Magnet Therapy

En Español (Spanish Version)

Overview | History of Magnet Therapy | Types of Magnet Therapy and Their Uses | How Does Magnet Therapy Work? | What Is the Scientific Evidence for Magnet Therapy? | How to Use Magnet Therapy | Safety Issues | References

Related Terms
• Electromagnetic Therapy; Magnetic Stimulation; PEMF; rTMS; Static Magnets; Transcranial direct current stimulation; tDCS; TMS; Transcranial Magnetic Stimulation

Principal Proposed Uses
• STATIC MAGNETS: Diabetic Peripheral Neuropathy and Other Forms of Peripheral Neuropathy; Fibromyalgia; Low Back Pain and Other Forms of Chronic Musculoskeletal Pain; Post-polio Syndrome; Wound Healing After Plastic Surgery; Rheumatoid Arthritis
• PULSED ELECTROMAGNETIC THERAPY—PEMF: Migraines; Nonhealing Bone Fractures; Osteoarthritis; Postoperative Pain; Stress Incontinence and Bed-wetting
• REPETITIVE TRANSCRANIAL MAGNET THERAPY—RTMS: Chronic Regional Pain Syndrome; Depression

Other Proposed Uses
• STATIC MAGNETS: Carpal Tunnel Syndrome; Chronic Pelvic Pain in Women (Caused by Various Conditions, such as Endometriosis and Chronic Cystitis); Edema; Fatigue; Insomnia; Menstrual Pain; Osteoarthritis; Rheumatoid Arthritis; Scar Tissue; Sports and Fitness Support; Enhancing Performance; Sports and Fitness Support; Enhancing Recovery; Surgery Support; Tinnitus
• PEMF: Erectile Dysfunction; Multiple Sclerosis
• TDCS Stroke; Fibromyalgia
• RTMS: Epilepsy; Myofascial Pain Syndrome; Obsessive-compulsive Disorder; Parkinson's Disease; Post-traumatic Stress Disorder; Schizophrenia

Overview

Long popular in Japan, magnet therapy has entered public awareness in the United States, stimulated by golfers and tennis players extolling the virtues of magnets in the treatment of sports-related injuries. Magnetic knee, shoulder, and ankle pads, as well as insoles and mattress pads, are widely available and are touted as providing myriads of healing benefits.

Despite this enthusiasm, as yet there is little scientific evidence to support the use of magnets for any medical condition. However, some small studies completed in the last few years suggest that various forms of magnet therapy might have a therapeutic effect in certain conditions. More studies are underway.

History of Magnet Therapy

Magnet therapy has a long history in traditional folk medicine. Reliable documentation tells us that Chinese doctors believed in the therapeutic value of magnets at least 2,000 years ago, and probably earlier than that. In sixteenth century Europe, Paracelsus used magnets to treat a variety of ailments. Two centuries later, Mesmer became famous for treating various disorders with magnets.
In the middle decades of the twentieth century, scientists in various parts of the world began performing studies on the therapeutic use of magnets. From the 1940s on, magnets became increasingly popular in Japan. Yoshio Manaka, one of the influential Japanese acupuncturists of the twentieth century, used magnets in conjunction with acupuncture. Magnet therapy also became a commonly used technique of self-administered medicine in Japan. For example, a type of plaster containing a small magnet became popular for treating aches and pains, especially among the elderly. Magnetic mattress pads, bracelets, and necklaces also became popular—again, mainly among the elderly. During the 1970s, both magnets and electromagnetic machines became popular among athletes in many countries for treating sports-related injuries.

These developments led to a rapidly growing industry creating magnetic products for a variety of conditions. However, the development of this industry preceded any reliable scientific evidence that static magnets actually work for the purposes intended. In the United States, it was only in 1997 that properly designed clinical trials of magnets began to be reported. Subsequently, results of several preliminary studies (detailed in the Scientific Evidence section) suggested that both static magnets and electromagnetic therapy may indeed offer therapeutic benefits for several disorders. These findings have escalated research interest in magnet therapy.

