

Selective Dorsal Rhizotomy

Surgery to help your child walk (reduce spasticity)

What is spasticity?

Spasticity is an increase in muscle tone that can be described as stiff or tight muscles. Spasticity is caused by a disruption in the messages between the brain and the muscles that tell the muscles to relax. Spasticity can be a result of illness or injury to the brain or spinal cord.

What is selective dorsal rhizotomy (SDR)?

Dorsal nerves send messages from the muscles to the spinal cord. Rhizotomy is cutting of these nerves in the spinal cord. Selective means we will only cut the nerves causing the spasticity.

How do I know if SDR is right for my child?

After careful screening in the Surgical Tone Management Clinic, our team of doctors, surgeons and rehabilitation therapists will determine if SDR is right for your child. We will partner with you and your child's community therapist to identify goals and create a care plan before surgery. Your child's evaluation will include muscle testing by a physical therapist (PT) and an occupational therapist (OT) at Seattle Children's.

What happens before surgery?

Your child will have a series of clinic appointments before surgery. We will gather a detailed medical history, including recent illnesses and experience with anesthesia during surgery. These appointments are scheduled within 30 days before your child's surgery, usually all on the same day.

Pre-Anesthesia Surgical Services (PASS) Clinic

A nurse practitioner (NP) will meet with you and your child to make sure your child is healthy enough to receive anesthesia during surgery. They will make sure your child does not have any health problems that could delay their procedure.

Neurosurgery Clinic

An NP will get your child's medical history and do a physical assessment.

1 of 8

To Learn More

- Tone Management Program Manager
206-987-5917 or
tone@seattlechildrens.org
- Neurosurgery Scheduling
206-987-2544, option 2
- Rehabilitation Medicine Scheduling
206-987-2114, option 2
- Ask your child's healthcare provider
- seattlechildrens.org/SDR

Free Interpreter Services

- In the hospital, ask your nurse.
- From outside the hospital, call the toll-free Family Interpreting Line, 1-866-583-1527. Tell the interpreter the name or extension you need.



Radiology

The neurosurgeon may need additional x-rays or MRI (magnetic resonance imaging) scans of your child to use during surgery. Your child may need anesthesia before an MRI if they are not able to lie still. We will talk with you about this before scheduling these appointments. To prepare, you can watch our videos:

- “Getting an MRI While Awake” (4:17)
[youtube.com/watch?v=ozrg1J5evJO](https://www.youtube.com/watch?v=ozrg1J5evJO)



- “Getting an MRI with Anesthesia” (4:04)
[youtube.com/watch?v=q6S978T_olo](https://www.youtube.com/watch?v=q6S978T_olo)



Therapy

By the time your child is scheduled for an SDR, a PT and an OT will have already evaluated your child for surgery. Therapists may need to see your child 1 or more times before surgery to measure their muscles and movement. The therapists may also videotape your child doing various activities like walking, climbing stairs, or transferring to and from a wheelchair.

What do I bring to appointments?

Bring all items below that your child is currently using to their appointments:

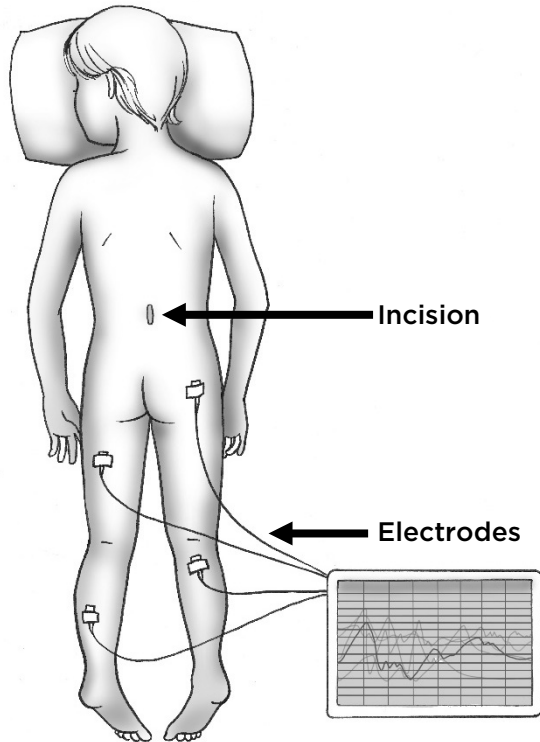
- Wheelchair
- Braces or splints for the foot or leg
- Walking aids such as a cane, crutches or walker
- Names and phone numbers of the OT/PTs who will be working with your child after you leave the hospital

What happens during surgery?

