

Issues of Scientific Research into

Healing With Magnets

THE POWER OF MAGNETIC THERAPY

*Extracted from International Clinical Studies
and the writings of respected Magnetic Therapists,
Medical Authorities and Scientists*

Published by

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INTRODUCTION

The power of the magnet is one of the most basic powers of nature. We know that magnetism itself was an ingredient in the primordial soup from which the universe and our planet came forth. Magnetism is the force that keeps order in the galaxy, allowing stars and planets to spin at significant velocities. And, in a sense, our own planet's magnetic field is responsible for protecting all life on earth.

This document discusses how we can use the power of magnetism to optimise our health. Today, we are at an exciting juncture in the evolution of health care as magnetic therapy fast becomes one of the most promising new therapeutic interventions. Actually, magnetic therapy is not new to everyone. Many veterinarians have been aware of magnetic benefits for years, and use magnets to heal fractures quickly, thereby saving the lives of race horses and other animals. Doctors treating professional athletes commonly recommend magnets to speed up recovery from painful injuries. And other physicians in a variety of specialties, including dermatologists, internists, paediatricians and surgeons, are seeing excellent results as well.

That magnetic healing is nothing new can be seen by looking at early records of scientifically advanced civilisations, which tell us that magnetic forces have long been prized for their restorative properties. Ancient Greece discovered the very first natural magnet in the form of the lodestone, and Hippocrates, the father of medicine, noted its healing powers. The Egyptians, too, described the divine powers of the magnet in their writings, and Cleopatra frequently adorned herself with magnetic jewellery to preserve youthfulness. Chinese manuscripts dating back thousands of years describe the eastern belief that the life force, termed "qi", is generated by the earth's magnetic field.

Today, many believe that certain places on Earth, such as Lourdes, France and Sedona, Arizona owe their healing powers to naturally high levels of this qi, or magnetic energy.

It should be noted that today, magnetic therapy is well established in other countries, such as Japan, China, India, Austria, and Germany. In the U.S., unfortunately, many healing techniques readily accepted by other traditions are only familiar to those practitioners on the cutting edge. Although state-of-art American medicine uses techniques to monitor magnetic fields, such as electrocardiograms, and electroencephalograms, and magnetic resonance imaging, it is only now taking other forms of magnetic therapy seriously. More and more American studies are confirming the value of the magnetic approach. As a result, magnetic therapy is gaining credibility in the U.S. and being applied by increasing numbers of doctors and other health practitioners to treat a wide range of ailments.

Now awareness of this modality is filtering down to the general public, as increasing numbers of people are sleeping on magnetic beds at night and wearing small magnets during the day for pain relief, greater energy, preventive purposes, and healing.

Finally, no one claims that magnetic therapy is going to work for everyone. However, ample evidence suggests that seven out of ten people experience a beneficial effect. One is led to ponder if when Hippocrates wrote, "*The Natural Force within each of us is that greatest healer of all,*" he did not have magnetic energy in mind.

ISSUES IN MAGNETIC THERAPY

Research into magnetic therapy is divided into two distinct areas: pulsed bioelectric magnetic therapy and fixed magnetic therapy. Probably 85 to 90 percent of the scientific literature is on pulsed bioelectric magnetic therapy; the remainder is on therapy with fixed solid magnets. As is always the case, research interest and funding have been where there is proprietary gain. No patents can be issued for work done on fixed magnets, but certainly they can be for pulsed magnetic devices. Since it cannot necessarily be assumed that a positive result from pulsed bioelectric magnets will automatically translate to a positive result from a fixed magnet, there needs to be more study in the area of fixed magnets.

Another reality of this still developing field is that there are different

schools of thought on the essential mechanisms of magnetic therapy, centred on questions of polarity, among other issues. This document draws on the input of the most responsible scientific and medical representatives from varying points of view. These are not lay marketeers passing along misinformation. Rather, these sources are qualified M.D., Ph.D. research scientists and clinicians who have spent years in the field.

One is Dr. William Pawluk, of Chicago, a board-certified family physician in both Canada and the United States and Assistant Professor in the School of Hygiene and Public Health and School of Medicine at Johns Hopkins University. Dr Pawluk, as vice president of the North American Academy of Magnetic Therapy, lectured extensively on magnetism and combined magnetic therapy and acupuncture in his practice. He has written a chapter on magnetic therapy for the Textbook of Complementary Medicine (Williams & Wilkins, Baltimore) and undertook the noble task of studying and translating a comprehensive body of foreign research on magnetism and its applications.

Another perspective comes from John Zimmerman, Ph.D one of the leading authorities in America on the subject of magnets. As president of the Bio-Electro-Magnetics Institute, an independent, non-profit, educational, research organisation dedicated to furthering our understanding of bioelectromagnetism. Dr Zimmerman published extensively and conducted double-blind, placebo-controlled study on the effectiveness of fixed magnets for low back pain.

On some points the two main schools of thought think alike. They generally agree in their discussion of size, strength and placement of magnets, and duration of treatment. Where they disagree is at the basic physics level regarding when to use the positive or a negative pole. There is also some confusion about the correct labelling of poles on magnets. But controversy is par for the course in a developing field, and irrespective of which school is ultimately found right, each has enough positive clinical, anecdotal, and scientific results to show that magnets work.

MAGNETISM AND ELECTROMAGNETISM

What is the difference between a fixed magnet and an electromagnetic device? Simply put, a fixed magnet emits a magnetic field, while an electromagnetic apparatus gives off an electric and magnetic field. Zimmerman elaborates: "Magnetism and electromagnetism are different sides of the same coin. However, unlike a coin, electromagnetism has three sides rather than two. They are the electric field, the magnetic field, and the electromagnetic radiation.

"Electric fields are associated with the displacement of charged particles usually electrons, but sometimes charged particles called ions. An example of an electric field occurs when you shuffle your feet across carpet and touch a doorknob. The carpet pulls some electrons from your body and your clothing, leaving you with a deficiency and the carpet with an excess. When you touch the doorknob it pulls up electrons to satisfy your deficiency, and it balances the electrical charge, creating a spark in the process. Electrical fields are measured in units called volts per meter (vpm) or volts per centimetre (vpc).

