

**Selective Dorsal Rhizotomy for Severe Spasticity**

**What is spasticity?**

Spasticity often occurs with brain or spinal cord injury. It is caused by a break in the messages sent from the brain through the spinal cord. This causes a lack of motor control and too much motor response (spasticity).

The brain tells the muscles to relax when they are too tight. With spasticity, the nerve pathways that control muscle movement are damaged. There is increased muscle tone or muscle stiffness. The muscles do not move quickly and smoothly.

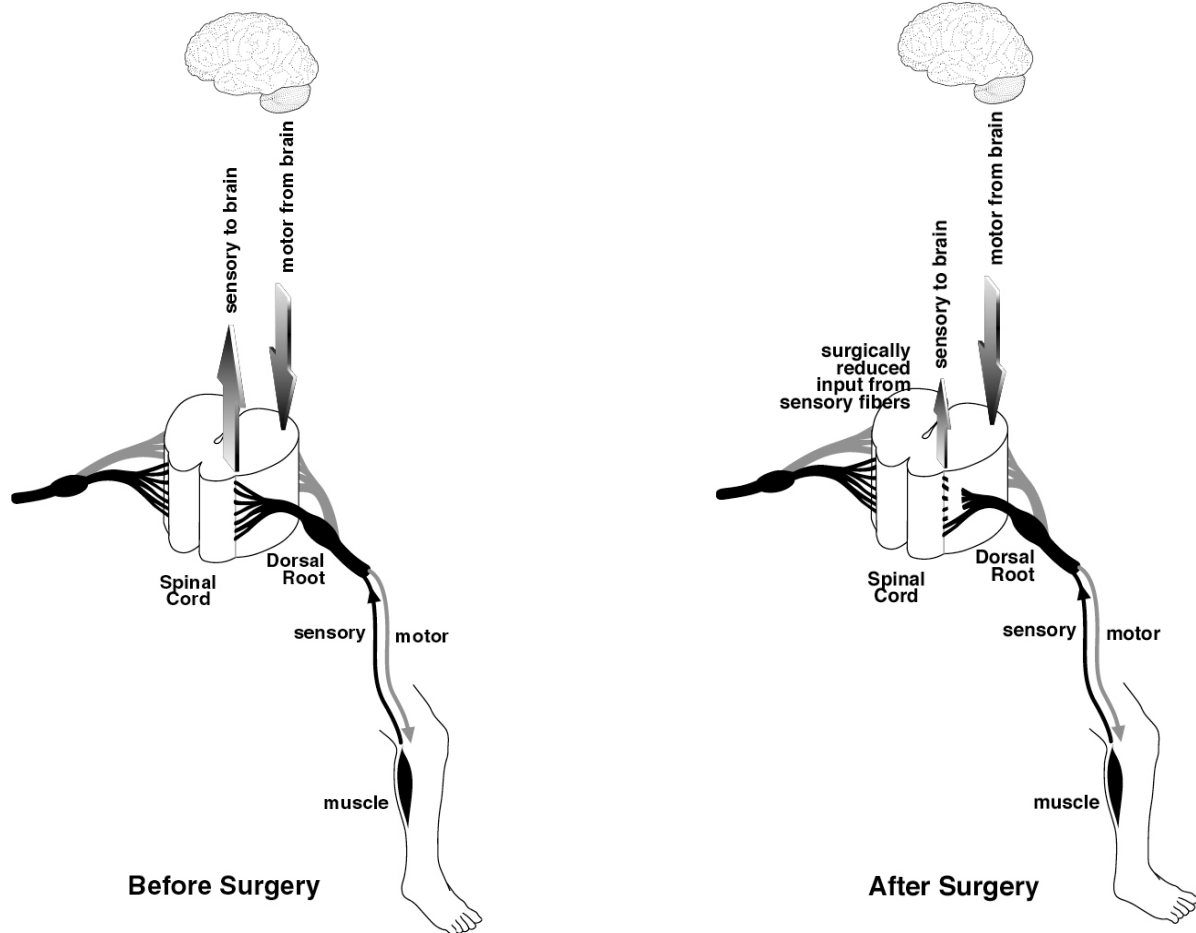
Symptoms range from mild stiffness to severe, painful spasms. Sometimes, it leads to tight muscles and deformed bones.

There is no cure for spasticity but there are ways to treat the effects. When oral medicines do not work, we may suggest a selective dorsal rhizotomy.

Muscles send messages to the brain through nerves. When arm or leg muscles feel pain, touch, or are stretched, the message travels up the spinal cord to the brain.

