

What is the best nonpharmacologic therapy for phantom limb pain?

Evidence-Based Answer

Nonpharmacologic therapies for phantom limb pain (PLP) that have demonstrated some success include motor imagery therapy (SOR **C**, extrapolated from a randomized controlled trial [RCT] that enrolled a heterogeneous patient sample); Farabloc® (SOR **C**, based on a single low-quality RCT); and eye movement desensitization and reprocessing (EMDR) in patients who also have depression and post-traumatic stress disorder (SOR **C**, based on a case series). Evidence is insufficient to support or refute the use of transcutaneous electrical nerve stimulation (TENS), desensitization, scar mobilization, relaxation, or biofeedback.

Fifty-one patients with an average of 14 months of PLP (27%) or complex regional pain syndrome type 1 (73%) were randomly allocated to motor imagery (treatment group) or physical therapy (control group) in a 6-week, single-blind RCT. The motor imagery group consisted of 2 weeks of limb laterality recognition, followed by 2 weeks of imagined movements, and 2 weeks of mirror movements. The control group received 6 weeks of physical therapy and ongoing medical care. Both groups had 6-month follow-up; pain outcomes were gauged with a 100-mm visual analog scale (VAS).¹

After 6 weeks, pain decreased significantly more in the treatment group than the placebo group (−23.4 vs −10.2 mm; $P=.002$). At 6 months, only 11 of the 25 patients in the treatment group returned seeking pain relief, while 25 of 25 of the control group returned. The number needed to treat for decrease in pain at 6 months was 2. A subanalysis of only patients with PLP was not conducted because the study was underpowered.¹

A double-blind crossover RCT of 52 patients with PLP compared Farabloc (a fabric lined with ultrathin steel fibers to be worn over the amputated stump) with placebo (a similar apparatus without the wire mesh). The Farabloc purportedly blocks high-frequency electromagnetic fields, allowing lower frequency ones to stabilize cellular permeability. The study included a pretreatment period, and random assignment to the use of Farabloc then the placebo (group 1) or a placebo then Farabloc (group 2).²

Group 1 showed a mean change on a 100-mm VAS of 39.6 mm using Farabloc (vs the placebo change of 23.6 mm), whereas group 2 showed a mean change of 24.3 mm using Farabloc (compared with the placebo change of 24.1 mm).

Twenty-one of 34 (62%) patients reported their greatest PLP relief while wearing the Farabloc. When combining scores from the 2 groups, patients had an average 30-mm point reduction in pain scores when using Farabloc compared with baseline ($P<.001$). Of the 52 original patients, 18 dropped out because of pain experienced too infrequently (<15 episodes/year), apparatus discomfort, or other reasons.²

Eye movement desensitization and reprocessing (EMDR) is a treatment for patients with psychological trauma. This strategy uses repetitive eye movement to access stored memories. Five patients with combined PLP, depression, and PTSD were treated in a case series with 3 to 15 sessions of EMDR from 3 to 16 years after their amputations.³ Each patient assessed multiple events associated with their amputation by filling out the Impact of Event Scale (IES), the VAS, and Beck Depression Inventory (BDI). The IES is a 75-point instrument that is used to test the impact an event had on a patient's life. A score of 75 represents the highest impact and less than 20 represents mild/subclinical impact. The BDI is scored from 1 to 63, with 63 being the most depressed, and a score of 12 being subclinical depression.

The average IES dropped from 54 to 15. The average pretreatment pain level was 95 mm on the VAS and 28 mm posttreatment. All patients had reduced pain by a minimum of 20 mm on the VAS, with 3 patients having a final pain score of 0. With treatment, the average BDI score dropped from 21.2 to 11.5.³

The Veterans Administration (VA) guidelines for PLP recommend use of narcotic analgesics during the immediate postoperative period of an amputation. Transition to a nonnarcotic pharmacological regimen combined with physical, psychological, and mechanical modalities is recommended during the rehabilitation process. The VA guidelines comment that not enough consistent evidence is available to support or refute the use of TENS, desensitization, scar mobilization, relaxation, or biofeedback.⁴

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