

**Unit 10**  
**Chapter 44**

**Lifting & position patient  
, Bed making**

## **Body Mechanics:**

- The efficient, coordinated, and safe use of the body to move objects and carry out the activities of daily living.
- movement of the body in a coordinated and efficient way so that proper balance, alignment and conservation of energy is maintained.

## **Principles of Body Mechanics:**

1. Assume a proper stance before moving or turning the patient
2. Distribute workload evenly before moving or turning the patient
3. Establish a comfortable height when working with clients.
4. Push and pull objects when moving them to conserve energy.
5. Use large muscles for lifting and moving, not the back muscles.
6. Avoid leaning and stretching
7. Request assistance from others when working with heavy clients to avoid strain
8. Avoid twisting your body. Face the direction of movement straight

## **Lifting :**

- 1- It is important to remember that nurses should not lift more than 35 pounds without assistance from proper equipment and/or other individuals.
2. Use of the arms as lever is often applied in the clinical practice when the nurse needs to raise a client's head of the bed or give back care to a client with traction
3. The nurse must use major muscle groups of thighs, knees, upper and lower arms, abdomen and pelvis to prevent back strain
4. Maintain a distance of at least 30 cm ( 12 inches) between the feet and keep the

load close to the body , especially when it is at knee level.

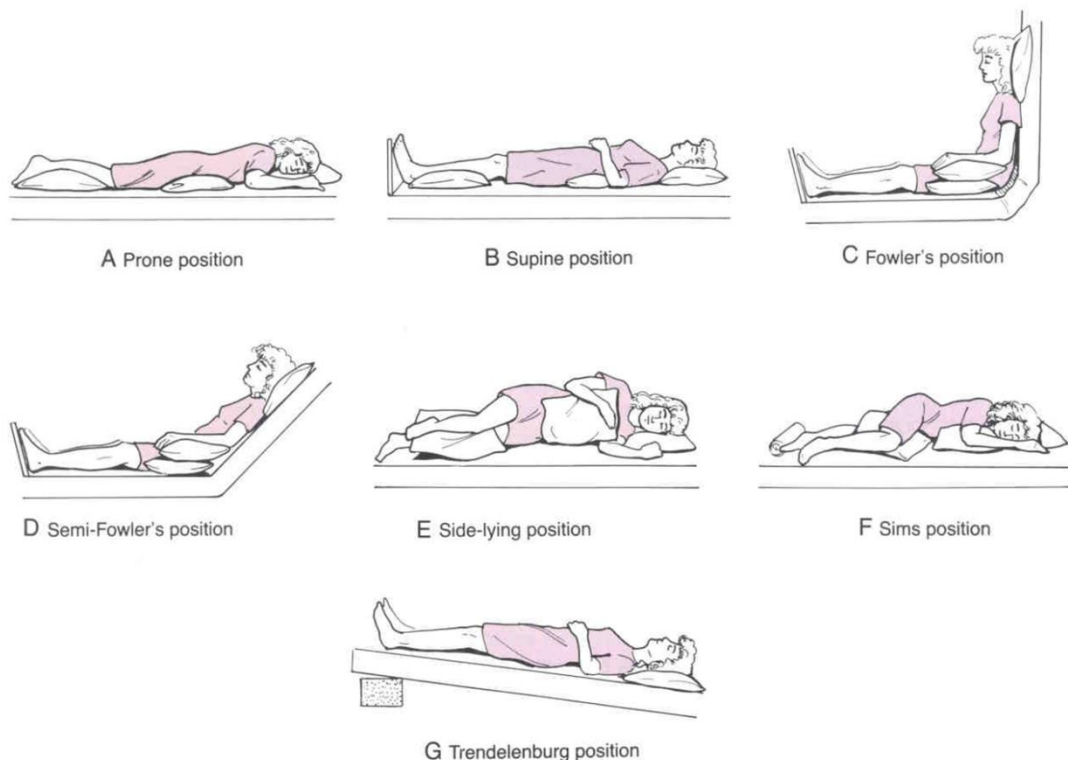
## Positioning :

Positioning a client in good body alignment and changing the position regularly (every 2 hours) and systematically are essential aspects of nursing practice.

