CHAPTER 8
Body Mechanics and Patient Mobility

Video
- How to Work All Day and Not Get Hurt

To maintain a wise base of support, the PT will stand with feet separated approximately:
1. 3 feet apart
2. 1x the length of their shoe
3. 1.5X the length of their shoe
4. Exactly the width of their shoulders
**Vocabulary**

- **Alignment** – The relation between body parts that helps with balance, movement and smooth coordination
- **Base of support** – Feet apart providing stability (1.5 time length of shoes)
- **Body Mechanics** – Proper use of muscle groups to keep healthy posture during movement

**The PT knows the body’s center of gravity is:**

- 25% 1. Keeping feet 15-20 inches apart
- 25% 2. Assuring the knees are always bent
- 25% 3. In the abdomen
- 25% 4. Different for each person

**Using Appropriate Body Mechanics**

- Field of physiology that studies muscular action and the function of muscles in maintaining the posture of the body
- 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 8-1

Good position for body mechanics.


When Lifting objects

25% 1. Hold load away from body XXXX
25% 2. Hold load close to body ✓
25% 3. Balance load on open palms
25% 4. It does not matter

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

Figure 8-2

Picking up a box using good body mechanics.

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

Vocabulary

- **Dorsal** – toward the back
- **Dorsal recumbent** – lying on back (supine) with extremities flexed slightly
- **Genupectoral** – (knee-chest (kneeling with weight of body supported/head turned
- **Immobility** – lack of ability to move freely
- **lithotomy** – lying on back (supine) with hips/knees flexed

Vocabulary

- **Mobility** – ability to move freely
- **Orthopneic** – sitting in bed leaning forward supported by table.
- **Prone** – lying face down on abdomen
- **Semi-Fowler’s** – lying on back in bed with head (30°) and knees raised
- **Sims’ position** – lying on left side with right knee bent toward chest
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

Basic transfer procedures are:

1. Adapt to each situation
2. Always transfer the same way
3. Transfer twice; mentally then physically
4. Ask the patient how to do it.

Dorsal Recumbent

Semi-Fowler's Position

Positioning patients.

To transfer pt to head of bed (HOB):

- 25% 1. Grab under arms and pull up
- 25% 2. Keep pts. knees flat
- 25% 3. Bend pts. knees
- 25% 4. Use a lift sheet

Orthopneic  Sims'

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

Positioning patients.
Prone


Positioning patients.

Knee-chest


Positioning patients.

Lithotomy


Positioning patients.
To assist pt. to sit up in bed

25% 1. Pull patients arms
25% 2. Have patient hug your neck
25% 3. Raise HOB and lower legs
25% 4. Whatever works for the situation

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 (weakness)
  - Disorientation
Bony Prominences

- Elbow
- Lower back and buttocks
- Heel
- Shoulder
- Back of head and ear

Areas with little fat and muscle over bony prominences are common sites of bed sores.

ADAM
Complications of immobility include all but the following:

- Skin breakdown
- Increased vital signs
- Muscle atrophy
- Joint contractures

Range of Motion video

- [https://www.youtube.com/watch?v=-WZTK_0cacs](https://www.youtube.com/watch?v=-WZTK_0cacs)

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, PT'S and allied staff.
  - Exercises are indicated for patients confined to bed for long periods.
  - Exercises may be performed passively by nurses, PT'S 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 MILD pain, using care to avoid injury.

ROM Vocabulary

- Range of motion (normal joint movements)
- Flexion (decreases angle between two joints)
- Hyperextension (maximum extension)
- Lateral flexion (away from midline)
- Extension (movement increasing angle)
- Rotation (circular)
- Abduction (moving extremity away from body)
- Adduction (moving extremity toward the body)

ROM Vocabulary

- Rotation - circular
- Contracture – atrophy/shortening of muscles usually causing permanent abnormal mobility
- Dorsiflexion – bending/flexing backwards, upwards
- Pronation – palm of hand turned down
- Supination – palm of hand upward
Skill 8-2: Step 8

Performing range-of-motion exercises.

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

Performing Range-of-Motion Exercises

- With partner practice ROM found on table 8-4 on pp. 170-172.

Basic lifting procedures are

1. Adapt to each situation
2. Always transfer the same way
3. Transfer twice: mentally then physically
4. Ask the patient how to do it.
How to lift heavy objects

- [Link](https://www.youtube.com/watch?v=901uQqfiuVk)

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

Mosby video 17 min
Figure 8-4

Hand roll.


Figure 8-5

Patient using a trapeze bar.


To transfer a heavy patient

1. Get help from another staff
2. Use a mechanical lift
3. Just use your own strength
4. Follow patients care plan

Skill 8-4
See new images pp179-180

(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.)

See p 179 for similar images

(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 PT will want to administer medication to the patient before any such activity.


Skill 8-3: pp174-178

Moving the patient.

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills [7th ed.]. St. Louis: Mosby.)

Skill 8-3: see new images p. 175

Moving the patient.


Skill 8-3: step 12e

Moving the patient.

(From Sorrentino, S.A. [2004]. Assisting with patient care [2nd ed.]. St. Louis: Mosby.)
To assist with walking staff stands at

25%  1. Patients strong side
25%  2. Patients weak side
25%  3. Stand behind patient
25%  4. Any of the above are fine.
Skill 8-3: Step 13(j)

Moving the patient.

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

Skill 8-3: Step 14f

Moving the patient.

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

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 and PT’s back
  - Provide full-weight lifting of patients who cannot assist
Practice with gait belt

Shake it Off

- [https://www.youtube.com/watch?v=nfWiot6h_JM](https://www.youtube.com/watch?v=nfWiot6h_JM)