

Cerebral Palsy

Description:

Cerebral Palsy (CP) is an umbrella term that encompasses a group of non-progressive and non-contagious motor conditions that cause physical disability, chiefly in the various areas of body movement. CP is caused by an injury to the part of the brain that controls muscle tone. *Cerebral* means having to do with the brain. *Palsy* means weakness or problems with using the muscles. Often the injury happens before birth, sometimes during delivery, or soon after birth. CP can be caused by exposure in utero to teratogens, genetic syndrome, chromosomal anomaly, and asphyxia during delivery, sepsis at birth, meningitis, toxins, or traumatic brain injury.

Characteristics:

CP can be mild, moderate, or severe. Mild CP may mean an individual is clumsy. Moderate CP may mean the individual walks with a limp. He or she may need a special leg brace or a cane. More severe CP can affect all parts of an individual's physical abilities and may in some cases cause them to be bedridden. Individuals with CP may or may not experience intellectual/developmental disabilities. According to the literature, there are four main types of Cerebral Palsy.

Spastic cerebral palsy	Refers to when there is too much muscle tone or tightness. Movements are stiff, especially in the legs, arms, and/or back. This is the most common form of cerebral palsy.
Athetoid cerebral palsy	Causes slow, writhing movements that the individual cannot control. The movements usually affect the person's hands, arms, feet, and legs. Sometimes the face and tongue are affected and the person has a hard time talking. Muscle tone can change from day to day and can vary even during a single day.
Ataxic cerebral palsy	Refers to problems with balance and depth perception. The individual might be unsteady when they walk. They might have a hard time with quick movements or movements that need a lot of control, like writing. Others might have a hard time controlling their hands or arms when they reach for something.
Mixed cerebral palsy	Reflects a combination of spastic, athetoid, or ataxic CP. An individual with mixed CP might have both hypertonia and hypotonia. Some muscles are too tight, and others are too loose. This creates a mix of stiffness and involuntary movements.

Incidence and Prevalence:

The incidence in six countries surveyed was 2.12–2.45 per 1,000 live births in 2003. Improvements in neonatology and the medical specialty that involves with treatment of neonates have helped reduce the number of babies who develop CP, but the survival of babies with very low birth weights has increased, and these babies are more likely to have CP.

Other Potential Issues/Factors:

Spastic CP, the most common form of CP, causes the muscles to be tense, rigid and movements are slow and difficult. These characteristics may be misinterpreted as cognitive delays because there may be communication difficulties. Pain is common, and may result from the inherent deficits associated with the condition, along with the numerous surgical and physical therapy

procedures children typically face. Pain is also associated with tight or shortened muscles, abnormal posture, stiff joints, or unsuitable orthotics.

There is also a high occurrence of chronic sleep disorders associated with both physical characteristics and environmental barriers. Physical characteristics may include muscle rigidity, breathing difficulties, and generalized pain. Environmental barriers may include inappropriate, unsafe beds and bedding material, as well as difficulties with temperature regulation.

The ability to live independently with CP varies widely depending on the severity of each case. Some individuals with CP will require personal assistance for all activities of daily living. Others can lead semi-independent lives, needing support only for certain activities. Still others can live in complete independence. The need for personal assistance often changes with increasing age and associated functional decline. However, in most cases persons with CP can expect to have a normal life expectancy.

Possible Interventions and Supports:

Treatment for CP is a life-long, multi-dimensional process that requires constant focus on preventing damage to the brain that prohibits healthy development across developmental domains. Individuals have increased opportunities to develop independence by learning ways to accomplish tasks that are challenging to them with early intervention that continues through the lifespan.

- **Physiotherapy:** Encourages increased muscle base and muscle control. These include stretching exercises that improve flexibility and range of motion.
- **Occupational Therapy:** Enables individuals with CP to participate in activities of daily living that are meaningful to them. Occupational therapists may address issues relating to sensory, cognitive, or motor impairments resulting from CP that affect the child's participation in self-care, productivity, or leisure.
- **Physical Therapy:** Similar to physiotherapy, but an increased emphasis on mobility, and functional use of hands, arms, etc. Current research indicates both physiotherapy and physical therapy should be life-long activities to reduce restrictions and limitations of muscle mobility.
- **Speech Therapy:** Helps control the muscles of the mouth and jaw. This helps with speech and communication as well as essential in chewing activities.
- **Assistive Technologies:** Standing frames help reduce spasticity and increase range of motion. This is essential in increasing balance and mobility. Those persons with CP that are unable to speak have a variety of assisted electronic speech emulation technologies available to them.
- **Ortho devices:** Ankle-foot orthotics (AFOs) are often prescribed to minimize gait irregularities. AFOs have been found to improve several measures of ambulation, including reducing energy expenditure and increasing speed and stride length.
- **Medical Interventions**
 - **Medications:** One of the newer medication procedures is the use of Botox. It is injected into spastic and/or constricted muscles to reduce pain and contractions. Baclofen is a muscle relaxant and often given to help reduce the effects of spasticity.
 - **Surgical procedures:** There are a variety of surgical procedures focused on the goal of loosening tight muscles and releasing fixed joints. Rhizotomy is a surgical procedure that involves cutting the nerves to the most effected area allowing for more control and flexibility. Surgeries that involve cutting then

straightening twisted leg bones can be helpful in reducing pain and potentially increase mobility.

Cultural Competency Considerations:

Problems with language or motor dysfunction can lead to underestimating intelligence. The intellectual functioning among people with CP varies from genius to having an intellectual disability. Society may label individuals with CP as having an intellectual disability. A potential reason for this mislabeling is the physical characteristics associated with the disorder or a communication barrier that needs to be addressed.

Leisure activities are important for the overall health and wellness of everyone. Individuals with CP may have difficulty participating in leisure activities because of social and physical barriers, but the words such as "spastic" and "spaz" have been used extensively as a general insult for individuals with CP. The use of such terms can have significant effects on the individual with CP. Education about the possible effects of using derogatory terms and a zero tolerance policy is essential in developing mutual respect for the strengths and weaknesses of all individuals.

References and Resources

Print Resources

Strauss D., Brooks J., Rosenbloom R., & Shavelle, R. (2008). Life Expectancy in cerebral palsy: an update. *Developmental Medicine & Child Neurology*, 50(7), 487–93.

Tasse, M., Havercamp, S., & Thompson, C. (2006). *Practice guidelines in working with individuals who have developmental disabilities*. Concord, NC: PBH.

Web Resources: Retrieved July 2011

Center for Disease Control and Prevention – Cerebral Palsy (CP)
(<http://www.cdc.gov/ncbddd/cp/>)

United Cerebral Palsy Research and Education Foundation [USA]
(<http://www.ucpresearch.org/fact-sheets/epidemiology-cerebral-palsy.php>)