Postural Awareness
- Righting Reactions
- Functional Reaching
- Tone Assessment
- Balance

- State of physical equilibrium
- Control of COG
- Achieving/maintaining upright posture
  - Integrated somatosensory, visual & vestibular information in CNS

Somatosensory Input
- Receptors
  - Jts
  - Muscles, ligaments
  - Skin
- Proprioceptive info
  - Length, tension, pressure, pain & position
- Change the surface pt is standing on

Visual Input
- Perceptual acuity
  - Verticality
  - Motion
  - Orientation
  - Sway
  - Mvmts of head/neck
- EO, EC

Vestibular Input
- Position & mvmt of head with relation to gravity
  - Hallpike maneuver
  - Nystagmus
  - Vestibuloocular reflex

VOR
- Gaze stabilization through eye mvmt that counters head mvmt
- VOR
- Righting Reactions

- Automatic reactions enabling a person to assume the normal upright position and maintain stability when changing position.
- It is also the maintenance of proper alignment of the head or trunk in space.
  - Landau Reaction.

Neck Righting
- Supine
- Passively rotate head
Body rotates to align body with head

- **Body Righting**
- **Supine**
- Passively rotate upper or lower trunk
  - Body part not rotated follows

- **Labyrinthine Head Righting**
- Sitting or standing
- Eyes blindfolded
- Tip body
  - Head orients to vertical with mouth horizontal

- **Optical Righting**
- Sitting or standing
- Tip body
  - Head orients to vertical with mouth horizontal

- **UE Protective Ext**
- Sitting, kneeling, or standing
- Displace COG outside of BOS
  - Fwd: fingers & elbow ext, shoulder flex
  - Side: fingers & elbow ext, should abd
  - Bwd: fingers, elbow & shoulder ext

- **LE Protective Ext**
- Standing
- Displace COG outside of BOS
  - Fwd: steps fwd when displaced fwd
  - Side: steps to side or crosses when displaced to the side
  - Bwd: steps bwd when displaced bwd

- **Equilibrium Reaction: Tilting**
- Supine, sitting or standing on moving surface
- Displace COG by tilting or move the support surface
  - Curvature of trunk toward the force
  - Ext & ABD of the extremities on the side of the force

- **Equilibrium responses**
- Responses designed to maintain equilibrium. Displace the COG in regards to the BOS, but not outside BOS.

- **Equilibrium Reaction:**
  - **Postural Fixation**
  - Sitting or standing
  - Displace COG but not outside BOS
    - Side: trunk curvature toward force, ext & ABD of extremities on side force was applied
    - Bwd: trunk flex, elbow ext, shoulder flex, PF
    - Fwd: trunk ext, UE ext, DF

- **Postural Strategies**
- **Ankle**
  - Small range slow velocity perturbation
  - Contract distal to proximal

- **Hip**
Greater perturbation through pelvis/hips
Hips move opposite head

Postural Strategies
Suspensory
Used to lower COG during std or amb
examples:

Stepping
Unexpected perturbations during std
COG outside BOS
LE step & UE reach out to get new BOS

Functional Reaching
Sitting or standing
Within BOS
Outside BOS
Crossing midline within BOS
Crossing midline outside BOS
Tone
Normal tension found in muscles
Atypical
Hypertonia
Mixed
Fluctuating
Rigidity
Hypotonia

Hypertonia
↑ tone
UMN disease
Resistance to mvmt ↑ in response to rapid mvmt of jt
Interventions
Handling
orthotics

Athetoid (fluctuating)
Writhing, uncontrolled mvmts
Damage to the extrapyramidal region near basal ganglia
Spastic CP
Athetoid (fluctuating)
Rigidity
‘Lead Pipe’ or ‘Cogwheel’
Significant resistance through entire range
Extrapyramidal syndromes (dystonias)
Parkinson’s
Hypotonia
Lack of resistance to movement
Flaccidity
LMN involvement
Polio, SCI, brachial plexus injury, Downs
Modified Ashworth Scale
Tone Assessment
Clonus
UMN Disease
CP
Hydrocephalus
CVA
MS
Huntington’s Chorea
TBI
Brain Tumors
LMN Disease
Poliomyelitis
GBS
Spinal Tumors
Trauma
Infection
Bell’s palsy
CTS
MD