"The next side of the three-sided coin is the magnetic field. A magnetic field is caused by electrical charges in motion, as opposed to an electric field, which is produced by electrical charges in different concentrations, more in one place than the other, regardless of whether or not they are moving. You cannot see the electrical current in a magnet; you have to delve deeper into the structure of matter to understand.

"In a static magnet, the electrical current moves in terms of electrons orbiting around the atomic nuclei. An iron body is magnetised when the electrons become aligned to a greater degree".

Zimmerman goes on to explain that the best way to describe magnetism in a permanent magnet is to make an analogy with the military: "Imagine all the atoms in an unmagnetised block of iron to be soldiers in a barracks going about their daily business. Some may be brushing their teeth, while others read magazines, and others lie in bed. Then, the captain walks in, and the drill sergeant says "Fall in." Everybody scrambles to fall in place, aligning themselves in the same direction with a certain amount of space between them. The difference before and after command "Fall in" is

analogous to the difference between an unmagnetised block of iron before and after being subjected to a magnetising force. The magnetising force commands electrons, and the atoms in the block of material literally fall into place. Once they become aligned in the same direction, you have a permanent magnet".

Magnetism can also be produced by currents in a wire, Zimmerman continues, and these magnetic fields are due to the electrons in the wire.

"If it's 60 cycle per second (cps) current, like a wall outlet, electrons shuffle back and forth, creating 60 full cps. But they really don't go anywhere. They're like the tide going in and out of the ocean, going first in one direction and then the other. But the tide really never goes anywhere outside of the predetermined length of run. Electrons in a wire, in a lamp cord, or in a power line, are very similar. They'll basically go back and forth, producing a magnetic field in the area around it."

How does this differ from electromagnetic radiation? This is the third side of the coin, Zimmerman explains. "EMR occurs when you have charges that accelerate or decelerate very quickly. Imagine a glass of water filled almost to the very top. You slowly dip a spoon into and out of the water, and every time you change direction, you accelerate the motion of the spoon. If the rate of that acceleration and deceleration is relatively slow, you can dip the spoon in and out the nearly full glass of water all day long and not much will happen.

"The water will stick to the spoon, and when you pull the spoon out of the water, it will have some water droplets adhere to it. When you put it back in, it will go back into the glass of water.

"What happens, though, if you start to accelerate the motion of that spoon?

"Obviously, water is going to start flying off of it. This is exactly what happens when you produce EMR. At a certain rate of change of velocity that is analogous to moving a spoon into and out of water very quickly, charged particles, called photons, come off of the source of the moving electric charges, much like water droplets coming off of the spoon that's rapidly moving in and out of the glass of water. Photons, noncharged massless entities which carry the electromagnetic force across space, are

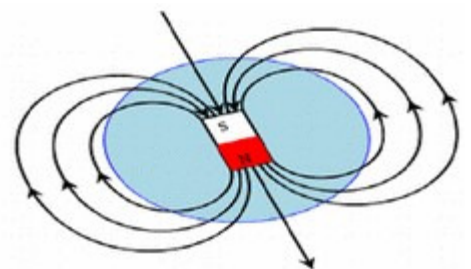
frequently pulled off of the charged couriers, much like water droplets coming off the spoon being rapidly lowered into and raised from a glass of water. This is what we refer to as EMR."

As the name implies, electromagnetic radiation contains two distinct fields: an electric field, measured in volts per meter or volts per centimetre, and a magnetic field, which is measured in units called teslas, or gauss. (One tesla equals 10,000 gauss.)

The effectiveness of using pulsed magnetic fields to heal bone fractures and, to a lesser degree, soft tissue injuries such as sprains and strains, is quite well documented. Numerous scientific journals have reported these findings since the 1970s, and the FDA approves the use of pulsed electromagnetic fields for the treatment of nonunion bone fracture, which are fractures that will not heal on their own. It is believed that the pulsed electromagnetic fields penetrate the cast and get to the layer of skin that's moist and conductive. Then the electric field stops, but the magnetic field continues to do the healing work.

Clinical experience suggests other uses for electromagnetic devices. Hundreds of articles substantiate claims of benefit for a large number of conditions, including osteoarthritis, rheumatoid arthritis, fibromyalgia, tension headaches, migraines and Parkinson's disease.

Fixed magnets are believed to help these conditions, as well as others, and are generally more economical and less complicated to use. Doctors have presented papers at the North American Academy of Magnetic Therapy, citing success with fixed magnets in patients with congestive heart failure and various types of cancerous conditions. A Canadian research project is investigating the effects of fixed magnets on fibromyalgia; specifically, the researchers want to determine whether sleeping on a magnetic pad helps to reduce pain associated with the condition. Rheumatoid and osteoarthritis have been reported to respond very well to magnetic field therapy using fixed individual magnets.



THE POLAR CONTROVERSIES

If you are looking for confusion, controversy, and contradictions, you might want to follow politics, or better yet you might want to look into the questions surrounding the naming of magnetic poles. For instance, is the south pole true south? And is the north pole true north? How a magnetic pole is named is dependent upon convention, and all conventions are alike. Therefore, you may be getting two magnets from two companies where corresponding sides are called north on one magnet and south on the other.

Dr Zimmerman explains: " We need to understand that there are two ways of naming the north pole of the magnet: convention one and convention two. You have to know which convention you're dealing with. Otherwise, what you're calling north somebody else may be calling south.

"Way one of naming the poles of the magnet is called the traditional, scientific, sailor investigation type of way. It assumes that if you suspend a bar magnet on a pivot point, like a compass needle, or maybe on a piece of string from the ceiling, the part of the magnet that points north is labelled the north pole of the magnet, and obviously that end of the magnet that points geographically south is the south pole of the magnet".

Zimmerman says that this traditional way of naming the poles is not the one used by most people employing magnetic therapy.

"In the magnetic nomenclature of identifying the poles of the magnet, it's just the opposite," Zimmerman explains. "That end of the magnet that points north is labelled the south pole because it's attracted to the north pole of the earth. That end of the magnet that attracts the south pole of the earth is labelled the north pole of the magnet because opposites attract."

