



Neuromodulation Information Booklet



Where Personalised Pain Relief Matters!

Contents

1. Introduction	3
2. What is Neuromodulation?	3
2.1. What type of device is used?	4
2.2. What are the “settings” used on the device?	4
3. Is a spinal cord stimulator right for me?	4
3.1. Indications	4
3.2. What can a spinal cord stimulator achieve?	5
3.3. How effective are spinal cord stimulators?	5
4. What should I know about the implantation of a Spinal Cord Stimulator?	6
4.1. How does a spinal cord stimulator work?	6
4.2. Components of a spinal cord stimulator	6
4.3. What are the risks of having a spinal cord stimulator?	7
4.4. What usually happens after the operation/implant?	8
4.5. Typical Patient Pathway	8
5. What happens if the spinal cord stimulator is not successful?	9
6. Pain Management Wellness Programme	9
7. The Technology Day	9
7.1. Education Session	9
7.2. Technology Suppliers	10
8. Finally	10
Contact Details	11

1. Introduction

At Pain Relief Ireland, we are dedicated to ensuring that we personalise your pain relief. The use of neuromodulation devices can deliver life-changing therapies to chronic pain patients.

We specialise in offering individuals the best in neuromodulation technology to treat chronic pain and we have experience in an array of devices which will ensure you receive the best device to personalise your therapy.

Education is an important part of this process and we want to provide you with the information to help you understand what neuromodulation is, how the technology can be used to relieve your pain and how it can improve your quality of life.

Pain is specific to each individual. It is therefore important that you use this information in conjunction with your pain consultant so that together you will be able to come to a decision that offers the best outcome for you in the long-term.

2. What is Neuromodulation?

Neuromodulation is when a device that provides electronic current is used to change / control some of the pain messages that your body sends to your brain. This can be in the form of a traditional spinal cord stimulator, which is implanted near the spinal cord, or it may be a more focused device that targets a specific nerve or nerves. Neuromodulation offers personalised pain relief.

When neuromodulation works well there are several advantages such as:

- It can dramatically change the pain intensity you feel so that you are placed in control of your life again.
- It offers you the ability to use specific programs/settings that match your daily requirements which you can change as you need.
- It offers you the opportunity to increase your activity levels including walking, swimming, gym and even returning to some forms of employment
- It helps in reducing and often eliminating the long-term need for oral medication
- Neuromodulation can offer you the opportunity to start to do more with your life.

2.1. What type of device is used?

There are different makes and models of devices available. Your consultant will propose a specific make / model that will match your requirements best. Irrespective of the model of the device there are some common principles involved in all models.

2.2. What are the “settings” used on the device?

All devices will be programmed with specific parameters matched specifically for your pain intensity and pain pattern. For some individuals, low frequency stimulation, where you feel some tingling (paraesthesia) will be used. For other patients higher frequency stimulation, where you cannot feel anything, will be the best treatment for the pain.

- It is often necessary to try a few different combinations to establish which setting is most comfortable for you and the one which provides you with the best relief.
- It is not uncommon that these settings may need to be modified as your activity levels increase.
- It is important that you get these settings reviewed regularly to ensure you gain the most benefit from your device.

3. Is a spinal cord stimulator right for me?

3.1. Indications

A spinal cord stimulator can only treat certain types of pain. The National Institute for Health and Care Excellence (NICE) is the organisation responsible for recommending which treatments are useful. NICE recommends spinal cord stimulation for the following diagnosed conditions:

- a) Neuropathic pain. This refers to pain which is caused by an insult or injury to the nerves, rather than pain caused by damage to the other tissues, such as the joints and muscles.
- b) Failed back surgery syndrome, when patients are suffering with neuropathic pain, rather than mechanical pain. This is persistent pain despite having surgery on the lower back. There is evidence that persistent pain after neck surgery can also benefit from this treatment.
- c) Complex regional pain syndrome (CRPS).
- d) Post Laminectomy pain, disc surgery and degenerative disc disease and adhesions in the epidural space (i.e. arachnoiditis or lumbar adhesive arachnoiditis) can benefit.

- e) Spinal cord stimulation is recommended for patients who have severe chronic pain that is limiting their daily life and who have already tried all reasonable, more traditional therapies such as painkillers and physiotherapy.
- f) Peripheral neuromodulation usually targets a specific nerve or group of nerves to control the pain pathway.

3.2. What can a spinal cord stimulator achieve?

A spinal cord stimulator cannot be used as a standalone treatment for chronic pain.

