

Patient Instructions: Spinal Cord Stimulator Placement

Surgical Technique

Spinal cord stimulators can be placed anywhere in the spine depending on the location of your pain, but the most common sites are either in the neck (cervical) or mid back (thoracic). To do this, usually a small window of bone (laminotomy) is drilled over the area using minimally invasive techniques to allow insertion of the electrodes into the epidural space. Other times, more bone must be removed (laminectomy) to allow safe and accurate placement of the electrodes. This is a decision that is usually made during surgery. The goal of surgery is to place the electrodes over the spinal cord in a location that allows them to be programmed to cover the areas of your body that are in pain. It can many times be performed on an outpatient basis without the need for an overnight stay in a hospital.

If you have not had a trial stimulator placed before:

If you have not yet been trialed (like many of our patients) we will perform the trial and will place the electrodes based upon your responses to stimulation during surgery (we will wake you up for part of the surgery). The electrodes will then be connected to temporary wires that are brought through the skin and connected to an external pulse generator. During the trial, the electrodes will be programmed to help cover your areas of pain and if this is successful we will offer placement of a permanent pulse generator usually within the next several days following the first surgery. This will allow the entire system to be buried safely under the skin so that there are no longer any external wires. The location of the permanent pulse generator (similar to a pacemaker) will be at a site determined by you and your surgeon.

If you have had a successful spinal cord stimulator trial:

If you have had a successful trial stimulator placed the surgeon will be guided by the x-rays that were taken during the trial. These x-rays will guide us as we place the electrodes. We will then connect the electrodes to a pulse generator (similar to a pacemaker) and this will be placed in a small pocket under your skin at a site determined by you and your surgeon. Please visit bnasurg.com for more information.

Before Surgery

- Seven days prior to surgery, please do not take any anti-inflammatory NSAID medications (Celebrex, Ibuprofen, Aleve, Naprosyn, Advil, etc.) as this could prolong your bleeding time during surgery.
- Do not eat or drink anything after midnight the day before surgery. This means nothing to drink the morning of surgery except you may take your normal medication with a sip of water if needed. This includes your blood pressure medicine, which in general should be taken. Consult your surgeon or primary care doctor regarding insulin if you take it.
- Please do not be late to check in on the day of surgery or it may be cancelled.
- Please bring your preoperative folder with you to the surgery and have it when you check in.
- If you have a copy of your MRI or x-rays please bring these with you to the surgery even if your surgeon has seen them already or might even have a copy. Surgery may be cancelled if we do not have your radiographic images.
- Please be aware that smokers are recognized to have a significantly higher risk of postoperative wound healing problems, as well as operative and postoperative bleeding. Smoking disrupts the normal function of basic body systems that contribute to bone formation. Smokers must understand and agree to discontinue smoking for at least two weeks before and after surgery. Although it helps to stop smoking for several weeks before and after surgery, this does not eliminate the increased risk resulting from long-term smoking.

After Surgery

Activity Level

- Walking is the best exercise after the surgery. It strengthens muscles, increases endurance, relieves stress and most importantly - helps to keep proper blood flow, the bowels moving and keeps fluid from building up in the lungs. Soon after surgery, a patient is encouraged to get up and walk and gradually increase the distance. The sooner a patient becomes active, the sooner he/she will resume their normal routine.
- Do not lift more than 5-10 pounds for the first few weeks after surgery. This may be increased to approximately 20 pounds after 4-6 weeks. Do not lift anything greater than 20 pounds for the first 3 months.
- Avoid prolonged upright sitting on hard surfaces or long car rides (more than 2 hours) for 2-4 weeks.
- You may drive as soon as it is comfortable to do so, which is usually after about one week following discharge from the hospital. You should not drive while under the influence of pain medications.
- Limited bending or twisting is advised as this can cause migration of the electrodes before healing has occurred.
- Avoid activities where there is the potential for a fall or physical contact until cleared by your surgeon.

Bandage

- Bandage (if present) may be removed the second day following surgery.

- Steri-strips should be left intact on the incision until returning to clinic or for your postoperative follow-up 7-14 days following surgery.

External Wires

- For those who have external wires, keep the area where the wires come through the skin clean and dry. We recommend prepping this site twice daily with a little chlorhexidine soap, which can be obtained from almost any drugstore. Keep this site dry and do not allow water from a shower to contact this area. Absolutely no soaking in a bathtub while there are external wires coming through the skin. This site almost always has drainage of blood-tinged fluid that will SOAK the dressing each day. Please change this dressing twice a day. This is the body's normal response to the wires and is to be expected and is not a cause for concern.

