



Patient & Family Guide
2017

Using TENS for Pain



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Using TENS for Pain

TENS (Transcutaneous Electrical Nerve Stimulation) provides stimulation that your body responds to by making natural chemicals near an injury to reduce pain. Using TENS regularly may help lower short-term and long-term pain.

When used with other self-help strategies, such as pacing, relaxation, movement, and nutrition, TENS can help lower the need for medications. Less pain can lead to better sleep, work abilities, home activities, and social life.

You will be given instructions for the use of TENS by your healthcare provider.

Some research has shown that caffeine may reduce the effect of TENS, so consider cutting back on caffeine while using TENS.

What is pain?

Pain is a response that your brain creates to warn you of a real or potential threat to your body. Pain is a message from your subconscious to your conscious brain. Often people associate pain with harm. Pain is not a measure of harm or damage to the body.

However, there are many instances when the amount of pain does not reflect the amount of harm. You may have no pain with a great deal of harm, a lot of pain with no harm, or something in between.

When your nervous system is working well, the amount of pain you feel may seem equal to the harm that has been done. For the most part, pain helps you avoid injury, such as moving your hand away from a hot stove before you get burned. Pain also encourages you to be less active while recovering from an injury or a medical condition. As tissues heal, the pain becomes less to encourage more activity.

Sometimes pain lasts longer than expected. This may happen because the nervous system is still on high alert and is sending extra signals to the brain. It may also happen because the brain is continuing to replay the pain pattern to help keep you safe. This can happen if there has been some damage to the nervous system, or because the nervous system is overly sensitive.

Sensory stimulation and pain control

Your body has many different types of sensors that are part of your nervous system. These nerves carry information about what your body is touching and feeling, such as things that are hot or cold, moving or still, hard or soft, etc. These signals then travel to the brain.

The brain interprets the signals and decides whether it should react to them or ignore them. The strength of the signals can be turned up or down in the spinal cord. If your brain thinks you are under threat, it will “turn up the volume” in the spinal cord. Your brain might also produce pain signals to help you protect a threatened body part. If your brain decides there is no threat, it will produce chemicals that calm you and your nerves. However, if your nervous system is overly sensitive, this may not happen.

Medications try to act like these chemicals so they can lower your pain. These chemicals can also be modified with use of TENS.

TENS (Transcutaneous Electrical Nerve Stimulation)

Transcutaneous means “across the skin”. The TENS units most often used by physiotherapy are in small boxes that fit easily in a pocket and can be used by patients at home.

TENS is a way of sending very controlled sensory signals to the nervous system. There is no overall change in the tissues, except for how the nervous system responds to the sensation.

The pulse rate, pulse width, and intensity can be adjusted to produce different sensations. Both low rates and high rates have been shown to stimulate the release of chemicals that can lower pain levels.

Different people respond to these rates differently. Factors that can affect the response include the medications you are taking, how well-rested you are, nutrition, anger, fear, sadness, financial worries, relationships, over or under-doing activities, posture, movement, self-talk, and expectation.

People often do more activity with their TENS unit on than they would without the unit on, and then find that their pain flares up because they have done too much. To avoid this, find the amount of activity you can do that does not flare

up your pain when you are not using the TENS unit. Use the TENS unit to get more enjoyment for that same level of activity with less pain. As your pain goes down for that level of activity, consider increasing your activity level by 10% at a time until you reach a level of activity that allows you to function better.

Once your nervous system gets used to your TENS unit, talk with your healthcare provider about different setting options. However, if your pain goes up while the TENS unit is on, turn down the intensity. If pain continues, talk about it with your healthcare provider.

For sensitive nervous systems, use a lower intensity, pulse width and time and talk to your healthcare provider about changes in the rate. If pain goes down, don't turn the intensity up. Stay at your current level of intensity, since that level is successfully soothing your nervous system.

Most TENS units have 2 sets of leads (wires). The leads attach to the TENS unit with a jack. There is a black lead that is usually called negative and a red lead that is usually called positive. These leads attach to electrodes on the other end. The electrodes deliver the current (electrons) to the skin. TENS units used today have a balanced current, more like an alternating current, which leaves no net charge and no risk of burns.