The brain then sends a motor message back down the spinal cord, through the motor nerve, telling the arms and legs what to do or how to move.

Please see the pictures below which show nerve – brain – muscle circuitry.



### **What is a selective dorsal rhizotomy?**

The goals are to increase comfort and movement and prevent the muscle and bone from becoming deformed.

This surgery cuts the dorsal nerves that cause an abnormal response. We will leave the nerves that trigger normal response intact. The result is fewer spasms without a loss of feeling or movement in the arms or legs.

### **How will I know if this surgery would help my child?**

This surgery may help your child if your child:

- Has no spasticity or mild spasticity in the arms.
- Has moderate to severe spasticity in the legs.
- Has spasticity which interferes with diaper changing, bathing, and sleeping.
- Has good leg strength.
- Has enough strength in the neck and trunk.
- Can do extra physical therapy.

### **How is my child assessed for this surgery?**

A health care team in the Spasticity and Movement Disorders Clinic will assess each child.

### **Before Surgery**

- Your child will need a physical exam, health review, and lab tests.
- Your child should stop aspirin and ibuprofen for two weeks before surgery. Use acetaminophen (Tylenol®), if needed.
- Wash your child with Sage clothes.
- We will call you the day before surgery to tell you when your child should stop eating and drinking.
- Your child should not wear make-up, jewelry, or nail polish.

### **During Surgery**

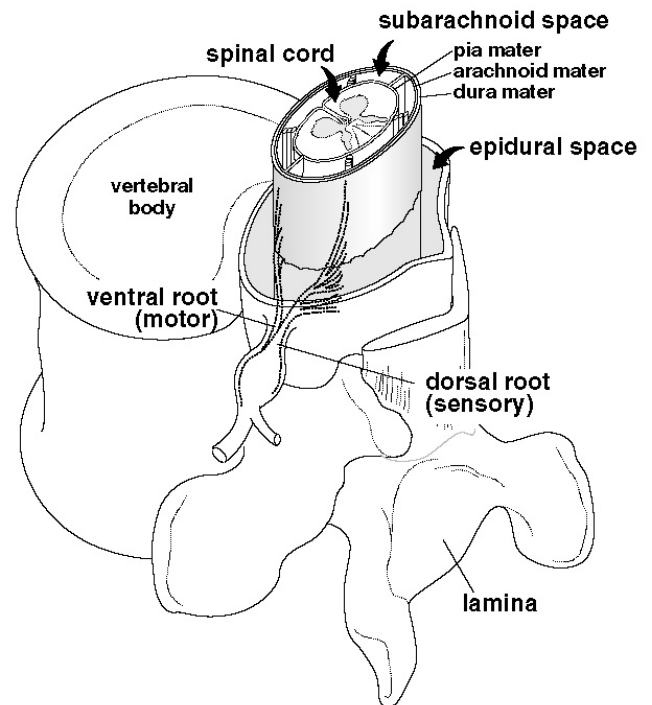
We will make a cut in your child's lower back. We remove the back part of the spinal bone (lamina) to allow access to the dorsal nerve roots.

Then, we divide these nerve roots into rootlets. We will send an electrical pulse to each rootlet.

We will watch for movement (also called "motor response") of the legs. We will cut the rootlets that cause too much muscle spasticity.

Since we only cut some of the nerve rootlets, your child will still have feeling in his legs.

At the end of the surgery, we put the back part of the spinal bone back in place.



### **After Surgery**

Once your child is eating and drinking, we will remove the IV.

Your child must lie flat for one to two days. He may log roll (lie on his sides, back, or abdomen), but may not sit up. This is to prevent a cerebral spinal fluid (CSF) leak from the incision.

The hospital stay will be 4 – 6 weeks for rehab. Your child will need intense physical therapy (PT) for **several** months to retrain the muscles and make them strong.

At first, your child may have a hard time walking. We will not know the full effect of the surgery for 6 to 9 months.

Your child will have a follow-up visit 2 – 4 weeks after discharge.

### **When to Call**

- Your child has redness, pain, or swelling of the skin at or near the incision site
- There is drainage from the incision
- Your child has a fever over 101.5° F during the first six months
- Your child has headaches that keep coming back
- Your child has nausea and vomiting
- Your child has a stiff neck
- Your child is acting irritable or very sleepy

### **Who to Call**

Spasticity and Movement Disorders Clinic  
**(608) 263-6420, option 3**

After hours, weekends, and holidays, call the paging operator **(608) 262-0486**.

The toll-free number is **1 (800) 323-8942**.

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 3/2020 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#5503