

Cerebral Palsy

March 2013, 1 hour

What is Cerebral Palsy?

Cerebral refers to the brain's two halves or hemispheres.; palsy describes any disorder that impairs body movement. Cerebral Palsy (CP) is the most common movement disorder among children. Although the signs and symptoms are in the muscles and limbs, the disorder is caused by faulty development or damage to motor areas in the brain that disrupts the brain's ability to control movement and posture. CP is a group of neurological disorders; symptoms appear in infancy or early childhood. CP is characterized by abnormal control of movement or posture; it is diagnosed in the absence of any other underlying disease. CP is not contagious, hereditary or genetic in nature. It is permanent but not progressive. The incidence is 2.5 in 1,000 live births in US & Canada. 70% of cases of CP are congenital meaning present at birth. 20% of those are acquired during the birthing process, usually due to hypoxia to the brain of the baby or injury to the brain during the birthing process. Some 10% of cases are acquired after birth from brain injury, hypoxia, encephalitis or meningitis. Many times the cause of CP is never known. Risk factors for congenital CP are a damaged

placenta rendering it unable to deliver oxygen to the fetus, Rh incompatibility (rare today), limited or poor prenatal care, and multiple births: twins, triplets, etc.

SYMPTOMS

There are six hallmark features of CP: movement disorders, seizures, intellectual disability, behavior disorder, hearing impairment, and vision problems. "Failure to Thrive" is sometimes diagnosed by a doctor. This diagnosis is often given to children who lag behind in growth and development. Children with CP may have suckling and swallowing difficulties leading to poor nutrition and growth. Damage to the brain centers controlling growth and development are affected. Muscles of limbs affected with CP tend to be smaller than normal, and this is more evident in those diagnosed with spastic hemiplegia (only physically affected on one side of the body.) Children with CP also suffer milestone delays in head control (usually around 3 months), rolling over (4-5 months), sitting without support at 6 months, and walking (12-14 months). Many of these symptoms are noticed by the parents. Symptoms vary from person to person. Some persons with mild CP may require no special attention; while others severely affected may not be able

to walk and may require life-long care. Intellectual Disability may range from normal intelligence to profound intellectual disability. The pediatrician or doctor may test for persistence in primitive reflexes, such as the moro reflex (symmetrical extension of arms) in response to stimulation or change in head position persisting past six months of age. The child may also display hypotonia (decreased muscle tone) as shown in these illustrations:



The growing child may display weakness in one or more limbs; they may stand or walk on their tip toes, have an abnormal walk or gait dragging one leg, or poor control over hand and arm movement. They may also display excessive drooling or difficulties swallowing. Limbs are not paralyzed: they still feel hot, cold, and pressure. They may not be able to speak - but that doesn't mean they don't have something to say. The degree of the person's physical disability does not indicate their level of intelligence. The condition does not get worse although effects may change for better or worse.

RISKS

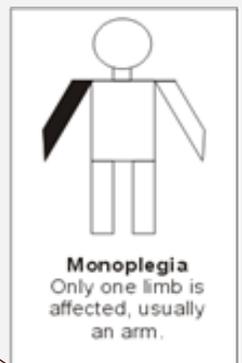
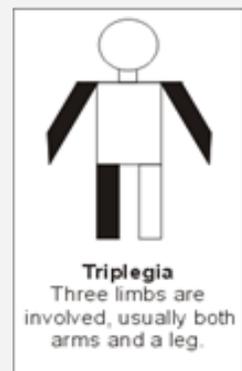
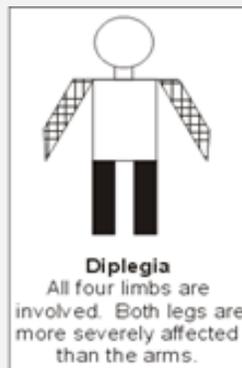
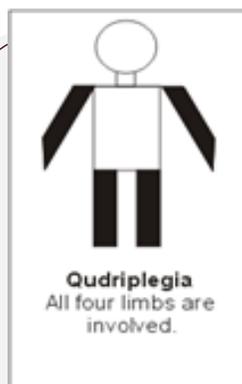
You can minimize the risk of your child having CP by getting good prenatal care and treating Rh incompatibility properly. Jaundice can be treated with phototherapy or blood transfusion. Prevent head injuries, use approved car carriers, and biking helmets, and eliminate child abuse. Always supervise young children, especially during bathing and swimming. If you are planning to get pregnant, you should be vaccinated for Rubella or German Measles pre-pregnancy. Despite the best efforts of the mother and pediatrician, CP cannot absolutely be prevented. In a large number of CP cases the cause is never found.

