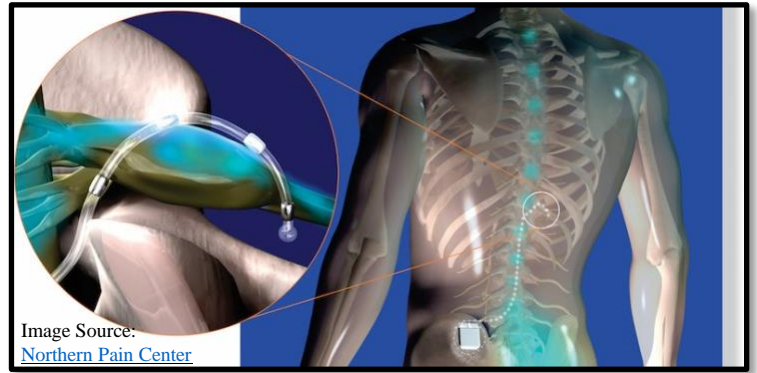


Dorsal Root Ganglion Stimulation (DRG)

Devices to stimulate the DRG is new technology that became available in the mid-2010s for treating chronic pain, particularly in areas that were hard to treat with traditional spinal cord stimulation, such as the hand, chest, abdomen, foot, knee or groin.

What is Dorsal Root Ganglion Stimulation (DRG Stimulation)?

--It is a form of *neuromodulation*. DRG stimulation is an advanced targeted treatment for severe chronic pain that involves the use of electrodes on wires placed next to the nerve roots. These nerve roots sense pain from specific locations and brings that signal to the spine. The pain signal then goes from the spine to the brain. DRG electrodes uses an electrical field that helps to suppress these pain signals.



Who is a Candidate for DRG Stimulation?

--DRG Stimulation can be a very effective treatment for patients who suffer from chronic pain in a specific location of the body. It has also been found to be effective for several types of nerve pain, such as chronic regional pain syndrome (CRPS), ilioinguinal neuralgia after surgery, and other forms of chest, abdominal, and knee 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.

--All patients who are possible candidates for DRG stimulation are referred to *pain 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.

--In general, we also ask that our patients wean off of opioid pain medications, or at least greatly reduce their opioid pain medication use, prior to proceeding with DRG stimulation.

What is the DRG Trial and how is it Performed?

--The trial is the first step of DRG Stimulation treatment and it is essentially a *test* to determine if DRG therapy is the right option for you. It is done in a surgery or procedure suite. You will likely go home that same day.

-----TRADITIONAL TRIAL: For most people, the trial lasts 7 days, and you will come back to the clinic to have the wires removed.

-----BURIED TRIAL: If your trial is a "buried trial," you will not need to have the wires removed as these wires will become you permanent wires. The benefit of a buried trial is that if the trial is determined to be a success, your permanent implant will be a shorter procedure (see below). The major disadvantage is that if the trial is not successful, you will need to go back to the operating room to have the wires removed.

--During the trial, you will lay face-down on the procedure table, and cleaning solution will 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. Depending on your pain location, this process may be repeated for other electrodes as well. There will be discomfort as the wire is placed because it is close to your nerves, and therefore, you will receive sedation for the procedure.

--Once the electrode(s) 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 DRG Stimulator Performed?

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

Similar to the trial, the permanent implant is performed in an operative room, and in most cases you will be able to return home the same day. Sedation for the procedure will be administered by an anesthesiologist but you will not be under general anesthesia. You will need to fast (no eating!) for 8 hours prior to the procedure, with the exception of water up to 2 hours prior to the procedure.

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 DRG 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.