

## Magnets -- Medical applications

As with anything relating to health and wellness, there is a huge “alternative health” industry that is just as avaricious as the large pharmaceutical companies in its eagerness to separate consumers from their money. Among these are the magnet merchants who promote an amazing variety of devices that are purported to offer near-miraculous relief from pain and cures of everything from cancer to baldness. Many of these products are listed by the FDA and other authorities as “Fraudulent and Deceptive Medical Devices” subject to automatic detention on import, but this has done little to reduce the availability of these items to the credulous multitudes.

As is the case with so much quackery, much of the actual selling of these worthless products is done by thousands of independent dealers recruited by typically not-very-educated individuals who are as credulous as their customers. The more ambitious but unlettered can even purchase mail-order “Registered Magnetic Therapist” and similar degrees. But in recent years, this quackery has moved into the mainstream as Amway and the Canadian Shopper’s Drug Mart chain have begun peddling this snake oil.

Suffering from back pain, insomnia, kidney stones, or any of about a dozen common ailments? It may be due to “pollution of your body by stray alternating current-induced magnetic fields.” If so, you need a **{magnetic mattress}** whose built-in permanent magnets provide healing ‘natural’ (“direct current”) fields. Replete with results of “scientific” studies [unpublished, of course!] citing such gems as “62.35 - 98.94%” effectiveness rating (at “99% confidence level”) for relief of back pain. (It is usually hard to get a laugh out of a class when I am discussing statistical treatment of data, but this crap should do the trick!)

One of the very few reliable reports of the therapeutic use of magnetic fields was published in 2007. "A recent study by University of Virginia researchers demonstrates that the use of an acute, localized static magnetic field of moderate strength can result in significant reduction of swelling when applied immediately after an inflammatory injury." The report notes that rather strong magnets are required, and it does not deal with *chronic pain* of the kind that most of the quackery sales site address.

Most of the accounts of magnetic pain relief are not supported by credible scientific evidence, despite the extravagant claims of popular books such as "The Pain Relief Breakthrough: The Power of Magnets to relieve backaches, arthritis, menstrual cramps, carpal tunnel syndrome, sports injuries, and more." The author, Julian Whitaker, MD, is a well-known quackery advocate who publishes a variety of health tabloids, magazines and newsletters in which he modestly bills himself as "America's #1 health advocate," "America's #1 health champion," and "the physician America trusts"-- which should be enough to raise the suspicions of any intelligent person capable of critical thought! A {*bibliography on magnetic therapy*} lists about a dozen similar books, many by M.D.s having questionable motives and dubious scientific credentials. The only title by a recognized, published scientist is Henry Bauer's *Science or Pseudoscience: Magnetic healing, psychic phenomena and other heterodoxies*. See also the following:

- Magnetic therapy scams and scandals (Canadian Quackery Watch)
- Scam Alert: Magnetic mattress pads are a fraud, lawsuit claims (Sacramento Bee)
- Florsheim is sued for fraudulent advertising of its MagNeForce magnetic shoe
- QuackWatch site on magnetic therapy

- Magnetic and electromagnetic therapy article David W. Ramey published in Spring 1998 issue of *The Scientific Review of Alternative Medicine*.

A good example of the kind of crackpot pseudoscience that some vendors employ to hawk their wares to a credulous public is illustrated by these quotes from a site which offers the following misinformation:

- [Magnetic mattresses] reduce cellular stress level, which reduces oxidation (which is what aging is)
- Most people are too acidic and magnetic therapy makes the body more alkaline, which is very good for optimum health
- Changing the structure of calcium molecules so that they do not build up on bones and joints, which is what causes most arthritis

There is one scientific paper I know of that offers credible evidence that magnetically-treated water might be useful for **dental care**:

*The effect of oral irrigation with a magnetic water-treatment device on plaque and calculus*, D.L. Watt et al, *Journal of Clinical Periodontology* 20(5) 314-317 May 1993.

This double-blind study showed a significant reduction in calculus volume when irrigator devices had magnets installed. The authors suggest some possible mechanisms relating to reduced calcium and phosphate ion activity, but these do not seem very convincing.

Many magnetic-cure hucksters try to tell you that the two poles (north and south) of a magnet produce different effects, and some even offer what they claim are "monopolar" magnets. They commonly confuse magnetic polarity with electric polarity (positive and negative.) They most often offer misinformation like that given below carefully tailored to mislead the gullible.