At Pain Relief Ireland, in keeping with international recommendations, we ensure that all individuals who are being considered for a spinal cord stimulator are assessed by a multidisciplinary team. This may include specialist doctors/surgeons, clinical nurse specialists, physiotherapists, occupational therapists, industry technical support and psychologists as required.

The treatment pathway (or treatment plan) follows this guidance, and in order to ensure the best possible care, patients must engage with some or all elements of the treatment pathway.

Just as pain is unique to each individual, each individual will have a unique treatment plan designed to meet these needs. A spinal cord stimulator is an important instrument in achieving this goal.

At Pain Relief Ireland we believe that the most important criteria that must be present before a spinal cord stimulator can be considered is the willingness of the individual to embrace change.

A device can offer each individual a fantastic opportunity to improve one's quality of life but it requires work. Pain relief Ireland is prepared to support you in every way possible to achieve your goals.

3.3. How effective are spinal cord stimulators?

Spinal-cord stimulators help some people more than others. In general a target of 50-70% reduction in pain intensity and pain medication is set. Improvement in an individual's ability to move or sleep is also expected.

At Pain Relief Ireland we believe that individuals who have the willingness to embrace change find neuromodulation most effective. Ask your specialist what the results are for people with your particular condition.

4. What should I know about the implantation of a spinal cord stimulator?

4.1. How does a spinal cord stimulator work?

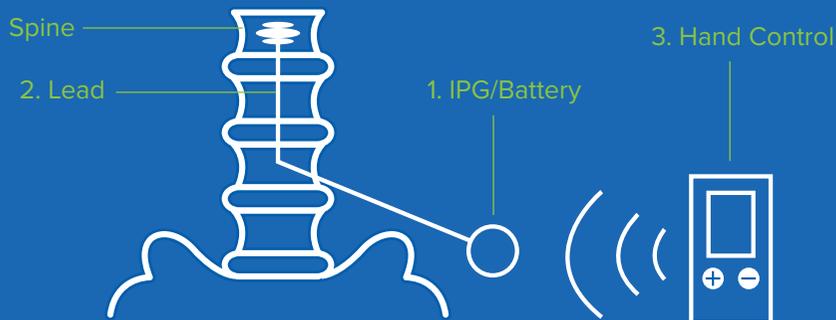
The concept of using electricity to treat pain has been used for many centuries. Researchers have struggled to understand precisely why small amounts of an electronic current, focused on specific parts of the spinal cord or at a nerve fiber, can change the way in which pain signals are processed.

What is known is that the presence of a small dose of electrical current “modulates” the feeling of “pain” and replaces it with a non-painful signal in the area of your body that normally hurts. If the spinal-cord stimulator is successful, you will find that the “pain sensation” is replaced by another more pleasant sensation. In some cases technical settings can be used to deliver pain relief with no “sensation”. Each individual will have a unique treatment plan designed to meet these needs. A spinal cord stimulator is an important instrument in achieving this goal.

4.2. Components of a spinal cord stimulator

Whatever type of spinal-cord stimulator you have, there are a number of key aspects in the treatment plan. There are usually three parts to a spinal-cord stimulator.

- 1. The Implanted Power Generated (IPG) or “The Battery”.** This is the very small computer that controls the stimulating system. This is usually located under the skin in your buttock region, or other suitable area. The computer has its own battery and generally they are rechargeable devices. Secure wireless programming and electronic transfer of data is possible.
- 2. A electronic lead / electrode.** Each lead has a set of electrodes where the electric current is transferred to the target tissue. The position of the “lead” is crucial to the optimization of your device. The lead allows tiny amounts of electrical current reach your spinal cord. This is very accurate and safe.
- 3. A hand-held controller.** You can use this to switch the spinal-cord stimulator on or off and to adjust it until you feel a pleasant tingling in the area where you normally feel pain. You can carry the controller around with you - it’s about the same size as a mobile phone. This is a bluetooth communication tool that gives you the flexibility to control your pain therapy.



4.3. What are the risks of having a spinal cord stimulator?

There are some risks associated with any operation. Most of the common issues that arise with spinal cord stimulators are minor, but there are a few rare problems that you should know about. It is important that you ask your specialists about how common the following problems are.

