Gillette Children's
Specialty Healthcare

Cerebral Palsy

Center for Cerebral Palsy
at Gillette Children's Specialty Healthcare

Our Mission

Gillette Children's Specialty Healthcare provides specialized health care for people who have short-term or long-term disabilities that began during childhood. We help children, adults and their families improve their health, achieve greater well-being and enjoy life.

A Guide to Understanding

Cerebral Palsy

Cerebral palsy stems from an injury to the brain or abnormal development during the brain's formation. It affects people in many different ways. At Gillette's Center for Cerebral Palsy, our medical specialists provide a wide range of services to treat the needs of children and adults who have cerebral palsy.

This booklet contains information to help people learn about cerebral palsy. It also provides an overview of the various ways Gillette cares for patients with this complex diagnosis.

Cerebral Palsy

Cerebral palsy isn't one condition. Rather, the term describes a wide range of disorders and developmental disabilities that can arise from damage to a child's developing brain before, during or shortly after birth.

The damage occurs in a region of the brain that controls muscle functions. Therefore, people with cerebral palsy might have problems with:

- Motor skills (control of muscle movement)
- Muscle tone (abnormally stiff or loose muscles)
- Muscle weakness
- Reflexes
- Balance

Some people with cerebral palsy experience cognitive difficulties because the damage has affected multiple areas of the brain. Muscle-tone and motor-skill impairments can also affect cognitive development. If a child has trouble moving independently, it might be difficult to participate in some of the typical childhood activities that foster learning.

The brain damage that causes cerebral palsy is permanent and nonprogressive. In other words, it can't be repaired, but it doesn't get worse. Abnormal tone or motor control can shorten muscles and deform bones, however, affecting the normal growth process. People who have cerebral palsy might find that resulting difficulties increase or evolve as they grow older. Such deterioration is more common when people don't receive appropriate health care.

How Common Is Cerebral Palsy?

Experts believe that one to two of every 1,000 children born in the United States have cerebral palsy — a rate of occurrence that's remained fairly stable for many years. Ongoing improvements in prenatal health care have contributed to a decline in some types of cerebral palsy. At the same time, the survival rate for very premature babies has increased. Those infants are more likely than others to develop a type of cerebral palsy (spastic diplegia) that primarily affects the legs and feet.

An estimated 500,000 American children and adults have some form of cerebral palsy. The problems they face vary: One person might have severe motor impairments with no cognitive effects; another might have mild motor problems and significant intellectual disabilities.

Because a child's brain is growing, undamaged areas can sometimes take over the functions that damaged areas would normally control. The likelihood of that occurring in a child with cerebral palsy depends on what regions of the brain are damaged, the severity of the injuries incurred and the kinds of medical interventions that take place.

With treatment, people who have cerebral palsy can improve their skills. Medical interventions can help people minimize or correct the muscle and movement problems, growth abnormalities, and intellectual difficulties brought on by cerebral palsy. Many treatments reduce the impacts of cerebral palsy on a person's everyday life.

Causes of Cerebral Palsy

Cerebral palsy results from two types of brain damage. Sometimes, the brain develops improperly. More frequently, illness or injury damages a brain that was otherwise developing normally.

Both types of damage can occur in the uterus, during birth, or as late as one year into a child's life. Sometimes, the symptoms associated with cerebral palsy are apparent at birth. Other times, a diagnosis doesn't occur until a child is several months or years old. At times, doctors can trace brain damage to a particular incident or a combination of factors. In other cases, no definitive cause is found.

Risk Factors

Children are more likely to develop cerebral palsy when any of the following circumstances is present:

- Bleeding in the brain
- Illnesses that cause an infant to go into shock
- Infections of the central nervous system (such as meningitis or encephalitis)
- Interruptions in oxygen supply or blood flow to the brain
- Maternal infections (chorioamnionitis)
- Physical trauma or injury
- Poisoning from drugs or other toxic substances
- Premature birth
- Seizures

Although cerebral palsy isn't inherited, some genetic disorders can cause brain damage early in life. Such damage, in turn, can lead to cerebral palsy. In addition, research is uncovering genetic components to diseases that mimic the effects of cerebral palsy.

About Muscle Tone

Signals from the brain and spinal cord work together to produce appropriate muscle tone (the amount of strength and flexibility a muscle has). Sometimes the brain signals muscles to be stiff; at other times, it shuts off such signals, allowing muscles to become loose. When the signals work properly, muscles have enough tone to maintain posture and enough flexibility to perform quick, smooth movements.