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**Types of Magnet Therapy and Their Uses**

The term magnet therapy usually refers to the use of static magnets placed directly on the body, generally over regions of pain. Static magnets are either attached to the body by tape or encapsulated in specially designed products such as belts, wraps, or mattress pads. Static magnets are also sometimes known as permanent magnets.

Static magnets come in various strengths. The units of measuring magnet strength are gauss and tesla. One tesla equals 10,000 gauss. A refrigerator magnet, for example, is around 200 gauss. Therapeutic magnets measure anywhere from 200 to 10,000 gauss, but the most commonly used measure 400 to 800 gauss.

Therapeutic magnets come in two different types of polarity arrangements: unipolar magnets and alternating-pole devices. Magnets that have north on one side and south on the other are known, rather confusingly, as unipolar magnets. Bipolar or alternating-pole magnets are made from a sheet of magnetic material with north and south magnets arranged in an alternating pattern, so that both north and south face the skin. This type of magnet exerts a weaker magnetic field because the alternating magnets tend to oppose each other. Each type of magnet has its own recommended uses and enthusiasts. (There are many heated opinions—with no supporting evidence—on this matter.)

More complex magnetic devices have also been studied—not for home use, but for use in physicians' offices and hospitals.

A special form of electromagnetic therapy, repetitive transcranial magnetic stimulation (rTMS), is undergoing particularly close study. rTMS is designed specifically to expose the brain to low-frequency magnetic pulses. A significant number of small studies suggest that rTMS might be beneficial for depression.

rTMS is also being studied for the treatment of amyotrophic lateral sclerosis (ALS), Parkinson's disease, epilepsy, schizophrenia, obsessive-compulsive disorder, chronic regional pain syndrome, and tinnitus.

Transcranial direct current stimulation (tDCS) is similar to, but not identical with, magnet therapy. With tDCS, electrodes deliver a constant, low current. This treatment has been studied in patients recovering from stroke and other conditions, such as depression.

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**How Does Magnet Therapy Work?**

Many commercial magnets have such a weak field that it is hard to believe they could affect the body at all.
Some, however, are quite powerful and could conceivably cause effects at some depth. Nonetheless, biophysicists are skeptical that static magnets could significantly affect the body. (The moving magnetic fields of rTMS and pulsed electromagnetic therapy [PEMF] act differently, and there is little doubt that they can affect nerve tissue and possibly other parts of the body as well.)

A commonly held misconception is that magnets attract the iron in blood cells, thus moving the blood and stimulating circulation. However, the iron in the blood is not in a magnetic form. Static magnets could affect charged particles in the blood, nerves, and cell membranes or subtly alter biochemical reactions, although whether the effect is strong enough to make a difference remains to be shown. Some research results suggest that static magnets affect local blood circulation, but a rigorously designed double-blind trial found that commercially available static magnets have no effect on blood flow. Another well-designed trial also failed to find effects on blood circulation. However, there is some weak evidence that static magnets may affect muscle metabolism. Further research will be necessary to sort out these possibilities.

What Is the Scientific Evidence for Magnet Therapy?

Static Magnets

In double-blind, placebo-controlled trials, static magnets have shown promise for a number of conditions, but in no case is the evidence strong enough to be relied upon. In a 2007 review of all studies of static magnets as a treatment for pain, researchers concluded that as yet there is no meaningful evidence that they are effective; they further concluded that current evidence suggests that, for some pain-related conditions, static magnets are, in fact, not effective (a much stronger statement than the first).

Note: Some magnet proponents claim that it is impossible to carry out a truly double-blinded study on magnets, because participants can simply use a metal pin or a similar object to discover whether they have a real magnet applied to or not. Some researchers have gotten around this by using a weak magnet as the placebo treatment. Other researchers have designed more complicated placebo devices that patients have been found unable to identify as fake treatments.