Zimmerman goes on: "People might say,"Gee, in the traditional way of naming magnets how can the north pole be pointing north?". The answer uses rather a complex reasoning. I don't mean to confuse people, but in the traditional way of naming the poles of the magnet, the reason the north pole of the magnet points north is that the traditionalists assume that the south magnetic pole of the earth is located in the northern hemisphere. That sounds backwards, complex, and confusing, and it is. But that's the

way traditional science textbooks and physics textbooks often get around the conundrum that the north pole of the magnet is pointing north. They say that the south pole is located in the northern hemisphere.

"That's all very confusing to people, so we like to focus our attention on what we call magnetic definition, which avoids that complexity. It assumes that the north pole of the magnet is where it's supposed to be - in the geographic north pole of the earth, and the south pole is in the southern hemisphere. With this definition, a suspended bar magnet, or the arrowhead of a compass needle that points north, is always the south end of the magnet or the south end of the needle point. Stated another way, if you have a magnet that is flat, and you want to know which end is north, approach it with a compass needle. That end of the magnet that attracts the arrowhead of the compass needle is the magnetic north pole."

Another controversy revolves around the issue of when to use the north, or negative, pole and when to use the south, or positive. One school of thought is based on the ideas of Davis and Rawls, whose studies done in the 1930's suggest that exposure to magnetic negative poles enhance health, while magnetic positive poles exacerbate disease.

“In the magnetic nomenclature of identifying the poles of the magnet, it's just the opposite.”



More recently, Dr William Philpott has been championing the Davis and Rawls point of view and drawing conclusions based upon his own clinical experience. Here is what Philpott feels each pole will do:

NORTH (NEGATIVE) POLE

- Relieves pain
- Reduces swelling
- Promotes tissue alkalization
- Promotes sound, restful sleep
- Increases tissue oxygenation
- Assists in relief of addictive tendencies

SOUTH (POSITIVE) POLE

- Accelerates growth indiscriminately
- Increases swelling
- Promotes tissue acidity
- Decreases tissue oxygenation
- Makes sleep less sound and restful
- Promotes anxiety

A study on this issue was published in the September 1990 issue of the "Journal of the National Medical Association." Scientists took petri dishes full of cancer cells and put them in either the magnetic north pole end of a magnetic resonance imaging facility or the magnetic south pole end. In three weeks, the petri dishes in the north pole end exhibited a dramatic decrease in cell growth, which is what you want to see with cancer cells. The dishes in the south end exhibited a slight, but detectable, increase in the rate of cell growth. This was the first experiment to address this question.

An argument against the north/south dichotomy is made by Dr Pawluk, who says there is no proof that magnet wearers are being exposed to just one polarity. Pawluk questions the existence of a purely north or south field as he talks about the impossibility of the "blocked wall concept".

The problem with the "blocked wall" is that in a magnetic field, molecules line up perfectly and produce lines of force that are very strong in one direction. The lines of force bend around and then turn back on themselves.

You have one molecule on one side that's lined up in one direction and one molecule on the other side lined up in the opposite direction. When they bend around they cancel each other out. "Let's assume the upper part of the magnet is the north pole," Pawluk continues.

"Then the bottom part will be the south pole. At the top part, the lines of force are north pole lines. In physics, I'm not sure anyone can make a distinction between a line of force coming out of the upper side or north side of the magnet versus the line of force that's coming from the south side. It's not like hot and cold water. There's no scientific evidence proving that they are different. If you move away from the edge of the magnet by an inch or half an inch, and you measure the area with a magnetometer, you'll find that the field has changed from positive to negative. Say the top surface is positive. If you move one inch to the side, you'll find, when you measure the area with a magnetometer, that the field has changed and become negative. It goes from a north to a south pole. What that actually means is that at any given time with a permanent magnet you are actually being exposed to both the north and south pole. When you have a very dense magnet there's obviously a higher concentration of south pole at the surface than there is at the sides. Nevertheless, you're actually being exposed to both fields."

Dr Pawluk explains that most scientists now believe that permanent magnets create their effects because of the drop in the field, or what is known as the gradient. The change in polarity may be what is producing the effect in the body. In other words, both north and south poles are entering the body at any given moment, and the entirety of the magnet is what is doing the healing.

HOW MAGNETS ARE USED

While very little research on magnetic therapy has been done in United States, there has been a lot of work in this field in Russia, Czechoslovakia and the Western European nations over the past 30 years.

If you were to go to Russia, where magnetism is a well-regarded and highly respected science, you'd find hundreds of studies on fixed and pulsed magnetic therapy. It is rare for an American physicist to read Russian, and hence review their literature. But Dr. William Pawluk has

done just that and believes that there is more than adequate reason to feel very positive and assured about the nature of this research.

Even if you do not have access to the research, magnets are simple to use. So, why not give them a try?

Use magnets on yourself as if you were performing a single controlled study. Listen to what your body tells you. If you have had unremitting arthritis pain in your hands and apply a magnet to it, you may find that three days later you no longer have pain for the first time in 10 years. If you suffer aches and pains in any part of your body, sleep on a magnetic underlay. You may discover your gain pain relief and improved energy, along with a reduced need for medication.

Remember, your own experience is valid. This document is an effort to combine practical common-sense usage and good clinical experience. Science will simply have to catch up.



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Of course, nobody is saying that magnets are a be-all and cure-all. They should not be used by themselves for any major disease or medical condition, but rather, they should be looked upon as an adjunctive therapy. The personal experience of Gary Null, Ph.D., is that magnets work best in combination with other healing modalities:



“... ever since seventh grade, I have been a competitive athlete ...”

“Ever since seventh grade, I have been a competitive athlete, winning dozens of USA track and field national championships, regional championships, and over 300 local races. And I have set numerous American records. Therefore, I know my body well. When I sustained a severe hamstring injury, I used magnets--small, medium, and large, from 500 gauss to 5000 gauss - wearing them for 15 minutes at a time and sleeping with them taped to my leg. The magnets hastened my recovery.

