Cerebral Palsy:

Cerebral Palsy is a group of disorders of the development of movement and posture causing activity limitations that are attributed to nonprogressive disturbances that occurred in the developing fetal or infant brain. The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, cognition, communication, perception, and/or behavior and/or a seizure disorder.

Classification:

Physiologic:

- Spastic
  - most common
  - damage to the pyramidal system, particularly the motor cortex in the brain
  - increased tone in the extremities
  - tone is dependent on velocity, which means that if a muscle is stretched rapidly, tone increases more than if the same muscle group were stretched gradually and gently
- Hypotonia
  - abnormally decreased tone
  - described as floppy or hypotonic
- Dystonia
  - increased tone, which is not dependent on velocity.
  - "lead pipe rigidity" - tone does not decrease with stretching
- Athetosis
  - abnormal writhing movements that the patient cannot control
  - movements more exaggerated as the patient tries to complete a purposeful motion

Geographic

- Hemiplegia
  - when only one side of the body is involved, with the upper extremity usually more involved than the lower extremity
- Diplegia
  - involvement of both sides of the body, with both lower extremities being involved and lesser involvement of the upper extremities
- Triplega
  - Involvement of both lower extremities and one upper extremity

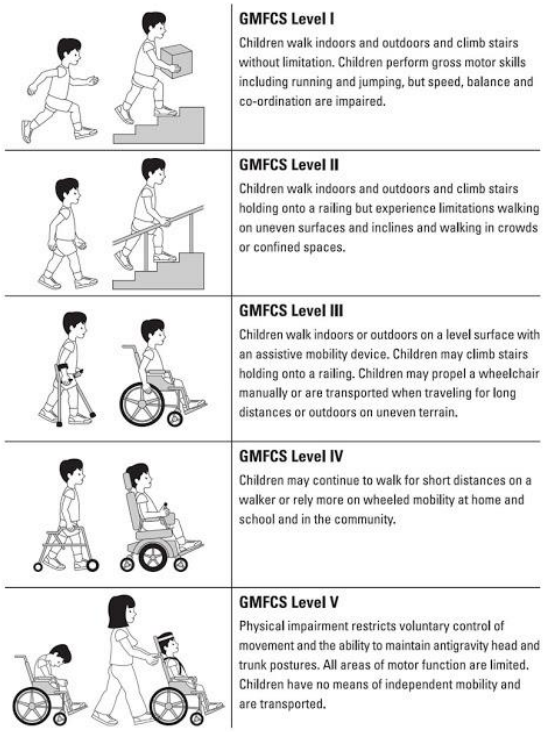
- Quadriplegia or total body involvement
  - when all four extremities are severely involved
  - poor trunk and neck control

Functional

Gross Motor Functional Classification System (GMFCS)

- most commonly used to describe the patient's level of function

- GMFCS 1
    - describes a patient who ambulates without aids on all surfaces and keeps up with peers
- GMFCS 2
    - The patient is fully ambulatory, may use lower extremity orthoses, and does not keep up fully with peers
- GMFCS 3
    - the patient uses ambulatory aids such as a walker or crutches and may use a wheelchair for longer distances
- GMFCS 4
    - describes non ambulatory patients who are able to propel their own wheelchair
- GMFCS 5
    - inability to transfer, propel a wheelchair, or support the trunk



Treatment Overview

- Physical Therapy
- Mobility aids (orthoses, crutches, walker, wheelchair)
- Oral medications for spasticity, dystonia
- Botulinum toxin for temporary tone management
- Selective dorsal rhizotomy for lower extremity spasticity
- Intrathecal pump for generalized spasticity
- Orthopedic muscle lengthening and transfer
- Bony osteotomies for bony deformity
- Arthrodesis of spine or feet if collapse impairs function

References:

1. Tachdjian's Paediatric Orthopaedics 5th Ed
2. https://emedicine.medscape.com/article/1179555-overview