

INFORMATION FOR FAMILIES AND CARERS

Selective Dorsal Rhizotomy
(SDR) in Scotland





SDR Royal Hospital for Children

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What is Selective Dorsal Rhizotomy?

Selective Dorsal Rhizotomy is surgery to help your child with their tight leg muscles (spasticity).

Spasticity (muscle stiffness) can cause problems for all ages in cerebral palsy (CP):

- A feeling of stiffness which makes moving arms and legs difficult
- Pain
- Spasm - that can affect sleep and everyday activities
- Body shape changes
- Pressure which causes open sores
- Walking or using hands is hard and the child is not able to balance well.
- Carers can find that giving care can be hard due to the above issues.

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Children with CP will have higher or lower amounts of spasticity.

You will have seen your child's pain and how hard it can be for your child to move their legs.

The aim of the surgery is to release the tightness and make movement easier for your child.

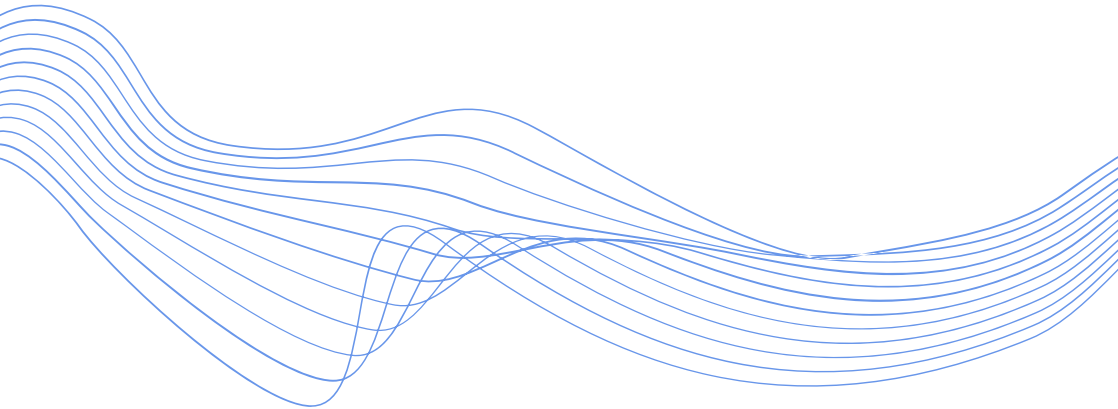
Some children are referred with a view to making their walking better. Some to improve their care and comfort levels. However, they all have problems caused by their muscles being tight.



About the SDR Service!

The SDR Service has a multidisciplinary (MDT) including surgeons, consultants, gait lab clinical scientists, physiotherapists and orthotists. We are based at the Royal Hospital for Children in Glasgow.

Once we receive a referral, we meet as a team to discuss your child's condition and treatment. We need to assess if your child is suitable for SDR surgery and if it will benefit them. This includes looking at how your child moves about.



Which patients are suitable for SDR?

There are only a small number of child and young people with cerebral palsy (CP) that SDR will help.

We take great care to make sure we choose suitable patients.

Children with CP are not all the same. This is because CP affects any part of the brain. CP has several types, SDR is found to be the most effective in children with spastic cerebral palsy.

There are some important things to think about for SDR based on whether your child is walking or not.

Children with cerebral palsy which affects their whole body may be better with an intrathecal baclofen pump.

If your child's problems are mostly due to weak muscles or poor muscle movement SDR will not be helpful.

Children between the ages of 4 and 10 years of age with spastic diplegia can be referred for SDR.

This means that they will have stiff muscles in both legs which are not helped much by medicine.

Children with CP who were born before their due date and have periventricular leucomalacia (PVL) tend to have a good response to SDR. This is not the case for all causes of CP.

Children who are walking independently:

- very young children who are still learning to walk can change quickly. This is the best time to see if SDR is the best option for them.
- Your child should be able to show muscle strength in the legs and trunk (torso).
- Your child should be able to stand up and support their body and posture with little support. They should be showing they are trying to crawl or walk.
- Children must be able to know what is happening and do their exercises.
- Parents and carers must be willing to engage with local clinical teams and to continue this after their child's surgery.

