

# MAGNETIC FIELDS, HEALING AND VETERINARY MEDICINE

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There is growing interest in the application of magnetic forces on healing in a variety of tissues including bone and nerves.

Considerable research is underway in a variety of species to determine whether or not the use of magnetic fields has any benefits in wound repair. In rodents it has been used to enhance early facial nerve regeneration (1), to enhance skin healing (12) (13), and to promote healing in ruptured achilles tendons (6). In rabbits it has been shown to increase bone strength (2), and it accelerates bone healing in guinea pigs (4). Lipid signal transduction in human cell lines has been shown to be affected in various ways by pulsed magnetic fields (3). Proteoglycan production is down regulated when chick cartilage extracellular matrix is exposed to pulsed electromagnetic fields (7) (8), and in two double-blind trials (17) (19) decreased pain and improved performance were recorded in human patients with osteoarthritis (mainly involving the knee) and pain improvement was also reported in post-polio human patients in another double-blind study (18)

Positive vascular effects have been reported in human patients with hypertension (9) and in vitro reconstructive surgery of major arteries (10), and enhanced bowel healing has been reported in rats (11). Cancer cell growth has been reported to be slowed (14) in vitro. In a double-blind placebo-controlled study (15) pulsing magnetic field significantly improved patients with multiple sclerosis - based on performance scales and alpha EEG magnitude during a language task. In another randomized, double-blind controlled clinical trial ulcers in leprosy patients healed more rapidly following exposure to pulsed magnetic fields (16).

On the other hand some observers believe exposure to magnetic forces may be harmful. So far epidemiological studies have not confirmed a link between living close to power-lines and disease. However, in one study (5) prolonged exposure to magnetic forces was observed to be deleterious to normal bone healing by over-stimulating chondrogenesis, and so delaying subsurface trabeculation of bone.

Finally several studies have been performed to investigate the relationship between acupuncture sites and electromagnetic forces in the body, and some have concluded that there are anatomical correlations which may be significant

The application of alternative medicine is of growing interest to all open-minded scientists even though the traditional medical and veterinary professions are generally slow to accept them. Whilst it is still too early to predict the eventual role that electromagnetism may play in the future treatment of disease in animals these early reports certainly suggest that the subject should be taken seriously and that more controlled, clinical investigation is warranted.

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