Rheumatoid Arthritis

A double-blind, controlled trial of 64 people with rheumatoid arthritis of the knee compared the effects of strong alternating polarity magnets (see Types of Magnet Therapy and Their Uses for definition) with the effects of a deliberately weak unipolar magnet. Researchers used the weakened magnet as a control group so that participants wouldn’t find it easy to break the blind by testing the magnetism of their treatment.

After 1 week of therapy, 68% of the participants using the strong magnets (called the treatment group) reported relief, compared to 27% in the control group. This difference was statistically significant. Two out of four other subjective measurements of disease severity also showed statistically significant improvements. However, no significant improvements were seen in objective evaluations of the condition, such as blood tests for inflammation severity or physician’s assessment of joint tenderness, swelling, or range of motion. This study suggests that magnet therapy may reduce the pain of rheumatoid arthritis without altering actual inflammation. However, the mixture of statistically significant and insignificant results indicates that a larger trial is necessary to factor out "statistical noise."

Post-polio Syndrome

A double-blind, placebo-controlled study of 50 people with post-polio syndrome found evidence that magnets are effective for relieving pain. The magnets or placebo magnets were placed on previously determined trigger points (one per person) for 45 minutes. (Trigger points are sore areas within muscle that, when pressed, cause relief in other areas of the muscle and conversely, when inflamed, cause pain in other parts of the muscle.) In the treatment group, 76% of the participants reported improvement, compared to 19% in the placebo group.
Fibromyalgia

A 6-month, double-blind, placebo-controlled trial of 119 people with fibromyalgia compared two commercially available magnetic mattress pads against sham treatment and no treatment. Group 1 used a mattress pad designed to create a uniform magnetic field of negative polarity. Group 2 used a mattress pad that varied in polarity. In both groups, manufacturer’s instructions were followed. Groups 3 and 4 used sham treatments designed to match in appearance the magnets used in Groups 1 and 2. Group 5 received no treatment.

On average, participants in all groups showed improvement over the 6 months of the study. Participants in the treatment groups, especially Group 1, showed a trend toward greater improvement; however, the differences between real treatment and sham or no treatment failed to reach statistical significance in most measures. This outcome suggests that magnetic mattress pads might be helpful for fibromyalgia, but a larger study would be necessary to identify benefits.

A previous double-blind, placebo-controlled study of 30 women with fibromyalgia did find significant improvement with magnets compared to placebo. The women slept on magnetic mattress pads (or sham pads for the control group) every night for 4 months. Of the 25 women who completed the trial, participants sleeping on the experimental mattress pads experienced a significant decrease in pain and fatigue compared to the placebo group, along with significant improvement in sleep and physical functioning.

A single-blind study of somewhat convoluted design provides weak evidence that a gown made from a special “electromagnetic shielding fabric” can reduce fibromyalgia symptoms. The rationale for using this fabric is, however, somewhat scientifically implausible.

Peripheral Neuropathy

A 4-month, double-blind, placebo-controlled crossover study of 19 people with peripheral neuropathy found a significant reduction in symptoms compared to placebo. Participants wore magnetic foot insoles during the day throughout the trial period. Reduction in the symptoms of burning, numbness, and tingling were especially marked in those cases of neuropathy associated with diabetes.

Based on these results, a far larger randomized, placebo-controlled, follow-up study was performed by the same researchers. This trial enrolled 375 people with peripheral neuropathy caused by diabetes and tested the effectiveness of 4 months of treatment with magnetic insoles. The results indicated that the insoles produced benefits beyond that of the placebo effect, reducing such symptoms as burning pain, numbness, tingling, and exercise-induced pain.

