

# Spinal Cord Stimulation

**This leaflet has been written for patients who have been referred for consideration of spinal cord stimulation for chronic pain with neuropathic features. It contains information about what spinal cord stimulation is and how it is carried out. If you have any further questions, please speak to a doctor or nurse caring for you.**

## Glossary

Anticoagulation - Medication used to thin blood or blood components.

Cannula - A thin tube for giving medications into your vein.

Chronic pain - Long-term pain that doesn't go away.

Electrodes - These are flexible wires also referred to as leads. There are areas on the leads that we call 'contacts', which send out an electrical pulse.

Epidural space - A space within the spine but outside the spinal cord.

IPG - A device that is implanted under the skin to power the spinal cord stimulator (sometimes referred to as the 'battery'). IPG stands for "Internal Pulse Generator".

Program - The use of two or more contacts on a lead to deliver electricity to a certain point on the spinal cord.

Sedation - Medication to make you feel calm and relaxed.

SCS - Spinal Cord Stimulation.

Trial of SCS - A temporary stimulator with an external battery, used to see if SCS is effective for a patient.

## The SCS Team

- Dr Moein Tavvakoli – Consultant in Pain Management.
- Dr Hadi Bedran – Consultant in Pain Management.
- Mr Erlick Pereira – Consultant Neurosurgeon.
- Dr Claire Copland – Consultant Clinical Psychologist.
- Mrs Merry Macdonald – Clinical Nurse Specialist.
- Mrs Labiba Khanzada – Pain Secretary.
- Mrs Josephine Amega Deku – Pathway Coordinator.

## What is chronic pain?

Chronic pain is pain that carries on for more than several months, or beyond the normal course of a disease or expected time of healing.

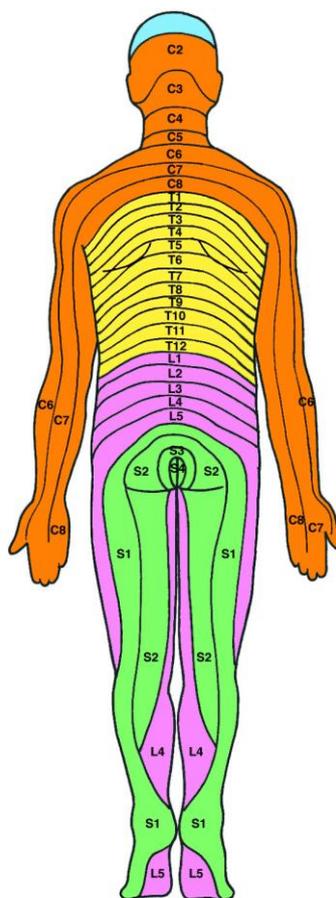
Chronic pain may be mechanical (osteoarthritis, joint 'wear and tear') or neuropathic (nerve pain). Neuropathic pain is caused when the nervous system has previously been damaged or is sending signals that indicate pain where there is no longer a cause for this.

## What is spinal cord stimulation?

Spinal cord stimulation (SCS) is a treatment for chronic neuropathic pain. An SCS system generates an electric pulse which can change some of the pain messages that are sent to your brain and can reduce the experience of pain.

## How does a spinal cord stimulator work?

When small amounts of electricity are delivered to specific parts of the spinal cord, it can change the way in which pain signals are processed. This can have a dramatic effect on pain in some people. It is often described as a masking therapy, as it does not take the pain away but aims to reduce how your brain experiences the pain. Spinal cord stimulators help some people more than others and not everyone benefits.



## The SCS system

**An IPG (Internal Pulse Generator):** This is often referred to as the battery. It generates the electrical pulse and is surgically implanted under the skin.

**One or more leads/electrodes:** These are thin flexible wires implanted near the spinal cord (in the epidural space). The leads have contacts which send out the electrical pulse. These leads are connected to the IPG.