### **When positioning clients in bed, the nurse can do a number of things to ensure proper alignment and promote client comfort and safety:**

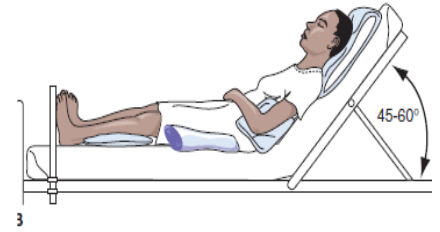
- 1- Make sure the mattress is firm and level yet has enough give to fill in and support natural body curvatures. A sagging mattress, a mattress that is too soft, or an under filled waterbed used over a prolonged period can contribute to the development of hip flexion contractures and low back strain and pain.
- 2- Ensure that the bed is clean and dry. Wrinkled or damp sheets increase the risk of pressure ulcer formation.
- 3- Avoid placing one body part, particularly one with bony prominences, directly on top of another body part. Excessive pressure can damage veins and predispose the client to thrombus formation. Pressure against the popliteal space may damage nerves and blood vessels in this area. Pillows can provide needed cushioning.
- 4- Plan a *systematic 24-hour schedule* for position changes. Frequent position changes are essential to prevent pressure ulcers in immobilized clients. Such clients should be repositioned every 2 hours throughout the day and night and more frequently when there is a risk for skin breakdown. This schedule is usually outlined on the client's nursing care plan.

## Basic body positions :



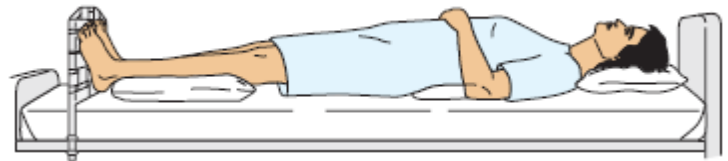
### 1. Fowler's position is a semisitting position.

- Is a bed position in which the head and trunk are raised 45° to 60° relative to the bed
- The spine is kept straight.
- The head is supported with a small pillow.
- The arms are supported with pillows.



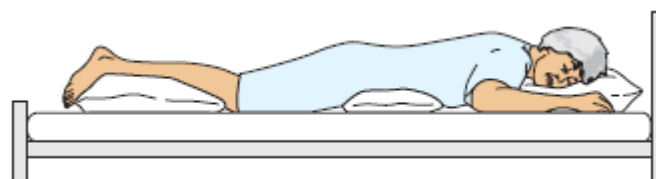
### 2. The supine (dorsal recumbent) position is the back-lying position.

- The bed is flat.
- The client's head and shoulders are slightly elevated on a small pillow..
- The client's forearms may be elevated on pillows or placed at the client's sides
- The dorsal recumbent position is used to provide comfort and to facilitate healing following certain surgeries or anesthetics



### 3- Prone position :

- The client lies on the abdomen with the head turned to one side.
- The bed is flat .
- One or both arms flexed over their heads.
- It is the only bed position that allows full extension of the hip and knee joints.
- Small pillows are placed under the head, abdomen, and lower legs.



#### **4. Lateral position (side-lying):**

- A pillow is under the head and neck.
- The upper leg, ankle, and thigh are supported with pillows.
- A pillow is positioned against the person's back.
- A small pillow is under the upper arm and hand



#### **5- ORTHOPNEIC POSITION:**

- Frequently used by patients with respiratory problems
- Helps expand the chest & lungs to allow more oxygen to enter

