

# Spasticity Evaluation

## What Is Spasticity?

Spasticity is the presence of overly tight muscles—it can affect any muscle. What causes spasticity is a lack of typical communication between the brain and spinal cord. Usually, sensory messages travel through nerve rootlets to tell the brain how tight the muscles are. The messages move from the muscles to the spinal cord and then to the brain. In response, the brain can signal the muscles to relax.

When that complex system works properly, it gives a person appropriate muscle tone—enough strength and flexibility to maintain posture and perform quick, smooth movements.

If the brain's signals aren't sent correctly or if they never reach the muscles, the muscles don't respond as they normally should. Instead, they become spastic, putting up unusually high resistance to forces that come from outside the body. The amount of resistance a spastic muscle produces depends on how quickly the muscle is moved.

Muscle spasticity levels can range from mild to severe. Spasticity can impact children who have:

- **Cerebral palsy**.
- An acquired **brain injury** resulting from trauma, infection or other causes.
- A stroke or brain injury caused by a sustained lack of oxygen.
- A **spinal cord injury**.

In addition to interfering with a child's movements, spasticity can lead to muscles that are too short or too tight (also called contractures) and bone deformities.

## What to Expect During a Spasticity Evaluation

A spasticity evaluation at Gillette Children's Specialty Healthcare brings several specialists together. During the evaluation, your child is assessed by experts in:

- **Neurosurgery**, who can help determine the biological cause of spasticity.
- **Orthopedics**, who can assess how spasticity affects the ability to control body movements.
- **Physical therapy**, who can assess the gross motor skills impacted by spasticity.
- **Rehabilitation medicine**, who can assess how spasticity affects daily activities.

The thorough evaluation includes a physical exam, a review of your child's medical history and imaging studies like **X-ray**, **MRI** or **computed tomography (CT) scan**.

A spasticity evaluation gives you a complete picture of your child's muscle spasticity, its related effects and a comprehensive treatment plan.

## Gait and Motion Analysis

Your child will undergo a study in the world-renowned [James R. Gage Center for Gait and Motion Analysis](#).

Gait and motion analysis provides valuable information about abnormal muscle tone, bone abnormalities and your child's ability to control body movements. During the analysis, physicians and physical therapists use sophisticated video and computer technology to better understand the cause of walking and movement problems.

After attaching small sensors and reflectors to your child's arms, legs and torso, we use high-speed cameras to videotape your child walking and moving.

Through the sensors and reflectors, we can monitor muscle activity and build a 3-D computer model. Another portion of the assessment allows us to measure how much energy your child uses while walking. The data gathered during gait and motion analysis helps us understand what therapies and surgeries might be helpful.

## Spasticity Treatment Plans

There's no known cure for spasticity. Treatment, however, often lessens the severity of spasticity's effects on everyday activities.

Treatment might not be necessary if your child has mild spasticity symptoms. If spasticity interferes with your child's daily activities, restricts joint movements or poses challenges for caregivers, a spasticity evaluation can help to determine a custom treatment plan.

At Gillette, we work closely with your family to develop a plan for treating your child's spasticity. For some kids, only one type of treatment is needed. Other children benefit from a combination of treatments.

Your child's treatment for spasticity might include:

- Participating in [physical therapy](#), [occupational therapy](#) or [speech and language therapy](#).
- Wearing casts or [braces](#) (also called orthoses).
- Taking oral medication, such as baclofen (Lioresal®), diazepam (Valium®), dantrolene sodium (Dantrium®) or tizanidine (Zanaflex®).
- Receiving injected spasticity medication, such as [botulinum toxin and phenol](#).
- Having surgery to implant an [intrathecal baclofen pump](#), which stores and delivers targeted amounts of medication to the spine.
- Having [selective dorsal rhizotomy \(SDR\) surgery](#). SDR surgery is a procedure that treats muscle spasticity caused by abnormal communication among the brain, spinal cord, nerves and muscles. It corrects muscle spasticity by cutting the nerve rootlets in the spinal cord that are sending abnormal signals to the muscles.
- Having orthopedic surgery, including [single-event multilevel surgery \(SEMLS\)](#), which realigns various bones

and joints during one operation. Orthopedic surgery doesn't reduce spasticity, but it can help correct associated problems.

Watch this video to understand spasticity treatments for cerebral palsy available at Gillette.

## **Integrated Care**

By offering the full spectrum of treatments, an interdisciplinary team at Gillette can provide comprehensive care for your child's spasticity, or we can team up with a specialist closer to your home to supplement what's available in your community. Our specialists collaborate with your family and other providers involved in your child's health care to explore your choices and to determine a plan and see your child through the treatment process.

As your child gets older, they might receive different treatments or combinations of treatments at various points in their life—your team of experts will work together to manage spasticity with a lifetime of care.

[Make An Appointment](#) **651-290-8707** [Refer a Patient](#) **651-325-2200**

This information is for educational purposes only. It is not intended to replace the advice of your health care providers. If you have any questions, talk with your doctor or others on your health care team.

If you are a Gillette patient with urgent questions or concerns, please contact Telehealth Nursing at [651-229-3890](#).