

What Is Cerebral Palsy And How Is It Treated?

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Cerebral palsy is a condition that results from an injury to the developing brain during gestation (period from conception to birth) or soon after birth and is the most common physical disability in children, with a greater occurrence than autism, epilepsy and Down's syndrome.

It is theorized that cerebral palsy is caused by either a lack of oxygen or a hemorrhage in the brain. Babies that are premature or with low birth weights are at special risk for cerebral palsy because they not only possess fragile blood vessels in the brain, but have difficulty breathing on their own due to immature lungs. Difficulty breathing predisposes the baby to a lack of oxygen thus causing an increase in arterial blood pressure. The increased blood pressure can overcome the walls of the capillaries (small blood vessels) in premature babies and rupture them which results in a hemorrhage and leads to a brain injury.

Low birth weight and prematurity are intimately related to multiple pregnancies. As multiple births continue to be on the rise because of innovations in the treatment of infertility, there is a higher prevalence of prematurity and therefore an increased incidence of cerebral palsy. Up to 50% of premature infants born at 28 weeks are likely to suffer from a hemorrhage and are more likely to develop cerebral palsy.

Cerebral palsy is characterized by a lack of control over motor function, specifically muscle control and coordination. Each child with cerebral palsy develops very differently depending on the size and location of the brain injury. The child may demonstrate involvement of one side of the body (hemiplegia), both lower extremities (diplegia), one extremity

(monoplegia), or the entire body (quadriplegia). In addition, the following associated conditions may occur:

- Muscle tightness or muscle spasm.
- Poor balance.
- Muscle weakness.
- Disturbance in gait and mobility.
- Abnormal sensation and perception.
- Impairment of sight, hearing or speech.

One of the most difficult issues when dealing with both muscular and skeletal concerns with cerebral palsy is the presence of abnormal muscle tone. *Muscle tone* refers to the amount of tension or resistance to movement in a muscle. Muscle tone is what enables us to sustain certain positions or postures like sitting up. Muscle tone exists on a continuum ranging from little or no muscle tone (hypotonia) to increased stiffness (hypertonia). A state at either end of the continuum will make movement difficult. Children with cerebral palsy present with abnormal muscle tone which causes abnormal movement patterns and postures.

An experienced pediatric physical therapist specializes in helping children to work through their abnormal muscle tone in order to perform goal directed movements like rolling, sitting and walking. By using tone reducing strategies and therapeutic exercises a pediatric physical therapist can help to optimize the child's maximum potential toward independent mobility. Therapists can also work toward the prevention of muscle weakness and can help avoid *contractures* where tight muscles become fixed in a rigid position. Another necessary role of the physical therapist is aiding the parents in recommending and ordering necessary bracing and equipment

to improve the quality of life for both the child and the family of the child. Physical therapy treatment should begin in the first year of life or soon after the diagnosis of cerebral palsy is made. Please contact your pediatrician for a referral for these services.