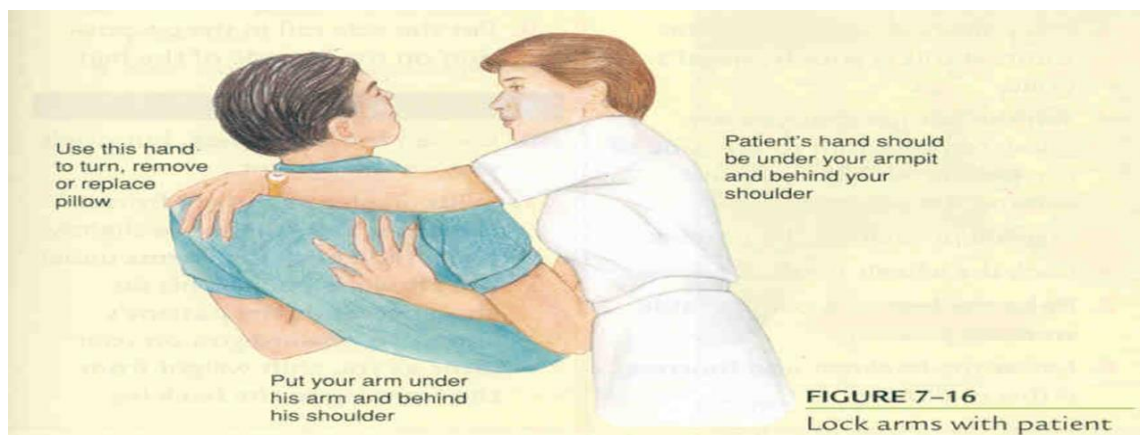


## MOVING PERSONS IN BED:

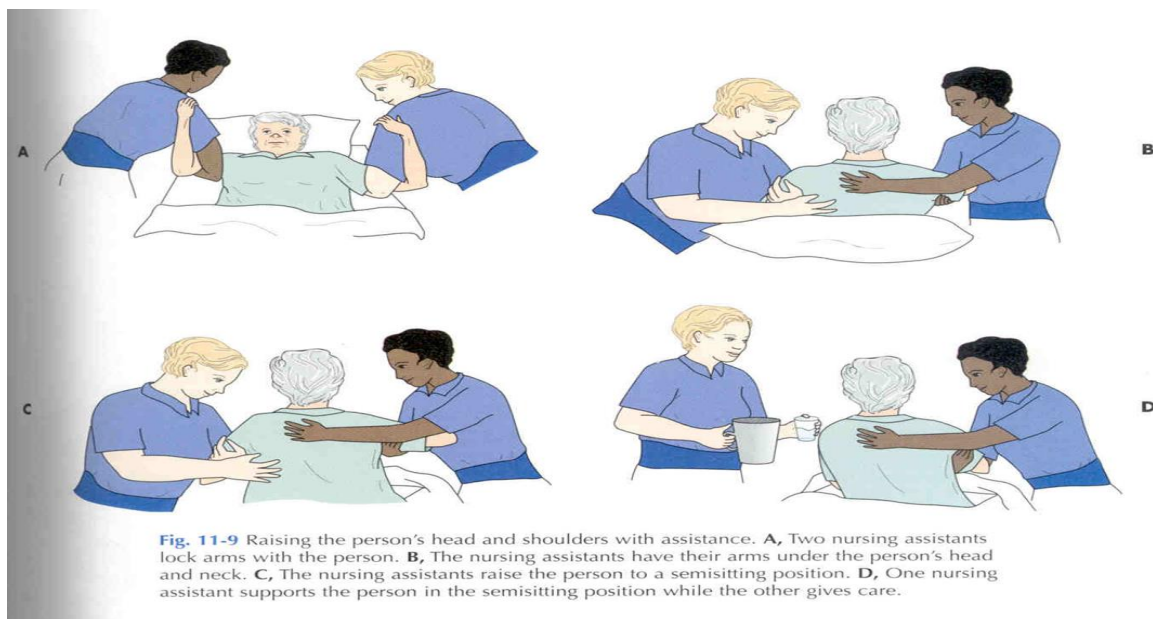
- Protect the skin when moving the person.
- Friction is the rubbing of one surface against another.
- Shearing is when the skin sticks to a surface while muscles slide in the direction the body is moving.

### To reduce friction and shearing:

- Roll the person or use assist devices.
- Use a lift sheet (turning sheet), turning pad, large incontinence product, slide board, or slide sheet.



## RAISING THE SHOULDERS WITH TWO HELPERS



## **ASSISTING A PATIENT TO MOVE UP IN BED:**

### **IF THE PATIENT CAN ASSIST:**

- Have the patient grasp the head board and bend his knees .
- Place your forearms under his shoulders and knees .
- Lift at the count of three .