Physical therapy can help reduce the effects of spasticity and other muscle-tone problems that people with cerebral palsy often face.

When people have cerebral palsy, however, proper messages from the brain don't reach the muscles. High muscle tone (spasticity or hypertonia) causes muscles that are overly tight or stiff. Low muscle tone (hypotonia) results in abnormally loose muscles and floppy body movements. Some people have mixed tone — some parts of their bodies have high tone, and other parts have low tone — or tone that fluctuates.

Although one type of tone abnormality might be obvious during infancy, other tone problems might appear as a child's nervous system develops. A change in muscle tone, however, doesn't mean that a person's cerebral palsy is getting worse.

Affected Areas of the Brain

The kinds of abnormal muscle tone and movement problems that a person with cerebral palsy experiences depend upon which area of the brain is injured.

Cerebral Cortex

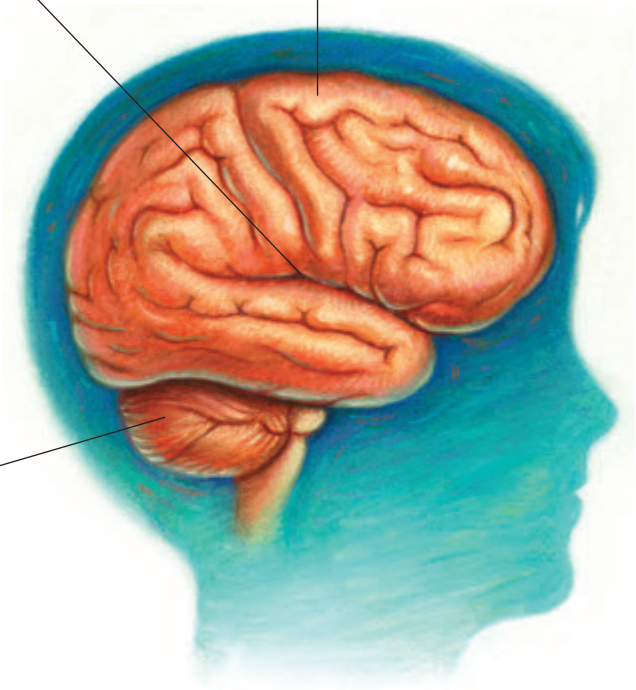
This area produces a person's desire to move.

An injury here can cause spasticity (muscle stiffness), probably the most common tone abnormality associated with cerebral palsy.

Basal Ganglia

This area controls the brain's ability to recall previously learned movement patterns, such as walking, sitting and dancing.

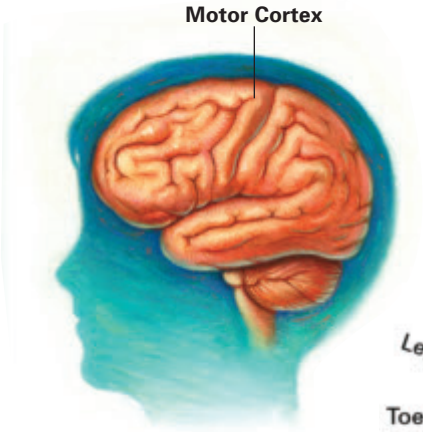
An injury here can cause a variety of tone disorders, including hypotonia (low tone); hypertonia or rigidity (a type of high tone that's different from spasticity); dystonia (fluctuating tone); and chorea and athetosis (involuntary muscle movements).



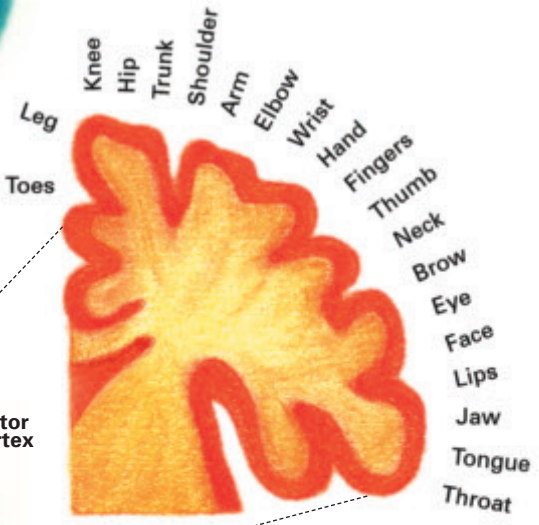
Cerebellum

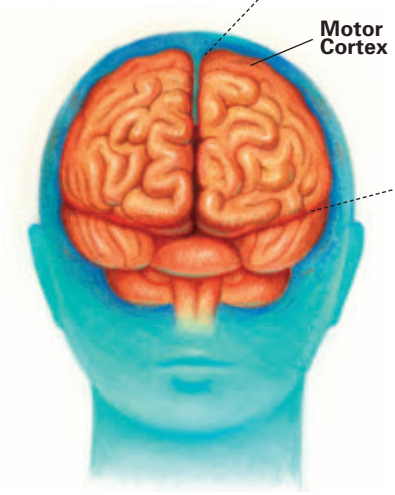
This area monitors and maintains coordination during movements.