Table 1 Key Issues	Incidence
Wound / Scar discomfort <ul style="list-style-type: none"> Discomfort in the area around the scars where the device was implanted. This may persist for 4-8 weeks as the wounds heal. This responds to regular simple analgesics. 	Common >50%
Post-operative wound infection <ul style="list-style-type: none"> Most infections are not serious, are usually around the surgery sites / scar and respond to oral antibiotics. Very rarely the infection is so serious that it may be necessary to take out all or part of the spinal-cord stimulator to be able to effectively treat the infection. 	5% (1 in 20 cases) <1%
Lead Migration <ul style="list-style-type: none"> The electronic lead / electrode in your spine may move and you may need more surgery to reposition it (usually no more than one more operation). This can be avoided by ensuring you do not undertake excessive physical activity in the first 4-6 weeks. After 8 weeks the lead will have secured itself in place and the risk of movement is reduced significantly. 	5-10% cases in first 8 weeks then <2%
Headache <ul style="list-style-type: none"> There may be a headache related to slow leak of the spinal fluid (dural leak) as the lead settles into place. Unfortunately, it can be quite severe and you may need to be admitted to the hospital. With a specific analgesia plan it will settle down over a few days. 	10%
Nerve Injury <ul style="list-style-type: none"> As with any operation on the spine, there is a chance that the spinal cord or the spinal nerves will be damaged. This happens very rarely, but we look out for this in the first few hours after your operation. Paralysis. This is extremely rare and affects two patients in one million. 	<1%
Other Issues	
<ul style="list-style-type: none"> Stimulation felt outside of the painful area is common, but only a problem if unpleasant The battery site may feel warm / hot when it is on or when it is recharging Decrease in pain relief with time Failure to capture the area of pain, or no pain relief Older systems may not be MRI compatible End of battery Life 	

4.4. What usually happens after the operation/implant?

When you've had your operation, there are a few extra things that you should know about.

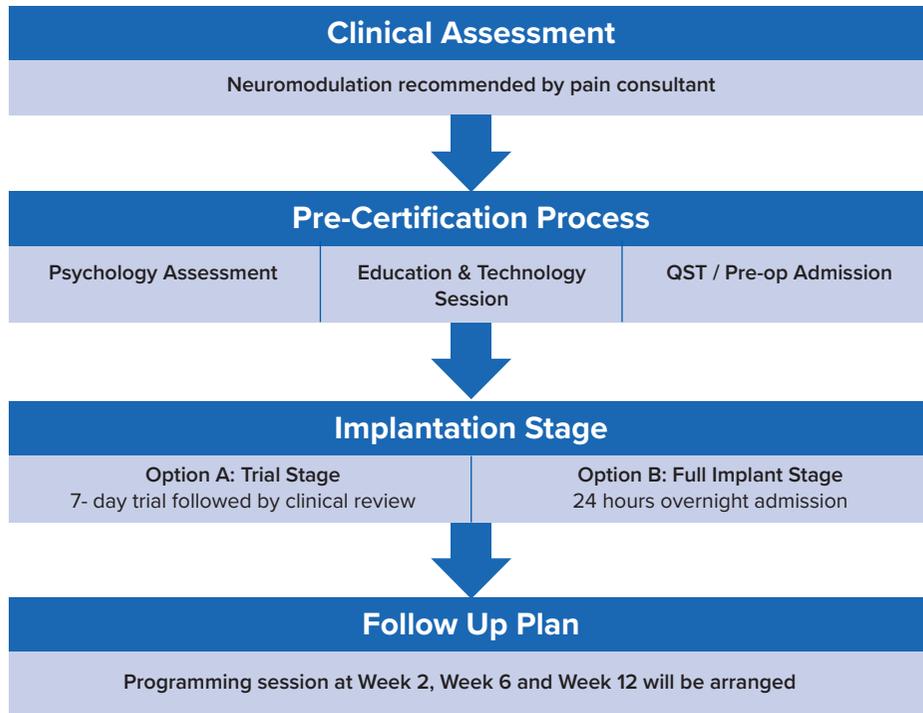
a) The first few weeks after the operation.

The lead / electrodes will gently become fixed into the tissues of the spine. This is a normal and safe process, but you should avoid any sudden changes in position such as bending over to pick something off the floor or reaching above your head. Also extreme activity, for example prolonged swimming or excessive gym work should be avoided for the first two months after the operation as the electrode may move and you may need another operation to replace it.

b) Infections.

If you develop an infection in your skin or soft tissue at any time in the future, it's important that you have a short course of antibiotics. Ask your GP or your consultant about this.