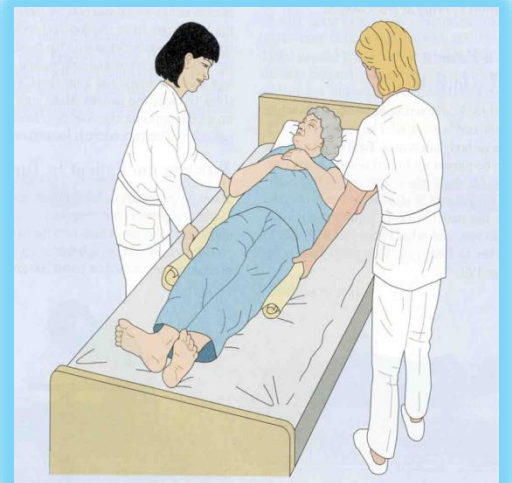
### **MOVING UP IN BED:**

- If the patient has a trapeze on the bed have the patient grasp the trapeze and bend at the knees



### **Using a lift sheet :**

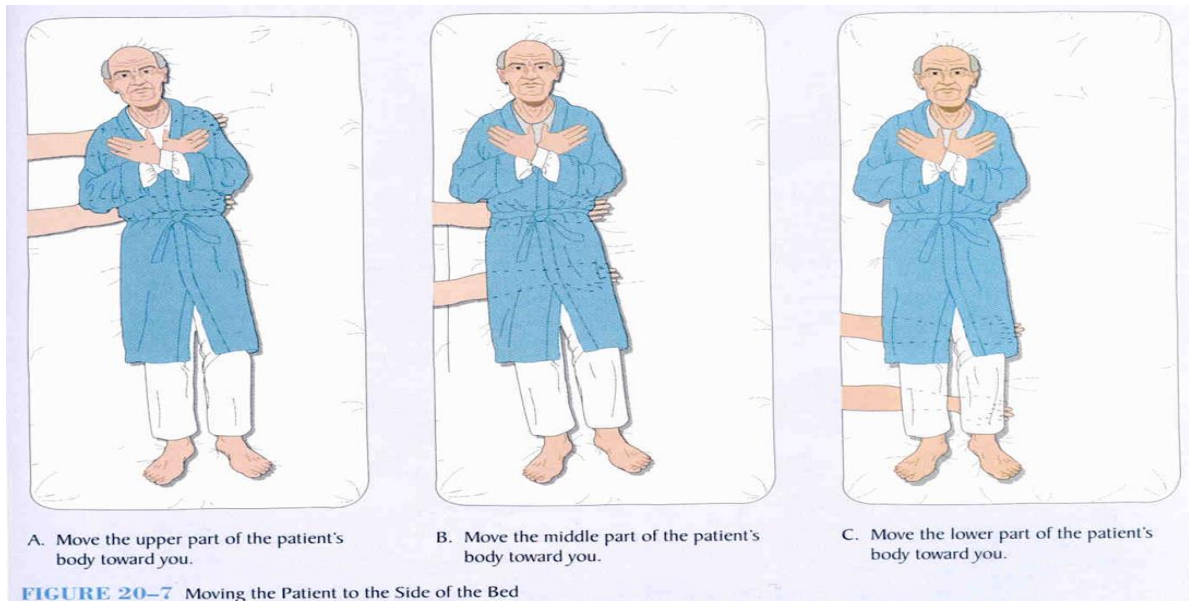
- A lift sheet makes lifting easier .
- Helps prevent friction against the patient`s skin .
- Takes two workers to lift
- If patient can help have him bend his knees .
- Use for persons who cannot help with the move .