Surgery Support

A double-blind, placebo-controlled study looked at the effect of magnets on healing after plastic surgery. The study examined the use of magnets on 20 patients who had suction lipectomy (commonly known as liposuction). Magnets contained in patches were placed over the operative region immediately after surgery and left in place for 14 days. The treatment group experienced statistically significant reduction of pain and swelling on postoperative days 1-4 and in discoloration on days 1-3 compared to the control group. Another study of 165 people, however, failed to find that use of static magnets over the surgical incision reduced post surgical pain.

Furthermore, the positioning of static magnets at the acupuncture/acupressure point P6 in patients undergoing ear, nose, and throat (ENT) or gynaecological surgeries reduced nausea and vomiting no better than placebo in a randomized trial.

Low Back Pain and Other Forms of Chronic Musculoskeletal Pain

A double-blind, placebo-controlled crossover trial of 54 people with knee or back pain compared a complex static magnet array against a sham magnet array. Participants used either the real or sham device for 24 hours; then, after a 7-day rest period, they used the opposite therapy for another 24 hours. Evaluations showed that use of the real magnet was associated with greater improvements than the sham treatment.
Benefits were also seen in a double-blind, placebo-controlled trial of 43 people with chronic knee pain who used fairly high-power but otherwise ordinary static magnets continuously for 2 weeks. And, in another placebo-controlled trial, the use of a magnetic knee wrap for 12 weeks was associated with a significant increase in quadriceps (thigh muscle) strength in patients with knee osteoarthritis.

A double-blind, placebo-controlled crossover study of 20 people who had chronic low back pain for at least 6 months’ duration failed to find any evidence of benefit. However, the alternating pole magnet used in this study produced a very weak magnetic field. Another study found hints of benefit that failed to reach statistical significance.

In a double-blind study of 101 people with chronic neck and shoulder pain, use of a magnetic necklace failed to prove more effective than placebo treatment.

Another study failed to find magnetic insoles helpful for heel pain.

Osteoarthritis

A widely publicized 12-week study of 194 people reportedly found that use of magnetic bracelets reduced osteoarthritis pain in the hip and knee. However, the study actually found statistically similar benefits among participants given a placebo treatment. The researchers suggest that this failure to show superior effects may have been due, in part, to an unfortunate error: the study utilized weak magnets as the placebo treatments, but 34 patients in the placebo group accidentally received strong magnets instead. This would tend to decrease the difference in outcome seen between the treatment and the placebo group and could therefore hide a real treatment benefit. Nonetheless, as matters currently stand, this study does not provide evidence that magnetic bracelets offer any benefit for osteoarthritis beyond that of the placebo effect.

A much smaller study also failed to find statistically significant benefit, but it was too small to be able to produce statistically meaningful results. Rather, it was designed to evaluate a special placebo magnet device. After the study, researchers polled the participants to see if they could correctly identify whether they’d been given the real treatment or the placebo: they could not.

Pelvic Pain

A double-blind, placebo-controlled study of 14 women with chronic pelvic pain (due to endometriosis or other causes) found no significant benefit when magnets were applied to abdominal trigger points for 2 weeks. However, statistical analysis showed that it would have been necessary to enroll a larger number of participants to detect an effect. A larger study did find some evidence of benefit after 4 weeks of treatment, but a high dropout rate and other design problems compromise the meaningfulness of the results. Another small study found possible evidence of benefit in menstrual pain.

Carpal Tunnel Syndrome

A double-blind, placebo-controlled study of 30 people with carpal tunnel syndrome found that a single treatment with a static magnet produced dramatic and long-lasting benefits. However, identical dramatic benefits were seen in the placebo group! In two more small randomized trials, researchers again found that there were no differences between the treatment and the placebo groups. Both groups experienced similar improvements in symptoms.

In a small study involving 31 hands with long-standing CTS, a combination of static magnet and pulses electromagnetic field (see below) therapy modestly improved “deep” pain, but had no significant effect on overall pain over a 2-month period.

