

What is electrical stimulation and why do we use it on patients?

So you finish with your exercises and you hear one of the staff members say, "Are you ready for your ice and e-stim?" For some patients, the combination of ice and "e-stim" is one of the best parts of their therapy session. However - **what is "e-stim"?**

"E-stim" is short for electrical stimulation. Electrical stimulation is a machine that produces low voltage electrical impulses that are delivered to surface nerves in the skin. There is quite a bit of research that electrical stimulation can reduce the sensation of pain by interfering with its transmission at the spinal cord level. Research has also shown that e-stim may control pain by stimulating the production and release of endorphins. Endorphins are hormones with tranquilizing and pain-killing capabilities that are secreted by the brain. Electrical stimulation is non-addictive and can be used to treat acute or chronic pain.

At Physical Rehabilitation Institute, electrical stimulation has a wide range of uses in rehabilitation. These include:

1. pain control
2. reduction of swelling
3. muscle strengthening or contractions
4. wound healing
5. tissue healing
6. neuromuscular stimulation

What to expect during the procedure: electrodes are placed on the skin near the painful or injured area and attached to the electrical stimulation machine. The intensity level is increased until the patient communicates when they have reached a mild, comfortable tingling or vibrating sensation at the site. The treatment lasts approximately 15 minutes and is usually accompanied with an ice pack. Pain relief can be instant or felt shortly after the treatment.

There is a small, patient-friendly unit of e-stim that can be used at home called a TENS unit. TENS stands for transcutaneous electrical nerve stimulation. If a patient receives pain relief from electrical stimulation, a TENS unit might be a wise investment. Ask your physical therapist for more information.

Source: [Physical Agents in Rehabilitation](#) from Research to Practice. Second Edition, by Michelle H. Cameron, PT, OCS

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