An injury here can cause tremors when movements are attempted, hypotonia (low tone) and ataxia (poor coordination).



The brain's motor cortex (highlighted in the illustrations on this page) controls muscle movements throughout the body.





As shown in the illustration above, specific sections of the motor cortex control movements in specific parts of the body. So, if damage occurs within the motor cortex, the location of the damage determines what functions are affected.

For example, if an area that controls hand movements is damaged, a person might experience problems with hand control.

Types of Cerebral Palsy

Doctors classify cerebral palsy into several types, based on the location and extent of brain damage, the body parts affected, and the kinds of tone and movement difficulties present.

Spastic

Injuries to the cerebral cortex can result in spastic cerebral palsy, which causes abnormally stiff muscles. This condition — the most common type of cerebral palsy — can also cause bone deformities and shortened muscles (contractures). Spastic cerebral palsy is divided into further classifications, depending on which limbs are affected:

- Diplegia affects the legs (typically both) more than the arms. It's most common in premature babies.
- Hemiplegia affects one side of the body. It's most common in babies who have strokes or traumatic brain injuries.
- Quadriplegia affects all four limbs. It's most common in babies who experience an interruption in oxygen supply.
- Monoplegia affects one limb.
- Triplegia affects three limbs.

Athetoid

Injuries to the basal ganglia can result in athetoid cerebral palsy, which causes involuntary muscle movements. The movements often interfere with speaking, feeding, grasping, walking and other skills requiring coordination.

Dystonia

Injuries to the basal ganglia also can result in dystonia, which causes fluctuating muscle tone. Although tone is sometimes low, it increases when a person attempts to move or experiences heightened emotions.

Ataxic

Injuries to the cerebellum can result in ataxic cerebral palsy, which causes poor coordination. That, in turn, affects balance, posture and controlled movements. Ataxic cerebral palsy can cause unsteadiness when walking and difficulties with motor tasks.

Mixed

Injuries to multiple brain areas — usually the cerebral cortex and basal ganglia — can result in more than one kind of abnormal muscle tone. For example, someone could have spasticity and dystonia, or dystonia and rigidity.

By identifying what type(s) of cerebral palsy a child has, doctors and therapists can recommend treatments. They also can give caregivers a better idea of what the child's future might hold. Some potential problems can be prevented or corrected if addressed early in a child's life.

Effects of Cerebral Palsy

People with cerebral palsy typically experience a combination of effects, partly because the direct results of their brain damage often lead to additional, correlated difficulties.

Primary Effects

Primary effects stem directly from damage to the central nervous system, in a region of the brain that controls muscle functions and coordinates movement. Resulting problems include:

- Abnormal muscle tone
- Poor motor control
- Abnormal reflexes
- Balance and movement problems
- Muscle weakness

Almost all children with cerebral palsy experience delays in reaching motor milestones such as sitting, standing and walking. People with cerebral palsy tend to use more energy and tire more easily than other people during daily activities.

Medical treatment — particularly when it begins early in a child's life — often helps improve independent function and reduce the severity of cerebral palsy's effects.

Secondary Effects

Although the damage that causes cerebral palsy occurs in the brain, a child with resulting motor-control and muscle-tone problems might experience the following secondary effects.

Inadequate Muscle Growth

Muscles grow only when they're stretched. People with cerebral palsy sometimes lack the balance, control, strength and flexibility needed for the kinds of activities — such as running and playing — that would typically stretch their muscles. Instead, their muscles tighten and contract abnormally, impairing their physical abilities and sometimes causing pain.

Malformed Bones and Joints

The shape a bone takes depends upon forces from other nearby bones, muscles, joints, tendons and other tissues. If those forces are abnormal, a bone might become distorted or misaligned. People who have spasticity might develop hip dislocations or deformities of the feet, hands and arms. Muscle imbalances can lead to scoliosis (an abnormal curvature of the spine).