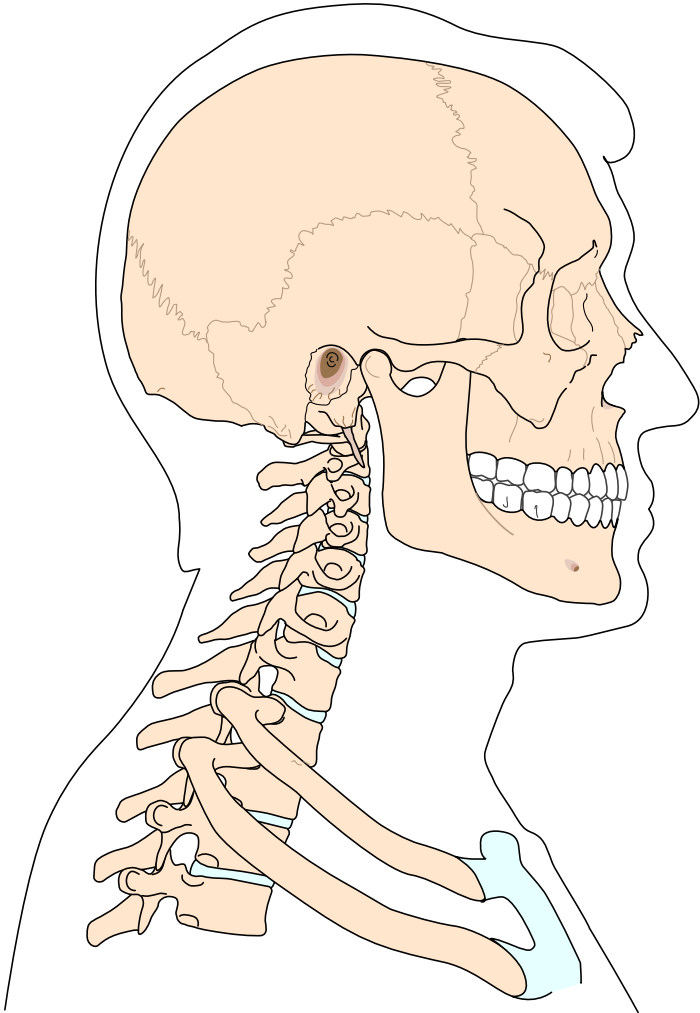
The electrons are delivered to the skin in pulses that can be adjusted from 50 to 300 microseconds. This is the pulse duration (width). The number of these pulses per second is the pulse rate; usually adjustable from 2 to 200. Electrons enter and leave the body in equal numbers. There are many ways of changing the rate and width, called modes. The intensity, or pulse height, is like a volume that you control.

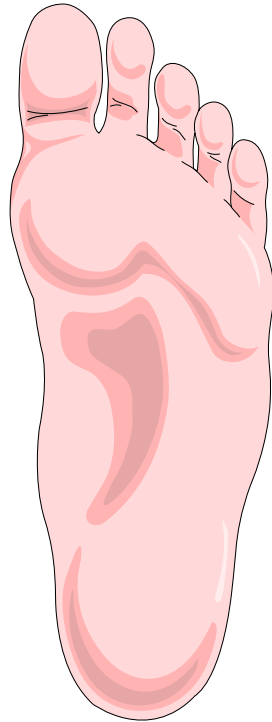
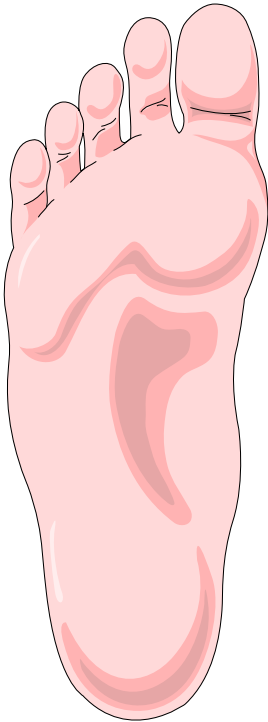
Using your TENS machine