"The negative field of a magnet is used most often to correctly stimulate (potentiate) and reorganize the electron (spin) charge which results in creating the healthy

cellular charge state of a strong-negative potential.

The negative field is used in most treatments to help the body heal. When a cell's electrical charge is elevated from its stressed, improperly charged state to a highly-charged negative state, the cell's natural ionic forces (little magnetic channels) are suddenly able to function properly and correctly metabolize all the necessary micro-nutrients".

**Magnetic baldness prevention** was the vision dangled by one trickster which offered the hilariously simplistic argument that blood contains iron which is attracted by magnets, so the magnets embedded in this company's baseball caps will attract more blood to the hair follicles, producing a luxuriant growth. Right? Dead wrong!

There are many companies hawking **Ionized Bracelets** as forms of "magnetic" pain relief even though these worthless devices do not even claim to contain magnets!

### **Magnetized water and magnetic quackery**

The mere fact that "magnetized water" is a scientific absurdity does not prevent hundreds of hucksters from spewing out such rubbish as the following from a "natural medicine" site:

- Every cell in the human body can be viewed as a small magnetic unit. This property is present in all organs. Each cell produces its own magnetic field. Any disturbance in this magnetic field indicates a disorder. This equilibrium can be restored with the help of magnets according to many researchers
- Technically, magnetism works because it increases the speed of sedimentation of suspended particles in water (and other liquids) and enhances conductivity and the process of ionization or dissociation of atoms and molecules into electrically charged particles. (New Scientist, June 1992.)
- Physics shows that chemicals change weight under the influence of magnetic fields. So does water. More hydroxyl (OH<sup>-</sup>) ions are created to form calcium bicarbonate and other alkaline molecules. It is these molecules that help to reduce acidity.
- Normal tap water has a pH level of about 7, whereas magnetized water can reach 7.8 pH after exposure to a 7000 gauss strength magnet for a long period of time. Cancer cells do not survive well in an alkaline environment
- Magnet also affects the bonding angle between the hydrogen and the oxygen atom in the water molecule. Magnetized water causes hydrogen-oxygen bond angle within the water molecule to be reduced from 104 to 103 degrees. This

in turn causes water molecule to cluster together in groups of 6-7 rather than 10-12. The smaller cluster leads to better absorption of water across cell walls.

- "In many places on earth, water springs out enriched with certain minerals and magnetized in a natural way, thanks to its way through different geological strata.
- "By 'magnetizing' or polarizing drinking water, those noxious 'lumps' will not build up, and instead we see amorphous structures which are easily assimilated or discardable. In addition to getting softer water, the water temporarily acquires new dissolving, anti-carcinogenic, relaxing and invigorating properties.
- "Magnetized water is beneficial in all cardiovascular disorders, from tachycardia, hypertension and hypotension, up to arthritis and limb paraesthesia. The excessive sedimentation of cholesterol in the blood vessels is eliminated, resulting in a relief for the heart activity."
- "Using God's technology" Nothing like invoking theology if all else fails!

A Colorado company hawks a liquid supplement which they describe as a "water-soluble liquid magnet" which they [falsely] claim acts by "inducing electrons into all the conductive elements of the body". They even have a junk patent that stands as a doleful testimony to the quality of examiners the US Patent Office is able to attract.

A Canadian outfit makes the following unfounded and ridiculous claims about the benefits of drinking "magnetized water":

- Reduces acidity and helps to regulate the body's pH level.
- Influences the autonomic nervous system.
- Beneficial for kidney ailments, gout, obesity, and premature aging.
- Helpful in internal cleansing of the body.
- Promotes healing of wounds and open sores when bathed in FEMO2 water.
- Dissipates toxic deposits within the body's connective tissues.
- The oxygen level in magnetically treated water is higher than the oxygen level of untreated water.
- Has a therapeutic effect on the body, especially the digestive, nervous and urinary systems.
- Magnetically treated water improves the taste.
- When water is magnetized, the surface tension is reduced for better cell absorption.

**"Water is Paramagnetic ...meaning that it holds a magnetic charge"** is just one of many lies and misrepresentations to be found on sites that

flog an elastic band containing several magnets that you are supposed to slip over a container of water, wine, milk, or juice in order to increase the "bioavailability" of the water— very similar to the equally nonsensical claims by the cluster quack-pot merchants. To support these claims, they misquote a number of Nobel Prize winners and offer various references to the scientific literature which are incomplete or, in one case, do not appear to exist. To add to the hype, one can see pictures that purport to show how the "magnetized filtered water" increases the growth rate of plant, especially if the south magnetic poles face the water (!).