Although secondary effects develop as children grow, medical treatment — particularly when it begins early in a child's life — often helps reduce the severity of cerebral palsy's secondary effects.

Tertiary Effects

Tertiary effects are the coping responses people use — especially when walking — to compensate for cerebral palsy's primary and secondary effects. For example, people with spasticity in their legs often have stiff knees, making it difficult for them to step forward. A typical coping response is to swing the foot in a circle, rather than in a straight line.

When medical treatment reduces the severity of cerebral palsy's primary and secondary effects, however, more efficient movement is possible. Tertiary effects often diminish because they're no longer needed.

The Effects of Aging

Although the brain damage that causes cerebral palsy doesn't get worse, the effects of that damage often do. As people who have cerebral palsy grow older, untreated symptoms tend to become more troublesome.

For example, if the muscles supporting a 40-pound child don't grow properly, they might later be too weak to support a 130-pound adult. Such effects can result in lost skills (such as the ability to walk), increased pain and additional fatigue. As movement becomes increasingly difficult, people with cerebral palsy might not exercise, which can lead to unhealthy weight gain.

Gillette physicians and other medical staff members conduct developmental exams of children.

Accompanying Effects

People with cerebral palsy sometimes face additional physical and cognitive difficulties. Damage that extends to multiple areas of the brain might impair several kinds of functions. Meanwhile, abnormal muscle tone and poor motor control can pose obstacles to learning and development.

Effects that can accompany cerebral palsy include the following.

Cognitive Impairments

Roughly one-quarter of people with cerebral palsy experience some degree of learning difficulties. The more severe the brain damage, the greater the risk of cognitive impairments. Problems might include difficulty with executive functions — the skills needed to solve problems, make decisions, pursue goals and exercise self-control.

Among people who have cerebral palsy, those with spastic quadriplegia have the highest likelihood — about a 50-percent chance — of mental retardation. It's also possible, however, for cerebral palsy to affect a person's entire body, yet have no impact on intelligence.

When assessing the cognitive abilities of someone with cerebral palsy, it's important to involve a psychologist, neuropsychologist or developmental pediatrician experienced in testing people who have disabilities.

Making Plans to Address Learning Difficulties

Learning difficulties and attention problems might become evident as children prepare for or attend school. A special education individual family service plan (IFSP) can help families meet the learning needs of toddlers (up to age 3). An individual education plan (IEP), developed for children older than 3, helps students with learning disabilities succeed in school.

In Minnesota, families may use an individual interagency intervention plan (IIIP). IIIPs are intended for people, up to age 21, who have disabilities and receive services from two or more public agencies. In some cases, an IIIP eliminates the need for an IFSP or IEP.

For more information, consult your school district or county case manager.

Attention-Span Problems

Attention-deficit hyperactivity disorder (ADHD) or attention-deficit disorder (ADD) affects about 20 percent of people with cerebral palsy. Children who have ADHD or ADD are often impulsive, easily distracted, restless and overly talkative. They tend to have trouble following directions, taking turns and completing tasks — such as schoolwork — that require sustained concentration and mental effort.

Children with ADHD or ADD might benefit from consultations with a neurodevelopmental pediatrician and a psychologist. In some instances, a physician will prescribe medication.

Vision Problems

Brain damage or muscle imbalances in the eyes can cause abnormal vision. Many people with cerebral palsy experience difficulties related to eyesight. Those problems include:

- Astigmatism
- Blurry vision
- Cortical visual impairments (the eye is normal, but the brain can't properly interpret what is seen)
- Lazy eye
- Nearsightedness or farsightedness
- Optic nerve problems
- Problems with depth perception
- Problems with visual perception (the ability to recall and discern meaning from what is seen, which contributes to memory and problem-solving skills)
- Retina disorders
- Smaller-than-usual field of vision
- Strabismus (eyes turn in or drift to one side)
- Trouble with visual motor control (the ability to use visual information to guide intentional movements, such as drawing, building models and putting together puzzles)

Addressing sight abnormalities at an early age might help protect a child's vision.

Hearing Loss

Nerve damage sometimes causes hearing loss in people with cerebral palsy. Children who experience chronic ear infections might also have trouble hearing. Early identification and treatment of hearing impairments are important if children are to develop normal speech patterns.

Speech and Language Difficulties

Abnormal muscle tone and poor motor control in the mouth, tongue and face can interfere with speaking skills. Language-processing problems make communication and self-expression difficult. Such troubles can lead to learning difficulties. Speech and language therapy, and augmentative communication devices, help some people achieve their communication and language goals.