Bathing

- You may shower on third day following surgery.
- Try to limit showers to no more than 5–7 minutes.
- Do not scrub the wound. Let water run over the incision, then pat dry with clean towel.
- Do not soak in a bathtub, hot tub or pool for at least 2 weeks and never if there are still wires coming through the skin.

Diet (Narcotic pain medications are very constipating, be proactive with stool softeners and laxatives)

- A high fiber diet is recommended.
- Avoid straining on the toilet. Keep stools soft with a high fiber diet and/or use of prune juice, Metamucil, Fiber One cereal etc.

Pain Medications

- Tylenol can be taken as needed.
- Narcotic pain medications are prescribed if Tylenol is inadequate.
- You should not let pain get out of control before taking medication or it will be less effective.
- We will not refill pain medications over the weekend or after hours. Anticipate the need for medication refills.

Follow-up

- Call Boulder Neurosurgical Associates' (BNA) office (303-938-5700) 3-4 days after the trial to schedule the placement of the permanent pulse generator.
- If you have had placement of electrodes AND the permanent pulse generator please schedule a follow-up visit 7-14 days after surgery.

When to Call Your Doctor

Please call your physician's office immediately with any problems or go to the emergency room if:

- Drainage and/or pain increases at the incision site
- Fever greater than 101.5 degrees F
- Swelling and tenderness develops in your legs
- New, persistent pain and weakness or numbness in your back/neck and legs/arms
- Problem controlling your bladder and bowels

Other FAQs

How long will I be in the hospital? This varies depending on the type of surgery performed, but you will likely go home the day of the surgery. Otherwise, you will go home the following day. We have found that patients generally prefer the comforts and support that home offers. The sooner you go home, the lower your risk of complications such as hospital-acquired wound infections, blood clots and urinary tract infections.

How much time off from work? The amount of time needed for recovery prior to returning to work varies depending on the surgery, your job and you, the individual. Typically, 2-3 weeks for jobs that are at a desk or sedentary is sufficient, but patients should ask their surgeon for an individual recommendation. To return to physically demanding jobs will be at the discretion of your surgeon.

When can I resume driving? Driving is acceptable approximately one week after surgery depending on the use of pain medication. We generally recommend that you not drive while taking pain medications following the surgery.

Will I need pain medications? We will prescribe pain medications and other peri-operative medications on the day of surgery or prior to your discharge from the surgery center or hospital. For those patients working with a pain management physician many times that physician will want to manage the peri-operative pain and we encourage you to discuss the procedure with them.

Will I need Physical Therapy? We usually recommend physical therapy and will refer you to a therapist at your first postoperative

visit. Limited bending or twisting of the spine is advised. Refrain from high impact activities such as running, horseback riding, or any radical side-to-side motions. A good rule of thumb is 'If it hurts don't do it'.

What kind of follow-up is required? Patients return to our office for routine follow up appointments at intervals that are determined on a case-by-case basis. We typically see patients back in the office within a couple weeks following surgery and then increase this to several months followed by an annual exam. Your individual needs will be determined by your surgeon at each follow-up visit.

Do I need antibiotic prophylaxis for dental procedures? YES. If you have dental work done within 24 months of the stimulator placement. We recommend avoiding routine dental prophylaxis and simple procedures for 3 months following a stimulator placement, but between 4 and 24 months we suggest antibiotic prophylaxis. After 24 months, you will not need antibiotic prophylaxis unless you have a compromised immune system, Type 1 diabetes mellitus, previous infection of a prosthetic joint or a spinal fusion, hemophilia, or malnourishment. The choice of antibiotic is a decision for you and your primary care doctor. Please contact their office for antibiotics or further advice. We are happy to discuss this with them should they need to contact us. If you have significant immune compromise, Type 1 diabetes mellitus, history of previous infected spinal fusions or joint replacements, hemophilia or malnourishment then we suggest antibiotic prophylaxis for ALL future dental procedures regardless of timing, but this again is something that needs to be resolved through your primary care physician and not your neurosurgeon. If there is any confusion please have them call us.

My dressing is wet what should I do? Please see the notes above under External Wires. We expect drainage from the wire site. This dressing needs to be changed twice daily and the wire site prepped with just a little chlorhexidine soap.