Some people refer to Transcutaneous Electrical Nerve Stimulation (TENS) as a sort of “electrical massage.” A TENS system consists of a small power unit connected by wires to a pair of electrodes. The electrodes are placed on the skin near the location of pain. A mild, generally painless electric current stimulates the muscles when the unit is switched on. Most people experience a sensation of tingling and warmth during TENS treatments. This stimulation is thought to block or interfere with pain signals as they travel to the brain. That is, TENS sends more “traffic,” overriding the pain. It also is thought to increase endorphins, or the body’s natural painkillers, during treatment sessions. Sessions typically are short and can be applied as often as needed depending on the severity of pain and medical providers recommendation. TENS is non-invasive, operated by the patient, and easy to use once a person is trained.

**What we know**

TENS is a general treatment for some kinds of pain such as neuropathic/phantom, chronic, post-surgery, and arthritis pain.\(^1,2\) It provides short-term relief, but very little long-term benefit. Research studies have found:

- A few TENS sessions per day may be helpful for neuropathic pain and stump/phantom pain.\(^3,4\)
- It also can improve the effects of pain-reduction medications, allowing some people to take less medication.\(^5\)
- TENS also may be helpful for post-surgery pain, even decreasing the need for pain medication.\(^6\)
- Although TENS can provide short-term relief for chronic pain and arthritis pain, the evidence of its effectiveness is still mixed.\(^7,8\)
- A review of research to date suggests that TENS may not provide significant treatment for low back pain.\(^9,10\)
- A special form of TENS treatment is electroacupuncture, which is discussed in HPRC’s InfoReveal on acupuncture. Electroacupuncture cannot be self-administered and must be performed by a professional acupuncturist.
- For more information about TENS, visit the American Cancer Society website and this *Nursing Times* review article.\(^5\)

**Concerns**

According to FDA\(^4\) and the American Cancer Society,\(^6\) TENS is generally safe. Although TENS units are available “over the counter,” always consult your healthcare provider before buying and using one. Once you get a TENS unit, consult a physical therapist, healthcare provider, or other professional to learn how to use it and where to place the electrodes. Although TENS units are relatively safe, the electrodes can cause irritation or small burns if the power is too high or if you have sensitive skin. Further cautions should be noted:

- TENS electrodes should not be placed on certain parts of the body, such as near the eyes, on the front of the neck, on open wounds or infections, near tumors, over a pregnant belly, or on the genitals.
- TENS is not advised for people with pacemakers, implantable cardiac defibrillators, or other implanted devices.
- People with epilepsy or undiagnosed pain also may want to avoid using TENS.

**Debrief**

Despite the lack of evidence to support generalized use, TENS can work for some people. It does have few side effects and might be helpful for neuropathic/phantom pain and possibly chronic pain. Given the rise in amputations, nerve damage, and other chronic pain conditions in the military, TENS may offer a pain treatment that can be used both in
the battlefield and at home. TENS is being used more often within the DoD at all levels of care, but the military and VHA have been slow to adopt TENS as a pain treatment because of the limited evidence.

**Note:** This InfoReveal is an educational overview that describes the use of mind-body techniques as a strategy for pain management; it is not a comprehensive review of the current state of the research. This InfoReveal was created in collaboration with the Defense & Veterans Center for Integrative Pain Management.

**References**


**Resources (available as hyperlinks on the original web page)**


c. **Nursing Times** review article: [http://www.nursingtimes.net/Journals/2012/03/08/u/t/b/120313-Review-TENS.pdf](http://www.nursingtimes.net/Journals/2012/03/08/u/t/b/120313-Review-TENS.pdf)

d. **FDA:** [http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm198645.htm](http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm198645.htm)

e. **Defense & Veterans Center for Integrative Pain Management:** [http://www.dvcipm.org/index.html](http://www.dvcipm.org/index.html)