Feeding Difficulties, Malnutrition and Low Bone Density

Cerebral palsy's effects on muscles and motor skills can interfere with proper nutritional intake, weight gain and other aspects of health. For example, difficulties with chewing and swallowing, or heightened sensitivity in the mouth, can make eating difficult. Abnormal patterns of movement can burn inordinate amounts of energy and calories. And some people with cerebral palsy follow diets that restrict dairy products, putting them at risk of calcium, phosphorus and vitamin D deficiencies. Such deficiencies can lower bone density.

An occupational therapist and a speech-language pathologist team up to address a child's feeding difficulties.

About Seizures

There are many types of seizures. Some occur often; others occur rarely. Symptoms include:

- Staring spells
- Changes in alertness
- Changes in behavior
- Repetitive jerking motions

If you notice any such signs, discuss your observations with a doctor. Testing can help determine whether such episodes are seizures — and, if so, what type of seizures they are. Medication and other medical interventions can control seizures in many people.

Breathing and Sleeping Difficulties

When abnormal muscle tone affects the chest muscles, deep breathing can be difficult. When it affects the mouth and throat muscles, clearing the airway can be difficult. As a result, people might aspirate food and saliva into the lungs. Breathing problems can also interrupt sleep, causing fatigue. Sleep problems affect many children who have cerebral palsy.

Sensory Problems

Some people with cerebral palsy have unusual levels of sensitivity — either heightened or reduced — to such things as touch, smell and sounds. Their tolerance of sensory input might therefore be low.

Seizures and Epilepsy

Children with spastic hemiplegia and spastic quadriplegia are more likely than other people to experience seizures. Recurring seizures can lead to a diagnosis of epilepsy.

Treatment at Gillette

Although there is no cure for cerebral palsy, we can manage its symptoms and effects. Early identification and ongoing medical intervention are the best ways to prevent or correct associated problems, anticipate future needs, and maximize patients' abilities throughout their lives.

At Gillette, our goals in treating the problems associated with cerebral palsy include:

- Fostering development and independence
- Maximizing abilities
- Minimizing pain
- Preventing and correcting impairments that accompany cerebral palsy

Our Team Approach

Because every patient who comes to Gillette's Center for Cerebral Palsy brings a unique combination of strengths and weaknesses, we tailor our services to address individual needs and challenges. Specialists in a broad array of medical fields form multidisciplinary teams to conduct thorough patient evaluations. Our experts then work closely with patients and their families to develop comprehensive treatment plans.

Many of Gillette's specialists practice exclusively in pediatric health fields; others understand the specific needs of adults who have disabilities. Our wide-ranging expertise lets patients and their families receive coordinated care through a single organization.

Transition to Adulthood: Gillette Lifetime Specialty Healthcare

The effects of cerebral palsy require lifelong attention. Gillette often welcomes patients when they're infants, and we continue to provide age-appropriate care throughout their lives. As our patients pass adolescence, we address the need for independence and discuss the transition to adult-focused services. Gillette Lifetime Specialty Healthcare continues Gillette's tradition of excellence by tailoring treatments to the specific needs of adults.

Care Options

Gillette provides many forms of care. We recommend services based on the cause and type of brain damage present and on any resulting disabilities.

Developmental Assessments

Our neurodevelopmental pediatricians, pediatric neurologists, pediatric rehabilitation medicine specialists (for children), and physical medicine and rehabilitation physicians (for adults) work with psychologists, neuropsychologists and therapists to gauge various abilities in our patients. We monitor progress in motor skills, cognitive skills, executive functions, and sensory abilities. Then we fashion a coordinated intervention plan.

Center for Pediatric Orthopaedics

Our specialists identify muscle contractures and bone deformities — including dislocated hips, scoliosis, and arm or hand deformities — and recommend treatment.

An orthopaedic physician describes how bone deformities and muscle contractures can affect a patient's ability to walk and perform other functions.

Center for Gait and Motion Analysis

Our specialists use state-of-the-art computer and video technology to analyze how a person's muscles, joints and nerves work together.

At Gillette's Center for Gait and Motion Analysis, we attach reflectors and sensors to a patient's legs to help us record and evaluate his movement patterns.