One health-quackery newsletter site attributes these claims to one Michael Pedersen, the president of Aquaspace Water Systems, laughably identified as "one of the world's foremost authorities on water". To add to the hype, they have former astronaut Jim Lovell cheapening himself by endorsing their products.

A Japanese/California company which boasts "a 100-year plan to become the largest wellness company in the world history", offers a remarkably wide range of products to the alternative-health market through thousands of independent dealers. Their line of devices relating to magnetic quackery is probably second to none. Here you can get everything from magnetic bracelets to mattresses and shower heads. Few companies do a better job of integrating multiple junk sciences for multiple species, as evidenced, for example, by their-- magnetic dog-bed that employs "far-infrared technology". For people who are concerned about their drinking water, they offer a device which employs a combination of "oxygenating activity, pi minerals, and magnetic field .. designed to re-create the conditions in the stream where pi water ("the water of life" } was discovered more than 30 years ago." [It] features magnetic technology that was inspired by rainstorms ... Pure rainwater falls from clouds that contain a strong electromagnetic field - the source of lightning. Rain passes through this highly charged field of energy.

This device employs a pair of rotating magnets that subject the water to "a field of high energy". What this has to do with rain, streams, or

nature is not explained. As if this were not enough pseudoscience, they claim that their “Pi” technology uses far-infrared energy and “Oxygenation technology that works like a mountain stream ... in the same way that water is oxygenated when flowing over the rocks in a natural environment.”

Here is yet another device "By holding purified water, fresh juice or herbal teas in the Magnetic Energy Cup for 5 minutes or more, your liquids become restructured, 'living' and charged with energy. The magnets in the Magnetic Energy Cup can change the actual structure of liquids, increase the negative ions (good ions), make the liquids more alkaline and increase the amount of oxygen available for your cells. Another measured benefit of magnetized water is that its surface tension is lowered, which makes the water absorb much easier through the human membranes. What actually happens is that water gains 'living' liquid energy!"

If letting your beverage re-align itself in a magnetic cup takes too long for your liking, this **magnetic funnel** gets the job done more quickly. The promoter (an outfit appropriately named Alibaba), claims that magnet-treated water... “decreases cholesterol content in blood, stimulates brain activity, improves digestion, increase appetite and reduces excess acidity and normalizes the function of bile [and] aids in inducing proper movement of bowels and expels poisons and unwanted salts from the body.”

Magnetic pulsers and zappers

are promoted by hucksters such as "Dr." Robert Beck and sold by the same outfits that flog food-energizers, chackra-checkers and other new-age paraphernalia. They generate short but highly intense magnetic fields that are supposed to cure everything from cancer to baldness and many more of Beck's typical bloviations. And here is a super-powerful ring-shaped magnet that delivers 50,000 gauss, to get that waistline down!

Needless to say, there is no credible scientific evidence to support any of these outlandish claims.

### **Some scientific references to magnetics in pain management**

There is some evidence that externally-applied magnetic fields can provide relief of certain types of chronic pain. A major difficulty in any such study is in eliminating the placebo effect which generally requires a double-blind protocol. Here are a few recent references to the scientific literature:

- "Magnets for patients with leg pain" M.I. Weintraub J. Am. Medical Assn 291(1) 43-44 (Jan 7) 2004.
- "Magnetic neuro-medicine: an 'attractive' promise" by Frank Adams, a physician and neuro-pharmacologist, in the *American Journal of Pain Management* (AJPM), 1998;8:17-18. This article reports some positive clinical results and calls for more comprehensive studies.
- "Chronic sub-maximal magnetic stimulation in peripheral neuropathy: is there a beneficial therapeutic relationship? Michael Weintraub, *AJPM* 1998 8(1) . This study suggests that magnetic foot pads may relieve neuropathic pain in some cases. Detailed paper with many references.
- "Magnetic Mattress Pad Use in Patients with Fibromyalgia: A Randomized Double-blind Pilot Study". *Journal of Back and Musculoskeletal Rehabilitation* 13(1999) 19-31
- "Effect of oral irrigation with a magnetic treatment device on plaque and calculus" (*J. Clinical Periodontology*, 1993) reports positive results in what appears to be a well-conducted study.

An **extensive compilation** that summarizes over 300 literature references to medical applications of magnetic fields, both permanent and alternating, can be found at the [Gary Null](#) site. The range of ailments covered seems too great to be entirely believable, but some of the articles appear to be in reputable journals.