"A year and a half later, I re-injured the same hamstring. This time, I used magnets in addition to intravenous vitamin C drips, glutathione, calcium, magnesium, quercetin, and other nutrients at very high doses. The first hamstring injury required almost three months to heal using the magnets alone; the re-injury required two weeks to heal. I have seen the same results throughout my career when multiple therapies were used instead of an individual one. Hence, I believe that magnets should be used in combination with other healing modalities, which may include therapeutic touch, acupuncture, acupressure, deep or soft tissue massage, and compresses, to name just some of the approaches available."

WARNINGS

While magnets are generally safe, there are times when they should not be used. Here are some caveats to keep in mind:

PREGNANCY Until research proves otherwise, pregnant women should not wear magnets, particularly over the abdominal area, which would expose the foetus to the magnetic fields. Using magnets on the shoulder, arm or elbow, however would not expose the foetus and would be allowable.

PACEMAKERS Individuals wearing heart pacemakers or other electronic implanted devices should not use magnets near the apparatus. A magnet should not be suspended over the heart, for instance. Nor should they be worn on the mid-back where the magnetic field affects the heart from the opposite side. It is all right, though, to wear magnetic insoles for sore, tired feet or a magnetic pad on the elbow, or ankle.

BLEEDING WOUNDS Magnets lessen the stickiness of platelets, blood components that make a scab after you cut yourself. So, if you use a magnet when you have an active bleeding wound, you may actually increase the amount of bleeding in the wound. It's best then, to wait until the wound gets sticky or starts to show evidence of healing. Apply magnets at that point. Definitely do not use if you have a condition, called polycythemia, that increases the likelihood of bleeding.

CONSIDERATIONS WHEN USING FIXED MAGNETS

The effectiveness of magnetic treatment depends largely on four factors, according to Dr John Zimmerman: strength, thickness, number of magnets used and spacing.

First, magnets vary in strength, and it's important to remember that stronger magnets penetrate more deeply than do weak ones and that the reading at the surface of the magnet is different from the reading at its core. In other words a magnet that is a 2000 gauss at its core may only be 200 gauss at its surface.

If the problem area is covered by a thick layer of skin - say, at the thigh - the magnet may not be able to penetrate deeply enough to make a real difference. A strong, thick magnet will be needed. To penetrate 10 centimetres (4 inches) one needs a 300-gauss magnetic field, to get to that strength, one may need a magnet of about 8000 or 10,000 gauss at its core. These are hard to find but can sometimes be purchased through commercial distributors.

Neodymium and ceramic magnets tend to be more powerful than the plastalloy type. In general, the magnets that people should be purchasing are unipolar. They are flat-surface magnets that are magnetised along the direction of the surface.

Note that the horseshoe and bar magnets are not suitable for therapeutic application as they are magnetised on both ends or at the ends of the U-shape. Commonly, the magnets used therapeutically are either circular or rectangular. Several can be stacked for increased gauss strength and, therefore, greater effectiveness. The thicker the magnet, the greater the depth of penetration. The down side to this is that, with increasing thickness, the magnet becomes more uncomfortable to wear. As a compromise one can wear magnets between 6mm(1/4") and 10mm(3/8") thick.

Manufacturers often stack a number of magnets closely together in the same direction. The more magnets that a manufacturer includes in its product, the stronger the magnetic field and the greater the depth of penetration.

The final factor in magnet effectiveness has to do with the thickness or spacing of the pad between the magnet and the skin's surface. Usually, this space is pretty small - about a 3mm(1/8"). This spacing makes the magnet more comfortable to wear and also smooths out the lumpiness of the magnetic field.

Dr Zimmerman explains:"There's a phenomenon called south pole bleed-through. If you have a magnet that's a standard 10mm(3/8) thick by 22mm(7/8") by 50mm(1-7/8") tall, on one side of the magnet you have the north pole, and on the other side you have the south pole across the surface, 22mm x50mm. Across this magnet, one side is north and the other is south. If you take a sensitive magnetometer, you will read north

everywhere along the surface of that magnet until you reach the very edge. At the edge of the magnet, you'll start seeing south pole. That's called south pole bleed-through. Relatively few magnet manufacturers realise this.

"The way to avoid south pole bleed-through has to do with an interaction between this number and the spacing of the magnets and the thickness of the pad between you and the magnet. If you have relatively few magnets spaced far apart--say 12 magnets spaced 50mm apart--then you must have a thickness of some substantial amount, say 50mm - 75mm, before the magnetic field will become uniform.

"If you have a dozen magnets in a 3 x 4 array, in between each individual magnet you'll see the south pole. If you move a distance away from the magnet, say two or three inches, all the measured polarity will be north. There will be no south pole bleed-through. But if the magnets are spaced 50mm apart, the thickness of the spacer must be rather substantial, say 50mm, 75mm or 100mm, to avoid south pole bleed-through. That makes the magnets much weaker, and it makes the pad uncomfortably thick.

"To avoid that, you can place the magnets much closer together. Instead of 50mm apart, you can place them 12mm apart. Of course, if you space the magnets 12mm apart, you may have to have more magnets. So, instead of having one dozen magnets, you might have three or four dozen. This increases the weight and the cost of the product, but the advantage is that it allows you to use a much thinner pad.

"In sum, if you space the magnets a certain distance apart, you have a certain thickness of pad between you and the magnets, you'll get an entirely uniform magnetic field"

Zimmerman goes on to say that because of south pole bleed-through, you want the magnet to be larger than the size of the area being treated. So if you are treating a finger joint for arthritis, a small magnet is needed, if you are treating a large area, like the abdomen, a much larger magnet is called for.

THERAPEUTIC USES

Magnets have been used therapeutically to relieve pain and discomfort for thousands of years, perhaps even longer than acupuncture, which is over 2000 years old. The first reported therapeutic use of magnets involved the grinding up of a naturally occurring material called magnetite and the application of this in poultice form to uncomfortable areas of the body.

