

What is  
**Cerebral  
Palsy**



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# What is CP?

Cerebral Palsy or (CP) refers to a group of permanent disorders that occur due to a non-progressive disturbance in the developing brain, affecting a person's movement and posture. CP is not a disease or an illness, but rather a broad term that describes the sequela of the disturbance on the brain's ability to control some muscles, especially those affecting movement and posture, leading to activity limitation. It is often associated with disturbances in sensation, perception, learning, communication, behavior, epilepsy and orthopedic complications.

## What do the words “Cerebral Palsy” mean?

“Cerebral” refers to the brain, and “palsy” to any disorder that impairs control of body movement.

There are many types and causes of CP, some of them overlapping, and many degrees of impairment.

## What causes CP?

CP can develop when an infant's developing brain is injured either before or during birth or in the early months of life when the brain is still being formed. It occurs in about one in 400 births worldwide.

Many contributing factors, or a series of factors, may interact to cause brain damage leading to CP.

Some of these factors include:

- Abnormal fetal development such as brain malformations or biochemical genetic disorders that are inborn
- A damaged placenta, which may interfere with fetal growth by impairing the fetus's nutrition
- Exposure to harmful substances such as nicotine, alcohol or certain drugs while in the womb
- Infections such as German Measles in the mother during pregnancy; prolonged rupture of the amniotic membranes leading to fetal infection, meningitis or encephalitis that affect the central nervous system.
- Low birth weight due to premature birth and multiple births.

- Brain hemorrhage in very premature infants or due to non-accidental trauma
- Interrupted oxygen flow to the brain during a difficult birth (e.g. due to abnormal positioning of the baby) or up to three years after birth due to trauma to the head, poisoning or accidents like near drowning.

CP is caused by physical damage to the brain, so it is not contagious and very rarely hereditary. But as with most brain damage, it is a permanent condition for which there is no “cure”. There are, however, many therapies, treatments and evolving technologies, adaptive equipment and even surgery that can help children manage CP’s effects and thus maximize their functioning and their abilities, even if they do things differently.

Visit our website at [www.ofcp.ca](http://www.ofcp.ca) for some real-life examples.

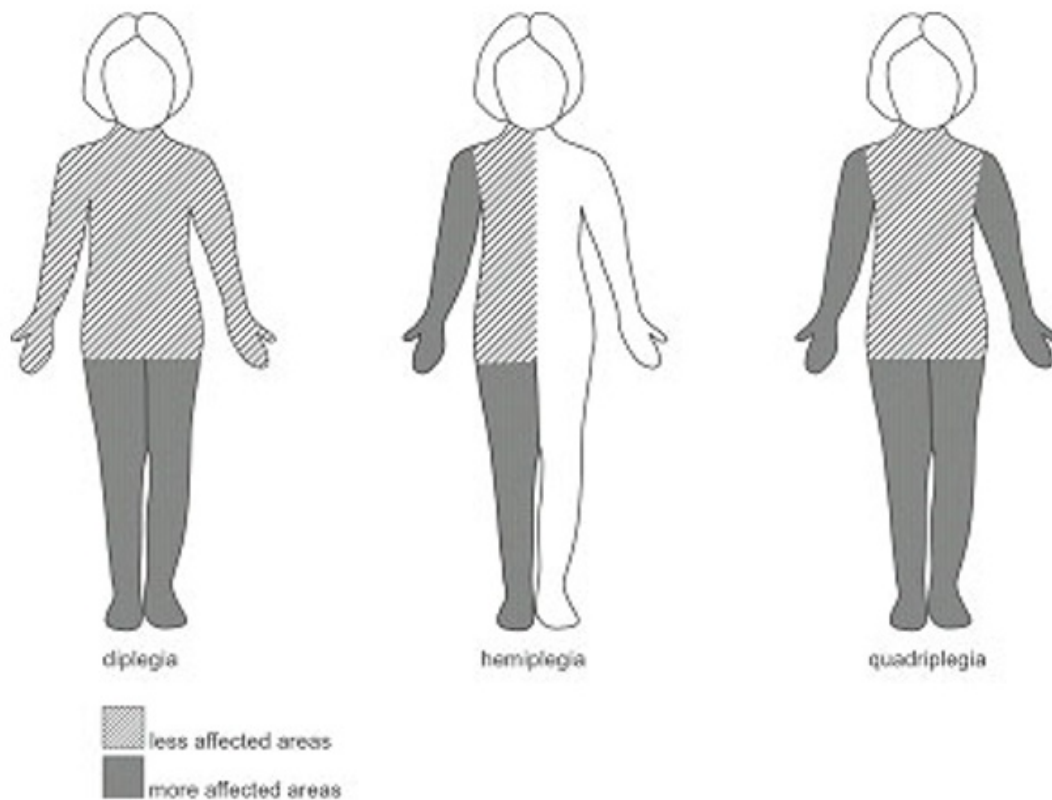
CP can range from very mild, such as a slight weakness on one side of the body, to more serious limitations such as difficulties to speak or use one’s arms or legs, requiring personal care attendants to help with daily living.

