline, quartz, topaz, cane sugar, and Rochelle salt (sodium potassium tartrate tetrahydrate). Quartz and Rochelle salt exhibited the most piezoelectricity.

Converse piezoelectric effect is where the application of an electrical field creates mechanical deformation in the crystal.

Use Strength Training, whole body vibration and Exercise in general to strengthen the bones via piezoelectric effect AND PEMF to strengthen bones via CONVERSE Piezoelectric effect.

In My opinion the BEST OF THE BEST NATURAL APPROACH FOR BONE DENSITY IS:

- 1) PEMF
- 2) Whole Body Vibration and strength training (and avoid sitting too much)
- 3) Bone Building Diet and Supplements