Magnetite makes for a relatively weak magnet by today's standards. But since the earth's naturally occurring magnetic field was far higher in the past (2 to 3 gauss as opposed to 1/2 gauss today), magnetite crystals may have been stronger at one point in time. Still, this is a weak field by today's standards as one can easily buy a magnet with an internal gauss strength of 10,000 (1 tesla) or more. Such high exposures do not appear in any way detrimental; at worst, they seem harmless and at best they appear to help a variety of conditions.



Exposure to the earth's magnetic field plays an essential role in our health, a fact clearly demonstrated when the first astronauts returned to earth sick. Their illness was soon attributed to a lack of magnetism in outer space and the problem was subsequently resolved when NASA placed magnets in their space suits and spaceships.

It has since been discovered that in the absence of a magnetic field, the energy level of atoms diminishes. Necessary nutrients become depolarised and unusable. If this condition is permitted to continue, the body can become imbalanced and function improperly. By restoring balance to an organism, magnetic therapy can alleviate a number of health conditions. Some of the most common applications of magnets are described below.

GENERAL USES

RELIEF FROM PAIN AND DISCOMFORT The most common use of magnetic fields is in the treatment of pain, with reports of successful treatment in a wide variety of conditions, including arthritis, rheumatism, fibromyalgia, back pain, headaches, muscle sprains and strains, joint pain tendonitis, shoulder pain, carpal tunnel syndrome, and torn ligaments.

A noteworthy American double-blind placebo-controlled study on the effects of static magnets on the treatment of arthritis was published in the [®]MDBR Journal of Rheumatology[®] MDNM (November 1997, p.1200). The study confirms the effectiveness of magnets in relieving the pain or arthritis.

Another scientific study of similar rigour was carried out by Dr. Zimmerman looking at the effects of fixed magnets on low back pain. There is good reason for confirmation that magnets are an excellent aid to pain relief.

To understand how magnets work to alleviate pain, it may help to look at pain mechanisms in the body. Pain is transmitted along nerve cells as an electric signal. While quiescent, the nerve has a small charge of about-70mV. A pain signal depolarises a cell. Magnets appear to raise the depolarisation potential of the cell so that the signal is blocked from depolarisation, in effect blocking the pain. Furthermore, the ability of the nerve to send pain is slowed by a magnetic field. These phenomena can aid in the relief of pain throughout the body.

Pain relief may be enhanced when a magnet's negative pole is placed over certain acupuncture meridians. Research and clinical experience show that magnets increase energy (*qi*) along these points. The combination of therapies works synergistically so that their combined effects are greater than the sum of their effects would be if they were used separately. In addition, acupuncturists like magnets because they are painless and allow the treatment to continue long after a visit.

REDUCTION OF INFLAMMATION & IMPROVED CIRCULATION

Injured tissue emits a positive charge; placing the negative pole of a magnet over the area appears to restore a natural balance in the following way: The magnet improves circulation, allowing blood vessels to dilate and bring a greater volume of blood flow to the injured area. This helps to ring in natural healers and to remove the toxic byproducts of inflammation - bradykinens, prostaglandins and histamines - all of which contribute to inflammation and pain. Thus, pain and inflammation are diminished and tissue healing is stimulated.

Antimicrobial Effects Magnetic therapy can help the body ward off such microbial invaders as viruses, bacteria, and fungi. It achieves this, in part, by increasing immune function through the oxygenation of white corpuscles, an important part of the immune system's arsenal.

A magnetic field can also function like an antibiotic by lowering acidity, with the result that microorganisms have a more difficult time surviving. In addition, hormonal production is regulated altering enzymatic activity and biochemical messengers of the immune system. For example, the pineal gland is one large electromagnetic entity. The net effect is to augment the body's natural ability to resist a variety of germs.

STRESS REDUCTION The recent discovery of magnetite in the cells of the brain helps explain the calming effect of magnetic therapy. A magnetic field applied to the head calms as well as induces a hypnotic sleeping effect on the brain by stimulating the hormone melatonin. Melatonin is known to be anti-stressful, a sedating effect on insomniacs. This finding has led to the manufacture of magnetic underlays designed to provide a sound and restful sleep. A person can then awaken with more energy and fewer aches and pains.

CORRECTION OF CENTRAL NERVOUS SYSTEM DISORDERS

Dr William Philpott claims that magnetic therapy can help central nervous system disorders. He states that such symptoms as hallucinations, delusions, seizures and panic can be alleviated through magnetic therapy without disrupting the patient's mental alertness and orientation. Also, a magnetic field may reduce the need for tranquillisers and antidepressants. Magnets have been used as well to stop epileptic seizures.

Energy Enhancement Magnetic therapy is known to increase general well-being by enhancing energy. The normal polarisation of a positively charged nucleus with a negatively charged outer membrane permits a cell to function as a healthy entity. However, as the cell performs its daily functions, it becomes depolarised. Depolarised cells equal a tired person. It is believed that magnetic energy has the ability to penetrate all facets of the human body and reach every cell. That translates to greater energy and vitality throughout the body as a whole. Consequently, supplemental magnetic therapy can help the body revitalise.

One normally revitalises biological energy during sleep. This can be enhanced by sleeping in a magnetic field. Then, anabolic hormones, such as melatonin and DHEA, are made. Melatonin, made by the pineal gland, is a master hormone controlling the entire energy system.

QUICKER HEALING The medical community has know for years that pulsed magnetic therapy promotes the healing process, particularly of bone fractures. For over years, many doctors have used pulsed magnetic therapy to treat fractures and have had a high rate of success.

Several magnetic instruments have already been FDA-approved and sanctioned for both safety and therapeutic implications.

The success of this therapy is attributed, in part, to its facilitating the migration of calcium ions and osteoblasts to heal broken bones in less than the usual time. In addition, the migration of calcium occurs away from joints to reduce painful arthritic joint inflammation. The end result is the non-invasive promotion of natural healing, without the use of unnatural chemicals and drugs.

Adequate magnetic energy also softens or eliminates scar tissue formed during the healing process.

Some doctors put magnets into the dressings over fractures. In fact, one veterinarian who broke his ankle after falling from a horse, reported following this strategy himself.

