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## Treatments and drugs

By Mayo Clinic Staff

Finding a treatment to relieve your phantom pain can be difficult. Doctors usually begin with medications and then may add noninvasive therapies, such as acupuncture or transcutaneous electrical nerve stimulation (TENS).

More-invasive options include injections or implanted devices. Surgery is done only as a last resort.

### Medications

Although no medications specifically for phantom pain exist, some drugs designed to treat other conditions have been helpful in relieving nerve pain.

No single drug works for everyone, and not everyone benefits from medications. You may need to try different medications to find one that works for you.

Medications used in the treatment of phantom pain include:

- **Antidepressants.** Tricyclic antidepressants may relieve the pain caused by damaged nerves. Examples include amitriptyline, nortriptyline (Pamelor) and tramadol (Conzip, Ultram).

These drugs work by modifying chemical messengers that relay

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pain signals. Antidepressants may also help you sleep, which can make you feel better.

Possible side effects include sleepiness, dry mouth, blurred vision, weight gain, and a decrease in sexual performance or desire.

- **Anticonvulsants.** Epilepsy drugs — such as gabapentin (Gralise, Neurontin), pregabalin (Lyrica) and carbamazepine (Carbatrol, Eptol, Tegretol) — are often used to treat nerve pain. They work by quieting damaged nerves to slow or prevent uncontrolled pain signals.

Side effects may include depression, anxiety, suicidal thoughts, irritability, and allergic reactions such as hives, fever and swelling.

- **Narcotics.** Opioid medications, such as codeine and morphine, may be an option for some people. Taken in appropriate doses under your doctor's direction, they may help control phantom pain.

However, you may not be able to take them if you have a history of substance abuse. Even if you don't have a history of substance abuse, these drugs can cause many side effects, including constipation, nausea, vomiting or sedation.

- **N-methyl-d-aspartate (NMDA) receptor antagonists.** This class of anesthetics works by binding to the NMDA receptors on the brain's nerve cells and blocking the activity of glutamate, a protein that plays a large role in relaying nerve signals.

In studies, NMDA receptor antagonists ketamine and dextromethorphan were effective in relieving phantom pain. Side effects of ketamine include mild sedation, hallucinations or loss of consciousness. No side effects were reported from the use of dextromethorphan.

## Noninvasive therapies

As with medications, treating phantom pain with noninvasive therapies is a matter of trial and observation. The following techniques may relieve phantom pain:

- **Nerve stimulation.** In a procedure called transcutaneous electrical nerve stimulation (TENS), a device sends a weak electrical current via adhesive patches on the skin near the area of pain. This may interrupt or mask pain signals, preventing them from reaching your brain.

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Used properly, TENS is safe. To avoid an unintentional shock, don't wear a TENS device in the shower or tub or turn it up too high.

- **Mirror box.** This device contains mirrors that make it look like an amputated limb exists. The mirror box has two openings — one for the intact limb and one for the stump.

The person then performs symmetrical exercises, while watching the intact limb move and imagining that he or she is actually observing the missing limb moving. Studies have found that this exercise may help relieve phantom pain.

- **Acupuncture.** The National Institutes of Health has found that acupuncture can be an effective treatment for some types of chronic pain. In acupuncture, the practitioner inserts extremely fine, sterilized stainless steel needles into the skin at specific points on the body.

It's thought that acupuncture stimulates your central nervous system to release the body's natural pain-relieving endorphins. Acupuncture is generally considered safe when performed correctly.

## Minimally invasive therapies

- **Injection.** Sometimes injecting pain-killing medications — local anesthetics, steroids or both — into the stump can provide relief of phantom limb pain.
- **Spinal cord stimulation.** Your doctor inserts tiny electrodes along your spinal cord. A small electrical current delivered to the spinal cord can sometimes relieve pain.
- **Nerve blocks.** This method uses medications that interrupt pain messages between the brain and the site of the phantom pain.

## Surgery

Surgery may be an option if other treatments haven't helped.

Surgical options include:

- **Brain stimulation.** Deep brain stimulation and motor cortex stimulation are similar to spinal cord stimulation except that the current is delivered within the brain. A surgeon uses a magnetic resonance imaging (MRI) scan to position the electrodes correctly.

Although the data are still limited, brain stimulation appears to be a promising option in selected individuals.

- **Stump revision or neurectomy.** If phantom pain is triggered by nerve irritation in the stump, surgical resection or revision can sometimes be helpful. But cutting nerves also carries the risk of making the pain worse.

## On the horizon

Newer approaches to relieve phantom pain include virtual reality goggles. The computer program for the goggles mirrors the person's intact limb, so it looks like there's been no amputation. The person then moves his or her virtual limb around to

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accomplish various tasks, such as batting away a ball hanging in midair.

Although this technique has been tested on only a few people, it appears to help relieve phantom pain.

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Dec. 03, 2014

References ▾

## Products and Services

1. Book: Mayo Clinic Guide to Pain Relief
2. Newsletter: Mayo Clinic Health Letter
3. Book: Mayo Clinic Family Health Book, 4th Edition

## See also

[TENS therapy: An option for fibromyalgia treatment?](#)

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