**A handset:** This is used to turn the SCS on or off and to adjust the settings.

**A charger:** Only required if a rechargeable IPG is used.

## What do patients with SCS say?

*"I used to have a really sharp pins and needles sensation - I still have them but it's nowhere near as sharp. I'm always aware it's there but it doesn't bother me like it did."*

*"This is a godsend, pain improved by 50%, it's nowhere near the agony."*

*"If I switch it off it's awful, it's an amazing piece of kit, 85% improvement in pain."*

## What are the benefits of SCS?

At your education session your goals and expectations are discussed. Patients have told us that the benefits of their spinal cord stimulator include:

- Reduction in perception of pain
- Improved quality of life
- Reduction in pain medications
- Increased/improved mobility
- Increased/improved ability to socialise
- Ability to return to work
- Improved quality and quantity of sleep.

## What are the risks of SCS?

There are risks with any operation and most of the problems that can happen with SCS are rare.



- Further surgery to revise leads or IPG
- Failure to relieve pain
- Wound problems
- Infection
- Dural puncture headache
- Bleeding which may lead to bruising
- Nerve damage
- Epidural abscess / haematoma
- Paralysis
- Death

Expected side-effects of surgery also include some post-operative pain and swelling. If you have any questions or need clarification please contact the nurse.

## What is an SCS trial and will I have one?

Patients have a trial of SCS to see if it is effective in reducing their pain. Whether or not you will have a trial will usually be decided at a multi-disciplinary team meeting. At the end of the trial you will have a chance to discuss if a permanent system is suitable for you.

The trial procedure will be carried out in an operating theatre. You will have some local anaesthetic applied before the lead(s) are inserted and sometimes sedation is administered. The lead will be implanted in the epidural space. The lead(s) will then exit the skin on your back and be secured with stitches to the skin. The lead(s) are then attached to a small external battery pack which is worn throughout the trial.

- A trial usually lasts 7-14 days and during this time you will have a dressing over the wound to help to prevent infection. You shouldn't remove this dressing or get it wet. If it becomes loose you can apply more dressings on top. If you have any concerns about the wound please seek prompt medical advice.
- Some patients experience postoperative discomfort; however, this is usually minimal.
- Sometimes a trial is extended if the benefits of doing so will outweigh the increased risk of infection.
- You should not drive during a trial and there are some restrictions on activities such as bending and lifting.
- You will be asked to keep a pain diary so that we can see if the stimulator has been helpful.
- At the end of the trial you will be assessed by the nurse and the trial lead(s) will be removed.

## How is a permanent system implanted?

The operation to implant a full system is carried out as a procedure with an overnight stay, usually by our neurosurgeon. You will usually have a general anaesthetic. You will also have an injection of local anaesthetic into your back and anaesthetic agents will be given into your vein through a cannula. Intravenous antibiotics are given to reduce the risk of infection.

The lead(s) will be placed near the spinal cord (in the epidural space) and will be connected to the IPG (battery) which is usually implanted to one side on the chest wall, stomach, back or buttock.

You will be given a handset after the operation and will be shown how to use it to operate your SCS. If you have a rechargeable IPG then you will be given a charger and shown how to use it. This may be done by a representative from the manufacturer of the SCS system.

Following the operation, you will have some postoperative pain, discomfort and swelling. This may take several weeks to heal, and to allow you to feel benefit from your SCS.

You will have wounds where your SCS has been implanted and these will be reviewed by the nurse in the pain clinic 10-14 days after your operation. You should seek medical advice prior to this if you have any concerns regarding your wounds.

## Things to do:

Gently mobilise on the ward once you feel able. If you have had sedation or require assistance please ask a member of the ward staff to assist you before you attempt to get out of bed.

Take part in your usual activities at home as you are able to. This is essential in being able to assess how well your SCS is working for you.

*“I found I was quite tired after the operation and it was some time after the stimulator was switched on before I felt the benefit of it. I was aware of my limits and let my body recover from the surgery.”*

**SCS patient**

## Things to avoid:

It is important that you avoid lifting your arms above your head, bending, twisting or stretching - this is to ensure your lead does not move position. At your six week postoperative appointment we will discuss increasing your physical activities.

You should not drive during a trial of SCS. Following the surgery for a permanent implant most people can start driving again after six to eight weeks, once they have fully recovered from the surgery. You should inform the DVLA and your insurance that you have had a “pacemaker for pain” inserted.

## Post-surgery advice

Your wound will be closed with stitches or staples and sometimes glue. The stitches or staples will be reviewed by the nurse at your postoperative appointment. They will then be removed if your wound is healing well. Dissolvable stitches will be left to dissolve.