Children who are not walking independently:

- It is likely that your child finds seating and getting comfortable in bed difficult. This will be a problem every day despite taking medicine to help with muscles which feel tight.
- Your child takes medicine to make tight muscles relax to help with their care and comfort and personal care.
- Your child shows more spasticity than a child who has more dystonia. This can work for children with mixed tone, although they will still have more tone after SDR.
- Your child's tone should be of high enough levels to affect their quality of life.

**freedom
to move**

What does surgery involve?

SDR is carried out while your child is asleep (under anaesthesia and takes around 4 hours).

A cut is made in the skin over the spinal cord at waist level. The muscles covering the spinal cord are moved out of the way. A part of the bone is removed to gain access to the nerves in the spine. It is kept to be put back in place (this is called a laminoplasty)

There is a thin cover over the spinal cord. Opening this allows access to the sensory nerve roots. Sensory roots cause spasticity in some children with cerebral palsy.

Each of the sensory roots is split into a smaller rootlet. Each rootlet is stimulated with a small current. This is to show which move your child's legs. These rootlets are then cut.

This happens for the nerve roots on both legs. The aim is to cut the right number of nerve roots to make muscle tightness less.

The spinal cord is closed again at the end of surgery. The removed section of bone is then put back into place and secured. The spine muscles are put back in place. The skin is closed with stitches which will dissolve over time.




What are the benefits?

SDR can make spasticity in the legs better and easier to live with.

For those who are walking, the aim is to improve this and make walking feel easier. There can also be improved daily function, increased independent living, less visits to the hospital and improved joint movement.

For children who are not walking the aim is to improve care and comfort. This could make moving easier and having a bigger range of movement available. There can also be less pain, less spasms, improved care ease and better quality sleep.



What are the risks?

The surgery does come with some risks.

These will be explained in full at appointments before any surgery.

They don't occur very often but you would need to be aware of them.

Risks can be:

- **Germs get into the body during surgery**
- **Leakage of spinal fluid**
- **Infection at the surgery site**
- **Leg weakness**
- **Weakness in the bladder**
- **Curves in your child's back (known as scoliosis)**



Are other treatments available?


SDR is just one option in the management of children with cerebral palsy.

Other alternatives for children with spastic diplegia include:

1. Medication
2. Long-term exercise and activity as supported and advised by a physiotherapist
3. Botulinum toxin injections into the spastic muscles
4. Orthopaedic Procedures

Even following successful SDR surgery your child may still need some orthopaedic surgery.

Your local hospital team will discuss the other treatment options with you.



How will a decision be made?

How will a decision be made on whether my child is suitable for this surgical procedure?

Your child's local team are the best people to help decide if SDR is the right choice. There are many options which might improve life outcomes for each child referred to the service.

If your local clinical team thinks your child is suitable for SDR they will arrange for more detailed testing at your local hospital.

This may include:

01

Gait Analysis

We check movements, strength and muscle spasticity levels. We may film your child walking to check your child's joints below the waist.

02

Spinal MRI

This scan uses produced detailed images of the inside of the body.

03


SDR Physiotherapy

Joint movement and strength will be checked.

04

X-rays


An x-ray of hips and in some cases a brain scan will be carried out.



Your child will then be referred to the SDR service. The SDR team will then look at all the information provided by your local clinical team.

After all the tests the SDR team will meet with your local clinical team to make a decision on the next steps. This may include offering your child surgery or we may decide that we need more time.

If things move towards SDR surgery, we will give you an appointment at the Royal Hospital for Children in Glasgow. At this appointment you and your child will meet the surgical team where we will discuss the surgery, the treatment goals and what to expect. We will also answer any questions that you have



What if SDR is not an option

If happens if my child is not suitable, or I choose not to continue with SDR referral for my child?

Only a small number of patients will get better control of their legs after SDR. If your child is not going to get help with SDR the team will discuss other treatment options with you that are more likely to help your child.

The path to SDR can be a long process. This is to make sure that the right children get treated. Some children can be in the system for a few years before a final decision is made.

You are able to withdraw your child at any stage. If you remove your child from SDR tests you can change your mind at a later stage.

Children with CP have different needs. Many children are able to lead full and happy lives with training and movement.

**Training and Movement
can be key to full and
happy lives**

Meet the Team



**Magalie
McKay**

**SDR
Physiotherapist**

Mags is our
physiotherapis



**Valerie
Orr**

Neuro Consultant

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**Tony Amato-
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**Janet
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