

### What is Spastic Cerebral Palsy?

Spastic cerebral palsy is a subtype of [cerebral palsy](#) characterized by stiffness in the muscles and overall difficulty in bodily movements. It is a type of hypertonia, or increased muscle tone. Spastic cerebral palsy is the most common form of cerebral palsy, accounting for about 75% of cases (those including spastic CP and mixed CP).

### Causes of Spastic Cerebral Palsy



Spastic cerebral palsy is often caused by a birth injury that affects the part of the motor cortex (the part of the brain involved in planning, control, and execution of movement). A birth injury may take the form of an injury to the developing brain before, during, or after birth. For many babies, cerebral palsy is caused by:

- Hypoxic-ischemic encephalopathy (HIE) or another oxygen-depriving birth injury
- Maternal infection that travels from mother to baby at birth, causing meningitis or sepsis
- Brain hemorrhage at birth caused by traumatic or prolonged labor or the use of vacuum extractors or forceps during delivery



### Spastic Cerebral Palsy Signs and Symptoms

Early signs of cerebral palsy include:

- Abnormal head position
- Low Apgar scores
- **Seizures**
- Breathing difficulty right after delivery
- Muscular stiffness or jerkiness (hypertonia)
- Muscular weakness or floppiness (hypotonia)

### Specific Signs of Spastic Cerebral Palsy

The evolution of the upper motor neuron syndrome can take any amount of time following damage or injury to the motor cortex. Therefore, the presentation of spasticity in every patient, even those who have similar injuries, varies. Some forms of spasticity will be hardly-noticeable, while others will require a cane or wheelchair. The spasticity may affect different parts of the body as well, being delegated to different areas:

- Spastic hemiplegia: One side of the body is affected
- Spastic diplegia: Lower extremities are affected
- Spastic monoplegia: One limb is affected
- Spastic triplegia: Three limbs are affected
- Spastic quadriplegia: All four limbs are affected

Common signs and symptoms of spastic cerebral palsy include:

- Difficulty controlling individual muscles or muscle groups
- Difficulty moving from one position to another
- Stiffness in muscles
- Jerkiness in muscle movements



Individuals with cerebral palsy who have spasticity in the legs may appear to have:

- Changes in posture while standing
- Equinovarus foot posture (toes pointing downwards and inwards, with heels off the ground)
- Adduction of the thighs, causing the legs to pull together
- The tendency to lean forwards when standing
- The tendency for their leg to lift upwards when lying
- General difficulty sitting upright
- General difficulty standing upright
- General difficulty with walking and running
- General difficulty transferring from one position to another
- General difficulty repositioning while lying down

Individuals with cerebral palsy who have spasticity in the arms and hands may appear to have:

- A bent elbow(s)
- Fisted fingers
- A bent wrist(s)
- General difficulty manipulating objects
- General difficulty eating or drinking
- General difficulty writing
- General difficulty getting dressed
- General difficulty walking or standing
- General difficulty cleaning themselves

Individuals with spasticity in small motor muscles, such as the tongue or vocal folds, may appear to have:

- A hoarse or tight sound in their voice



- Slow and difficult oral movements
- Slurred speech

### Scissor Gait

A major distinguishing factor of spastic cerebral palsy is the “scissor gait.” Scissor gait refers to a type of walk in which the knees and thighs cross or touch, the hips and pelvis lock, the ankles turn inwards, the feet touch the ground at the ball instead of the heel (tip toe), and the arms and hands move outward from the body.

### Diagnosing Spastic Cerebral Palsy

In order to properly diagnose cerebral palsy, children should have a detailed history taken and a thorough physical exam performed by their physician. This is important for classifying which type of cerebral palsy the child has. The doctor will likely want to do the following:

- Review the prenatal history, birth history, and newborn screening to identify risk factors
- Review the family history to identify risk factors
- Assess overall growth and nutrition
- Assess various motor elements, including posture control, motor tone, growth, age-appropriate motor control, and others
- Establish what is going on in the brain using neuroimaging techniques, such as magnetic resonance imaging (MRI), computed tomography (CT), X-ray, ultrasound, or magnetic resonance spectroscopy (MRS)
- Administer various developmental screenings for different speech and language disorders, vision and hearing problems, intellectual disabilities, disorders of mouth muscles, and others
- Test the reflexes (such as tonic labyrinthine reflex) if the child is an infant
- Administer lumbar puncture if movement disorders or refractory seizures are present
- Administer an electroencephalogram (EEG) if seizures are present
- Administer metabolic and genetic testing if certain aspects of the clinical examination or history are atypical, no etiology is identified by other tests, or brain imaging suggests a



malformation

- Examine the placenta
- Screen for coagulation problems (thrombophilia) if hemiplegic cerebral palsy or cerebral infarction are present

Repeated examinations should also be administered over time to determine if the condition is static (won't get worse over time) or progressive (could get worse over time).

### Treatments for Spastic Cerebral Palsy

Medical professionals will analyze the severity and distribution of spasticity in order to establish treatment options. The doctors will evaluate where the spasticity takes place (monoplegia, diplegia, hemiplegia, triplegia, or quadriplegia). They will also consider the muscle tone (measured using the Ashworth scale), motor function, motor performance, and quality of life. The following treatments may assist an individual dealing with spasticity:

- Orthotics
- Physical therapy
- Occupational therapy
- Orthopedic surgery
- Rhizotomy
- Medications, such as benzodiazepines, baclofen, tizanidine, and others

Treatments for spasticity should promote daily care and active muscle function without contributing to other issues, such as joint contracture, pain, discomfort, and others. Always meet with a professional to help devise a treatment plan for your child with spastic cerebral palsy.

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Sources:



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