

Let's Talk About...

Selective dorsal rhizotomy (SDR)

Selective dorsal rhizotomy (SDR) is a surgery of the nerves in the spinal cord. The surgeon cuts tiny parts of nerves that are sending sensory signal to the brain to reduce muscle tone or spasticity (spas-TISS-it-tee). This surgery can help children who have cerebral palsy to walk better and have better leg function.

What is spasticity?

Spasticity is stiff muscles, or increased muscle tone. It is caused by an injury to the brain or spinal cord, a stroke, or cerebral palsy. Spasticity can cause awkward movements, exaggerated reflexes, and discomfort. When your child has spasticity, their brain does not get the message to tell the muscle to relax.

Can my child benefit from SDR?

SDR is not effective for everyone with abnormal muscle tone. Healthcare providers will carefully examine your child and decide if SDR will help.

Your child may benefit from SDR if they:

- Are very motivated during physical therapy, since therapy makes SDR successful
- Have relatively strong leg muscles, since the muscles relax after SDR
- Have spastic diplegic cerebral palsy (more stiffness in the legs than the arms)
- Don't have fixed contractures (muscles that are permanently shortened)

Children 4–7 years old most often have SDR, but many older children and adults have been helped by the procedure. If your child has another form of abnormal muscle tone, such as dystonia (dis-TONE-eeah) or athetosis (ath-eh-TOE-sis), SDR does not usually help.

What are the risks of SDR?

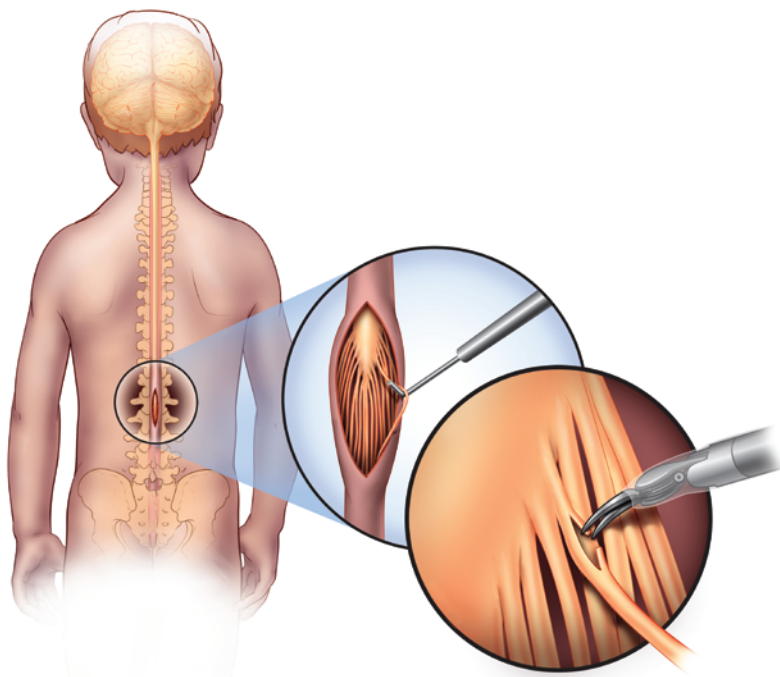
Risks of SDR include:

- Bleeding or infection
- Problems with anesthesia
- Numb areas in the legs
- Changes in bladder control
(usually goes away in a few days)

What happens during surgery?

A healthcare provider will put an IV, a tiny tube, into your child's vein. They will give your child medicine through the IV to help them sleep. Sensors to measure muscle response will be attached to the muscles in your child's legs.

The surgeon will make a small opening in the lower part of your child's back to see the nerve roots in the spinal cord. They will divide the nerves into smaller roots and separate motor nerve roots from sensory nerve rootlets.



The surgeon will then stimulate each sensory nerve root with a tiny electrical current. They will watch to see how the muscles respond and rank the responses from mild to severe. If the response is severe, the surgeon may cut that sensory nerve root.

What care will my child need after surgery?

Activity and positioning

Your child will stay in a flat position for 2–3 days or longer after surgery and be rolled from side to side often. They should resume activity slowly after surgery to prevent cerebrospinal fluid (CSF) leaking from the surgery site. Your child may need their ankles in casts for a few weeks. This will help the muscles from becoming shorter and harder (contractures).



Physical therapy

The physical therapist may start exercising your child’s legs the first day after surgery. By the third day, they may raise the head of your child’s bed slightly. Your child will start physical and occupational therapy four days after surgery. They will focus on stretching and strengthening their legs. Sometimes your child’s feet may be sensitive after surgery. The therapist will help your child get used to the feeling of touch in their feet. The therapist may put shaving cream on your child’s feet or introduce other sensations during therapy.

Therapy will last for a week or more, until your child is strong enough to go home.

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Pain control and rest

Pain control is an important part of care after surgery. You can usually give your child pain medicine by mouth 1–2 days after surgery. By day 3 or 4, your child will probably only need acetaminophen or ibuprofen for pain control.

Wound care

Keep the surgery site clean and dry to prevent infection. Because the surgery site is so low on your child’s back, make sure no urine or poop gets in the opening. If your child wears a diaper, they may need a dressing to cover the opening to protect the wound until it heals.

What happens after my child has SDR?

The spasticity a child had before surgery does not usually return in later years. They may have weakness in their muscles when the spasticity is gone, but SDR does not cause the weakness.

Physical therapy after surgery usually improves your child’s muscle strength. Children can often walk again after a few weeks of therapy. Some children have better upper body function, thinking skills, and speech after SDR.

What if I have questions?

If you have questions ask your child’s healthcare provider.

Notes