INCREASED ATHLETIC ENDURANCE AND PERFORMANCE

For years magnetic therapy has been used around the world on race horses to heal injuries and enhance performance. Doug Hannum, owner of the Equine Therapy Center in Camden, South Carolina, employed magnetic blankets along with other natural healing modalities on animals, and professional riders, such as five-time Olympian Bruce Davidson and world championship rider Dorothy Trapp shipped their steeds to Hannum for therapy.

Stunning successes with animals have promoted professional athletes to use magnets. The Russians may have been the first in recent athletic history to have adapted magnetic therapy to foster greater athletic strength and achievement.

Many notable American athletes embraced this technology as well. To example just a few: Denver Bronco linebacker Bill Romanowshi revitalised his aching body by sleeping on a magnetic mattress pad. Yankee pitcher Irabu played with dozens of magnets stuck to his body. Top golfer Jim Colbert endorsed magnets and attributed them to his prolonged career at the top of his sport. *(In fact the authoritative "Golf" magazine estimates that 90% of Senior pro golfers use magnetics.)* And professional football player Steve Atwintner, a seven-time pro-bowler, said "I am not waiting for the scientists to bless it. I only know it works."

In Australia, some top Rugby League and AFL teams use magnetic therapy to promote recovery from high-impact competition and the many injuries they suffer.

Even junior sports are turning to magnetic therapy to improve athletic performance. Although the effect of increased endurance and performance is known, the cause is not definitely understood. It is felt that magnetic energy warms up the muscles and joints so that performance is increased. At least as important, serious injuries are reduced. In addition, it is known that magnetic energy increases blood flow to the muscles, thereby increasing strength at these work sites.

SPECIFIC USES

In addition to its general benefits, magnetic therapy may help a variety of specific conditions. This is not to say that magnets will cure absolutely, irreversibly and indefinitely. How much good they do varies from person to person and depends upon such factors as the depth of the problem, how long the condition has been in existence, and how strong the magnet is.

Internationally recognised lymphologist, Dr Samuel West, stated: "Trapped blood proteins are present in all pain and disease. The inflammation that results, can, in turn, cause arthritis, asthma, headaches and migraines, back pain, insomnia, skin conditions, muscular stiffness and soreness, and many other painful diseases. Hundreds of cases of disease have been reversed by the application of magnetic fields. They create the optimum environment in which the body can heal itself."

When using magnets for chronic longstanding conditions, where the tissues have not been getting adequate blood flow, you may at first get an exacerbation of symptoms. Some people call this a healing crisis. The discomfort usually passes in 24 to 48 hours. In the meantime, one may wish to take some aspirin or paracetamol, or similar pain-relieving medication to help with the discomfort until the body starts to recover its circulation. One alternative is to decrease the length of time the magnet is worn in the beginning and to gradually increase the time.

When using magnets for healing purposes, the strength should generally be between 200 and 1500 gauss. Specific magnetic products require specific strengths and placements to achieve optimum results.

Here are some conditions for which magnets can be helpful:

AGING Magnets activate life-promoting enzymatic activity which, in turn, encourages normal cell division. This creates a healthier organism and may then slow down the aging process. Several studies on animals show magnetic therapy to increase lifespan. In order to balance the energy of the organs and glands throughout the body, it has been suggested that one apply magnetic fields to the whole body. Sleeping on a magnetic underlay is an excellent way to accomplish this.

In the words of Dr William Philpott: *"Sleeping on a magnetic underlay will, one day, be standard practice for anyone who wants to look and feel younger."*

Drinking magnetised water is another good habit to get into. Additionally, injured or weak areas of the body can be strengthened by applying magnets to these specific sites.

AMPUTATIONS Many amputees suffer from a phenomenon called phantom pain; i.e. they feel pain in a limb that was removed. Many of these patients have vascular problems. Research shows that in many, magnets can improve the flow of blood in the stump and cause phantom pain to go away.

APPENDICITIS A Northern or bipolar magnet can be placed over the affected area. In advanced infections, however, you should not hesitate to call a doctor, as this is an emergency situation.

ARTHRITIS Magnetic therapy may be one of the most effective methods for achieving relief from arthritis, according to a study published in the "Journal of Rheumatology" November 1997,p.1200). Placing the north pole of a magnet over the inflamed area on a regular basis may be the key factor in improvement, especially for arthritis in the hands and feet. Magnetic therapy may help reduce bone and tissue degeneration.

ASTHMA AND BRONCHITIS Wearing a strong neodymium magnet over the chest to cover the bronchial tubes and at an equal level on the back may help these conditions. In addition, sleeping on a magnetic underlay can be beneficial. It may take several days before breathing returns to normal, and magnets can be worn continuously during that time.

Scientific evidence supports the use of magnets in bronchitis, in both adults and children. In his clinical practice, Dr William Pawluk reported success after a patient of his, who suffered from chronic bronchitis after having been poisoned by mustard gas, used magnetic therapy. The use of this treatment resulted in a greater ease of breathing.

BREAST FISSURES Breast fissures are skin wounds that occur in women who are breastfeeding. Placing magnets over the wounded skin can help the fissure heal more quickly.

BURNS Magnets can help speed up the healing of all but the most serious burns. They are good to keep around the kitchen for burns received after touching a hot stove or picking up something that is scalding. Magnets should be placed over the site of the injury. For slightly more serious burns, the user of magnets may help reduce the need for analgesics to control pain.

CANCER Cells depolarise before becoming metastatic, and so one can speculate on how this approach may have been successful in those clinical cases that have responded to magnetic therapy. When using magnets for cancer, remember the following rules of thumb: The magnetic pole used must be negative. The field should be larger than the primary lesion and the gauss greater than 25. Success rate increases if both the gauss and duration are increased. A minimal duration of 20 hours per day for no less than three months is required in most cases. The therapeutic effect is, in part, a result of the negative pole producing alkaline hyperoxia (abundance of oxygen). Cancer cells form their energy by making ATP in an acid anaerobic environment, which is termed acid hypoxia.

