Chapter 15

Body Mechanics and Patient Mobility
Using Appropriate Body Mechanics

• Body Mechanics
  ▪ Field of physiology that studies muscular action and the function of muscles in maintaining the posture of the body

• The musculoskeletal system must be protected to prevent injury to the patient and the nurse.
  ▪ Maintain a wide base of support.
  ▪ Bend the knees and hips rather than the back.
  ▪ Stand in front of the object.
  ▪ Adjust the working level to one of comfort.
  ▪ Carry objects close to the midline of the body.
Figure 15-1

Good position for body mechanics.

Figure 15-2

(From Sorrentino, S.A. [2004]. Assisting with patient care. [2nd ed.]. St. Louis: Mosby.)

Picking up a box using good body mechanics.
Positioning Patients

- There are many positions to use to prevent patients from developing complications.
  - Dorsal (supine)
    - Lying horizontally on the back
  - Dorsal recumbent
    - Supine position with patient lying on back, head, and shoulders, with extremities moderately flexed, legs may be extended
  - Fowler’s
    - Head of bed raised 45 to 60 degrees
Skill 15-1: Step 9a

Positioning patients.

Skill 15-1: Step 9c

Positioning patients.
Skill 15-1: Steps 9e, 9f

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills. [3rd ed.]. St. Louis: Mosby.)

Positioning patients.
Skill 15-1: Step 9g

Positioning patients.

Positioning patients.

Skill 15-1: Step 9i

Positioning patients.

(From Seidel, H.M., Ball, J.W., Dains, J.E., Benedict, G.W. [2003]. Mosby’s guide to physical examination. [5th ed.]. St. Louis: Mosby.)
Skill 15-1: Step 9j

Positioning patients.
Positioning Patients

• Semi-Fowler’s
  ▪ Head of bed raised approximately 30 degrees

• Orthopneic
  ▪ Sitting up in bed at 90-degree angle, sometimes resting forward supported by pillow on overbed table

• Sims’
  ▪ Lying on side with knee and thigh drawn upward toward chest

• Prone
  ▪ Horizontal position when lying face down
Positioning Patients

• Knee-chest
  ▪ Patient kneels; weight of body supported by knees and chest, with abdomen raised, head turned to one side, and arms flexed

• Lithotomy
  ▪ Lying supine with hips and knees flexed and thighs abducted and rotated externally

• Trendelenburg
  ▪ Head low and body and legs elevated on an incline
Mobility versus Immobility

• Mobility
  ▪ A person’s ability to move around freely in his or her environment

• Serves Many Purposes
  ▪ Express emotion
  ▪ Self-defense
  ▪ Attain basic needs
  ▪ Perform recreational activities
  ▪ Perform activities of daily living (ADLs)
  ▪ Maintain body’s normal physiological activities
Mobility versus Immobility

- **Immobility**
  - Inability to move around freely

- **Complications of Immobility**
  - Muscle and bone atrophy; contractures; pressure ulcer
  - Constipation; urinary tract infection
  - Disuse osteoporosis; kidney stones
  - Pneumonia; pulmonary embolism; postural hypotension
  - Anorexia; insomnia
  - Asthenia
  - Disorientation
Figure 15-3

Trochanter roll.

Hand roll.

Performing Range-of-Motion Exercises

- Range-of-Motion (ROM)
  - Any body action involving the muscles and joints in natural directional movements
- Exercises may be performed by physical therapy department personnel or by the nurse and allied staff.
- Exercises are indicated for patients confined to bed for long periods.
- Exercises may be performed passively by nurses or actively by patients.
Performing Range-of-Motion Exercises

• The total amount of activity required to prevent physical disuse syndrome is only about 2 hours for every 24-hour period.

• Designated body joints are moved to the point of resistance or pain, using care to avoid injury.
Performing Range-of-Motion Exercises

• Joint Range-of-Motion Exercises
  ▪ Neck and cervical spine
    • Flexion
    • Extension
    • Hyperextension
    • Lateral flexion
    • Rotation
Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Shoulder
    - Flexion
    - Extension
    - Hyperextension
    - Abduction
    - Adduction
    - Internal rotation
    - External rotation
    - Circumduction
Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Elbow
    - Flexion
    - Extension
    - Hyperextension
  - Forearm
    - Supination
    - Pronation
Performing Range-of-Motion Exercises

• Joint Range-of-Motion Exercises
  ▪ Wrist
    • Flexion
    • Extension
    • Hyperextension
    • Radial flexion
    • Ulnar flexion
Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Fingers
    - Flexion
    - Extension
    - Hyperextension
    - Abduction
    - Adduction
Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Thumb
    - Flexion
    - Extension
    - Abduction
    - Adduction
    - Opposition
Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Hip
    - Flexion
    - Extension
    - Hyperextension
    - Abduction
    - Adduction
    - Internal rotation
    - External rotation
    - Circumduction
Skill 15-2: Step 8

Performing range-of-motion exercises.

Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Knee
    - Flexion
    - Extension
  - Ankle
    - Dorsiflexion
    - Plantar flexion
  - Foot
    - Inversion
    - Eversion
Performing Range-of-Motion Exercises

- Joint Range-of-Motion Exercises
  - Toes
    - Flexion
    - Extension
    - Abduction
    - Adduction
Moving the Patient

- Moving includes lifting the patient up into bed, to the side of the bed, to the tub, and into a car.
- Moving also includes turning, dangling, and assisting the patient in and out of the bed for ambulation.
- Mechanical Equipment for Lifting Patients
  - Hydraulic lift
  - Roller board
  - Gurney lift
Patient using a trapeze bar.

A, The lift is over the patient. B, The sling is attached to a swivel bar. C, The lift is raised until the sling and patient are off of the bed.

(From Sorrentino, S.A. [2004]. Assisting with patient care. [2nd ed.]. St. Louis: Mosby.)
D, The patient’s legs are supported as the patient and lift are moved away from the bed. E, The patient is guided into a chair.

(From Sorrentino, S.A. [2004]. Assisting with patient care. [2nd ed.]. St. Louis: Mosby.)
Moving the Patient

• Lift twice
  ▪ Once mentally and then once physically
• Be certain to have sufficient assistance.
• Assess patient’s ability to assist with moving.
• If moving may be painful for the patient, the nurse will want to administer medication to the patient before any such activity.
Skill 15-3: Steps 9g(2), 9g(4)

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills. [3rd ed.]. St. Louis: Mosby.)

(From Sorrentino, S.A. [2004]. Assisting with patient care. [2nd ed.]. St. Louis: Mosby.)

Moving the patient.
Skill 15-3: Step 12e

Moving the patient.

(From Sorrentino, S.A. [2004]. Assisting with patient care. [2nd ed.]. St. Louis: Mosby.)
Skill 15-3: Steps 13c, 13f


Moving the patient.
Skill 15-3: Step 13j(7)

Moving the patient.

(From Sorrentino, S.A. [2004]. Assisting with patient care. [2nd ed.]. St. Louis: Mosby.)
Skill 15-3: Step 13j(8)


Moving the patient.
Skill 15-3: Step 14f

Moving the patient.

Using the Lift for Moving Patients

- Mechanical devices, such as the hydraulic lift used with a Hoyer sling, will
  - Move patients safely
  - Protect the nurse’s back
  - Provide full-weight lifting of patients who cannot assist
Nursing Process

- Nursing Diagnosis
  - Impaired physical mobility