TYPES OF CP

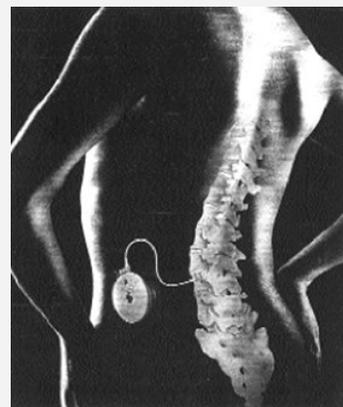
Limb involvement can be described as follows: **quadriplegia** - all four limbs involved; **diplegia** - all four limbs involved but both legs are more severely affected than the arms; **hemiplegia** - one side of the body is affected, and the arm is usually more involved than the leg; **triplegia** - three limbs are involved, usually both arms and a leg; and **monoplegia** - only one limb is affected, usually an arm.

CP is further classified as **spastic**, meaning stiff or difficult movement, with limbs stiff and contracted. Spastic CP accounts for 80% of all cases. For example, a person with CP may be said to have **Spastic Quadriplegia** - meaning their limbs are stiff and contracted and all four limbs are affected.

Spastic type CP causes muscle contractions, or tight, stiff limbs. Muscle relaxants are usually given to help ease the **symptoms**. These relaxants can take the form of Botox A injections, which tend to relax the topical



muscle tissue through injectable medication. Three main other types of muscle relaxants used in medicating cerebral palsy are Diazepam, Baclofen, and Dantrolene. Diazepam (Valium), is taken orally and operates on the brain's electric signals, stemming them and their resulting muscle twitching. **Baclofen pump** implantation (below) works by doing similar things, but primarily in the spinal cord. Dantrolene works in the skeletal muscle, lessening the muscle's calcium content and stiffness. Many of these muscle relaxants are benzodiazepines. These drugs work on the GABA receptors in the brain. The GABA chemical, when released by the brain, can affect muscle and motor function. The benzodiazepines act by calming the muscle contractions, allowing for a



loosening effect in the muscles of the cerebral palsy patient. Physical therapy or surgery can sometimes help when on benzodiazepines.

Selective Dorsal Rhizotomy-(below) for spastic CP, is a surgery that is only done once. It decreases spasticity in the lower limbs. It can improve function; the spasticity does not return. Five Dorsal Nerve roots are cut on each side. Stimulation can distinguish normal from abnormal nerve roots.



ATHETOID OR DYSKINETIC CP: typically characterized by slow, uncontrolled movements of the trunk and extremities. This abnormal movement usually affects the hands, feet, arms, or legs, and in some cases the muscles of the face and tongue, causing grimacing and/or drooling. Muscles change from floppy to tense. Movements sometimes increase with stress and disappear with sleep. Patients may have problems with coordinating the muscle movement needed for speech, a condition known as dysarthria. Athetoid Cerebral Palsy affects about 10 to 20% of persons with CP.

ATAXIC CEREBRAL PALSY (5 - 10%): The individual may have poor coordination, balance, and depth perception. They may walk unsteadily with a wide-based gait, placing their feet unusually far apart, and experiencing difficulty when attempting quick

or precise movements such as writing or buttoning a shirt. They may also have intention tremor, which occur toward the end of an intentional movement, such as reaching for a book or pressing a button. Tremors worsen as the movement persists, often becoming so intense that it becomes difficult to complete the task.

MIXED TYPE: doesn't correspond to any single type; symptoms are a mix of types: spastic, athetoid, and ataxic. For example, the person may have some muscles that are too spastic (tight), some muscles that are atonic (low tone), and display athetoid type movements; creating a mix of symptoms. Some people have more than one type of CP. The most common type of mixed is spastic + athetoid movements.

MANAGEMENT OF CP focuses on promoting capabilities and trying to help the individual achieve a maximum level of independence. Treatment of person's with CP may involve the following disciplines: a **primary physician** familiar with developmental disabilities, an **orthopedic specialist** who treats disorders of bones, joints, muscles and tendons. A **Neurologist** who may diagnose and treat seizures and neuralgias. A **physical therapist (PT)** designs therapy sessions to improve movement and strength. PT's also promote physical independence by teaching alternatives to ambulation and how to use walkers, crutches, braces and wheelchairs or alternative modes of ambulation.



OCCUPATIONAL THERAPISTS (OT's) help patients learn skills of day to day living, school or work. An OT designs therapies attempting to increase independence through developing or improving fine motor skills. OT's also teach adaptive equipment for feeding, seating and bathroom skills.



