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### **Study on Using Magnets to Treat Pain Surprises Skeptics**

A small trial raises hope, but it is not the last word

By Lawrence K. Altman, M.D

No one was more skeptical about using magnets for pain relief than Dr. Carlos Vallbona, former chairman of the department of community medicine at Baylor College of Medicine in Houston.

So Dr. Vallbona was amazed when a study he did found that small, low intensity magnets worked, at least for patients experiencing symptoms that can develop years after polio.

Dr. Vallbona had long been fascinated by testimonials about magnets from his patients, and even from medical leaders. But his interest in magnet therapy became more serious in 1994 when he and a colleague, Carlton F. Hazlewood, tried them for their own knee pain. The pain was gone in minutes. "That was too good to be true," Dr. Vallbona said.

Dr. Vallbona knew that the power of suggestion can fool both patient and doctor. But he also wondered; could strapping small, low intensity magnets to the most sensitive areas of the body for several minutes relieve chronic muscular and joint pains among patients in his post polio clinic at Baylor's Institute for Rehabilitation Research.

Valid studies could allow consumers to make informed choices. And if magnet therapy were found to be safe and effective, it could relieve pain with fewer drugs.

Endorsements from professional athletes are one reason Americans spend large sums on magnets to seek pain relief. But most doctors take a "buyer beware" attitude because many claims lack scientific proof or explanation of how they might work. The Food and Drug Administration has warned doctors and manufacturers about health claims for magnets.

Aware of the medical profession's skepticism about magnet therapy, Dr. Vallbona sought to conduct science's most rigorous type of study. Participants would agree to allow the investigators to randomly assign them to groups getting treatment with active magnets or sham devices. But neither the patients nor the doctors treating them would know what therapy was used on which patient.

First, Dr. Vallbona informally tested magnets on a few patients. One was a priest with post-polio syndrome who celebrated mass with difficulty due to marked back pain that prevented him from raising his left hand. After applying a magnet for a few minutes the pain was gone, Dr. Vallbona recalled, and, "the priest said this was a miracle."

Then a human experimentation committee allowed Dr. Vallbona to test 50 volunteers with magnets that at 300 to 500 gauss, were slightly stronger than refrigerator magnets. They were made in different sizes so they could fit over the anatomic area identified as setting off their pain.

It was difficult to design a system to prevent participants from learning whether they were being treated with a magnet or a sham.

So Dr. Vallbona asked Magnaflex Inc., a magnet manufacturer in Corpus Christi, Tx., to prepare active magnets and inactive devices that could not be told apart. The devices were labeled in code.

As a further precaution, a staff member observed the patients throughout the 45-minute period of therapy to make sure they would not try to find out by testing with a paper clip, say - what treatment they were receiving.

After the investigators identified the source of the pain and then pressed on it, the 39 women and 11 men in the study graded the pain on a scale of 0 (none) to 10 (worst). Then after the experimental treatment, the participants rated their pain in a standard questionnaire. The volunteers were tested only one time.

The 29 who received an active magnet reported a reduction in pain to 4.4 from 9.6 compared with a smaller decline to 8.4 from 9.6 among the 21 treated with a sham magnet.

The Baylor scientists emphasized that their study applied only to pain from the post-polio condition. Nevertheless, their report in last month's issue of Archives of Physical and Rehabilitation Medicine, a leading specialty journal, has shocked many doctors who have scoffed at claims for magnets' medical benefits.

In an article about magnet therapy for chronic pain published five months ago, Dr. William Jarvis, a professor of public health and preventative medicine at Loma Linda University in California and president of the National Council Against Health Fraud, dismissed magnet therapy as "essentially quackery."

Now, Dr. Jarvis said in an interview, the Baylor study changed his mind. "But like any other pilot study, it needs to be replicated," he said.

Dr. Vallbona's findings have let him to try to carry out a larger study in several medical centers, and they are expected to lead other investigators to conduct their own studies.

Dr. Lauro S. Halstead of the National Rehabilitation Hospital in Washington, a pioneer in studying the post-polio syndrome, was among experts who said that further studies were needed to answer questions like: Will various strength magnets produce different degrees of benefit? how long does the pain relief last? Will the effect wear off after multiple applications? For what other conditions might magnets work?

At the University of Virginia, Ann Gill Taylor's team last month began recruiting 105 volunteers with fibromyalgia, a painful muscle condition of unknown cause, to test magnetic sleep pads.

Like the Baylor study, the volunteers and doctors are not told whether the subject will be sleeping on an active or sham magnet. Participants are told that if they try to determine whether their treatment is with a magnet or a sham one, it could ruin the study. But Dr. Taylor said there was no way to prevent cheating.

Dr. Taylor said she also planned to conduct studies of possible uses of magnets in relieving phantom limb and stump pain among amputees.

Dr. Vallbona said he did not know why magnets worked for many post-polio patients but not for others, or why some said they felt improvement in areas of the body far distant from where the magnet was applied.

Magnets' medical benefits have been proclaimed for centuries. So why has it taken so long to do studies to begin to answer the questions? The reasons involve economic, political, professional and human factors.

Many doctors criticize the lucrative magnet industry for not investing in studies the way drug companies often do. "They don't do simple research." Dr. Jarvis said, and "it is hard to imagine an easier study to conduct than a magnet one for pain."

Yet doctors share the responsibility to do such research, and only rarely have they reported undertaking the scientifically controlled studies needed to settle major disputes about reported therapies.

In many such debates, doctors demand a biological explanation for a therapy's benefits. Without documentation that satisfies them, doctors may summarily reject the claims. Yet in their everyday practices, the same doctors may use other therapies that lack scientific proof for why they work.

Scientists working in nonprofit medical schools and university hospitals are strongly influenced by economics because they need government grants to pay for their overhead. Since scientific success is measured in part by the dollar amount of their grants, doctors tend not to pay for their studies, even if they are relatively inexpensive.

The Baylor study was exceptional. It was done without a grant. Had it been done with government aid, Dr. Vallbona said, it would have cost about \$50,000 dollars. Magnaflex provided the active and inactive magnets free, the doctors donated their time and insurance companies were not charged for magnet therapy.

Until recently government agencies and the scientists who judge applications to them have tended not to support studies on magnets and other therapies on the fringe.

The reluctance is well founded. Over history, so many claims for popular remedies have failed to hold up that many doctors are reluctant to put aside a promising project of their own to study something that may well turn out to be a fad.

Scientists are heavily influenced by peer pressure. Senior scientists often discourage younger investigators from replicating another group's studies because doing so is less likely to advance their careers than making novel findings.

But in an age of medical consumerism, patient demand is changing some research agendas. For instance, the National Institutes of Health has created an office of alternative medicine, which is paying for magnet studies at the University of Virginia.

In tackling fringe areas, scientists usually know they are stepping in deep water, risking scorn from colleagues who believe that what they are studying is theoretically unsound at best and quackery at worst. Even so, many with the courage may not know how deep the waters are.