Russian reports indicate that using magnetic therapy along with chemotherapy increases success in the treatment of brain tumors. Patients given magnetic therapy were less sick than patients who did not receive it, and they recovered more quickly. They also had fewer problems with their adrenal glands, which chemotherapy can sometimes affect.

Since the amount of information available on magnetic therapy with cancer is so limited, and since cancer is such a serious condition, one should never consider magnets as a sole therapy.

CARPAL TUNNEL SYNDROME Magnets can be applied to the front and back of the wrist to help this hard-to-heal condition. While the symptoms can be controlled with the help of magnets, one should not expect the condition to be automatically cured.

CERVICITIS Russian medical scientists have designed magnets for intravaginal use to alleviate chronic cervicitis. They are placed in the vagina, next to the cervix. While this method may be useful for chronic cervicitis, it probably should not be used for acute infection, such as yeast infections.

CIRCULATORY PROBLEMS One can place magnetic strips along the forearm and sleep on a magnetic underlay at night.

DEPRESSION When magnets are placed over the head, they can help lift one's mood and promote relaxation.

DERMATITIS As magnets decrease swelling of any kind, they can be placed over an area of inflamed, red, itchy skin with favourable results.

DIABETES As magnets can improve blood circulation, sufferers from Diabetes can enjoy significant pain relief and recovery of sensation. Sleeping on a magnetic underlay and wearing magnetic foot inserts during the day is an excellent combined therapy.

EAR PAIN Magnets can be placed over the painful site. Medical advice should also be sought, though, particularly for children.

ENDOMETRIOSIS This painful condition causes little blood spots inside the pelvis and is characterised by tissue irritation, inflammation, and pain. Women with infertility problems often suffer from this. Benefit can be realised through magnetic therapy, although it might take several months. In one study, good results were seen when 250-gauss magnets were placed over the lower abdomen for six to 12 hours.

FIBROMYALGIA One should sleep on a magnetic underlay and consider the wearing of magnetic insoles during the day. Magnets can also be placed over specific painful areas.

FOOT AND LEG PROBLEMS Magnetic insoles will increase circulation and help conditions such as numbness, burning, aches, restlessness, and leg cramps. In addition, one should sleep on a magnetic underlay mattress pad.

HEAD INJURIES Head injuries, even mild ones, can leave people with chronic debilitating problems, many of which show up years later as headaches, memory disorders, chronic fatigue syndrome, eye problems, irritability, or other symptoms. Magnets placed around the head and neck can correct the electrical imbalance precipitated by injury.

HEART DISEASE A neodymium magnet worn over the heart may assist the body in healing itself, and may, in time, allow one to lessen or discontinue medications. Of course, one should always follow a physician's advice. Some of the effects of magnets on circulatory function are greater blood vessel dilation and increased oxygenation of tissues. Magnetic therapy may also improve vascular resistance and decrease the stickiness of blood platelets.

People with peripheral vascular disorder and arteriosclerosis may therefore benefit from magnetic therapy. Magnetic therapy may also undo blockages throughout the body, such as in the vessels of the lower extremities, the arteries in the neck, and the blood vessels in the hands and arms. By opening up a blockage in the heart, magnets may help prevent or improve ischemic heart disease, angina and heart attacks.

INSOMNIA A magnetic underlay is highly effective in placing the entire body within a magnetic field all night, promoting deep, natural sleep.

MUSCLE SPASMS One of the major actions of magnets is to decrease spasms of muscles. If you pull a back muscle or you're under a lot of stress, those muscles may tighten up. Placing small round magnets or little block magnets over those areas can make a significant difference.

Dr Pawluk reports additional relief when acupuncture meridians are stimulated with magnets. *"In some patients, myself included, I've placed a magnetic pad over the sacral area because it hits the bladder meridian going up the back. The bladder meridian controls the energy flowing through the muscles, all the way up and down the back, including, to some extent, the shoulders. If you increase the energy flow along the bladder area, it will help a muscle problem or tension up into the shoulders."*

MUSCLE STRAINS AND SPRAINS AND JOINT PAIN Dr Pawluk reports success after applying a magnet over the site of a torn muscle: "While playing with the family dog, I tore a muscle in my calf. It was very painful. I covered the area with a large magnetic pad, one that was probably 8 x 10 inches wide. And I wrapped an Ace bandage around that. I wore that for three days. It made a significant improvement in the pain and discomfort and reduced the bruising around the tissues."

Local applications are appropriate for these types of problems. Wear the magnet for several hours, and then take a break from it. Either wear the magnet all day and take it off during the night or vice versa. The same rule applies to joint pain. A magnet can be taped over the joint for a set period of time. Additional benefit can be derived if magnets are placed over the corresponding acupuncture points. Sleeping or resting on a magnetic underlay can promote faster pain relief and recovery.

NEURITIS The Russians performed a study of 39 neuritis patients on medication alone, and an equal number on medicine plus magnetic treatments. Magnets were placed along the spine, even though the neuropathy may have been experienced in the arms. The assumption was that some of the information processing originated in the spine. Therefore, treating the spine would be reflected in improvement in the arms. The experiment found a great degree of improvement in both groups, but particularly in the group receiving medication plus magnetic treatment. Pain was reduced and nerve reflexes improved.

POST-POLIO SYNDROME Recently a study was performed examining the effect of bipolar magnets on post-polio syndrome, a condition characterised by muscle tenderness and pain in patients who have had polio. The condition occurs years after the original damage from the polio virus. Application of magnets to these tender, painful spots was shown to alleviate pain in this double-blind placebo-controlled study, the results of which were published in the November 1997 issue of the "Archives of Physical Medicine and Rehabilitation".

RHEUMATOID ARTHRITIS Magnets act as an anti-inflammatory, and therefore help some chronic inflammatory conditions, such as rheumatoid arthritis.

