

Spinal Cord Stimulation (SCS)

What is Spinal Cord Stimulation (SCS)?

Spinal cord stimulation is an advanced treatment for severe chronic pain that involves the use of electrodes on wires placed into the epidural space near the spinal cord. It is also referred to as *neuromodulation*. These electrodes produce an electrical field that helps to suppress pain signals travelling up the spinal cord to the brain.

Who is a Candidate for Spinal Cord Stimulation?

Spinal cord stimulation can be a very effective treatment for patients who suffer from chronic pain after a prior spinal surgery. It has also been found to be effective for treating chronic pain of a limb due to pinched nerves in the spine, as well as chronic nerve pain. Since this procedure is more invasive than other pain interventions/procedures, it is important to make sure we exhaust other treatments before proceeding with this option.

In general, we also ask that our patients wean down on opioid pain medications prior to proceeding with SCS.

Why is a psychology consult necessary?

All patients who are possible candidates for SCS are referred to *psychology* for an evaluation before we can move forward. This is a requirement of insurance and an important part of the evaluation process. Since this procedure involves an implanted device and close follow-up, seeing pain psychology is very important to assess your social supports and overall mental health, as well as to set appropriate expectations and provide additional education. Furthermore, for some, a foreign object being placed into the body can increase worry and anxiety, and this stress can reduce the effectiveness of the stimulator placement. In part, the pre-surgical clearance examination helps your physician prepare you for the procedure and make recommendations to help you adjust to this new part of your body.

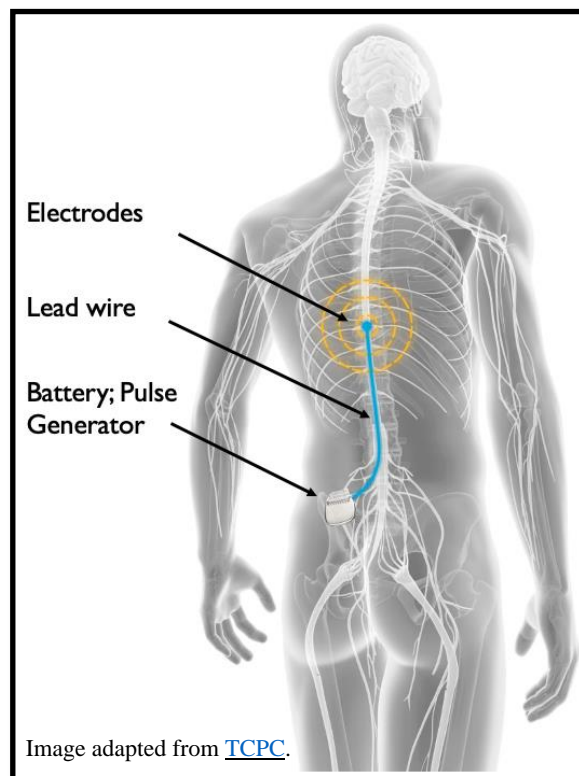
What is the Difference between Paresthesia-Based and Paresthesia-Free Treatment?

- *Traditional paresthesia-based* stimulation uses lower frequency electrical stimulation for treatment. This replaces your pain with a comfortable tingling sensation.
- *Paresthesia-free* treatment uses electrical stimulation at higher frequencies or for very brief periods of time that you cannot feel, resulting in pain relief without tingling.
- Both treatments have their unique advantages and disadvantages, and you should discuss with your physician to determine which type may be best for you.

What is the Spinal Cord Stimulator Trial and how is it Performed?

This is the first step of SCS treatment, and is performed in an outpatient setting. It is essentially a *test* to determine if SCS is the right option for you.

During the procedure, you will lay face-down on the procedure table, and cleaning solution will be applied to your back. Local anesthetic will be used to numb the area. Next, a needle will be directed into the epidural space using fluoroscopic guidance (low-dose X-ray). An electrode (small wire) will be threaded into the epidural space through this needle to the appropriate location. This process will be



repeated so a second electrode can also be placed. There may be some testing performed with the electrical stimulation to ensure the wires are in a good place to treat your pain.

Once the two electrodes are in the proper location, the needles will be removed leaving the wires in place. The wires will be secured to your skin with sterile dressing and tape then connected to an external battery which you will carry in a pouch around your waist during the trial. For the next few days, it will be important for you to pay attention to how the stimulation affects your pain. In assessing the success of the stimulation we are looking for decreased pain, increased activity level, and reduction in use of pain medication during the trial. It will also be important to keep the area around the electrodes dry. The electrodes (wires) will be removed during your office visit a few days later at the end of the trial.

How is the Permanent Implantation of the Spinal Cord Stimulator Performed?

If you obtain good pain relief with the SCS trial, then you can proceed with the permanent implantation procedure.

This is a *minor surgical procedure* performed in an operative room, and in most cases you will be able to return home the same day. Generally this is performed with sedation for the procedure that is administered by an anesthesiologist. You will need to fast for 8 hours prior to the procedure except water.

As with the trial, electrodes will be threaded into the epidural space using X-ray guidance. These will be attached to a small *impulse generator*, (battery) which will be implanted under the skin into an area that you and your physician have identified prior, usually the upper buttock or low back. Both the wires and battery will be entirely under the skin and you will have two small incisions.

Risks and Complications:

As with any invasive medical procedure, there are potential risks associated with both the spinal cord stimulator trial and permanent implantation procedure. Common complications are soreness/pain from the procedure itself or bruising, movement of the wires, or failure of the procedure to help your chronic pain. Much rarer complications include bleeding, headache, nerve damage, or infection. We will take every measure to minimize these potential risks and maximize the therapeutic benefit.