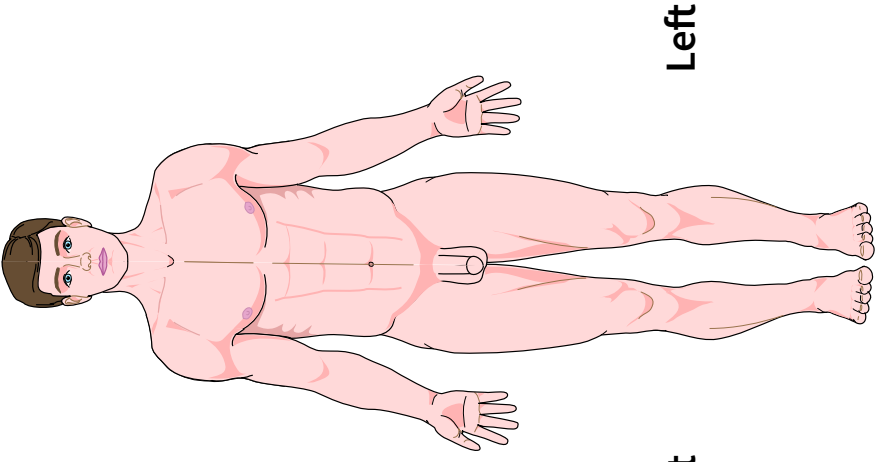
1. Wash the area with mild soap and water to reduce dry skin particles and oils that interfere with current flow.
2. Rinse skin well and pat dry. This is so the tape or gel can stick.
3. Attach leads to the electrodes and to the TENS unit.
4. Electrode types:
 - › Carbon electrodes (black): Apply about ¼ teaspoon of gel to one of the electrodes and rub the two together to get an even layer on both with no dry spots. Wipe off any extra gel from the edges. Tape in place.
 - › Self-stick electrodes have a sticky gel pad that sticks to your skin without tape.

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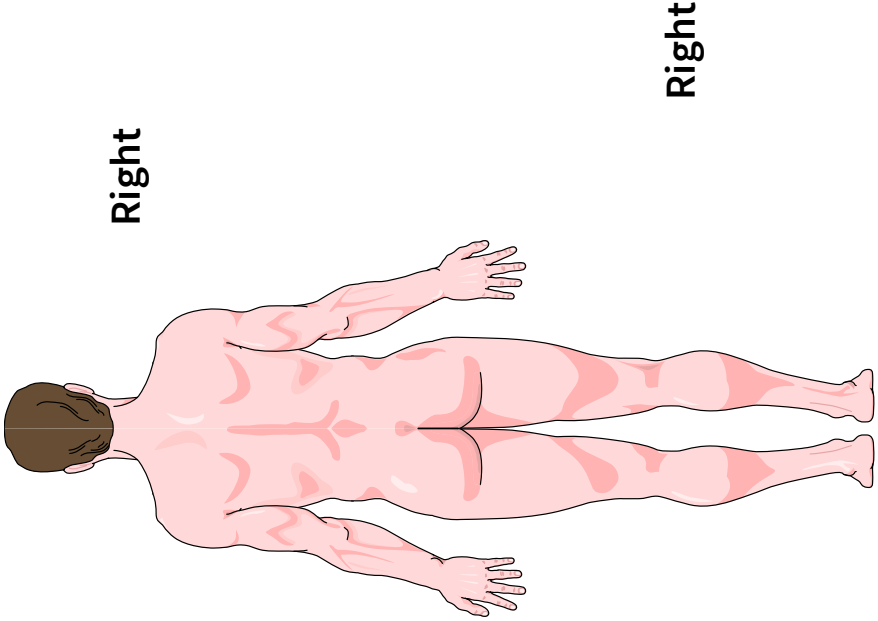
Electrode placement







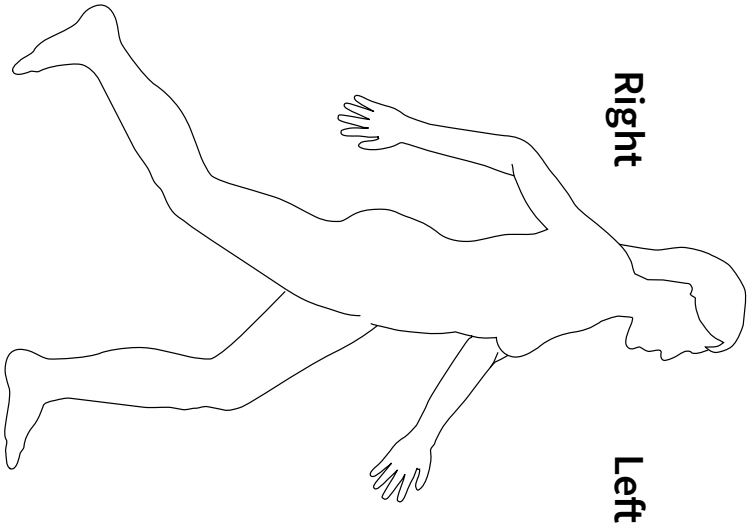
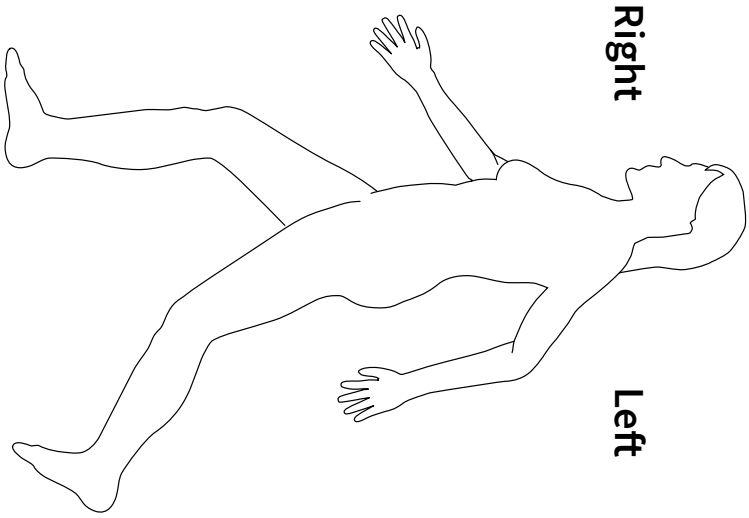
Left