Sports Performance

People who undergo intense exercise often experience muscle soreness afterwards. One study tested magnet therapy for reducing this symptom. However, while use of magnets did reduce muscle soreness, so did placebo treatment, and there was no significant
difference between the effectiveness of magnets and placebo. Another study, of more complex design, also failed to find benefit. 70

Magnetic insoles have also been advocated for increasing sports performance. However, a study of 14 college athletes failed to find that magnetic insoles improved vertical jump, bench squat, 40-yard dash, or a soccer-specific fitness test performance. 57

**Pulsed Electromagnetic Field Therapy (PEMF)**

Pulsed electromagnetic field therapy (PEMF) is quite distinct from magnet therapy itself. (The term “electromagnetic field” does not, in this case, refer to magnetism in the ordinary sense.) Nonetheless, for historical reasons, it is often classified together with true magnetic therapies. Because of that, we discuss it here.

Bone has a remarkable capacity to heal from injury. In some cases, though, the broken ends do not join, called non-union fractures. PEMF therapy has been used to stimulate bone repair in non-union and other fractures since the 1970s; this is a relatively accepted use and will not be discussed here. More controversially, PEMF has shown promise for osteoarthritis, stress incontinence, and possibly other conditions as well.

**Osteoarthritis**

Three double-blind, placebo-controlled studies enrolling a total of more than 350 people suggest that pulsed electromagnetic field therapy can improve symptoms of osteoarthritis. 11, 12, 47

For example, a double-blind, placebo-controlled study tested PEMF in 86 people with osteoarthritis of the knee and 81 with osteoarthritis of the cervical spine. 12 Participants received 18 half-hour sessions with either a PEMF machine or a sham device. The treated participants showed significantly greater improvements in disease severity than those given placebo. For both osteoarthritis conditions, benefits lasted for at least 1 month after treatment was stopped.

A more recent double-blind trial evaluated low-power, extremely low-frequency pulsed electromagnetic fields for the treatment of knee osteoarthritis. 38 A total of 176 people received eight sessions of either sham or real treatment over a period of 2 weeks. The results showed significantly greater pain reduction in the treated group.

**Urinary Incontinence**

Many women experience stress incontinence, the leakage of urine following any action that puts pressure on the bladder. Laughter, physical exercise, and coughing can all trigger this unpleasant occurrence. A recent study suggests that PEMF treatment might be helpful. In this placebo-controlled study, researchers applied high-intensity pulsating magnetic fields to 62 women with stress incontinence. 14 The intention was to stimulate the nerves that control the pelvic muscles.

The results showed that one session of magnetic stimulation significantly reduced episodes of urinary leakage over the following week, compared to placebo. In the treated group, 74% experienced significant improvement, compared to only 32% in the placebo group. Presumably, the high-intensity magnetic field used in this treatment created electrical currents in the pelvic muscles and nerves. This was confirmed by objective examination of 13 patients, which found that magnetic stimulation was in fact increasing the strength of closure at the exit from the bladder. However, there was one serious flaw in this study: it does not appear to have been double-blind. (For more information on why this is important, see Why Does This Database Rely on Double-blind Studies?) Researchers apparently knew which participants were getting real treatment and which were not, and therefore might have unconsciously biased their observations to conform to their expectations. Thus, the promise of electromagnetic therapy for stress incontinence still needs to be validated in properly designed trials.

Similarly, magnetic stimulation has been studied for the treatment of bed-wetting (nocturnal eneuresis). In a small preliminary study, the use of PEMF day and night for 2 months was helpful in girls. 88

**Multiple Sclerosis**
A 2-month, double-blind, placebo-controlled study of 30 people with multiple sclerosis was conducted using a PEMF device. Participants were instructed to tape the device to one of three different acupuncture points on the shoulder, back, or hip. The study found statistically significant improvements in the treatment group, most notably in bladder control, hand function, and muscle spasticity. Benefits were seen in another small study too.