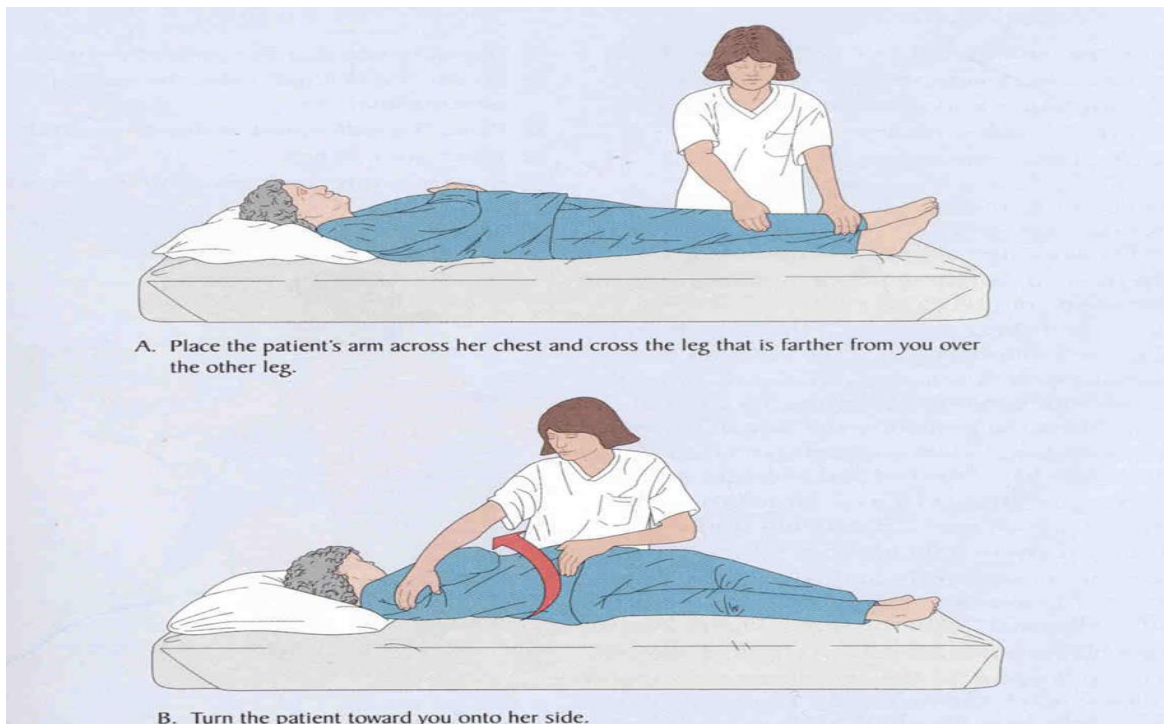


## **MOVING A PATIENT TO THE SIDE OF THE BED:**

THE PERSON IS MOVED IN SEGMENTS



## **TURNING A PATIENT**





## **LOG ROLLING:**

- A patient who has a spinal injury or spinal surgery must be kept in good body alignment when turning .
- Using a lift sheet the person is turned one motion .
- It takes 2 OR 3 persons to safely logroll a patient .

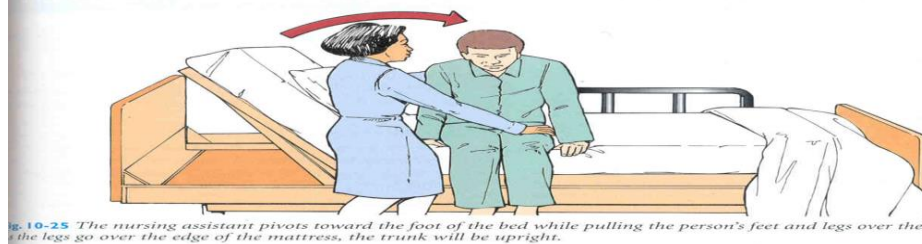


## **ASSISTING TO DANGLE:**

- Dangling refers to sitting on the side of the bed with the feet hanging down .
- Do not leave the patient alone with dangling .
- If the patient becomes dizzy lie him down .
- Check the person pulse & respiration .



*Fig. 10-24 The nursing assistant has one arm under the person's neck and shoulders and is grasping the far shoulder. Her other arm is under the thighs near the knees.*



*Fig. 10-25 The nursing assistant pivots toward the foot of the bed while pulling the person's feet and legs over the edge of the bed. As the legs go over the edge of the mattress, the trunk will be upright.*

## **Transferring:**

- Be sure to protect patient and health care worker
- Be sure you know how to operate the -- wheelchair/stretchers
- Lock the wheels.
- Back down a ramp with a wheelchair .
- Back in to the elevator so the patient faces the front .
- Transfer the patient feet first down a ramp .
- Enter the elevator head first .



44-44 ■ A ceiling-mounted lift.

## **ROM (Range of motion )**

- Range of motion exercise refers to activity aimed at improving movement of a specific joint.

### **Benefits of joint movement:**

- Increased comfort and flexibility.
- Increased circulation and nutrition to joint.