Spasticity Evaluation Clinic

Three physicians — a neurosurgeon, an orthopaedic surgeon and a pediatric rehabilitation medicine specialist — perform coordinated evaluations to assess how abnormal tone is affecting a person's daily functions. The evaluations also incorporate input from:

- Motion analysis specialists
- Physical therapists, who assess a person's muscle tone, range of motion and physical abilities
- Social workers, who help patients and families prepare for medical services and treatment

Medications

Medications can partially compensate for a lack of normal signals between the brain and the muscles. Although some patients take oral medications, Gillette often recommends injected medications, which we administer directly into spastic muscles. Medications such as botulinum toxin (type A) and phenol take effect within days, with little or no effect on other muscles.

Surgery

For a select group of people, surgical procedures are an appropriate part of tone-management plans. We carefully assess patients before recommending surgery.

Orthopaedic Surgery

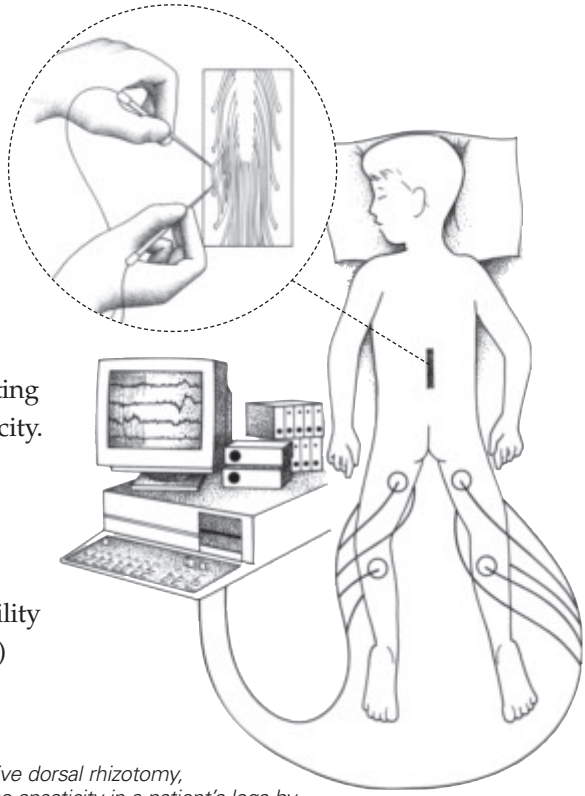
Gillette physicians often correct multiple lower-extremity deformities in a single procedure, aligning bones to maximize muscle function. This technique helps children avoid the recurring annual surgeries that have long been commonplace for people with cerebral palsy.

Neurosurgery

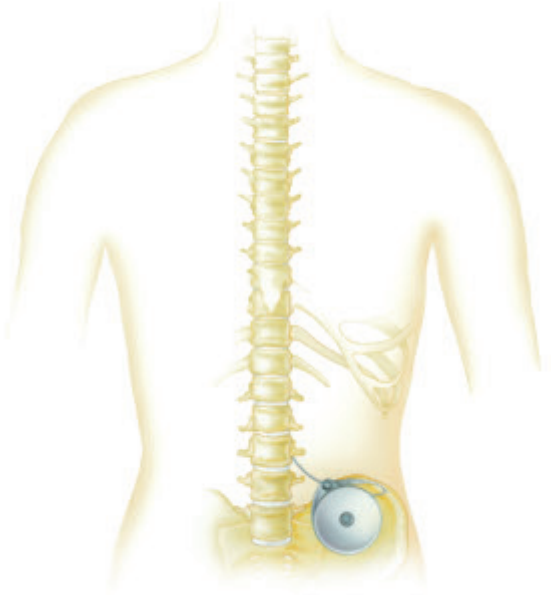
Several neurosurgical procedures can benefit people with cerebral palsy.

Selective Dorsal Rhizotomy

During this type of surgery, surgeons cut selected nerve rootlets between the spinal cord and leg muscles, inhibiting the reflexes that cause spasticity. The procedure reduces spasticity permanently. In conjunction with physical therapy and occupational therapy, it can improve mobility (crawling and walking skills) and self-care skills.



During a selective dorsal rhizotomy, surgeons reduce spasticity in a patient's legs by cutting some of the nerve rootlets coming from the spinal cord.



Implanted under the skin of the abdomen, an intrathecal baclofen pump dispenses a muscle relaxant directly into the space surrounding the spinal cord.

Intrathecal Baclofen Pump Implantation

In this procedure, a surgeon implants a pump under the skin of a person's abdomen. The pump dispenses baclofen, a muscle relaxant, into the intrathecal space surrounding the spinal cord. The baclofen can last several months. Refills and dose adjustments don't require additional surgery.

