

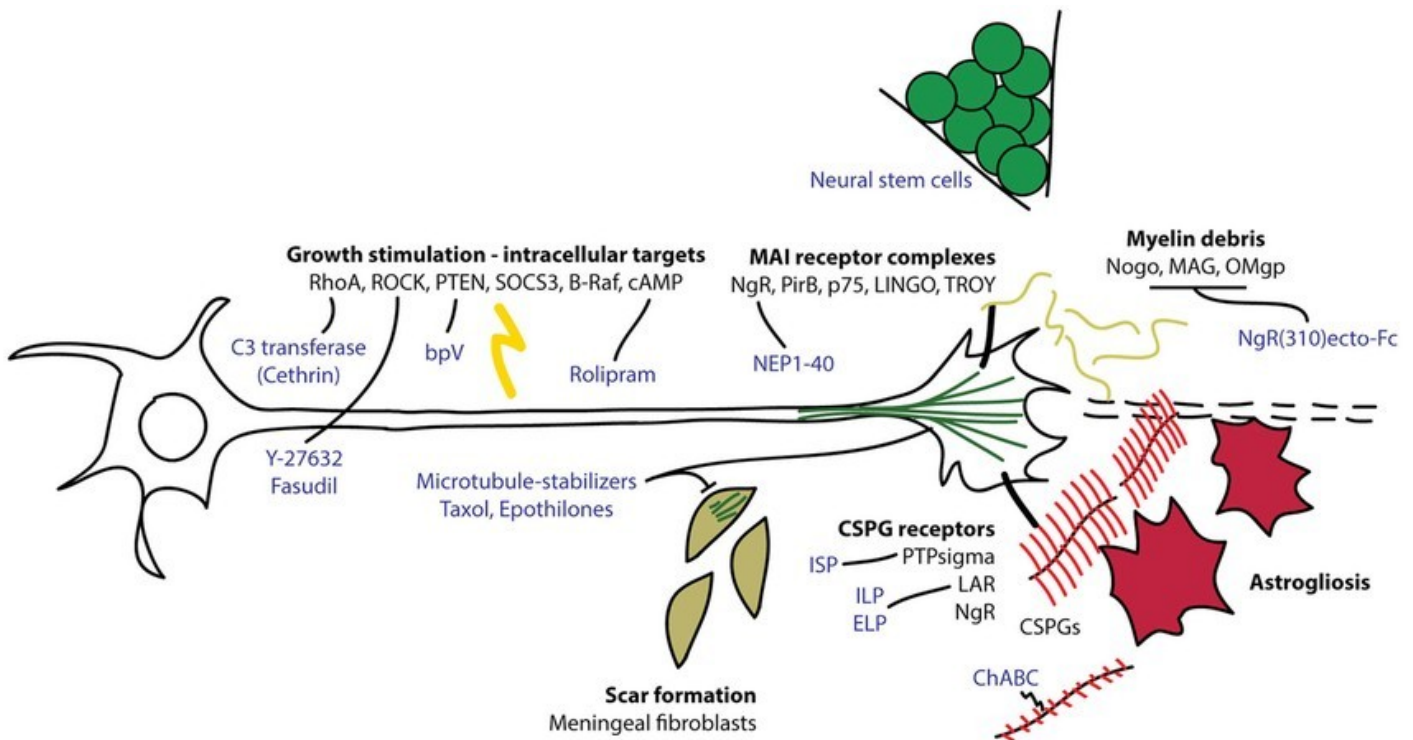
# Medical PEMF Studies



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## NERVE REPAIR

### Effect of weak, pulsing electromagnetic fields on neural regeneration in the rat.



1. Clin Orthop Relat Res. 1983 Dec;(181):283-90

Ito H, Bassett CA.

The short- and long-term effects of pulsed electromagnetic fields (PEMFs) on the rate and quality of peripheral nerve regeneration were studied. High bilateral transections of rat sciatic nerves were surgically approximated (a 1-mm gap was left) and shielded with a Silastic sleeve. Animals were exposed to PEMFs for two to 14 weeks after operation. Three groups of 20 rats each (control rats and rats undergoing 12- and 24-hour/day PEMF exposure) were killed at two weeks. Histologically, regenerating axons had penetrated the distal stump nearly twice as far in the PEMF-exposed animals as in the control animals. Return of motor function was judged two to 14 weeks after operation by the load cell-measured,

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plantar-flexion force produced by neural stimulation proximal to the transection site. Motor function returned earlier in experimental rats and to significantly higher load levels than in control rats. Nerves from animals functioning 12-14 weeks after operation had less interaxonal collagen, more fiber-containing axis cylinders, and larger fiber diameters in the PEMF-exposed group than in the control rats. Histologic and functional data indicate that PEMFs improve the rate and quality of peripheral nerve regeneration in the severed rat sciatic nerve by a factor of approximately two.

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