

## CEREBRAL PALSY



### DEFINITION:

**Cerebral Palsy:** A non-progressive condition, not a disease, caused by damage to the brain, usually occurring before, during or shortly following birth. “Cerebral” refers to brain and “palsy” refers to a disorder of movement or posture. Symptoms may vary from total inability to control body movements, to only slight impairment.

### TYPES OF CEREBRAL PALSY:

**Spastic:** muscles are tense, contracted and resistant to movement. This makes muscle movement “jerky” and uncertain. These individuals have exaggerated stretch reflexes that cause them to respond to rapid passive stretching with vigorous muscle contractions. Spastic Cerebral Palsy is the most common type of Cerebral Palsy characterized by hypertonic muscle tone occurring during voluntary movement.

**Athetoid:** causes involuntary movements of the body parts affected. The hands may twist and turn, and often there is facial grimacing, tonguing and drooling. Because of the presence of primitive reflexes and inability to control muscles, posture is unpredictable. Athetoid Cerebral Palsy is the second most common type of Cerebral Palsy characterized by fluctuating muscle tone that is sometimes hypertonic and sometimes hypotonic. Generally, the terms athetosis and dystonia are synonymous.

**Ataxia:** disturbance or lack of balance and coordination. Student may sway when standing, have trouble maintaining balance and may walk with feet spread wide apart to avoid falling. Ataxia Cerebral Palsy is the least common type of Cerebral Palsy characterized by poorly conditioned and hypotonic muscle tones.

### CAUSES OF CEREBRAL PALSY:

- Illness during pregnancy
- Premature delivery
- Lack of oxygen supply to the fetus
- Lead poisoning
- Illness early in the infant’s life
- Child abuse

The most common cause of Cerebral Palsy is an insufficient amount of oxygen reaching the fetus or newborn infant's brain. It is the most frequent cause of severe disability in children and the orthopedic impairment most often found in public schools.

### **COMMON CHARACTERISTICS:**

- Seizures – be aware that anti-seizure medication may decrease motor responses
- Loss of perceptual ability
- Poor depth perception and tracking ability due to difficulty with coordinating eye movements.
- Difficulty with speech, which should not be confused with lower intelligence.
- Learning disability or mental retardation
- Spastic or rigid muscles, which limits range of motion
- Contractures may develop when restricted range of motion is severe
- Hyperactive Stretch Reflex – when the muscles overreact, causing them to violently contract
- Scissoring gate (both legs involved) and hemiplegic gate (involves one side) makes balancing and locomotor activities more difficult
- Persistence of unwanted primitive reflexes and tremors
- Involuntary movement, such as constant, unpredictable, purposeless movement
- May exhibit both hypertonic and hypotonic muscle tone
- Slow to develop equilibrium reflexes and difficulty balancing
- Low postural tone, but may be able to walk unaided, usually with arms held out to the side
- Often under or over reaches
- Falls and stumbles easily

### **TEACHING TIPS:**

- Adapt activities and modify rules and/or environment to permit safe participation in large groups.
- Students with cerebral palsy may need more time to plan and execute basic movements.
- Reinforce language and speech during physical education activities. Consult with speech and language therapist on communication boards and/or ASL (sign)
- Use larger balls that enable the fingers to be extended. This inhibits the hand grasp reflex.
- Teach striking activities with an open hand (i.e., tetherball or a balloon suspended on a string).
- Exaggerated hand grasp reflexes may make release difficult or impossible. Relax wrist and fingers by using shoulder and lower arm rotation.

- Integrate relaxation training into the lessons. Slow, static stretches and fluid movements are important. Aquatic environments are great for introducing relaxation exercises.
- Adding weight to implements (i.e., bat, racquet) will help with tremors or unwanted movements.
- Provide a bar or chair when doing activities requiring good balancing techniques.
- Provide elbow and knee pads for those who stumble and fall easily.
- Try throwing from a sitting position.
- Students with cerebral palsy who use wheelchairs are at high risk for hip dislocation. Consult with physical therapist and/or physicians (with parental permission).

### **THINGS TO AVOID:**

- Students with the spastic type of cerebral palsy should not engage in quick, jerking or jumping activities and avoid tiptoeing when calf muscles are tight.
- Do not pry open fingers if making a fist.
- Discourage sitting in a “W” position.
- Many students with cerebral palsy have latex allergies.
- Do not use auxiliary type crutches (those touching the armpits) for physical activities.

### **SUGGESTED ACTIVITIES:**

- Provide stretching exercises before and after strengthening or endurance activities.
- Physical fitness activities, which includes most sports, to strengthen large and small group muscles
- In track and field activities consider using a soft discuss and shot put
- When riding bicycles or tricycles utilize adapted equipment i.e., modified seats, straps or Velcro to keep feet on pedals, upper body supports
- In bowling/bocce type activities use ramp and/or bumpers when appropriate
- In soccer use wheelchair foot rest or racquet type implement to “kick” the ball
- In baseball use plastic or foam bat and ball placed on a cone or suspended on a string
- Use manual (hand or foot propelled) wheelchair maneuvers to build strength (i.e., 20M dash)
- Use motorized wheelchair maneuvers (i.e., slalom racing)
- Use aquatic activities. Ideal water temperature for spastic muscles is between 90 and 93 degrees F. If water is cooler, a hot shower or bath after swimming may help with muscle tightness.
- Rhythmic activities ( gentle rocking and/or rolling on a therapy ball, balance board, swing, etc.)
- Use rhythm and dance activities to enhance postural relations
- Use tetherball and/or balloon activities

- Horseback riding is excellent for all types of cerebral palsy (contact NARHA for riding facility near you)
- Provide conscious relaxation exercises

#### **POSITIONING AND ALIGNMENT TIPS:**

- When transferring or holding students with an extensor tone (stiff all over), grasp as close to joint as possible and keep close to the body in a tucked position that maintains their head and limbs in flexion.
- To reduce flexor tone (bent or curled), hold and maintain head and limbs in an extension position.
- Keep body parts in good alignment as much as possible.
- Use inhibitory actions that are opposite of undesired pattern.
- Be aware of coactive movements (consult with physical and/or occupational therapists).
- Be aware of proper sitting alignment and optimum performance positions (consult with physical and/or occupational therapists).

*Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.*