Shunt Implantation

Some people with cerebral palsy develop hydrocephalus, an abnormal buildup of spinal fluid in the brain. Gillette neurosurgeons implant shunts to drain this excess fluid into the abdomen, where the body can effectively manage it.

Rehabilitation Therapies

Our therapists work with patients to optimize their motor skills and cognitive development.

Occupational Therapy

Our occupational therapists help people improve their fine-motor skills — the arm and hand movements they use to perform such daily tasks as dressing, grooming, eating and playing. Our therapists also address visual-motor and visual-perceptual skills, which are necessary for reading, writing and computer work.

Physical Therapy

Our physical therapists help people develop the gross-motor skills, balance, coordination and strength needed for walking and other functions.

Speech and Language Therapy

Our speech and language pathologists assess speech and swallowing problems and help people improve their communication skills. If a patient has difficulty communicating, we might identify — and teach the person to use — appropriate means of augmentative communication. These might include sign language or devices such as picture boards and voice-output devices.

Rehabilitation therapy helps patients improve motor skills needed for daily activities, such as playing, dressing and grooming.

Adaptive Equipment and Assistive Technology

Our therapists, physicians, nurse practitioners and on-site assistive-technology specialists work together to identify, design and help people get access to equipment that contributes to tone management and fosters independent function. This equipment includes:

- Adaptive bath chairs and toilet chairs
- Braces (orthoses), casts and splints to increase stability, improve alignment, reduce muscle contractures, and preserve — or even increase — function and range of motion
- Communication devices, such as picture boards, voice-output systems and adaptive computer equipment, to supplement a person's communication abilities
- Environmental controls, to help people with limited muscle control open doors, turn on lights and operate computers
- Specialized beds
- Powered and manual wheelchairs, to improve mobility
- Walkers, to help people achieve independent mobility

Promoting Independence

At Gillette, we strive to help people accomplish independent movement and communication.

Adaptive equipment and assistive technology do not discourage someone from making progress toward unassisted function. Rather, they help people act independently as soon as possible, which prompts important advances in:

- Language
- Literacy
- Mobillity
- Play skills
- Self-care skills
- Social skills

Using adaptive equipment and assistive technology can also increase a person's motivation to achieve further forms of independent function.

A video electroencephalogram (EEG) helps Gillette physicians detect abnormal electrical activity in a child's brain.

Center for Pediatric Neurosciences

Our pediatric neurologists evaluate patients and provide ongoing consultations and treatment as needed. We also educate patients and their families about epilepsy and seizure management.

Our sophisticated testing tools include:

- Video electroencephalograms (EEGs), which measure brain-wave activity and help pinpoint the source of seizures. By videotaping a person during testing, we can record the physical movements that might accompany seizures.
- Ambulatory EEGs, which are available for people who don't require videotaping. People can use the system at home, avoiding an overnight hospital stay.
- Neuroimaging studies, which provide detailed images of the brain's internal structure. Computed tomography (CT) scans use X-rays to obtain the data; magnetic resonance imaging (MRI) exams use magnetic fields and radio waves.

Growth Measurement

Keeping a close watch on patients' growth patterns is vital to providing appropriate and timely care. We use many methods to evaluate growth in people who have spasticity. If a person can't stand or lie straight, we might measure individual bones and sections of the body to obtain an accurate measurement. We also use radiological exams to evaluate bone development.

Feeding Evaluations and Treatments

We evaluate and treat feeding issues with the help of:

- Videofluoroscopy exams, to identify swallowing problems
- Upper gastrointestinal (UGI) tests, to identify reflux problems
- Speech and occupational therapy, to help strengthen feeding skills
- Seating support systems and other assistive-technology devices, to maintain proper positioning during mealtimes
- Gastrostomy (feeding) tubes, to ensure adequate nutrition

Treatments for Breathing Problems

Gillette uses chest X-rays, blood tests, pulmonary function tests, overnight sleep studies, and tests for aspiration or gastroesophageal reflux to detect breathing problems. Treatments include:

- Oral or inhaled medicine
- Suction or bronchial drainage
- A tracheostomy (if oral-motor dysfunction causes partial obstruction of the airway)
- Devices that move secretions out of the lungs
- A spinal fusion (if scoliosis restricts the lungs)

Age-Appropriate Care

At Gillette, we don't treat children as though they're small adults. Young people are constantly developing — physically, cognitively, emotionally and socially. Consequently, they respond to many conditions differently than older people do, and they therefore require specialized courses of care. Likewise, Gillette's teen and adult patients have particular needs, and we tailor our services, treatments and environment appropriately.