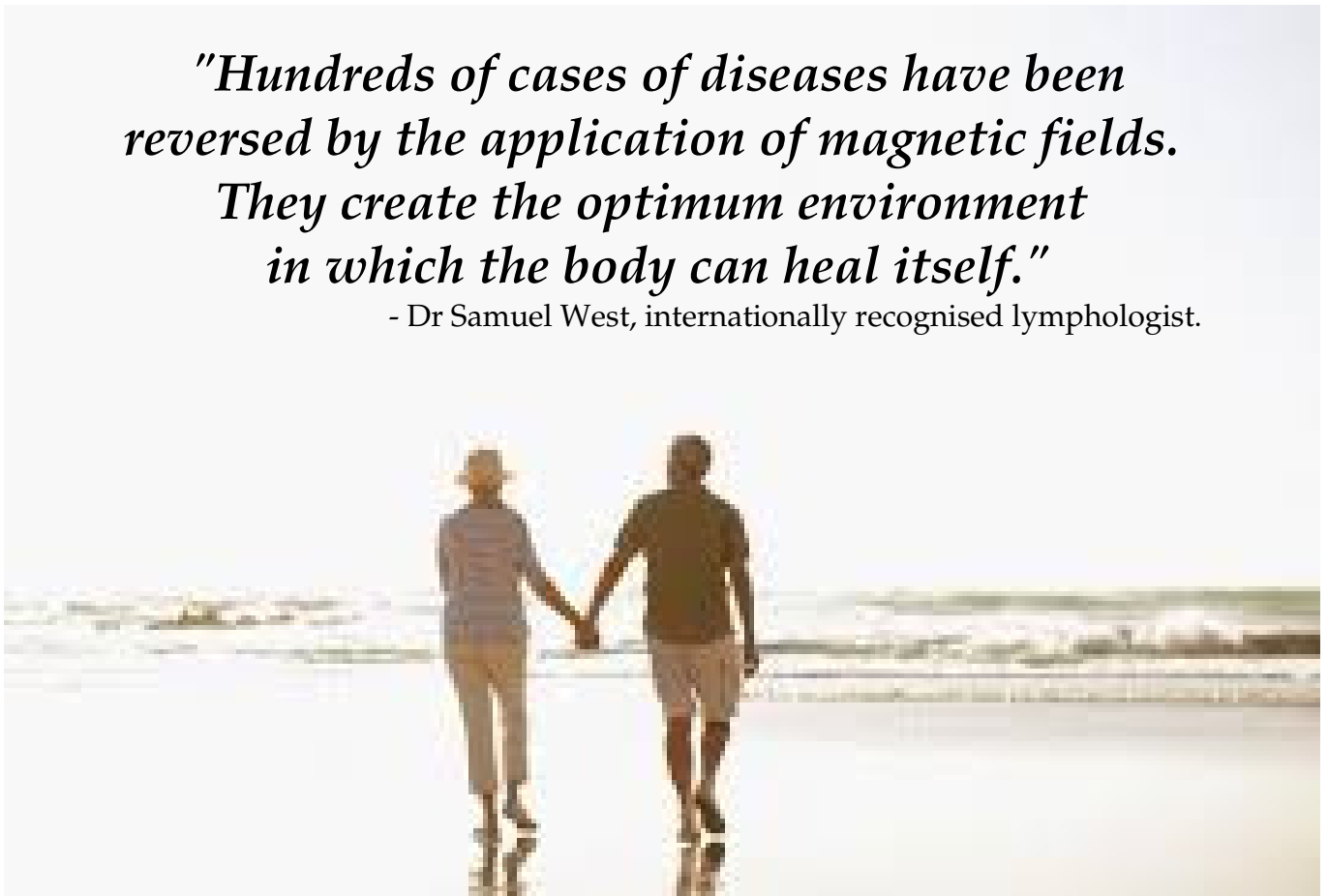
SURGERY Some studies have shown that using magnets for 24 to 48 hours before surgery, over the site where the incision will be made, results in better post-operative recovery. Additionally, wearing magnets over the wound after the sutures have been put in can also speed up healing.

Length of Exposure

In many studies using magnets, patients experience favourable results with intermittent use as opposed to continual wear. In other research and clinical experience, conditions are alleviated when magnets are worn full-time. This raises the questions for further research: Should magnets be worn all the time or should they be worn for certain intervals? Should the length of time they are worn vary from condition to condition or person to person? Dr Pawluk asserts that research shows that if magnets are worn all the time, the body may adapt to the field and establish a new level of homeostasis. This can be compared, Pawluk explains, to walking into a room that has a scent of flowers. After one is there awhile, the smell becomes imperceptible. The body may, therefore, need a periodic time-off from magnets.

"Hundreds of cases of diseases have been reversed by the application of magnetic fields. They create the optimum environment in which the body can heal itself."

- Dr Samuel West, internationally recognised lymphologist.



WHAT THE FUTURE HOLDS

In the twenty-first century medicine will change from a field dominated by chemistry and surgery to one that promotes the body's own healing ability, and magnetic therapy will surely play a big part in this shift. At present, while magnetism's ability to alleviate a variety of conditions is well-documented, we do not completely understand how this happens. So more research is needed. We need too, to provide greater knowledge about how to manipulate magnets for the best effects.

As we increase both our scientific and clinical understanding, sceptics in the medical community will be won over to this vitally important healing modality. A burgeoning field of inquiry involves methods of slowing the aging process. Anti-aging research to date has focused on medicinal herbs, hormones, and nutrients that enhance health but do not necessarily lengthen the genetically determined lifespan. A popular belief has been that each cell has a figurative biological clock that predetermines senescence and maximum lifespan.

For years scientists have tried to identify the exact number of this clock, and recently, they seem to have done so. It seems that each time a normal cell divides it loses small portions of the ends of its chromosomes, which are regions called telomeres. When telomeres are shortened to a certain critical length, the cell can no longer divide. This results in the cell growing old and eventually dying. Part of this divisional activity requires bonding of proteins known to each other through a process known as hydrogen bonding. It is known that hydrogen bonds are influenced by magnetic fields, and there is a possibility that magnetic fields can be used to affect hydrogen bonding in a way that will reset the biological clock.

Another factor in aging is a decrease in the production of the hormone DHEA. It is known that magnetic energy can influence hormone production from the pineal gland. It will be interesting to determine if this therapy can influence the production of DHEA with a resultant slowing of the aging process.