### **Type of ROM:**

1. Active ROM :

movements performed by the Patient.

2. passive ROM :

movements performed by the health care members .

3. active assistive ROM:

The patient dose the exercises with some assistance from another person.

### **Types of passive ROMs**

- Head and neck exercises
- Shoulder and elbow exercise
- Forearm and wrist exercises
- Hand and finger exercises
- Hip and knee exercises
- Ankle and foot exercises

**TABLE 44-1** Types of Joint Movements

<b>Movement</b>	<b>Action</b>
Flexion	Decreasing the angle of the joint (e.g., bending the elbow)
Extension	Increasing the angle of the joint (e.g., straightening the arm at the elbow)
Hyperextension	Further extension or straightening of a joint (e.g., bending the head backward)
Abduction	Movement of the bone away from the midline of the body
Adduction	Movement of the bone toward the midline of the body
Rotation	Movement of the bone around its central axis
Circumduction	Movement of the distal part of the bone in a circle while the proximal end remains fixed
Eversion	Turning the sole of the foot outward by moving the ankle joint
Inversion	Turning the sole of the foot inward by moving the ankle joint
Pronation	Moving the bones of the forearm so that the palm of the hand faces downward when held in front of the body
Supination	Moving the bones of the forearm so that the palm of the hand faces upward when held in front of the body

**TABLE 44-2 Selected Joint Movements and Example of Corresponding Activity of Daily Living (ADL)**




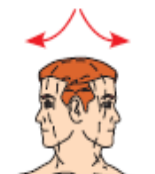

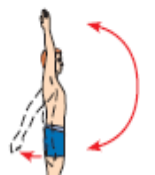
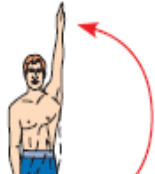
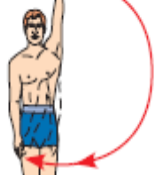

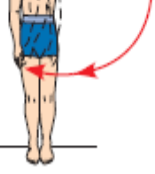
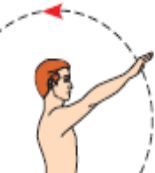




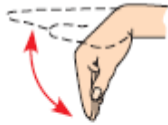
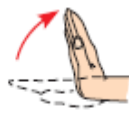

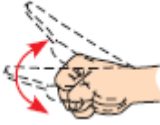



Body Part—Type of Joint/Movement	Normal Range and Example of Corresponding ADL	Illustration
<b>NECK—PIVOT JOINT</b>		
<b>Flexion.</b> Move the head from the upright midline position forward, so that the chin rests on the chest (Figure 44-2 ■).	45° from midline Example: nodding head "yes"	Figure 44-2 ■ 
<b>Extension.</b> Move the head from the flexed position to the upright position (Figure 44-2).	45° from midline Example: nodding head "yes"	Figure 44-3 ■ 
<b>Hyperextension.</b> Move the head from the upright position back as far as possible (Figure 44-2).	45° from midline	Figure 44-4 ■ 
<b>Lateral flexion.</b> Move the head laterally to the right and left shoulders (Figure 44-3 ■).	40° from midline	Figure 44-5 ■ 
<b>Rotation.</b> Turn the face as far as possible to the right and left (Figure 44-4 ■).	70° from midline Example: shaking head "no"	Figure 44-6 ■ 
<b>SHOULDER—BALL-AND-SOCKET JOINT</b>		
<b>Flexion.</b> Raise each arm from a position by the side forward and upward to a position beside the head (Figure 44-5 ■).	180° from the side Example: reaching to turn on overhead light	Figure 44-5 ■ 
<b>Extension.</b> Move each arm from a vertical position beside the head forward and down to a resting position at the side of the body (Figure 44-5).	180° from vertical position beside the head	Figure 44-6 ■ 
<b>Hyperextension.</b> Move each arm from a resting side position to behind the body (Figure 44-5).	50° from side position	Figure 44-7 ■ 
<b>Abduction.</b> Move each arm laterally from a resting position at the sides to a side position above the head, palm of the hand either toward or away from the head (Figure 44-6 ■).	180° Example: reaching to bedside stand on same side of bed as arm	Figure 44-8 ■ 
<b>Adduction (anterior).</b> Move each arm from a position at the sides across the front of the body as far as possible (Figure 44-6). The elbow may be straight or bent.	50° Example: reaching across body toward opposite side of bed	Figure 44-9 ■ 
<b>Circumduction.</b> Move each arm forward, up, back, and down in a full circle (Figure 44-7 ■).	360°	Figure 44-10 ■ 
<b>External rotation.</b> With each arm held out to the side at shoulder level and the elbow bent to a right angle, fingers pointing down, move the arm upward so that the fingers point up (Figure 44-8 ■).	90° Example: reaching over opposite shoulder to scratch upper back	Figure 44-11 ■ 
<b>Internal rotation.</b> With each arm held out to the side at shoulder level and the elbow bent to a right angle, fingers pointing up, bring the arm forward and down so that the fingers point down (Figure 44-8).	90° Example: reaching to scratch same side lower back	Figure 44-12 ■ 




