

Interim report

Static Magnets and Wound healing

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Introduction

In the field of medicine as a whole there has been a recent surge in interest by patients and physicians alike in the use of magnetic fields in the treatment of pain. Attraction of the lay healer, the over promotion and unscientific approach to the study, and aggressive claims have perhaps led to scepticism. New studies have begun to change this stance. A recent unpublished review looked at the scientific evidence for the efficacy of static magnets in pain relief. Since 1991 there have been 10 double blind placebo-controlled trials of static magnets in the treatment of pain syndromes.

Nine out of 10 studies have shown statistically significant pain reduction due to static magnets. These studies are now generating curiosity, interest and reduced scepticism amongst the Medical fraternity.

Although well-controlled studies have been performed on the stimulation of bone growth by electric and magnetic fields, the effects of magnetic fields on soft tissues remains unclear. That said, electrical stimulation has been used to facilitate wound healing for more than 30 years and it has been known since Galvani's observations in 1792 that injured tissues generate small electrical currents. More recently, researchers have described and measured these injury currents and suggested that they play a key role in triggering wound repair mechanisms.

All electrical currents generate magnetic fields and all magnetic fields cause a change in electrical potential. *Therefore, an interaction of magnetic fields with ion fluxes across the cell membrane, that are fundamental to the preservation of normal cellular function, is very likely.*

The Main Trials

On review of the literature there are only one double blind study that has examined the effects of static magnets in wound healing and one published case history. These are outlined in detail below.

The main study was a double blind placebo controlled trial performed by Man et al in 1999 on 20 patients (aged 18 to 75) who underwent suction lipectomy surgery of various regions (abdomen, saddlebags, love handles and thighs) by the same surgeon and whose postoperative wound progress was investigated with and without static magnets.

Ten patients were assigned a placebo sham magnet to apply over their wound dressing and 10 were assigned to the test group with a live static magnet. Magnets varied in size from 5 x 15cm to 20 x 30cm and were square to rectangular in shape. Ceramic unidirectional magnets were used of field strength 150 to 450 gauss. The negative pole of the magnet was placed against the skin. In the control group sham patches were used which contained the same ceramic magnets with no power. The magnet or

sham patches were applied immediately post-operatively and left on for 14 days. Wound pain, oedema and discolouration were assessed on days 1,2,3,4 and 7 and again after 14 days. All observations were made by the same-blinded observer. The patients, surgeon and observer were all blinded as to which devices were magnets and which were placebos. Discolouration was graded 0 – 10, oedema was also graded 0 – 10 and pain was assessed by way of a visual analogue scale. The following conclusions were made:

There was a statistically significant ($p < 0.05$) reduction in pain between days 1 to 7 in the magnet group. Pain scores were also less in the magnet group at day 14 but this difference was not statistically significant.

There was a **37 to 65% reduction in pain levels** in the magnet group with a **reduction in the number of analgesics consumed compared to the control group.**

There was a statistically significant reduction in oedema ($p < 0.05$) by 40 to 53% in the magnet group compared with the control group on days 1 to 4. There was also a reduction in oedema in the magnet group compared to the control group on days 4 to 14, but this difference did not reach statistical significance.

In the magnet group, a statistically significant ($p < 0.05$) decrease in discolouration occurred when compared with the control group on post-operative days 1,2 and 3. The magnitude of reduction in discolouration was also clinically significant, ranging from 43% on post-operative day 1 to 28% on post-operative day 3. By post-operative days 4 to 14 there was no longer any significant difference in discolouration between the two groups.

No side effects were observed in either group.

The authors made the important comment that **in procedures in which significant bruising occurs, one would normally expect manifestations such as these to take 2 to 3 weeks to resolve, whereas with the use of magnetic field therapy, they resolved in 48 to 72 hours.**

A Case Study

A case study was published in 1998 by Szor & Topp. This report was of a 51 year old paraplegic woman who had an abdominal wound secondary to multiple surgeries. The wound had persistently failed to heal over one year despite traditional wound management treatments (antibiotic ointments, foam dressings, anti-fungal powders and hydrocolloid dressings). Prior to magnet therapy, the wound had reached 2 x 2 cm in size. Her surgeon suggested resecting the whole scar, but this option was not acceptable to the patient. There were no obvious factors impairing wound healing. For example, she was not malnourished or hypoxic, there was no excessive pressure on the wound, no shear or friction and no diabetes or uraemia. The patient agreed to a trial of magnet therapy. A magnet of 650 gauss strength, 1.5 inches in diameter was

applied and she continued with the same wound care as before i.e. antibiotic ointment and twice-daily change of dressings.

At the first visit at 11 days, remarkable progress was noted.

One week later the red colour of the scar had gone and the texture of the wound was much smoother.

At 4 weeks the wound had completely healed.

The wound has remained completely healed one year on.

There is a vast amount of anecdotal evidence that suggests that static magnets are effective in healing wounds and ulcers and relieving pain. The focus of the above short report has been to highlight the published scientific evidence to support these claims.

A double blind placebo controlled trial is currently being planned to investigate the efficacy of static magnets in promoting the healing of leg ulcers.

References

Man D., Man B., Plosker H. (1999). The influence of permanent magnetic field therapy on wound healing in suction lipectomy patients: A double-blind study. *Plastic and reconstructive surgery* . 104: 2261-2266

Szor JK & Topp R. (1998). Use of Magnet therapy to heal an abdominal wound: A case study. *Ostomy/Wound Management*. 44(5): 24-29