We will give your child a medicine so they will be fully asleep during the surgery (general anesthesia). General anesthesia can be given through an IV (intravenous) tube that goes into a vein or by breathing in gas. Because the muscles of the throat relax during general anesthesia, a tube may be placed down the throat to keep the airway open. For longer surgeries, this tube may be hooked to a machine that helps your child breathe.

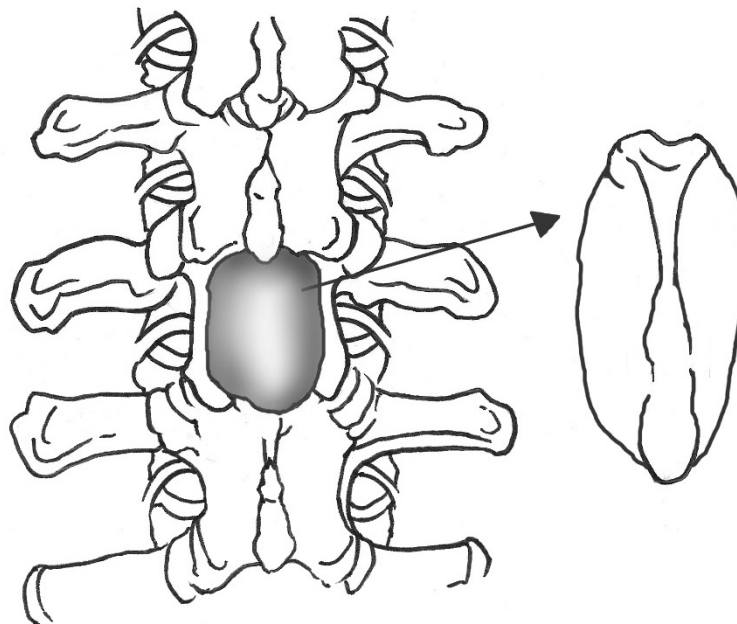
After your child is asleep and during the surgery, we place small electrodes on their legs to see how the muscles respond to testing (neurostimulation). This information appears on a computer screen as wave forms that the team will use to decide which nerves to cut. After we have placed the electrodes, the neurosurgeon will make a small cut (incision) in the middle of the low back (about 1 inch long).

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Child with a lower-back incision and electrodes connected to a computer screen

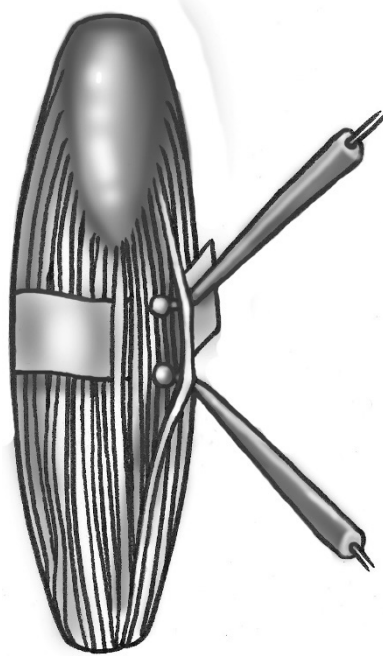
Through this incision, the surgeon cuts a small hole or window (laminectomy) in the spine to expose the nerve fibers (dorsal roots).



