"*So many of my patients ask about magnet therapy to treat back and neck pain.* Stewart G. Eidelson, MD.Using magnets for healing pain is increasingly popular with the public. However, despite this popularity, there is a lack of scientific evidence to prove magnets have any therapeutic benefit. Traditional physicians remain, in general, very skeptical of magnets' benefits. Despite this justified mainstream skepticism, the following article seeks to provide members of the public who are seeking information on magnets with balanced, factual information.

When referring to magnets, we are not talking about the type of magnets found on refrigerator doors - but biomagnets - those magnets manufactured for physical and mental healing. Biomagnets are named after biomagnetism, the science of magnetism.

As children in school we learned that magnetism is an energy force on earth. Each atom has a nucleus around which spins positively charged protons and negatively charged electrons that generate a magnetic field. For thousands of years ancient civilizations studied the positive and negative magnetic forces. For example, in Traditional Chinese Medicine (TCM) it is believed that a balance of these positive and negative forces referred to as Yin and Yang represents good health.

Theory

Although not scientifically proven and controversial, theories suggest biomagnets alone do not heal but rather stimulate the body to heal naturally.Some of these **scientifically unproven claims include:**

- Restoration of cellular magnetic balance
- Migration of calcium ions is accelerated to help heal bones and nerve tissues

- Circulation is enhanced since bio magnets are attracted to the iron in blood and this increase in blood flow helps healing
- Bio magnets have a positive effect on the pH balance of cells
- Hormone production is influenced by bio magnet use

Polarity

Theory aside, an important aspect of biomagnet use is magnet polarity. This relates to the direction in which the magnet is placed. The North Pole corresponds to TCM Yin, or negative polarity. The South Pole corresponds to TCM Yang, or positive polarity. Below, the magnetic influences of the South and North Poles are shown by example:

North Pole Characteristics: Sedating Cooling

- Negative: Yin

- Low back pain
- Arthritis
- Inflammation
- Acute headaches
- Sharp pain

South Pole Characteristics: Stimulating, Heating

- Positive: Yang
- Tingling
- Numbness
- Weak muscles
- Paralysis
- Scars

If the body appears to lack both positive and negative energies to heal, the therapist may apply both the North and South Poles (known as Bipolar) simultaneously. Bipolar biomagnet therapy may be used to heal fractures or treat chronic pain.

The type of ailment determines the type and power of the biomagnet to be used, the

length of time the patient has had the problem, its severity, if the ailment is superficial or deep, the area of the body to be treated, and the patient's sensitivity.

Some patients are sensitive to biomagnet therapy. The therapy may temporarily make the condition worse as toxins are released. Light-headedness, headache, sleepiness, and itching are some of the side effects.

Biomagnets Not for Everyone's Use

As with any treatment, there are cautionary measures to follow. For example, bio magnets should not be used during pregnancy, on patients with a history of epilepsy, while taking blood-thinning medications, on bleeding wounds, or if internal bleeding exists.

Bio magnets should never be used on a patient with a pacemaker or who have metal implants that could be dislodged by magnet use.

In infants and children care should be taken as well as use on the eyes, brain, or over the heart at any age.

Biomagnet Power Measured

Biomagnet power is measured in terms of gauss, the line of force per unit area of the pole. The earth's surface is approximately 0.5 gauss. Many manufacturers rate their products using internal gauss and external gauss to indicate strength. Listed below are typical magnetic strength classifications:

Low gauss (g) = 300 - 700 gauss
Medium gauss = 1000 - 2500 gauss
High gauss = 3000 - 6000 g
Super gauss = 7000 - 12000 gauss

Surface gauss rating also refers to the external strength of the magnet. This measurement is dependent on the size, shape, polarity, and grade of the magnetic material.

Some experts in biomagnet therapy begin treatment at low gauss and gradually increase strength as necessary.

We recommend you consult with a specialist who is skilled in administering biomagnet therapy first.

Types of Biomagnets

There are about as many types of biomagnets as there are body parts! Magnetic mattresses and pads are designed to be slept on, magnetic insoles fit inside shoes, block magnets can be placed under mattresses, pillows, or seat cushions, back supports are even available with slots for magnet insertion. Others are made as body wraps with Velcro closures, jewelry, and magnetic foil.

Caring for Biomagnets

Most biomagnets are made of ferrites, which are iron oxides combined with cobalt, nickel, barium and other metals to make a

ceramic-like material. The flexible types of magnets are combined with plastic, rubber or other pliable materials. The strongest biomagnets are those made from neodymium (rare earth element).

However, just because biomagnets are strong does not mean they are indestructible! When subjected to intense heat (400+ degrees F) a magnet will lose all its energy. Also, don't drop magnets.

And remember, magnets can damage CDs, computer hard drives, credit cards, and other devices with metal components.

Conclusion

Biomagnets claim to be relatively safe, non-invasive, 100% natural, and drug free. Some manufacturers claim their magnets work fast and even offer guarantees. Many patients have reported significant improvement in back pain and other ailments with biomagnet use. However, there remains a lack of scientific data to

validate the efficacy of magnets, and accordingly, very few doctors of medicine (MDs) are know to prescribe magnets for the treatment of spinal disorders.

As with any new treatment, we recommend discussing your condition with specialists who can present the argument for the therapy, and with those who are against the therapy, to provide you with a balanced picture upon which to base your decision.

