PainMedSA
Pain & Rehabilitation Specialists

Dorsal Column Stimulation – patient information

What is Dorsal Column Stimulation?

Dorsal Column Stimulation, also known as Spinal Cord Stimulation, is a recognised treatment for patients with chronic back, neck or limb pain when other more conservative treatments have not been effective. While this treatment is not successful for every patient who trials it those for whom it is successful report an approximate 50–70% reduction in their pain, an increased ability to participate in family, work and recreational activities and many patients are able to stop or substantially reduce their pain medication.

Dorsal column stimulation involves the insertion of electrodes into the epidural space near the spinal nerves. The electrodes are then stimulated by an external (during the trial) or internal (permanent) power source (impulse generator). An electrical current is passed through the electrodes from the stimulation device; this current reduces pain and may create a feeling of numbness or tingling in the area. This results in a masking of the pain and changes the way the pain messages are travelling to and from the brain.

Conditions that may respond to Dorsal Column Stimulation

- Failed back surgery syndrome
    - Chronic pain following one or more back or neck surgeries, often with associated limb pain
- Complex Regional Pain Syndrome
    - A disorder of the sympathetic nervous system which causes constant pain in a limb
- Intractable chest pain/angina
    - Difficult to control chest pain/angina that has failed to respond to treatment and/or surgery
- Ischaemic leg pain due to vascular disease
    - Reduced blood supply caused by a clot or build up of plaque within a blood vessel
- Peripheral neuropathy
    - Persistent nerve pain of the legs caused by damage to the blood vessels

What happens during a Dorsal Column Stimulation procedure?

Implantation of a Dorsal Column Stimulator requires two stages: a trial stage and an implantation stage.

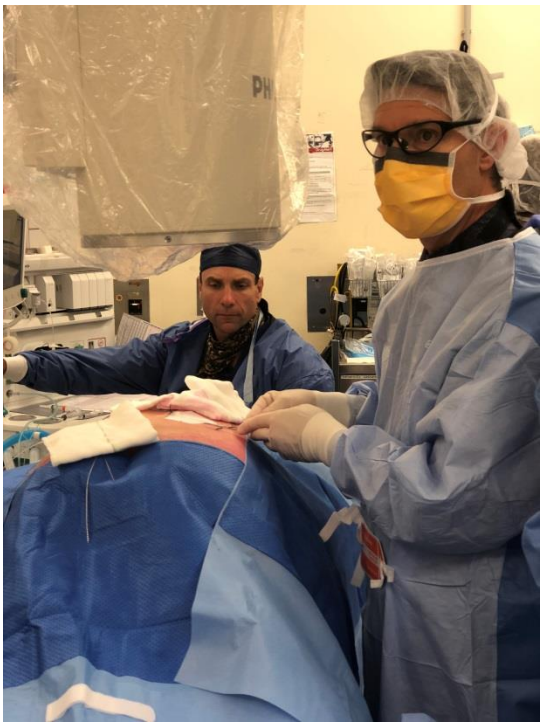
Stage one: Trial

A trial of temporary stimulation is typically required for approximately nine days to assess whether it helps a person with their particular pain (a trial will not usually be any longer than nine days due to the increased risk of infection). During this period you will be asked to monitor how well your pain responds to the stimulation and to increase your activity level.

A trial of stimulation requires an admission to hospital for a procedure (approximately 45 minutes) which is performed in a sterile operating theatre. An anaesthetist places a cannula (a small plastic tube) in your hand to give you pain relief and sedation (a light anaesthetic). At the start of the procedure the doctor places local anaesthetic under your skin to numb the area that is to be operated on. The doctor places a 'trial' or temporary stimulator electrode in the epidural space next to the spine. A wire from the trial electrode is brought out to the surface of your skin and secured in place with a stitch and a dressing. The trial electrode wire is then connected to a small external stimulation device. When the device is turned on it will release electrical stimulation to the nerves that send the sensation of pain to your brain. This stimulation will replace the pain with a tingling sensation. It will be tested by your doctor while you are in the operating theatre to ensure that it covers your area(s) of pain. This is not painful and is important for you and the doctor to be sure that the correct areas are correctly targeted by the stimulation. The external device remains with you throughout the duration of the trial and can be attached to your belt or placed in your pocket.

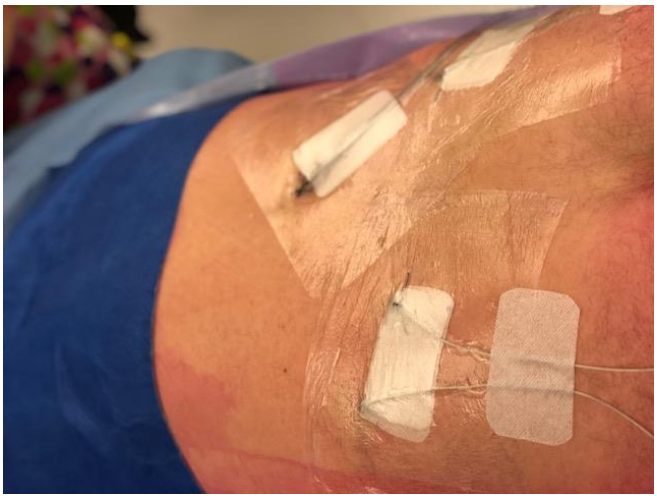

Pictures: On table testing

Pictures: Surgeon + Anaesthetist placement
X-ray machine
Patient placement



You are required to remain in hospital overnight following your procedure and the trial will begin on the morning after the procedure. A technician will visit you in hospital to provide education, to program your stimulation device and to assess your level of stimulation before you are discharged.

The effect of the stimulation on your pain will be assessed over 7-10 during which time you will be required to monitor your level of pain and functional capacity. During this period you and your doctor will meet on a twice weekly basis to assess if the stimulation is beneficial for your pain or not. A programming technician will also be present at these consultations and will be available to provide support if required between appointments. A dressing will be placed over the electrode wire insertion site during the trial and it is important that only the doctor who has performed the procedure, or the practice nurse, makes



Picture: Wound dressings post implantation

any adjustment to this. The dressing and stimulation electrodes are removed at the end of the trial period at your doctor's office by either the doctor or practice nurse.

It is important that you are active throughout the trial period as this will allow you and the doctor to assess if the stimulation is helpful with relieving your pain. A reduction in pain of 50% or greater for is generally required in order for the trial to be considered a success.

Stage two: Implantation

If you and your doctor are happy with your level of stimulation and pain reduction during the trial period then you will be offered the option of permanent implantation of electrodes and a stimulation battery. Implantation requires an admission to hospital for a procedure (approximately two hours) which is performed in a sterile operating theatre. An anaesthetist places a cannula in your hand to give you pain relief and sedation (a light anaesthetic). The doctor will insert soft wires with electrodes on their tip through a needle under your skin to position them in the same area as your trial. An incision will be made in your buttock to house the stimulator battery. The electrodes are then attached to the battery.

You are required to remain in hospital overnight following your procedure. A technician will visit you in hospital to provide education, to program your stimulation device and to assess your level of stimulation before you are discharged. Your doctor will monitor your wound and level of stimulation closely for the first month following your procedure and the technician will continue your education and programming adjustments as your wounds heal.

An implanted Dorsal Column Stimulator can be removed if pain relief is inadequate or the feeling of paresthesia ('tingling') is not tolerated in the long term.

Potential complications and side effects

- dural puncture headache
- lead migration/movement and lack of therapeutic benefit
- pain and bruising over the insertion site
- potential risk of introduction of infection
- risk of blood vessel, nerve and spinal cord injury