Small window in the spine (laminectomy) with bone removed on the right

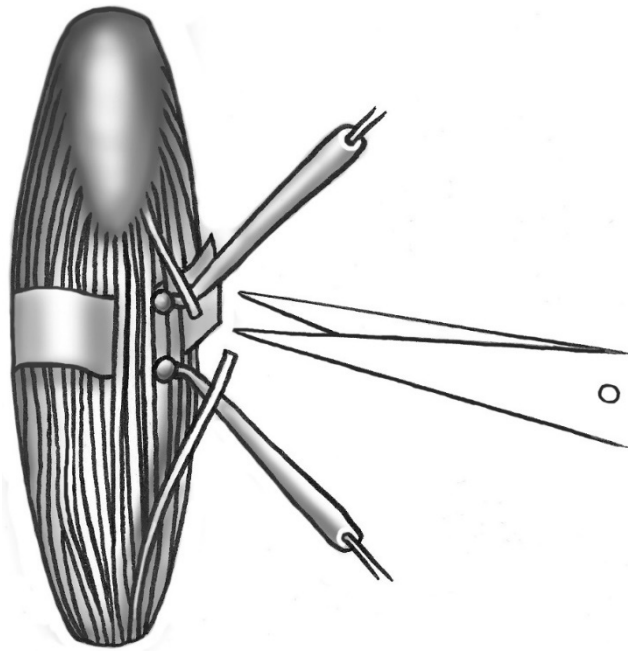
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The surgeon tests each nerve fiber with neurostimulation to find out which nerves respond abnormally (why we say selective dorsal rhizotomy).



Testing nerve fibers

The abnormal nerve fibers are then surgically cut (rhizotomy).



Abnormal nerve fiber cut

Which nerves and how many are cut will vary from child to child. This provides a long-term improvement in muscle tone because the nerves will not grow back together.

What should I expect after surgery?

Will my child have pain?

After surgery, your child may feel some pain and discomfort in their back. They may also have some leg spasms which are expected to go away over the next few days.

We partner with you and your child to prevent and relieve pain as completely as possible. Talk with your care team about options for your child.

In addition to medicine prescribed for pain, we will work with you to create a plan that encourages coping activities to treat pain and provide support. No matter the level of your child's pain, respond right away to help your child get better faster with good pain treatment.

How do I dispose of leftover opioid pain medicine?

To keep your family safe, store medicines inside a locked cabinet or location where others cannot easily get to them. Once your child has recovered from surgery, dispose of all unused prescription medicines. Taking leftover pain or other medicines on purpose or by accident, can be very dangerous. For more information about safe disposal of unused opioid medications, read our handout "Safe Use and Disposal of Opioid Medicines" (seattlechildrens.org/pdf/PE3140.pdf) or visit takebackyourmeds.org to find a take back place near you."

Activity

For the first 3 days, your child will have to stay in bed. Your child can lie on their side, stomach or flat on their back. These positions will allow the incision on their back to heal and minimize leg spasms.

Then we will move your child to the Inpatient Rehabilitation Unit to begin therapy for approximately 2 to 3 weeks. Therapy will focus on increasing your child's strength and muscle control, especially for walking.

We encourage you to participate. We will coach you on new handling or transfer techniques to assist your child in learning new movements. You can ask questions and partner with our team to help improve your child's strength and mobility.

Your child's OT and PT may suggest specific short-term activity restrictions to keep your child safe. PT focuses on movement and OT focuses on tasks of daily living. As therapy progresses, the OT and PT will set specific goals for therapy and ask you to help.

What will my child need at the hospital?

Your child will need to bring the following items for therapy:

- Equipment: wheelchair, braces, walker, crutches
- Clothing: pants and shorts with elastic waistbands, underwear, socks, slippers and T-shirts (we provide pajamas and have laundry machines for you to use)
- Personal items: eyeglasses, hearing aids, comb/brush (we provide toothbrush and toothpaste)
- Comfort items: favorite blanket, stuffed animal, books, games, photos
- Non-skid shoes (with their AFOs)

Your child may need special equipment to help them get around after surgery in the hospital and for a while after your child goes home. If your child does not already have the necessary equipment, the SDR team can help you to rent from a medical equipment vendor. This may take several weeks.