4.5. Typical Patient Pathway



5. What happens if the spinal cord stimulator is not successful?

For the trial or “on-table” trial to be considered a success the device must be able to cover 80% of your painful area. Your consultant will explain which approach is best for you.

- If your pain does not respond to spinal cord stimulation we shall consider a review of all the other options to support individuals going forward. It is far better to avoid the inappropriate surgical implant of a spinal cord stimulator than to simply put it in because it “seems like a good idea.”

6. Pain Management Wellness Programme

This programme is designed and overseen by Pain Relief Ireland. Our centre has been at the forefront of research and clinical practice in the area of pain management. Our programmes are delivered by a dedicated specialist team of psychologists, physiotherapists, nutritionists, pharmacists and clinical and technical nurse specialists. Other specialists are invited onto the program. Some of these programmes are face-to-face group sessions and some shall be presented virtually/online. We work together with you to develop skills that will be important for you to make the most of your spinal cord stimulator, and to move forward with what is most important to you in life.

7. The Technology Day

7.1. Education Session

Our technology day offers individuals the opportunity to ask questions about the device and refresh their knowledge in an informal workshop setting. This is best suited to individuals who (a) are considering an implant; (b) as a refresher course if the device has been upgraded or (c) if a device has been in place for 3 years or more.

Patients who attend this day usually have a higher level of daily functioning and experience less psychosocial impact of pain on their life. Some patients who have recently completed and benefited from a pain management programme / pain wellness program may also be eligible for this day.

It takes place over a half a day, and sessions are delivered by a clinical nurse specialist, with possible involvement with physiotherapist, psychologist, and nutritional expert. There will be virtual teaching options available.

The sessions will also raise awareness of other considerations that can impact on the success of spinal cord stimulation, such as other barriers to getting back to meaningful activities in your life.

It is also a good opportunity to ask questions about the device and the pathway. This half day has limited spaces, and open discussion is encouraged. Contact details on dates of the next program, course content and fees and how to reserve your space will be available from Pain Relief Ireland well in advance.

7.2. Technology Suppliers

There are several suppliers of neuromodulation devices in the market. The MedTech industry will continue to grow into the future and new equipment will become available. At present we work with market leaders. In choosing which device is best for you we will consider several factors in order to provide the personalised therapy to meet your needs.

Company	Link
Medtronic	https://www.medtronic.com/us-en/patients/treatments-therapies/spinal-cord-stimulation-chronic-pain/resources/spinal-cord-stimulator-faq.html
Nervo Device	https://www.hf10.com/en/
Boston Scientific	https://www.bostonscientific.com/en-US/patients/about-your-device/spinal-cord-stimulator-systems-scs.html
Stimrouter (Bioness)	https://www.stimrouter.com/patients-targeted-relief/
Mainstay	https://www.mainstay-medical.com/en/home

8. Finally

We hope this information will help answer your questions and we will be happy to address any other issues with you.

The introduction of neuromodulation as a treatment option is an important decision that needs to be made by comparing all other possible options. This will increase the chance of long-term success.

At Pain Relief Ireland we believe that the willingness of the individual to embrace change is the most important criteria that must be present before neuromodulation is considered.

Neuromodulation can offer an individual a fantastic opportunity to improve their quality of life but it requires work and effort. Pain relief Ireland is prepared to support you in every way possible to achieve your goals.

Neuromodulation Administration Summary				
Code	5999 Full Implant of SCS	5051 Replacement IPG	5044 Revision of electrodes	5043 Removal of SCS / IPG
Indication	Neuropathic Pain	FBSS	CRPS	Radiculopathy
Preferred Technology	Medtronic	Nervo	Boston Scientific	Other
Leads	Single	Double	75-76cm	90cm
Hospital	Sedation	GA	Day Case	Overnight
Work up	Psychology Request	Educational Session	QST Required	MRSA / C19 Screening
Notes				

Cork Clinic

Pain Relief Ireland, Consultation Suite,
Orthopaedic & Spine Centre,
Mater Private Hospital,
City Gate, Cork.
T12 K199

Mitchelstown Clinic

Living Health Clinic,
Fermoy Road,
Mitchelstown, Co. Cork.
P67 T263

Telephone Pain Clinic: +353 (0)21 235 5500

Email: info@painreliefireland.ie

Disclaimer: This information is to assist individuals understand the key goals of neuromodulation and it should not replace the opinion of the pain consultant.

Please visit our website www.painreliefireland.ie to see more information, news and updates.

