



From Mainstream to *Unique*:

Ten Techniques to Treat Phantom Limb Pain

by Amy Di Leo and Cecile Evans, PhD



Evans shares her thoughts about commonly used and not-so-common techniques and their efficacy.

Phantom limb pain (PLP) is a very real sensation that is felt in the part of a limb that's been amputated.

The feelings may include: tingling, numbness, heat or cold, feeling like the limb is still there, burning, aching, cramping, and even sharp or shooting pain.

There are known and unknown causes of PLP, any of which may originate in the residual limb, brain, spinal cord or in a connection within the central nervous system (CNS) between the residual limb and the brain. Because there may be more than one cause to the sensations, treatment can be complicated. Finding the appropriate pain intervention for each patient can be challenging but there are many options available.

Nurse Practitioner Cecile B. Evans, PhD, RN, FNP-BC, is an assistant professor at Boise State University School of Nursing in Idaho. She specialized in research of pain-related disability, with a concentration in chronic pain related to wounds and amputations.

With extensive experience and knowledge of many PLP-related techniques, Evans shares her thoughts about commonly used and not-so-common techniques and their efficacy. Some of these practices require a therapist, physician or other healthcare provider to administer treatment, while others, once learned, can be self-administered with success. Evans believes many of these treatment options can minimize suffering, maximize quality of life and increase functioning levels for sufferers.

1. Massage



“Massage is a great option for relieving PLP,” Evans advises. “It can be performed by a licensed or certified massage therapist, the individual, or anyone, with a little guidance.” Data from the University of Tennessee Limb Loss Study shows that some massage, either professionally or self-performed, was the most commonly reported self-care practice successful in relieving PLP.

Massage is generally safe, easy to perform and can easily be incorporated into a self-management program. It stimulates the nerves on the residual limb so the brain (somatosensory cortex) pays attention to the sensation and closes the pain gate to PLP. Massage can relax muscles and increase blood flow to the residual limb.

2. Acupuncture

“Acupuncture, acupressure and all traditional Chinese medicine (TCM), which includes herbs as well, are based on a very different philosophical approach,” Evans says. “Many PLP sufferers have found some relief from these methods.”

The aim of TCM is to provide balance in energy flow, or qi. With acupuncture, tiny needles are placed in specific areas of the body to increase energy flow and create an energy balance. The link between an etiology (cause or origin) and how TCM works is not completely straightforward, but acupuncture has been shown to drastically reduce the need for pain medication.

For people who are not 100 percent comfortable with needles or want a less invasive alternative, there is acupressure. Acupressure involves applying firm, yet not too strong, pressure to specific areas of the body without needles. Like acupuncture, it is believed that pushing on certain pressure points releases qi and allows a balance in energy flow. Acupressure can be performed as a self-management technique, by a healthcare provider, or by anyone the patient is comfortable with.



3. Chiropractic Therapy

Chiropractic therapy focuses on health promotion through spinal alignment and balance. “Spinal manipulations can provide overall pain relief as well as relief from PLP,” Evans says. “Realignment of the spine through chiropractic manipulations promotes pain relief to improve overall health and communication throughout the CNS.”

Back pain is common in people with lower-limb loss, including sciatic nerve pain that can be referred to either a phantom or intact leg. Chiropractic therapy may provide relief from this etiology of pain. There are case studies that show beneficial results in relieving PLP with chiropractic medicine.



4. TENS Unit



Transcutaneous Electrical Nerve Stimulation (TENS) provides a low electrical current through pads that are attached to the surface of the skin. “For a unilateral amputee, the TENS unit is placed on the intact limb in the area where pain has the greatest intensity,” Evans explains. “For people with bilateral limb loss, the TENS unit is placed on the residual limb. This stimulation draws attention away from the area of pain or closes the pain gate to the brain.”

5. Biofeedback

Biofeedback is the process of learning how to control one's physiology. There are two physiological processes that have been beneficial to people with limb loss. The first is electromyogram (EMG) biofeedback. This is a surface measure of the tightness or tension of a muscle group. The goal of EMG biofeedback for PLP is to control muscle tension or tightness in the residual limb. That's because an increase in muscle tension has been shown to occur immediately prior to an episode of cramping PLP.

Along with EMG biofeedback, patients learn progressive muscle relaxation, a series of tensing and relaxing movements, which decreases muscle tension in the residual limb. An individual may learn to relax the forehead area first as a point of "feedback" from the biofeedback machine, with the sensors eventually being placed on the residual limb.