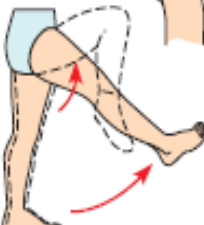
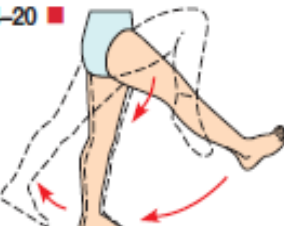


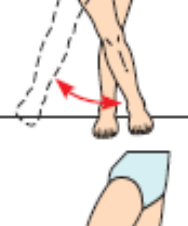

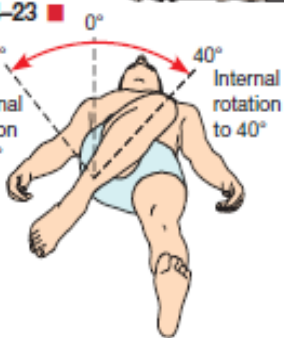
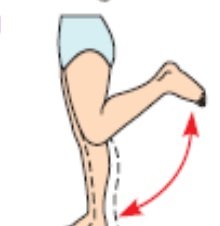


TABLE 44-2

## Selected Joint Movements and Example of Corresponding Activity of Daily Living (ADL)—continued

Body Part— Type of Joint/Movement	Normal Range and Example of Corresponding ADL	Illustration
<b>ELBOW—HINGE JOINT</b>		
<b>Flexion.</b> Bring each lower arm forward and upward so that the hand is at the shoulder (Figure 44-9 ■).	150° Example: eating, bathing, shaving	<b>Figure 44-9 ■</b> 
<b>Extension.</b> Bring each lower arm forward and downward, straightening the arm (Figure 44-9).	150° Example: eating, bathing, shaving	
<b>Rotation for supination.</b> Turn each hand and forearm so that the palm is facing upward (Figure 44-10 ■).	70° to 90°	<b>Figure 44-10 ■</b> 
<b>Rotation for pronation.</b> Turn each hand and forearm so that the palm is facing downward (Figure 44-10).	70° to 90°	
<b>WRIST—CONDYLOID JOINT</b>		
<b>Flexion.</b> Bring the fingers of each hand toward the inner aspect of the forearm (Figure 44-11 ■).	80° to 90° Example: eating, bathing, shaving, writing	<b>Figure 44-11 ■</b> 
<b>Extension.</b> Straighten each hand to the same plane as the arm (Figure 44-11).	80° to 90° Example: eating, bathing, shaving	
<b>Hyperextension.</b> Bend the fingers of each hand back as far as possible (Figure 44-12 ■).	70° to 90°	<b>Figure 44-12 ■</b> 
<b>Radial flexion (abduction).</b> Bend each wrist laterally toward the thumb side with hand supinated (Figure 44-13 ■).	0° to 20°	<b>Figure 44-13 ■</b> 
<b>Ulnar flexion (adduction).</b> Bend each wrist laterally toward the fifth finger with the hand supinated (Figure 44-13).	30° to 50°	
<b>HAND AND FINGERS: METACARPOPHALANGEAL JOINTS—CONDYLOID; INTERPHALANGEAL JOINTS—HINGE</b>		
<b>Flexion.</b> Make a fist with each hand (Figure 44-14 ■).	90° Example: squeezing, gripping, writing	<b>Figure 44-14 ■</b> 
<b>Extension.</b> Straighten the fingers of each hand (Figure 44-14).	90°	
<b>Hyperextension.</b> Bend the fingers of each hand back as far as possible (Figure 44-14).	30°	
<b>Abduction.</b> Spread the fingers of each hand apart (Figure 44-15 ■).	20°	<b>Figure 44-15 ■</b> 
<b>Adduction.</b> Bring the fingers of each hand together (Figure 44-15).	20° Example: writing, gripping, eating, many hobbies involving fine motor coordination (e.g., art, music)	
<b>THUMB—SADDLE JOINT</b>		
<b>Flexion.</b> Move each thumb across the palmar surface of the hand toward the fifth finger (Figure 44-16 ■).	90°	<b>Figure 44-16 ■</b> 
<b>Extension.</b> Move each thumb away from the hand (Figure 44-16).	90°	
<b>Abduction.</b> Extend each thumb laterally (Figure 44-17 ■).	30°	<b>Figure 44-17 ■</b> 
<b>Adduction.</b> Move each thumb back to the hand (Figure 44-17).	30°	