Additional Clinics

Other Gillette clinics also help patients with cerebral palsy. They include our:

- Hand clinic, which treats conditions affecting the arms and hands
- Spine clinic, which diagnoses and treats people with idiopathic, congenital, neuromuscular and other spine disorders
- Sleep disorders clinic, which uses behavior management and medications to minimize sleep problems
- Dental and orthodontic clinics, which treat dental problems of children and adults who have disabilities

Using a doll for demonstration purposes, a member of Child and Family Services at Gillette helps a patient prepare for injections that will help manage her spasticity.

Patient & Family Support

Along with medical expertise, we offer resources that serve the emotional, psychological, spiritual, psychosocial and recreational needs of our patients and their families.

Child and Family Services

We assist patients and caregivers with a variety of needs and challenges. Our staff includes:

- A chaplain, who offers spiritual support
- Child life specialists, who help children and families cope with medical procedures
- Psychologists (including a pediatric neuropsychologist), who assess patients' cognitive abilities and psychosocial development
- Social workers, who point patients and their families to helpful community resources
- Therapeutic recreation specialists, who recommend activities to help patients develop healthy lifestyles

Family Resource Center

We maintain a library of print and video materials about disabilities and related subjects for patients, their families and the general public. Our staff and volunteers can answer a wide range of questions. Our on-site, Web-connected computers provide access to even more information.

Outpatient Care Coordinator

Our outpatient care coordinator educates and supports patients and their families as they manage health-care needs. We also help coordinate patient-care systems and services at Gillette.

Information & Referrals

For information about Gillette's Center for Cerebral Palsy, call 651-290-8712 or 800-719-4040 (toll-free). Or visit our Web site for more information at www.gillettechildrens.org. To schedule an appointment for a new patient, call 651-290-8707.

Additional Resources

- ARC Minnesota
  651-523-0823
  800-582-5256 (toll-free)
  www.arcminnesota.com
- Minnesota Association of Centers for Independent Living
  320-529-9000
  651-646-8342 (Twin Cities)
  www.macil.org
- Minnesota Disability Law Center
  612-332-1441
  800-292-4150 (toll-free)
  www.mndlc.org
- Minnesota State Council on Disability
  651-361-7800
  800-945-8913 (toll-free)
  www.disability.state.mn.us
- PACER Center - Parent Advocacy Coalition for Educational Rights
  952-838-9000
  800-537-2237 (toll-free)
  www.pacer.org
- United Cerebral Palsy (UCP)
  800-872-5827 (toll-free)
  www.ucp.org

  UCP of Minnesota
  651-646-7588

  UCP of Central Minnesota
  320-253-0765
  www.ucpcentralmn.org

Centers of Excellence at Gillette

Treating people who have disabilities and complex medical conditions requires a team approach. At Gillette, our doctors, surgeons, nurses, therapists, psychologists, social workers and other specialists work together to care for patients. Throughout our centers of excellence, we offer leading-edge medical treatments tailored to the unique needs of each patient.

Gillette's centers of excellence:

- Center for Cerebral Palsy
- Center for Craniofacial Services
- Center for Gait and Motion Analysis
- Center for Pediatric Neurosciences
- Center for Pediatric Orthopaedics
- Center for Pediatric Rehabilitation
- Center for Pediatric Rheumatology
- Center for Spina Bifida

Gillette Children's
Specialty Healthcare

St. Paul (Main) Campus
200 University Ave. E.
St. Paul, MN 55101
651-291-2848
800-719-4040 (toll-free)

Burnsville Clinic
305 E. Nicollet Blvd.
Burnsville, MN 55337
952-223-3400
866-881-7386 (toll-free)

Duluth Clinic
Lakewalk Center
1420 London Rd.
Duluth, MN 55805
218-728-6160
800-903-7111 (toll-free)

Maple Grove Clinic
9550 Upland Ln. N.
Maple Grove, MN 55369
763-496-6000
888-218-0642 (toll-free)

Minnetonka Clinic
6060 Clearwater Dr.
Minnetonka, MN 55343
952-936-0977
800-277-1250 (toll-free)

Mobile Outreach Clinic
For locations and schedules:
651-634-1938
800-578-4266 (toll-free)
www.gillettechildrens.org

Gillette Lifetime
Specialty Healthcare

St. Paul – Phalen Clinic
435 Phalen Blvd.
St. Paul, MN 55130
651-636-9443
800-578-4266 (toll-free)

www.gillettechildrens.org