Each area of the brain controls specific functions that can be disrupted by injury. Depending on which areas of the brain have been affected, and how severely, persons with CP may have one or more of the following challenges:

- Muscle tightness, stiffness or spasms, especially with effort and activity
- Difficulty chewing and swallowing
- Hearing, visual or speech impairment
- Problems with social skills and language development
- Learning and/or intellectual impairments
- Sensory and perception problems (such as inability to determine distance)
- Jerky, awkward and involuntary movement
- Unsteady gait and tremors
- Seizures/epilepsy/autism
- Behavioural disturbances
- Musculoskeletal problems such as restricted joint range of motion, secondary to muscle imbalances

Each child will have their own unique symptoms and problems – and abilities and interests!

With proper treatment and therapy, many children with CP – including some with very significant functional challenges – go on to obtain a good education, enjoy satisfying careers and have a healthy, meaningful social and family life.



## Types of CP:

There are three main types of CP (actually, types of muscle function impairments):

- 1) **Spastic** (stiff or tight muscles, jerky movement)
- 2) **Dyskinetic** (involuntary and uncontrolled movement)
- 3) **Ataxic** (disturbed sense of balance and depth perception)

These terms are labels that define patterns of physical difficulties. They do not define the person. Every person with CP is a unique individual. Each person will be affected differently depending on the type and extent of CP they have, as well as the supports and resources around them – family, community, educational and vocational opportunities, and so on.

### 1) Spastic CP

- The most common type of CP (70%-80% of all cases)

- Causes muscles to become tight and stiff, especially when a lot of effort is being used, making movement jerky, awkward and difficult or sometimes impossible to perform. The amount of spasticity usually changes over time.
- Is caused by damage to the parts of the brain that affect control of movement the motor cortex. This “muddles” the messages from the brain to the muscles, “confusing” their efforts to do what they want and need to do.

Spastic CP can affect different parts of a person’s body. These terms are a bit helpful but each person needs to be carefully assessed for their specific abilities and functional challenges

- Diplegia - Both legs are affected significantly more than both arms. This occurs most commonly in premature babies.
- Hemiplegia - The leg and arm on one side of the body are affected. May occur in babies who have had a stroke or a trauma to one side of the brain.
- Quadriplegia (also called ‘whole-body involvement’) - The entire body is affected including all four limbs. The muscles of the torso, face and mouth may also be affected. Usually occurs in babies who have experienced oxygen deprivation to the brain.

## 2) Dyskinetic CP

- Is caused by damage to the basal ganglia, the parts of the brain that regulate smooth coordinated movements and body posture.
- Occurs in 10 to 20 percent of people with CP.
- Causes the individual to make involuntary and unpredictable movements especially in the arms, hands, torso and face (involuntary grimacing, tongue thrusting and squirming) that can interfere with speaking, feeding, swallowing, reaching and grasping.
- Emotional stress or the effort to do things can exaggerate the involuntary movements.
- The involuntary movements often disappear during sleep.

### **3) Ataxic CP**

- Is caused by damage to the cerebellum (the part of the brain responsible for balance and the coordination of voluntary movement).
- Is the least common type of CP affecting 5 to 10 percent of children with CP.
- Causes the person to be very unsteady and shaky, or have tremors when trying to hold a small object, making writing or eating difficult.
- Affects balance when walking, resulting in a wide, unsteady gait.
- Affects depth perception and coordination.

These 'types' of motor challenges are rarely completely distinct. Many people may have more than one of these types of CP because of the nature of the injuries to the brain. The most common combination is spastic (tight, stiff muscles) and dyskinetic (involuntary movements). People with more than one type of CP are identified as having "Mixed-Type CP".

## **Management of CP:**

While individuals with CP face many challenges, great strides have been made in treatments, technical aids to promote function, and in how we view people with CP. Modern goals include promoting 'functioning' – however it is done, with technical aids as needed. There is less emphasis on things being done 'nicely' or 'normally'.

Physical therapy helps individuals achieve their potential for physical independence and mobility. Orthotics, casts and splints are made to supplement physical therapy programs. Occupational therapy aims to increase independence in everyday activities and incorporates adaptive equipment to achieve these e.g. bathroom aids. Speech-language therapy aims to improve communication via various means including the use of alternative communication systems. Medications, such as botulinum toxin (Botox), can help in the control of muscle spasticity. Orthopedic and soft tissue surgery can help to counter the distorting effects of spasticity on the spine, hips and legs.

New ideas today focus on functioning and participation, rather than on trying to make children do things “normally”. The emphasis now includes a multidisciplinary and multidimensional approach to modifying the environment and the task rather than the child.

The approach to offering services is much more family-centered today than in the past. Thus, family engagement and family goal-setting in all aspects of intervention are essential. Health professionals now recognize that the well-being of the family has a big impact on the well-being of the child. Health professionals also now recognize that parents know their child better than anyone. They are the “experts” on their child’s condition and that must be taken into account when it comes to treating the child with CP.



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