Erectile Dysfunction

In a 3-week, double-blind, placebo-controlled trial, 20 men with erectile dysfunction received PEMF therapy or placebo. The magnetic therapy was administered by means of a small box worn near the genital area and kept in place as continuously as possible over the study period; neither participants nor observers knew whether the device was actually activated or not. The results showed that use of PEMF significantly improved sexual function compared to placebo.

Migraines

In a double-blind trial, 42 people with migraine headaches were given treatment with real or placebo pulsed electromagnetic therapy to the inner thighs for 1 hour, 5 times per week for 2 weeks. The results showed benefits in headache frequency and severity. However, the study design was rather convoluted and nonstandard, and, therefore, the results are difficult to interpret.

Postoperative Pain

In a small, randomized trial, 80 women undergoing breast augmentation surgery were divided into three groups. The first group received PEMF therapy for 7 days postsurgically to both breasts, the second group received fake PEMF therapy to both breasts as a control, and the third group received real and fake PEMF therapy to either breast. Compared to the control, women receiving PEMF therapy reported significantly less discomfort and used less pain medications by the third postoperative day.

Electromagnetic Therapy: Repetitive Transcranial Magnetic Stimulation

Unlike PEMF, repetitive transcranial magnetic stimulation (rTMS) does in fact involve magnetic fields, and is, therefore, more closely related to standard magnet therapy. It involves applying low-frequency magnetic pulses to the brain. rTMS has been investigated for treating emotional illnesses and other conditions that originate in the brain. The results of preliminary studies have been generally promising.

Depression

About 20 small studies have evaluated rTMS for the treatment of depression (including severe depression that does not respond to standard treatment, as well as the depressive phase of bipolar illness), and most found it effective. In one of these studies, 70 people with major depression were given rTMS or sham rTMS in a double-blind setting over a period of 2 weeks. The results showed that participants who had received actual treatment experienced significantly greater improvement than did those receiving sham treatment. In a far larger study involving 301 depressed patients, none of whom were being treated with antidepressant medications, real rTMS was significantly more effective than fake rTMS after 4-6 weeks of treatment.

In a much smaller trial involving 45 subjects, researchers found that rTMS is more effective than sham rTMS as an add-on treatment to medication in people with moderate to severe depression (including those with psychotic symptoms).

In another trial involving 92 older patients whose depression had been linked to poor blood flow to the brain (so-called vascular depression), actual rTMS was significantly more effective than sham rTMS. Benefits were more notable in younger patients.

In a particularly persuasive piece of evidence, researchers pooled the results of 30 double-blind trials involving 1,164 depressed patients and determined that real rTMS is significantly more effective than sham (fake) rTMS.
Two separate studies suggest that rTMS may be an effective additional treatment for the 20%-30% of depressed people for whom conventional drug therapy is not successful. Another group of researchers pooled the results of 24 studies involving 1,092 patients and found rTMS to be more effective than sham for treatment resistant depression. ECT (electroconvulsive therapy, or shock treatment) is often used for people who fall in this category, but rTMS may be an equally effective alternative.

Epilepsy

In a double-blind, placebo-controlled trial, 24 people with epilepsy (technically, partial complex seizures or secondarily generalized seizures) not fully responsive to drug treatment were given treatment with rTMS or sham rTMS twice daily for a week. The results showed a mild reduction in seizures among the people given real rTMS. However, the benefits rapidly disappeared when treatment was stopped. Similarly short-lived effects were seen in an open trial.

Schizophrenia

A double-blind, placebo-controlled crossover trial looked at the use of low-frequency rTMS in 12 people diagnosed with schizophrenia and manifesting frequent and treatment-resistant auditory hallucinations (hearing voices). Participants received rTMS for 4 days, with length of treatment building from 4 minutes on the first day to 16 minutes on the fourth day. Active stimulation significantly reduced the incidence of auditory hallucinations compared to sham stimulation. The extent of the benefit varied widely, lasting from 1 day in one participant to 2 months in another. Possible benefits were seen in other small studies, as well. Researchers pooling the results of 6 controlled trials, which involved a total of 232 patients with schizophrenia resistant to conventional treatment, found that real low-frequency rTMS was significantly better at reducing auditory hallucinations compared to sham rTMS.