SPEECH THERAPISTS OR LANGUAGE PATHOLOGISTS diagnose and treat communication problems. They evaluate articulation problems affecting verbal communication they may design special electronic communication boards that people can point to, or eye gaze computers for those able to communicate but not point, as well as test for and recommend special textured diets for person's with dysphagia (trouble swallowing).



SEIZURES. Children who experience seizures, especially severe and frequent seizures, in addition to cerebral palsy are at risk for diminished life expectancy compared to children who don't have seizures. Seizures originate in the brain, but are not the result of the same brain injury that caused cerebral palsy. Seizures may affect consciousness, emotions, sensation, vision, and muscle control. Repeated or prolonged seizures may lead to injury or severe lack of oxygen.

SEIZURE MANAGEMENT. With the aid of a neurologist, managing and properly medicating seizures is possible. In about 50% of cases seizures are completely eliminated by medications. In another 30% seizures are markedly reduced. Medications are ineffective

at controlling or reducing the remaining 20%. Medication regimen adherence is vital, as the number one cause of a seizure is a missed dose. Seizure medications may need a period of fine tuning and many require blood tests to check for therapeutic levels and adverse side effects. When describing the person's seizures with the doctor, provide information about how long the episodes typically last, what body parts are affected, possible triggers, and how the person behaved during the seizure. For those who do not get sufficient control from medications, there are some other options.



SEIZURE FIRST AID GOALS and what to do. To Prevent injury, maintain an open airway, provide reassurance to the individual and bystanders, and recognize an emergency situation: know when to call for help. If possible, assist the individual to the floor if they are having a grand mal seizure. Turn the individual to their side and put a soft object under their head, do not hold the person down or put anything in the individuals mouth. Remove any harmful objects in the immediate area. Remain with the individual until the seizure has stopped and the individual is aware of his/her surroundings. If you work with a person with seizures, obtain clear guidelines from the MD as to what the person's seizure protocol is and know it by heart.

DYSPHAGIA (difficulty swallowing) increases choking & aspiration risk. Aspiration means getting food or objects into the lungs, which can cause infection and or pneumonia. Because some individuals with Cerebral Palsy have difficulty with skilled tongue movement, chewing, and automatic swallowing function, it increases those risks. Safety is always the #1 concern: follow the person's diet order, slow the eating down, know the person's special dysphagia diet for textures, and observe during eating. Have the person tilt the chin downward to swallow. You may have them swallow more than once. Observe for pocketing of food in the mouth. A wet voice or growling may be a sign of dysphagia. Supervision at all times during eating is the best way to insure safety. Know how the person is to take their meds; for example, does it need to be with pudding or applesauce? Do the meds need to be crushed and dissolved in fluid. When passing meds it's good to only give one at a time, make sure the tongue and mouth are wet by taking a sip of water before placing the pill in their mouth.

PRESSURE **ULCERS.** Persons whose mobility is severely compromised are at risk for developing **pressure related ulcers**. A pressure ulcer is a localized area (usually over a bony prominence) of tissue necrosis (death) caused by unrelieved pressure that occludes blood flow to the tissues. The best way to treat pressure ulcers is to prevent them. Prevention of pressure ulcers is done by routinely shifting body parts or areas to relieve pressure and allow blood to flow to that area. Another method is to pad the area with a soft padding. Even still it may require shifting weight off of that area. Follow each person's shifting protocol and know what areas are a risk for this in the individual. The beginning of a pressure sore will look red and the tissue in that area may have a spongy feel to it. Pressure sores can be very painful. A person who is not able to shift their own weight and reposition themselves needs assistance repositioning at least every two hours. Persons identified as being at risk should be assessed every day for skin breakdown. Do this during bathing or changing the person's protective undergarments. Keep the person clean and dry who is incontinent of bowel and or bladder.