Feb. 28, 2000 (Big Bear City, Calif.) -- There's nothing like a celebrity endorsement to jump-start a health fad. In 1997, when professional golfer Chi Chi Rodriguez said he'd banished his foot pains by slipping magnets into his insoles, fans were quick on his heels.

Soon many golfers sported magnets in their shoes, on their forearms, in their gloves and belts, even in their collars

and hats. The golfing trend rekindled a fascination with magnets that dates back thousands of years to the lodestones used by ancient healers.

Magnet purveyors haven't waited for proof before cashing in on the trend. Slick catalogs flood the mail and dozens of web sites have sprung up hawking magnetic belts, mattresses, and shoe inserts said to relieve just about every ailment imaginable.

In September 1999, the U.S. Federal Trade Commission took action against two magnet vendors, Magnetic Therapeutic Technologies in Irving, Texas, and Pain Stops Here! in Baiting Hollow, N.Y. The companies were ordered to cease claiming that their magnets could treat a multitude of life-threatening illnesses, including cancer and AIDS.

Despite the hype and the government's action, a few studies raise intriguing, albeit inconclusive, questions about magnets. Take, for example, a study published in the November 1997 issue of *Archives of Physical Medicine and Rehabilitation*. Investigators at the University of Houston taped half-inch magnets to the sore spots of 29 people with post-polio pain and attached identical but fake magnets to a comparison group of 21 patients. Neither set of patients knew who was getting the real magnets.

All the patients were asked to rate their pain on a scale of one to 10, with 10 being the most severe. Those wearing the real magnets reported a reduction in pain from a level of 9.6 to 4.4. But the 21 people treated with

sham magnets said their pain dropped only from 9.9 to 8.4.

How might magnets produce such an effect? Some proponents suggest that magnets boost circulation, bringing more blood and nutrients to the targeted area. That's the theory advanced by Ted Zablotsky, M.D., President of BioFlex Medical Magnetics, a firm that sells magnets for medical uses.

Pacemakers and Implantable Cardioverter-Defibrillators

Magnet Inhibition

In most devices, placing a magnet over a permanent pacemaker temporarily "reprograms" the pacer into asynchronous mode; it does not turn the pacemaker off. Each pacemaker type has a unique asynchronous rate for beginning of life (BOL), elective replacement indicator (ERI), and end of life (EOL). Therefore, if the

device company parameters are known, application of a magnet can determine if the pacer's battery needs to be replaced. Further interrogation or manipulating of the device should be performed by an individual skilled in the technique. Although many different branded pacemaker/implantable cardioverter-defibrillator (ICD) magnets are available, emergency physicians should be aware that, in general, any pacemaker/ICD magnet can be used to inhibit delivery of shock therapy from the device. When a magnet is applied to an ICD, pacing therapy is not inhibited

Magnets may interfere with the operation of pacemakers and implantable cardioverter defibrillators (ICDs), according to a study published in the December 2006 edition of Heart Rhythm.

Researchers found that while common magnets for home and office use with low magnetic strength posed little risk, stronger magnets made from neodymium-iron-boron (NdFeB) may cause interference with cardiac devices and pose potential hazards to patients. NdFeB magnets are increasingly being used in homes and office products, toys, jewelry and even clothing.

"Physicians should caution patients about the risks associated with these magnets," says Thomas Wolber, a cardiologist at the University Hospital of Zurich in Switzerland and lead author of the study. "We also recommend that the packaging include information on the potential risks that may be associated with these types of magnets."

Two spherical magnets of eight and 10 millimeters in diameter and one necklace made of 45 spherical magnets were tested on 70 patients, 41 with pacemakers and 29 with ICDs. Magnetic interference was

observed in all patients. The cardiac devices resumed normal function after the magnets were removed.

In an accompanying editorial, Huagui Li, M.D., a cardiologist at the Minnesota Heart Clinic in Edina, MN., writes, "This study is timely and important to attract the attention of both the public and the medical profession about the potentially serious health consequences of magnets used in decoration products... for an ICD patient, the magnet interference can be fatal."

Dr. Li concludes that manufacturers who use magnets should be required to put warning labels on their products for optimal patient safety.

About the Heart Rhythm Society

The Heart Rhythm Society is the international leader in science, education and advocacy for cardiac arrhythmia professionals and patients, and the primary information resource on heart rhythm

disorders. Its mission is to improve the care of patients by promoting research, education and optimal health care policies and standards. Incorporated in 1979 and based in Washington, DC, it has a membership of over 4,000 heart rhythm professionals in more than 60 countries around the world.

About Heart Rhythm

Heart Rhythm provides rapid publication of the most important science developments in the field of arrhythmias and cardiovascular electrophysiology. As the Official Journal of the Heart Rhythm Society, Heart Rhythm publishes both basic and clinical subject matter of scientific excellence devoted to the electrophysiology (EP) of the heart and blood vessels, as well as therapy. The journal is the only EP publication serving the entire electrophysiology community from basic to clinical academic researchers, private

practitioners, technicians, industry and trainees. Heart Rhythm received a debut Impact Factor of 2.6 and was ranked 21st out of 72 cardiovascular medicine journals by the Institute for Scientific Information. Additionally, the journal ranks fifth in the Immediacy Index among cardiology publications. It is also the official publication of the Cardiac Electrophysiology Society.