EMG biofeedback may be combined with temperature biofeedback, which is the second physiological process. Temperature biofeedback raises the heat in one's extremities by increasing blood flow through deep relaxation. An exceptionally cooler residual limb suggests a decrease in blood flow and has been associated with burning PLP. To achieve deep relaxation, autogenic training is performed, where the patient visualizes that his/her extremities are warm. The temperature in an extremity is the "feedback" information. This may start with learning the skill of hand warming, possibly by measuring the temperature of a finger, then moving on to encompass the residual limb.



6. Virtual Reality

Virtual reality is similar to mirror therapy in that the residual limb is projected to be intact without injury and progressive muscle relaxation exercises are performed. Virtual reality is also used to treat post-traumatic stress disorder (PTSD). Working through PTSD can provide better ways to cope with pain, even PLP.



Provided by The University of Manchester

7. Mirror Therapy

Mirror therapy, for unilateral amputees, uses a mirror box to project an image of the intact limb. "The idea is to trick the brain into believing that the amputated limb is whole and healthy," Evans explains. "Watching that non-painful limb perform progressive muscle relaxation fills the brain with positive images of a limb without injury."

To use the mirror box, a person with limb loss gently tenses and relaxes each leg – this is called progressive muscle relaxation. The sensation of these exercises, combined with the visual image of a healthy limb, creates the path for PLP to fade away.

8. EMDR



Eye Movement Desensitization and Reprocessing (EMDR) is a procedure performed by a behavioral health therapist. "During the process, the practitioner holds his/her hands up in front of the patient and rapidly moves them back and forth," Evans says. "It is believed that the rapid eye movements that occur when the patient watches the practitioner's hands help to unlock memories of the trauma. Ultimately, pain is released. This procedure is combined with traditional psychotherapy in an effort to teach coping techniques and lessen psychological trauma."

7. Silver Shrinker Socks

There is some evidence that wearing silver shrinker socks helps eliminate PLP. Silver is a natural antibiotic, which in itself is a preventative against infection. There is also a theory that silver shields the residual limb from the effects of weather fluctuations, as that has been reported to worsen PLP.



Photo supplied by Comfort Products, Inc.

10. Magnets

Magnet therapy is believed to increase blood flow; however, this has not been proven. Since a decrease in blood flow has been associated with burning PLP, this type of therapy may be helpful for some people. There is no prescription required, no medical provider to administer treatments and the use of magnets will likely not cause any harm.



MORE IDEAS

Besides these procedures, techniques, devices and options, there is a lot to be said for having a properly fitting prosthesis. As Evans explains, “A prosthesis that fits well can relieve phantom limb pain. The proper fit can stimulate the nerves in the residual limb and possibly close the pain gates from the phantom limb pain experience.”

Although it may be easier said than done at times, Evans adds that performing activities and tasks to create a distraction from the pain, taking one’s mind away from it, can often be helpful. Brain puzzles, video games, meditation techniques and prayer can provide distraction, sources of coping and solace to someone dealing with PLP.



Finally, although pain is not funny, laughter is always great medicine. Evans suggests telling or listening to jokes with a group, watching a funny movie or show, or doing whatever it takes to get a good belly laugh. Laughing can provide temporary comfort, distraction and relief. Many studies have linked laughing, especially with friends, to the release of endorphins and, ultimately, pain relief. 🌀

Resources

Acupuncture

[medicinenet.com/acupuncture/article.htm](https://www.medicinenet.com/acupuncture/article.htm)

American Society of Pain Management Nursing

[aspmn.org](https://www.aspmn.org)

Biofeedback

[aapb.org](https://www.aapb.org)

Center for Pain Studies

Rehabilitation Institute of Chicago

[ric.org/research/centers/pain](https://www.ric.org/research/centers/pain)

Chiropractic

[nlm.nih.gov/medlineplus/chiropractic.html](https://pubmed.ncbi.nlm.nih.gov/medlineplus/chiropractic.html)

EMDR

[webmd.com/mental-health/emdr-what-is-it](https://www.webmd.com/mental-health/emdr-what-is-it)

Holistic Nursing Society

[ahna.org](https://www.ahna.org)

Magnet Therapy

[nccam.nih.gov/health/magnet/magnetsforpain.htm](https://www.nccam.nih.gov/health/magnet/magnetsforpain.htm)

Massage

[amtamassage.org](https://www.amtamassage.org)

Mirror Box Therapy

[mirrorboxtherapy.com](https://www.mirrorboxtherapy.com)

National Center for Complimentary & Alternative Medicine

[nccam.nih.gov](https://www.nccam.nih.gov)

TENS

[emedicine.medscape.com/article/325107-overview](https://www.emedicine.medscape.com/article/325107-overview)