Tell the SDR team if you have plans for your child to have their seating system or orthotics refitted before surgery. It may be necessary to postpone this service as your child's needs may change after surgery.

How do I prepare my child?

For information and resources about preparing your child, visit:

seattlechildrens.org/patients-families/surgery/preparing-your-child.

Our Child Life specialists can work with your child to help relieve tension, express concerns and fears, and feel more in control about their hospital experience. To learn more, visit: seattlechildrens.org/clinics/child-life.

If you would like to meet with a Child Life specialist or speak with them over the phone, please ask someone on the SDR team.

Will my child need to stop taking oral baclofen or other medicines?

Your rehabilitation doctor will talk to you before surgery about your child's medicine and any changes needed before and after surgery.

What do I do with my other children?

During clinic appointments

The sibling playroom is a place where brothers and sisters can play while patients and caregivers go to a clinic appointment. The sibling playroom welcomes children ages 3 to 11 years old, who are toilet-trained, on a first-come, first-served basis. They may stay for up to 2 hours. Patients and younger children are welcome in the playroom when an adult is with them.

After surgery

Our inpatient playroom is a place for fun, safe, supportive play and social interaction. Children enjoy activities and entertainment, and many books, toys and crafts. Patients and their brothers and sisters, with an adult family member, are welcome in the playroom. Trained volunteers are available to help with activities in the playroom or in patient rooms.

Clinic and inpatient

The Mountain Play Park is an outside play area for all patients, families and visitors. Play is not supervised by staff. For more information about these services, visit: seattlechildrens.org/visitors/campus/recreation.

What about lodging and transportation?

Parents and adult caregivers are welcome to stay in the room with your child during the night. Siblings and guests under 18 years of age are not permitted to stay overnight at the hospital. If other family members need to stay close by, Guest Services can help you find housing. You can call Guest Services at **206-987-9330** or **866-987-9330**. We also have showers available.

For more information about services, visit: seattlechildrens.org/visitors.

Can I bring food?

You are welcome to bring food from home. Please let our team know if your child has any special food needs before ordering their meals.

You can use the refrigerator, stove, and oven in the dayroom on the unit to store and cook food. You can keep non-perishable food items in your child's room.

Is my child able to leave the hospital during their stay?

We can offer day and overnight passes to your child once the care team decides they are safe to leave the hospital. An adult must stay with your child at all times.

Your child's care team will decide if they are safe to leave the hospital. We can discuss this when you check in.

What should we expect when we return home?

- After going home (discharge) from the hospital, your child will need outpatient PT 3 to 5 times each week for up to 1 year.
- This therapy should start within 1 week after your child goes home from the hospital and may be a combination of private therapy and school-based therapy.
- Your child's progress after surgery requires a long-term commitment. Consistent therapy is important to help your child meet their goals following surgery.
- In addition to PT, your child may also have OT several times each week for up to 1 year.

Return to school

If your child attends school, Seattle Children's school teachers will contact your child's school counselor or classroom teacher to assist with making a smooth transition back to their school. We will ask your child's teacher to complete a "Transition Back to School" questionnaire before surgery. This information will help our Education team create a plan to share with your child's teacher and therapists before your child returns to school.

If school staff or therapists have questions for the rehabilitation team, they will address when it is time to go home, or soon after.

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Medical follow-up

Staff from Neurosurgery, Rehabilitation Medicine and Occupational and Physical Therapy (OT/PT) will see your child after surgery to check their progress. Our schedulers at Seattle Children's will call you to make the following appointments:

	After surgery	3 months	6 months	1 year	1.5 years	2 years
Neurosurgery		X		X		X
OT			X	X		X
PT/ Rehabilitation		X	X	X	X	X

Seattle Children's offers free interpreter services for patients, family members and legal representatives who are Deaf or hard of hearing or speak a language other than English. Seattle Children's will make this information available in alternate formats upon request. Call the Family Resource Center at 206-987-2201. This handout has been reviewed by clinical staff at Seattle Children's. However, your needs are unique. Before you act or rely upon this information, please talk with your healthcare provider.

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