If you have a dressing in place please do not remove it for any reason. If your dressing begins to come loose, please place some of the dressing with which you have been provided over the top of the old one or seek further advice.

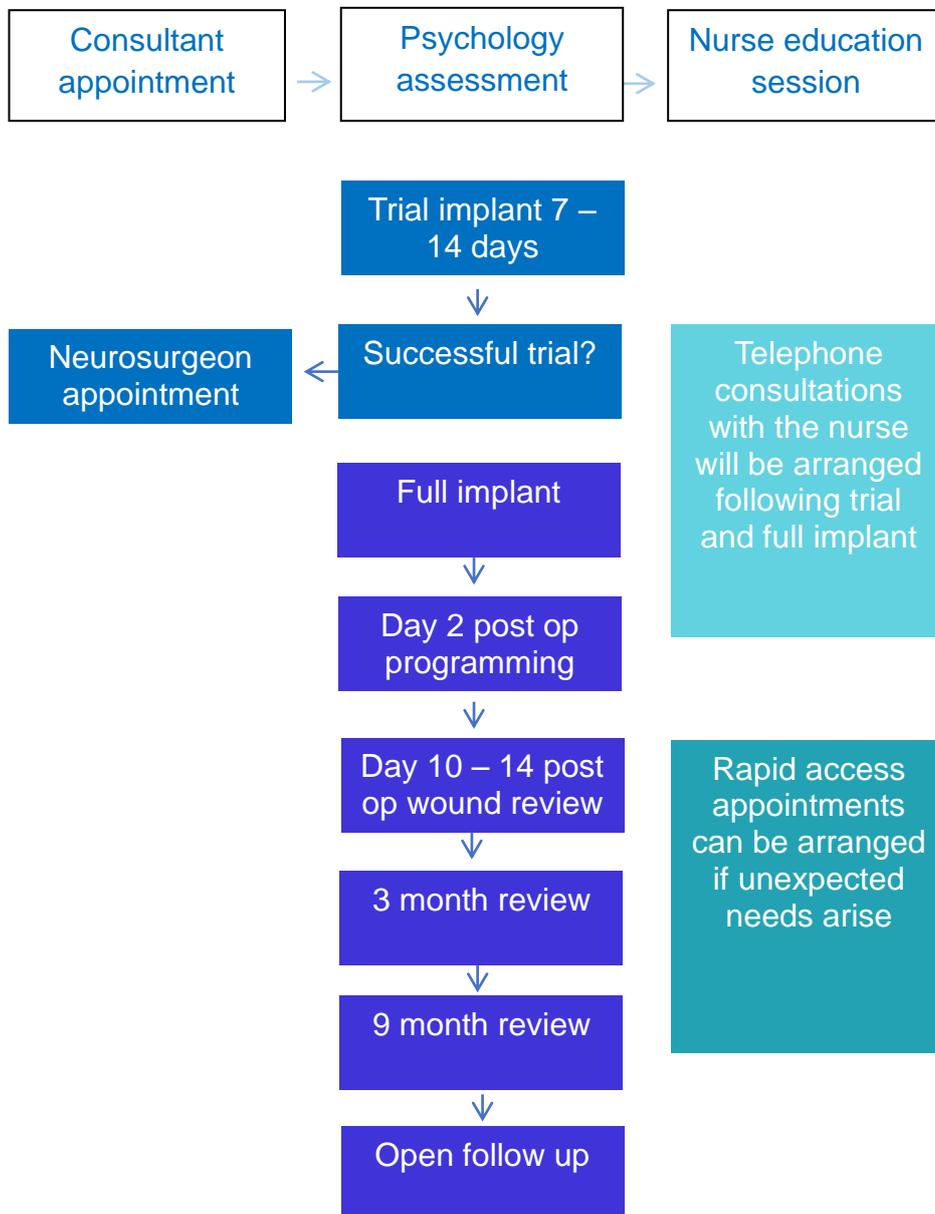
You will need to monitor the wound for signs of infection. It may be easier to ask someone to do this for you. Signs of infection include redness or swelling around your wound site and excess fluid or pus leaking through your dressing. If you notice any of these symptoms or feel unwell with a high temperature or flu-like symptoms, please have this reviewed straight away by a healthcare professional.