Parkinson’s Disease

In a double-blind, placebo-controlled trial of 99 people with Parkinson’s disease, real rTMS was more effective than sham (fake) rTMS delivered over 8 weekly treatments. Similar benefits were seen in 3 other small studies, as well. Even more encouraging, the combined results of 10 randomized trials in Parkinson’s patients indicated significant benefit for rTMS (using higher frequencies).

Chronic Pain Syndromes

rTMS technology has also been applied to areas other than the brain. Myofascial pain syndrome is a condition similar to fibromyalgia, but more localized. While fibromyalgia involves tender trigger points all over the body, myofascial pain syndrome involves trigger points clustered in one portion of the body only. One controlled trial found indications that a form of repetitive magnetic stimulation applied to the painful area may be effective for myofascial pain syndrome of the trapezius muscle.

In a placebo-controlled trail involving 61 people with long-standing diabetes, low-frequency repetitive magnetic stimulation failed to diminish the pain associated with diabetic peripheral neuropathy. Interestingly, however, in another study involving 28 people with peripheral neuropathy, high frequency rTMS applied to the brain was more effective at reducing pain and improving quality of life than fake rTMS.

Tinnitus

A preliminary study found indications that rTMS may be helpful for tinnitus (ringing in the ear). However, a subsequent review of 5 randomized trials comparing rTMS to sham rTMS in 233 people with tinnitus found limited evidence to support its use for this condition. The authors highlighted the need for more studies with larger sample sizes.

Post-traumatic Stress Disorder

A small, double-blind, placebo-controlled study found that use of rTMS may be able to reduce symptoms of
post-traumatic stress disorder.

Cigarette Addiction

A very small, double-blind, placebo-controlled study found evidence that rTMS may reduce craving for cigarettes in people attempting to quit smoking.68

Obsessive-compulsive Disorder

A double-blind, placebo-controlled study of 18 people with obsessive-compulsive disorder found no evidence of benefit with rTMS.22

Myotrophic Lateral Sclerosis (Lou Gerhig’s Disease)

Amyotrophic lateral sclerosis (ALS) is a nerve disorder that causes progressive muscle weakness. A small pilot study hinted that rTMS may be beneficial at least temporarily.78

Chronic Regional Pain Syndrome

People with chronic regional pain syndrome (CRPS) may have a feeling of aching or burning in their arms or legs. One small study included 23 people with CRPS who were already getting conventional treatment (e.g., pain medication, physical therapy) for pain in their arms.98 The groups were randomized to receive either real or sham rTMS for 10 daily sessions. Those who received the real magnet therapy experienced a significant reduction in pain during the 10 days of treatment, but the effect did not persist.

Stroke

Twenty people, recovering from a stroke in a rehabilitation program, were randomized to receive tDCS or sham treatment.26 Both groups also received physical and occupational therapy. Those in the tDCS group experienced a greater improvement in their motor function, suggesting that this form of magnet therapy may be a beneficial addition to an overall rehab program.

Fibromyalgia

tDCS has also been studied as a possible treatment for fibromyalgia. A small randomized trial involving 30 adults with fibromyalgia found that tDCS delivered to the eyebrow area may help reduce pain compared to fake tDCS treatment or real tDCS delivered to other areas of the head.100

How to Use Magnet Therapy

The following is a brief description of the use of magnet therapy. However, keep in mind that the current ways that magnets are used have yet to be fully evaluated by long-term clinical testing.

A full medical evaluation is advisable before using magnets. You don't want to be treating a painful back with magnets if the underlying cause of pain is a fracture or a tumor! Other concerns are discussed in the Safety Issues section.

