



# Cerebral Palsy



## *What is Cerebral Palsy?*

Cerebral Palsy (CP) is a broad term that describes a group of disorders of development that primarily affect movement and posture. The main result of this disorder is the limitation of activity, and may be accompanied by disturbances of sensation, cognition, communication, perception and /or behaviour, and/or by a seizure disorder. Cerebral palsy can be classified according to *motor* types: spastic, ataxic, dyskinetic or mixed; by *site*: hemiplegia (one side of the body), diplegia (legs more affected than arms), triplegia (three limbs) or quadriplegia (four limbs); or by *severity* of effect on motor function.



## *How does Cerebral Palsy affect children?*

Motor deficits of children with CP often include:

- 📖 Delayed motor milestones
- 📖 Persistent primitive reflexes
- 📖 Spasticity (rigid baby) or hypotonia (floppy baby)
- 📖 Abnormal walking pattern and movement
- 📖 Early hand dominance

Children with CP may present in different ways depending on the type of involvement or combinations thereof.

***Children with spastic CP*** have increased tone in the muscles, resulting in unusual postures and/or abnormal movements. They may have difficulty in diaper change due to spastic hip muscles, scissoring of legs and tiptoeing while standing, fisting of hands and difficulty in swallowing. Children with hemiplegia may show hand dominance before the usual age of 18 months. The gait of children with diplegia is characterized by flexed posture at the hips and knees. Complications may include joint contractures, hip dislocation and scoliosis.

*Children with ataxic CP* are unsteady, wobbly and uncoordinated.

*Children with dyskinetic CP* have involuntary, uncontrolled, recurring and occasionally stereotyped movements. Attempts at speaking may trigger facial grimacing and production of dystonic sounds.

In addition, children with CP are more likely to have other developmental disabilities including hearing and visual problems, mental retardation, speech and language delay, epilepsy, and chronic ill health, such as poor growth and frequent chest infection resulting from oromotor problems.



### *What causes Cerebral Palsy?*

CP is caused by a non-progressive insult to a child's brain while it is still in its developing phase.

#### *Maternal factors*

CP may be a result of certain undesirable conditions of the mother's body whilst she is pregnant. These include intrauterine infection, use of alcohol or illicit drugs, maternal high blood pressure or placental complications.

#### *Before, during and after birth*

Any trauma before, during or after birth leading to brain injury can cause CP. Asphyxiation due to difficult or prolonged labour, bacterial or viral infections and malformations of the brain can also cause CP.



### *How common is Cerebral Palsy?*

CP is a disorder that affects approximately 2-2.5 babies per 1000 live births worldwide. In Hong Kong, the estimated age specific prevalence for primary school-age children is around 1-1.5 per 1000 live births.



## ***What is the mainstay of treatment for children with Cerebral Palsy?***

The general approach of management is to treat or alleviate the specific complications and associated medical conditions, and to provide necessary accommodations at home and school. Education for the child, family as well as immediate caretakers on the management of cerebral palsy is crucial for optimal care of the child.

***Physiotherapy, occupational therapy and orthoses:*** These help to reduce spasticity and promote function, usually started early in the younger years.

***Medical:*** This mode of intervention aims to alleviate spasticity and uncontrolled movements (dyskinesia). Methods of applying medication include oral drugs, infusion into the spinal cord, and injection into the spastic muscles. Drugs for management of spasticity and dyskinesia include oral baclofen, diazepam, tizanidine, dantrolene sodium and trihexphenidyl, and injection with phenol and botulinum toxin A or B.

***Surgical:*** Orthopaedic surgery can be useful for correcting fixed deformities. Selective dorsal rhizotomy (SDR) is a procedure to reduce spasticity by removing spinal nerve roots supplying individual spastic muscles.

Training to improve their adaptive functioning is also important. These include the management of drooling, feeding and swallowing problems, provision of devices for seating and standing, mobility aids (including wheelchairs) and devices for assisting the child in communication (alternative augmentative communication).



## ***Do children with Cerebral Palsy need special education?***

Locally, children with CP are supported through a range of therapies and training during their pre-school years. Support in mainstream school is provided by the Hong Kong Education & Manpower Bureau, in addition to the regular therapy services available in local hospital clinics. Special arrangements in public examinations may be provided by the HK Examinations and Assessment Authority as needed. Special schools with more

comprehensive accommodations, including residential facilities, are available for students with serious or multiple disabilities.



### *Can children with Cerebral Palsy grow up normally?*

Children with CP who are unable to sit by age 2, unable to walk by age 7, or have persistently inappropriate reflexes for their age have a poorer chance of gaining independent walking ability later on in life. If they have good head control by 9 months, sit independently by 24 months, and crawl by 30 months, the chance for independent walking will be high.

About 65% to 90% of children with CP survive to adulthood. In these adults, chronic pain due to musculoskeletal deformities, overuse syndromes, arthritis and degenerative changes (commonly over the hip, knee, ankle, lumbar and cervical spine) are common. Mild physical involvement, presence of vocational training and good family support are the several positive indicators for future employment.



#### ***Relevant Websites***

CanChild Centre for Childhood Disability Research	<a href="http://www.canchild.ca">http://www.canchild.ca</a>
United Cerebral Palsy Association	<a href="http://www.ucp.org">http://www.ucp.org</a>
Scope	<a href="http://www.scope.org.uk">http://www.scope.org.uk</a>
American Academy for Cerebral Palsy and Developmental Medicine	<a href="http://www.aacpdm.org">http://www.aacpdm.org</a>
腦性麻痺	<a href="http://www.cpcare.com">http://www.cpcare.com</a>
Special Education Service, Education and Manpower Bureau, HK	<a href="http://www.emb.gov.hk/index.aspx?langno=1&amp;nodeid=238">http://www.emb.gov.hk/index.aspx?langno=1&amp;nodeid=238</a>



Child Assessment Service, Department of Health  
Hong Kong Special Administrative Region Government