The Activity Rest Need

- Functions of Musculo-skeletal System
  - Support
  - Protection
  - Movement
  - Mineral Storage
  - Hematopoiesis
  - Determines form and contour of the body

- Function of Nervous System (in relation to movement)
  - Electrical impulse goes to the muscle through a neurotransmitter (acetylcholine), which stimulates the muscle - causing movement.

- Body Mechanics
  - Efficient, coordinated and safe use of the body to move objects and carry out daily activities.

- Body Alignment
  - Geometric arrangement of body parts in relation to each other
  - Good alignment promotes optimal balance and maximal body function
  - Good body posture
    - Prevents strain on joints and muscles
  - The Patients’ Center of Gravity
    - Patients will fall who do not maintain their center of gravity.
    - Center of gravity is 55%-57% of standing height located in the midline.

- Body maintains balance if
  - Line of gravity passes through the center of gravity and the base of support
  - The broader the base of support
  - The lower the center of gravity

- Two Simple Techniques!
  - Separate legs for wide base of support
  - Bend the knees and flex the hips while keeping trunk erect

- Preventing Injury cont.
  - Plan move carefully
  - Use proper alignment
  - Tighten stomach muscle
  - Center weight on feet
  - Use longest and strongest muscles of the arms and legs
  - Hold objects close to body
  - Keep self in good physical shape

- Assessment of Mobility includes…
  - Checking body alignment
  - Range of Motion (ROM)
  - Gait
  - Exercise

- Assess for Activity Tolerance
  - Dyspnea, fatigue, chest pain and changes in VS

- Assistive Devices
  - Canes
  - Crutches
  - Walkers
  - Trapeze
  - Footboard
- Trochanter roll
- Hand roll

- Posture Abnormalities
  - Lordosis
  - Kyphosis
  - Kypholordosis
  - Scoliosis
  - Kyphoscoliosis
  - Footdrop
  - Kyphosis
  - Lordosis
  - Scoliosis

- Range of Motion
  - Active - performs exercises against gravity by themselves
  - Passive – unable to move joints e.g. unconscious patient

- Purpose of ROM
  - Assess joint flexibility
  - Maintain joint mobility and flexibility
  - Prevent ankylosis
  - Stretch joint before more strenuous activity

- ROM – Name that Movement
  - Nodding head “yes”
  - Shaking head “no”
  - Reaching to get a book of bedside stand
  - Walking (knee and hip)
  - Wiggling toes
  - Eating, bathing, shaving (elbow)
    - (for more on this go to pg 945)

- Joints… (What kinds of motion are possible?)
  - Neck
  - Shoulder
  - Elbow
  - Forearm
  - Wrist
  - Fingers
  - Joints…
  - Thumb
  - Hip
  - Knee
  - Ankle
  - Foot
  - Toes

- Positioning Bedbound Patients
  - Pillows
  - Foot boots
  - Trochanter rolls
  - Sandbags
  - Hand rolls
  - Hand-wrist splints
• Positions
  o Supine
  o Prone
  o Side lying or lateral
  o Fowler’s position
  o Sim’s Position
  o Trendelenberg
  o Reverse Trendelenberg
  o Dorsal Recumbent

• Systemic Effects of Immobility
  o Metabolic
  o Respiratory
  o Cardiovascular
  o Musculoskeletal
  o Urinary and bowel elimination
  o Integumentary
  o Psychosocial

• ROM Exercises
  o Active
  o Teach isometric exercises
  o Passive
  o Benefits of Exercise
    ▪ “If exercise could be packaged into a pill, it would be the single most widely
      prescribed and beneficial medicine in the nation.” (Robert N. Butler, MD Former
      Director, National Institute on Aging)
  o Intervene to Increase Activity
    ▪ Isotonic exercise
    ▪ Isometric exercise
    ▪ Resistive isometric exercise