Right

Right

Left



5. Place the electrodes on the skin as recommended by your healthcare provider. Place electrodes at least 2 inches apart so that the current will reach deeper tissues.
6. Use the settings on the TENS unit advised by your healthcare provider. Slowly increase the intensity one channel at a time until you feel the electrical stimulation.
7. For very sensitive conditions, keep the intensity noticeable but low. If the sensation fades, this means your body has started producing more of the right chemicals to help you. For those people with sensitive nervous systems, let it fade and do not turn it up. For others, if you want, you may turn it up slowly to a new comfort level.

Taking care of your skin

- Clean your skin with water each time you remove the electrodes.
- If your skin looks red or feels itchy, try different tape or pad placements, switch electrode types, or shorten the treatment time.

Taking care of the machine

- Do not get the machine wet.
- Do not kink (twist) the leads.
- After each use, turn the machine off and remove the electrodes from your skin. If using carbon electrodes with gel, wash the gel off the electrodes with warm water. Pat dry.
- If using self-stick electrodes, place them on a plastic liner or the inside of a freezer bag. If they are not sticky, gently moisten the surface of the electrode with water by brushing it with a wet finger, or put it under slow running water. Let the electrodes air dry until they feel tacky. When the current feels prickly, it is time to replace the electrodes.

Safety guidelines

- Do not bathe with the TENS unit or electrodes attached.
- Do not drop or bang the TENS unit.
- Do not recharge regular batteries.
- Do not sleep with the unit attached to you.
- Do not use TENS to push your activity boundaries.

Special note: If you have a pacemaker, dorsal column stimulator, or any other similar device, talk about the use of TENS with your healthcare provider. TENS is an electrical device and it may affect your device and have negative effects on your health.

If pain goes up, turn the unit off and use different settings the next day. Talk about the options with your healthcare provider.

Starting settings

Option	1	2	3
Mode (M)			
Treatment Time			
Pulse Rate (R)			
Pulse Width (W)			

Intensity (I):

Make note of some starting measures, such as:

Pain: You could use a scale from 0 to 10.

Medications: You could use the number of extra pills you take for pain beyond your usual dose.

Activity level: Pick an activity that has meaning to you and that you can measure, such as number of minutes spent walking or sitting.

Sleep: The number of hours it feels like you slept can be an indicator of your sleep quality.

After 4 weeks, describe any overall changes in the following:

Pain:

Pain medications:

Activity levels:

Sleep patterns:

Troubleshooting

Problem	Possible cause(s)
<ul style="list-style-type: none">• No current or stimulation felt <p>You may feel current under one electrode and not the other. This is not a problem as long as you feel current from one of the pair attached to that outlet on the unit.</p>	<ul style="list-style-type: none">› Battery is not installed properly› Dead battery› Wrong channel is turned on› Broken wire› No electrode contact› Lead pulled out of electrode <p>Solution: Check and correct.</p>
<ul style="list-style-type: none">• Surges of power	<ul style="list-style-type: none">› Poor electrode contact <p>Solution: Re-gel and reapply firmly. Shave body hair if needed.</p>

What are your questions?

Please ask. We are here to help you.

Looking for more health information?

Find this pamphlet and all our patient resources here: <http://library.nshealth.ca/PatientGuides>

Contact your local public library for books, videos, magazines, and other resources.

For more information go to <http://library.novascotia.ca>

Nova Scotia Health Authority promotes a smoke-free, vape-free, and scent-free environment.

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If you have any questions, please ask your healthcare provider.

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The information in this pamphlet is to be updated every 3 years or as needed.