Selective Dorsal Rhizotomy
A surgery to reduce spasticity to help with walking

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.

How do I know if selective dorsal rhizotomy is right for my child?
After careful screening in the Surgical Tone Management (STM) Clinic, our team of doctors, surgeons and rehabilitation therapists will determine if this procedure is appropriate 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. The purpose of these appointments is to gather a detailed medical history, including recent illnesses and past experience with anesthesia during surgery. These appointments are scheduled within 30 days of 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**
  A nurse practitioner (NP) will meet with you and your child to collect information about your child’s medical history. They will also complete a physical assessment.

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 child’s 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.
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## Radiology

The neurosurgeon may need additional X-rays or MRI 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 the videos Getting an MRI While Awake (www.youtube.com/watch?v=ozrg1J5evJ0) or Getting an MRI with Anesthesia (www.youtube.com/watch?v=q6S978T_olo).

## Therapy

By the time your child is scheduled for an SDR, they will have already been seen by a physical therapist (PT) and occupational therapist (OT) for their surgical evaluation. It may be necessary for the therapists to see your child one more time before surgery to gather specific measurements of 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 of the 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
- Name and phone number of the physical therapists who will be working with your child after you leave the hospital
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What happens during surgery?

Your child will be asleep (general anesthesia) during the surgery. After your child is asleep, small electrodes are placed on the legs to capture information on how the muscles respond to testing called “neurostimulation” during the surgery. This information appears on a computer screen as wave forms that the team will use to decide which nerves to cut. Once the electrodes have been placed, the neurosurgeon will make a small cut (incision) in the middle of the low back (about 1 inch long).
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Through this incision, a small window (laminectomy) is made in the spine to expose the nerve fibers (dorsal roots).

Small window in the spine (laminectomy)

Each nerve fiber is tested with neurostimulation to find out which nerves respond abnormally (selective).

Testing nerve fibers
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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?

Pain and comfort

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. The Neurosurgery and Pain teams will help manage your child’s discomfort each day.

Activity

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

Your child will then be moved to the Inpatient Rehabilitation Unit to begin therapy for approximately 2 to 3 weeks. This therapy will focus on increasing your child’s strength and muscle control, with a special focus on walking.
You are encouraged to participate. You will be coached on new handling or transfer techniques that you will be using to assist your child in learning new movements. These sessions will give you an opportunity to ask questions and to partner with the team in helping your child become stronger and more mobile.

Your child’s PT and or OT may suggest specific short-term activity restrictions to keep your child safe. As therapy progresses, the PT and or OT will set specific goals for therapy and ask you to assist with these.

<table>
<thead>
<tr>
<th>What will my child need at the hospital?</th>
<th>Your child will need to bring the following items for therapy:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>❑ Equipment: wheelchair, braces, walker, crutches</td>
</tr>
<tr>
<td></td>
<td>❑ Clothing: pants and shorts with elastic waistbands, underwear, socks, slippers and T-shirts (we provide pajamas and have laundry machines for you to use)</td>
</tr>
<tr>
<td></td>
<td>❑ Personal items: eyeglasses, hearing aids, comb/brush (we provide toothbrush and toothpaste)</td>
</tr>
<tr>
<td></td>
<td>❑ Comfort items: favorite blanket, stuffed animal, books, games, photos</td>
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<tr>
<td></td>
<td>❑ Non-skid shoes (with their AFOs)</td>
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</tbody>
</table>

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 make arrangements to rent from a medical equipment vendor. Please be aware that this may take several weeks.

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

<table>
<thead>
<tr>
<th>How do I prepare my child?</th>
<th>For information and resources about preparing your child, visit seattlechildrens.org/patients-families/surgery/preparing-your-child/.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In addition, our Child Life specialists can work with you and your child to help relieve tension, express concerns and fears, and feel more in control about their hospital experience. Visit seattlechildrens.org/clinics-programs/child-life/ to learn more.</td>
</tr>
</tbody>
</table>

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 medication plan and any changes that may need to be made before and after surgery. |
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### What do I do with my other children?

#### During clinic appointments
The clinic 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 Sibling 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, as well as a wide variety of books, toys and crafts. Patients and their brothers and sisters, accompanied by 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?
For more information about services, visit seattlechildrens.org/visitors/

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 contact Guest Services at 206-987-9330 or 866-987-9330. We also have showers available.

### Can I bring food?
You are welcome to bring food from home. Please let the SDR team know if your child has any special food needs that the hospital should be aware of when preparing their meals. There is also a family refrigerator located in the day-room on the unit to store perishable food items as well as a stove and oven that is accessible to all families with children on the unit. Non-perishable food items can be kept 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. Your child must be accompanied by an adult at all times. The amount of time your child can be away from the hospital will be decided by your child’s care team. We will talk to you before bringing this up with your child. Some children have a difficult time returning for the remainder of their stay after leaving the hospital for the night. Before leaving, consider how your child will cope with their return to the hospital. A day pass is a better option for some
**What should we expect when we return home?**

After going home (discharge) from the hospital, your child will need outpatient therapy 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 physical therapy, your child may also have occupational therapy several times each week for up to one 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 can be addressed when it is time to go home, or soon after.

**Medical follow-up**

Your child will be seen by Neurosurgery, Rehabilitation Medicine and Physical/Occupational Therapy (OT/PT) after surgery to check their progress. Our schedulers at Seattle Children’s will call you to make the following appointments:

<table>
<thead>
<tr>
<th>After surgery</th>
<th>3 months</th>
<th>6 months</th>
<th>1 year</th>
<th>1.5 years</th>
<th>2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurosurgery</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OT/PT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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