

Cerebral Palsy

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Cerebral Palsy

A disorder of muscle control which results from some damage to part of the brain. The term cerebral palsy is used when the problem has occurred early in life, to the developing brain

Types of CP

- Spasticity – increased tone resulting in some tight muscles and/or muscle groups
- Dyskinetic cerebral palsy/athetosis – fluctuating or changing tone
- Hypotonia – low tone
- Ataxia – coordination difficulties
- Combinations of these

Different parts of the body affected

- Hemiplegia
- Diplegia
- Quadriplegia

Tone

- Tone is the tension in muscles
- Controlled by different parts of the brain
- Normal tone enables us
 - to hold ourselves up against gravity
 - to make smooth, controlled movements with correct accuracy, rhythm, strength and coordination
- The child needs to understand the effects of tone on their position and movement

Patterns of Movement

- flexor (bent) patterns
- extensor (straight) patterns
- reflex activity
- The child needs to learn to understand their own movement patterns and strategies to counteract reflexive patterns of movement.

Spasticity

- Trunk has lower than normal tone – child may fix himself by using increased tone around the shoulders and hips
- Child needs opportunities to strengthen trunk and mobilise shoulders

Spasticity

- Movement is slow and child fatigues which affects energy levels, initiation and participation
- Child needs to practise movement and function to build stamina, speed of response and participation

Spasticity

- Use same patterns of movement in a range of situations
- The child needs opportunities to actively move and function in more correct patterns.

Dyskinetic Cerebral Palsy

- Involuntary movements occur when the child makes a voluntary movement
- The child needs to learn strategies to stabilise their body and move just one part.

Dyskinetic Cerebral Palsy

- Emotional changes will increase involuntary movement
- When in a resting/relaxed state, child may not respond quickly.
- Conversely, when excited, child can respond with increased involuntary movements
- Can be very difficult to interpret responses or understand communication
- The child needs to learn strategies to regulate emotional responses and communicate using language (including AAC)

Ataxia

- Disorder of balance usually with lower than normal tone in the body, child has difficulty maintaining balance and upright position against gravity resulting in an unsteady, wide based gait
- The child needs opportunities to strengthen the trunk and strategies to learn to stabilise self.

Ataxia

- Difficulty directing, grading and timing movements of the mouth, arms and legs, hands and feet.
- Initiation of movement is slow as is the speed of responses
- Speech has poor pronunciation, volume and little tone variation

- The child needs to learn strategies to assist initiation, direction, speed and rhythm of movement.

Ataxia

- Fine motor skills are necessarily affected. Targetting is affected with overshooting, then compensatory adjustment until eventually child is successful.
- The child needs to learn strategies for fixing the rest of the body except that part which is moving.

Other associated issues

- Sensory
 - proprioception
 - vestibular
 - vision
 - hearing
 - processing tactile information
- Motor planning
- Difficulties with learning
- Social – emotional development
- Medical/health
- Complex communication needs

A DISORDER OF MOVEMENT HAS THE POTENTIAL TO AFFECT ALL AREAS OF DEVELOPMENT

- **MOVEMENT**
- **COMMUNICATION**
- **SOCIAL**
- **COGNITIVE**

Key Issues for Participation and Learning for Children with Cerebral Palsy

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Associated Reactions



- When child makes a voluntary movement eg. to pick up an object, there are other (associated) movements observed in the head, mouth, legs, trunk arms and hands
- The child needs to learn to disassociate their body movements.

Symmetry

- Describes the body as being the same on both sides.
- Differences between both sides of the body is called **asymmetry**
- People with cerebral palsy almost always have varying degrees of asymmetry
- Outcome : can lead to problems in the hips and back and may require surgery
- The child needs to learn to use both sides of the body

Weightbearing

- The ability to take weight, in alignment through the arms or legs
- Because of difficulties with tone and atypical motor development, the person misses out on weightbearing opportunities
- Outcome: muscles are never fully elongated in the shoulders, arms and hands, hips, legs and feet
- Building of strength in the muscles and joints – particularly the hips and shoulders is impaired
- The child needs to have weightbearing built into the daily routine

Weightshifting

- The ability to shift body weight and maintain body weight in that position – this is essential to enable a person to use one part of their body eg. to use the hand or to take a step
- The child needs to learn to weightshift.

Effects of Gravity

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- Gravity provides a force downwards on all of us. We counteract this by actively contracting muscles in upright positions. Because of differences in muscles tone, some people with cerebral palsy are challenged by the effects of this downward force and have to work much harder to stay upright against gravity
- Outcome: fatigue, may overuse some muscles to stay upright
- The child needs to learn understand and manage the effects of gravity.

Stability

- There are two ways a child learns to stabilize to perform tasks successfully.
 - the gradual strengthening of the trunk, neck, shoulders, and hips so he can move his arms and hands, legs and feet in precise, well timed accurate movements
 - using open or grasping hands to stabilize himself through the arms, providing the stability for the rest of the body to move
- There can be major challenges to both these ways of stabilizing for the person with cerebral palsy
- Stability is also affected by all the other aspects described above
- The child needs to learn a range of ways to stabilise self.

Effects of disuse of muscles

- “If you don’t use it, you lose it.” For a person with cerebral palsy, this effect is much faster.
- Outcome: gradual shortening of muscles, joint subluxation and dislocation, surgery
- The child needs to be active throughout the day.