

Strauch, et al. Pulsed Magnetic Field Therapy Increases Tensile Strength in a Rat Achilles' Tendon Repair Model. J Hand Surg 2006;31:1131–1135

Purpose: To examine the effect of pulsing electromagnetic fields on the biomechanic strength of rat Achilles' tendons at 3 weeks after transection and repair.

Methods: This noninvasive modality was tested in a prospective, randomized, double blinded, placebo-controlled study to evaluate the effect of a specific noninvasive radiofrequency pulsed electromagnetic field signal on tendon tensile strength at 21 days post transection in a rat model.

Results: In the animals receiving PMF exposure, an increase in tensile strength of up to 69% was noted at the repair site of the rat Achilles' tendon at 3 weeks after transection and repair compared with nonstimulated control animals.

Conclusions: The application of electromagnetic fields, configured to enhance Ca²⁺ binding in the growth factor cascades involved in tissue healing, achieved a marked increase of tensile strength at the repair site in this animal model. If similar effects occur in humans, rehabilitation could begin earlier and the risk of developing adhesions or rupturing the tendon in the early postoperative period could be reduced.