Types of Magnets

If you have decided you do wish to try magnet therapy, you will have to choose among many different types of magnets and magnetic devices on the market today. There are a number of theories on the size and type of magnets to use and where to apply them, based on the type of condition being treated and other factors. Because unipolar magnets have greater depth of magnetic field penetration, some researchers consider these more effective in treating deeper tissues. Conversely, it is considered that alternating-pole magnet devices might be
more effective at stimulating surface tissue. Thus, it might be appropriate to use a unipolar high-gauss magnet for low back pain that originates deep in the tissue and an alternating-pole configuration for an injury closer to the surface, such as a wrist sprain. However, there is no meaningful scientific evidence to support these distinctions.

In addition, some practitioners hold that the north side of the magnet calms and the south side excites, and that using the correct side of the magnet is crucial. However, from a scientific perspective, it is difficult to see how there could be any difference between the two poles of the magnet in terms of the effect upon body tissue.

There is general consensus that the magnet should be placed as close to the affected part of the body as possible. This can be done by taping the magnet to the skin, slipping the magnet inside a bandage over the affected area, or using a wrap device that has magnets embedded in it.

Tape holding magnets to the body might irritate the skin; in addition, some research scientists and practitioners suspect that the body may accommodate to the magnetic field over time, thus reducing the therapeutic effect. In order to prevent both the irritation and the accommodation, practitioners usually recommend intermittent use, such as 5 days on, 2 days off; or 12 hours on, 12 hours off.

**Magnetic Devices Available**

Manufacturers make a wide range of magnetic devices. For treating large areas of the body, wraps and belts containing magnets are available. Wraps are specifically designed for the wrist, elbow, knee, ankle, neck, shoulder, and back, and are often made out of thermal material to have the added effect of warming the area. These wraps are often recommended in cases of injury and arthritis where heat feels better. Proponents of magnet therapy often recommend the use of magnetic mattress pads and mattresses for people with problems affecting several areas of the body, such as fibromyalgia or arthritis; they also recommend magnetic mattress pads for insomnia and fatigue.

Proponents of magnet therapy recommend magnetic foot insoles for people with diabetic peripheral neuropathy, leg aches and pains, circulatory problems of the lower extremities, or foot injuries and problems, and for people who stand all day.

Magnetic necklaces are said to be useful for neck and shoulder pain as well as for generalized aches and pains, and magnetic bracelets are advocated for wrist pain and general problems.

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**Safety Issues**

In general, magnets appear to be safe; the biggest risk appears to be irritation from tape holding them in place. MRI machines, for example, expose the body to gigantic magnetic fields, and extensive investigation has found no evidence of harm. However, during the MRI, the patient is subjected to a high level of magnetism for a short period of time, whereas people who use static magnets daily or sleep on them every night are subjected to a low level of magnetism over a long period of time. So far, it is not known whether this type of exposure has any deleterious effects. Nonetheless, one study, in which participants slept on a magnetic mattress pad every night for 4 months, found no side effects. In addition, a safety study of rTMS found no evidence of harm. In a large study in which rTMS was administered to numerous depressed patients, totaling over 10,000 cumulative treatment sessions, no significant adverse effects were reported. Transient headache and scalp discomfort were the most frequent problems reported. There were no seizures, nor changes in hearing or cognition.

It was previously thought that people with implantable cardioverter defibrillators (ICDs) and pacemakers should not use magnetic devices at all, but this recommendation has been adjusted. One study found that with the exception of magnetic mattresses and mattress pads, most magnets sold for therapeutic purposes do not interfere with the magnetically activated switches present in most pacemakers. Magnetic mattress pads can deactivate and alter the function of ICDs and pacemakers, but other therapeutic magnets are safe if kept 6 inches or further from these devices.
There are theoretical concerns that magnets might be risky for people with epilepsy. Similarly, until the physiological effects of magnet treatments are better understood, pregnant women should avoid them.

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