Spinal Cord Stimulation

For those with chronic pain either in the neck, low back, arms or legs, spinal cord stimulation may be an excellent last resort treatment. The treatment offers hope to those who are no longer candidates for surgery and are living a life where opiate medication is necessary every day.

What exactly is a spinal cord stimulator?

It is a device that is implanted around the spinal cord and emits electrical impulses. These impulses are able to alter the way that the brain perceives pain signals coming in and usually decrease the pain medication necessary for pain relief.

There are two pieces to a stimulator device. One is the silicone paddle that is implanted around the spinal cord, and is attached to the wire that travels through the soft tissues under the skin.

The second part of the stimulator is the battery, which is implanted under the skin near the buttock region or on the side of the abdomen. The devices have lots of programming capabilities now, many more than previous generations to obtain pain relief in both the extremities as well as the neck or back itself.

For what conditions is a spinal cord stimulator indicated?

Over the years, the spinal cord stimulator batteries keep getting smaller and better at the same time.

These devices are not a first-line treatment for pain management. For individuals who have failed back or neck surgery, a stimulator may make life very tolerable as a last resort.

Another indication for the procedure is in those who have what is called post laminectomy syndrome. This is when a person has a surgery to decompress one or multiple nerve roots. Initially the surgery may be successful, but there's a chance that scar tissue may envelop the nerve root or roots that were freed up, and start to cause persistent leg pain.

There is no effective surgical answer for this, as doing a repeat decompression will simply end up causing more scar tissue and more pain. Therefore, a spinal cord stimulator is often times a great answer to alleviate the pain from post laminectomy syndrome.

Another condition for which a stimulator has been shown to work well is diabetic and peripheral neuropathy. Recent studies have shown that in those with significant pain in their lower extremities

from the neuropathy, over 70% of those with spinal stimulation obtain some relief, and over a 7 point drop in pain on the visual analogue scale. Additionally, the majority of patients (85%) who receive a spinal cord stimulator for diabetic neuropathy are also able to regain a significant amount of lost sensation from the neuropathy (Pain Medicine 2009). This is truly amazing.

Does a spinal cord stimulator fix chronic pain?

The key point with a stimulator is that it does not fix the underlying problem. It is often able to mask the pain from the problem, but it does not fix anything.
Therefore, it may be a great treatment for masking symptoms of chronic pain when the problem does not have a surgical answer.

What's the process for getting a stimulator and does insurance cover it?

When a pain management doctor decides that a patient may be a good candidate for a spinal cord stimulator, the first step is called a trial implant. During this step, a catheter is placed around the spinal cord as an outpatient with the patient awake during

Spinal Cord Stimulator Trial

the procedure. The catheter that is placed is considerably smaller than the final implant would be. Once it is put into position, it is turned on and the patient tells whether or not he or she feels tingling from the device around the area of typical pain.

As soon as the positioning is adequate, the catheter is brought out of the scan and attached to a battery pack. This is left in place for 5 to 7 days and can be taken out in an office setting.

If pain relief achieved is over 50% during that time period, it is indicated to go on with the final implant. Most insurance companies will also require a psychological evaluation and then approve the final implant.

The trial implant is a good idea. Final implants cost over $15,000, and if the trial does not work well it saves both the insurance company and the patient unnecessary time, expense, and some risks.

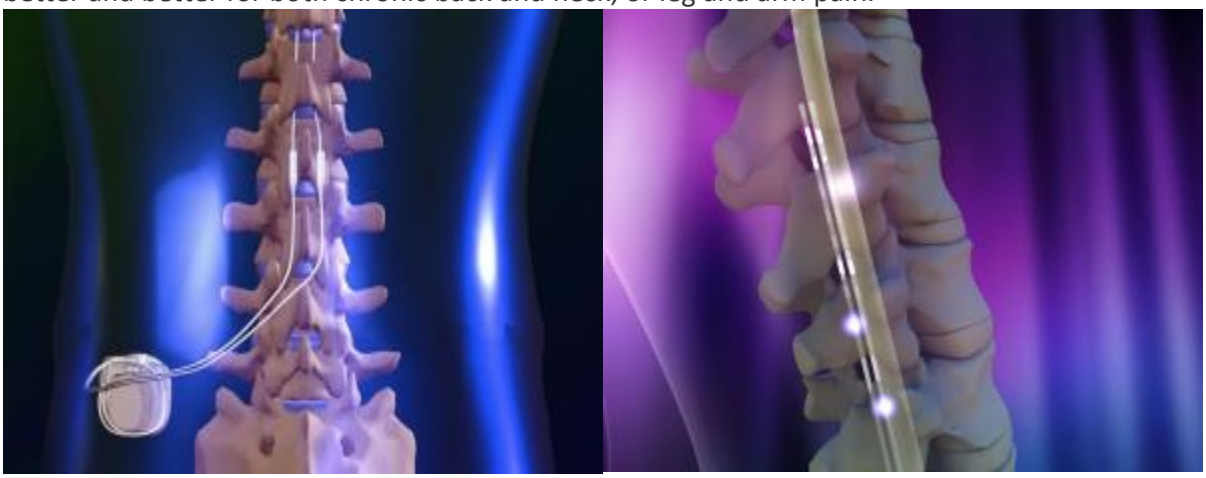
At that point of trial implant success, the final implant is placed with the patient under general anesthesia. Placing the larger paddle lead into the spinal canal requires removing some bone from the back of the spine, and this is called a laminotomy or laminectomy.

As mentioned, the paddle lead has a wire coming off of it that is attached to the battery pack which is placed under the skin.

This procedure takes about an hour and once the soft tissues begin to heal, the stimulator is programmed with the pain relief beginning.

What are the results of spinal cord stimulation?

As new technology comes along for spinal cord stimulation, the results are consistently getting better and better for both chronic back and neck, or leg and arm pain.



In the 1990s, studies overall showed the effectiveness of SCS to be 62% for both back and leg pain reduction.

Fortunately, those results have improved substantially and recent studies have shown the overall effectiveness of spinal cord stimulation to be over 80% good to excellent. One research project with St. Jude's SCS implants resulted in 84% of participants saying their quality of life was substantially improved, with over three fourths obtaining excellent pain relief. Over eighty percent reduced their opiate needs (References).

Interestingly, as SCS continues to improve, patients who have pain simply in the low back are also getting better results for pain relief than they were 15 years ago. There are new devices coming out, such as a tri-polar tip, better batteries, devices that instantly react to patient movement, and more.

Spinal cord stimulation is indicated for chronic neck or arm pain that is not amenable for the surgery. However, there are no large-scale studies looking at their use. Smaller studies show effectiveness, but they are nowhere near as large as the studies have been for lumbar.

There are increasing indications for these devices, such as abdominal pain, pelvic pain, testicular pain and more.

What are the risks of spinal cord stimulation?

There are quite a few things that can go wrong with these procedures, thankfully most are simply annoying complications rather than life threatening. The first is that the paddle leads or the battery can shift after placement. This is fairly common actually, and if the lead moves enough it will need to be repositioned to regain pain relief.

There's also risk of wound drainage and possible infection. There may also be some bleeding, and if the patient takes blood thinners those should be stopped 5 to 7 days prior to the surgery. Your pain management doctor will give a specific time frame for that.

There's also risk of neurologic injury, which is uncommon and usually transient if there is some numbness or motor weakness.

Also, the implant may work well initially and then after a few months or a few years it may stop being as effective as before.