***After surgery, if you experience any of these symptoms you must seek urgent medical attention:***

- Neck stiffness or headache.
- Numbness and/or weakness in your legs, or an inability to weight bear.
- Difficulty passing urine or incontinence of urine/faeces.

## Appointment pathway

Each appointment is planned and booked in advance. If you do not receive an appointment then please get in touch.



## Frequently asked questions

### Will I have to stop anticoagulation medication before the procedure?

Yes, the duration for anticoagulation medication will depend on which medication you are taking. If you take Aspirin, Clopidogrel, Dipyridamole, Prasugrel or Ticagrelor you will need to stop ten days in advance of your procedure. If you are taking Apixaban, Dabigatran, Edoxaban or Rivaroxaban you will need to stop three days in advance of your procedure. If you are taking Warfarin you will need to speak to your consultant for individual advice.

### **Will my SCS set off alarms in shops and airports?**

It can do. You will be given a patient ID card which explains that you have an implanted device. Metal detectors, x-ray machines and other security devices will not harm your SCS but may cause changes in stimulation or switch it off. It can be useful to keep your handset in hand luggage so it is available for you to adjust your stimulation.

### **How long will my SCS battery last?**

This depends on the kind of system that you have implanted and how it is used. Please refer to the documentation specific to your SCS and ask your doctor or nurse for further information.

### **Can I have scans with an SCS system implanted?**

You should inform the department involved that you have an SCS implanted before having any scan. There are usually no contraindications with x-rays, ultrasound scans and CT scans. There are restrictions on MRI scans with any SCS and the scan you need might not be possible. If you require an MRI you **must** discuss this with the MRI department before proceeding.

### **How long do I need to wait for my surgery?**

Our current waiting times will be discussed at your information session.

### **Will I be given a sick note after my procedure?**

Please ask if you need a sick note to be provided. We can provide you with a sick note for 14 days, If you need a sick note after the first 14 days then your GP can provide this.

### **Will I be able to feel or see the battery under my skin?**

Yes. You are usually able to feel the edges of the IPG and sometimes it is visible as a raised area. This depends on the IPG position and your physique. The IPG needs to be implanted close to the surface so that your handset and/or charger can communicate with the IPG.

### **What alternative treatment options are available?**

Most patients have tried a variety of treatments for their chronic pain before considering spinal cord stimulation. These might include psychology services, physiotherapy, surgery, medications and injections. Usually spinal cord stimulation is considered when these options have not significantly helped with your pain. This is elective/planned surgery and you can choose to not have a spinal cord stimulator and manage your pain as you are currently.

## **Useful sources of information**

We hope you have found this leaflet helpful. For further information please see the following resources:

- The British Pain Society <https://www.britishpainsociety.org/people-with-pain/>
- NICE - National Institute for Health and Care Guidance <https://www.nice.org.uk/>
- Pain toolkit <http://www.paintoolkit.org/>
- Health talk <https://healthtalk.org/chronic-pain/overview>
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- [International Neuromodulation Society https://www.neuromodulation.com/for-patients](https://www.neuromodulation.com/for-patients)

## Contact us

The nurse team can be contacted for non-urgent enquiries using the answerphone service on **020 8266 2332**.

For appointment queries please contact the pathway coordinator on **020 8725 0226**.

For any other queries please contact the Pain Secretaries on **020 8266 6577** or **020 8266 6524**.

For out of hours care please contact your GP or in an emergency contact your local A&E department.

**For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit [www.stgeorges.nhs.uk](http://www.stgeorges.nhs.uk)**

## Additional services

### Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

**Tel:** 020 8725 2453 **Email:** [pals@stgeorges.nhs.uk](mailto:pals@stgeorges.nhs.uk)

### NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health.

**Web:** [www.nhs.uk](http://www.nhs.uk)

### NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones.

**Tel:** 111

### AccessAble

You can download accessibility guides for all of our services by searching 'St George's Hospital' on the AccessAble website ([www.accessable.co.uk](http://www.accessable.co.uk)). The guides are designed to ensure everyone – including those with accessibility needs – can access our hospital and community sites with confidence.