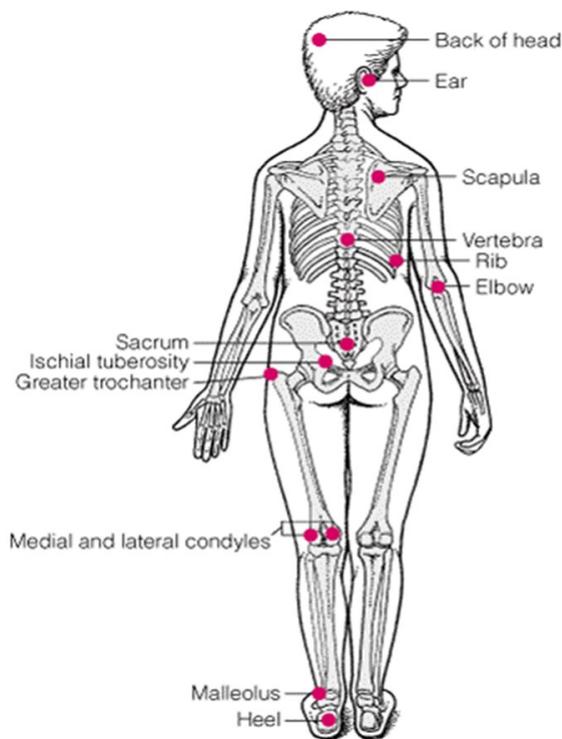


FIGURE 124-1. Common sites of pressure sores. The most common sites are the sacrum, greater trochanters (femur), ischial tuberosities (pelvis), medial and lateral condyles, malleolus (ankle), and heels. Other sites include the elbows, scapulae, vertebrae, ribs, ears, and back of head.

The cause of most cases of CP is unknown, but it has become clear in recent years that birth difficulties are not to blame in most cases. Rather, developmental problems before birth, usually unknown and generally undiagnosable, are responsible for most cases. Although the incidence of CP caused by Rh factor incompatibility has declined markedly, the incidence of CP as a consequence of prematurity has increased, because of the increasing success of medical intervention in keeping premature babies alive. Those with CP are living longer lives than ever before. The longevity of a person with CP depends upon many factors. The evidence does seem to point out that the more independent the person is with their own care, the longer they live.

Cerebral Palsy Test

Name: _____ Title: _____

Agency: _____ Date: _____

Please provide contact information (email address, fax number, or mailing address) where you would like your certificate to be sent:

Please answer the following questions and return this test to Milestone HCQU Northwest.

Please circle the best answer.

1. Cerebral Palsy may be hereditary and run in families. True False
2. Spastic type CP may cause stiff tight muscles and contracted limbs. True False
3. If a person is physically severely affected by CP, they are greatly affected intellectually also. True False
4. Athetoid or dyskinetic CP causes involuntary and uncontrollable movements. True False
5. Physical therapists diagnose and treat seizures. True False
6. All seizures are completely controlled by seizure medications. True False
7. Dysphagia is another term for constipation. True False
8. Persons who cannot shift their own body are at an increased risk of developing pressure sores. True False
9. A person who needs repositioned needs this done at least every day. True False
10. Monoplegia is a form of mononeucleosis that every person with CP is at an increased risk of acquiring. True False

You must submit your completed test, with at least a score of 80%, along with your completed evaluation, to receive 1 hour of training credit for this course.

To submit via fax, please fax the test and evaluation to 814-728-8887.

To submit via email, please send an email to training@MilestonePA.org. Please put "CP Test" on the subject line, and the numbers 1—10, along with your answers, in the body of the email.

To submit via mail, send to Milestone HCQU NW, 247 Hospital Drive, Warren, PA 16365, ATTN: Lynn.

HOME STUDY EVALUATION

Training Title: Cerebral Palsy

Please check the box that best describes your role:

Date: _____

Direct Support Professional Provider Administrator/Supervisor

Program Specialist Provider Clinical Staff

Consumer/Self-Advocate Family Member

Support Coordinator Support Coordinator Supervisor

PCH Staff/Administrator FLP/LSP County MH/MR/IDD

Other (please list): _____

Please circle your PRIMARY reason for completing this home-study training:

It's mandatory

interested in subject matter

need training hours

convenience

Please circle the best response to each question.

5 = Strongly Agree

4 = Agree

3 = Undecided

2 = Disagree

1 = Strongly Disagree

| | | | | | |
|---|---|---|---|---|---|
| 1. As a result of this training, I have increased my knowledge. | 5 | 4 | 3 | 2 | 1 |
| 2. I learned something I can use in my own situation. | 5 | 4 | 3 | 2 | 1 |
| 3. This training provided needed information. | 5 | 4 | 3 | 2 | 1 |
| 4. The training material was helpful and effective. | 5 | 4 | 3 | 2 | 1 |
| 5. Overall, I am satisfied with this training. | 5 | 4 | 3 | 2 | 1 |
| 6. I am glad I completed this training. | 5 | 4 | 3 | 2 | 1 |

Suggestions for improvement: _____

Additional information I feel should have been included in this training: _____

I would like to see these topics/conditions developed into home-study trainings: _____