**TABLE 44-2**

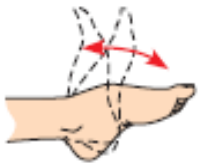







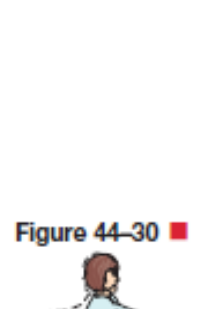

**Selected Joint Movements and Example of Corresponding Activity of Daily Living (ADL)—continued**

Body Part—Type of Joint/Movement	Normal Range and Example of Corresponding ADL	Illustration
<p><b>Opposition.</b> Touch each thumb to the top of each finger of the same hand. The thumb joint movements involved are abduction, rotation, and flexion (Figure 44-18 ■).</p>		<p>Figure 44-18 ■</p> 
<p><b>HIP—BALL-AND-SOCKET JOINT</b> <b>Flexion.</b> Move each leg forward and upward. The knee may be extended or flexed (Figure 44-19 ■).</p>	<p>Knee extended, 90°; knee flexed, 120° Example: walking, leg lifts in front of the body</p>	<p>Figure 44-19 ■</p> 
<p><b>Extension.</b> Move each leg back beside the other (Figure 44-20 ■).</p>	<p>90° to 120° Example: walking, lining the leg up with the body</p>	<p>Figure 44-20 ■</p> 
<p><b>Hyperextension.</b> Move each leg back behind the body (Figure 44-20 ■).</p>	<p>30° to 50° Example: walking; lying on side, reach the leg behind the body</p>	<p>Figure 44-21 ■</p> 
<p><b>Abduction.</b> Move each leg out to the side (Figure 44-21 ■).</p>	<p>45° to 50° Example: moving leg away from body</p>	<p>Figure 44-21 ■</p> 
<p><b>Adduction.</b> Move each leg back to the other leg and beyond in front of it (Figure 44-21).</p>	<p>20° to 30° beyond other leg Example: moving leg over the other leg toward the middle of the body</p>	<p>Figure 44-22 ■</p> 
<p><b>Circumduction.</b> Move each leg backward, up, to the side, and down in a circle (Figure 44-22 ■).</p>	<p>360° Example: leg circles clockwise and counterclockwise</p>	<p>Figure 44-22 ■</p> 
<p><b>Internal rotation.</b> Flex knee and hip to 90°. Place the foot away from the midline. Move the thigh and knee toward the midline (Figure 44-23 ■).</p>	<p>40°</p>	<p>Figure 44-23 ■</p> 
<p><b>External rotation.</b> Flex knee and hip to 90°. Place the foot toward the midline. Move the thigh and knee away from the midline (Figure 44-23).</p>	<p>45°</p>	<p>Figure 44-24 ■</p> 
<p><b>KNEE—HINGE JOINT</b></p>	<p>120° to 130° Example: knee bends, walking</p>	<p>Figure 44-24 ■</p> 
<p><b>Extension.</b> Straighten each leg, returning the foot to its position beside the other foot (Figure 44-24).</p>	<p>120° to 130° Example: straightening leg from bent position, walking</p>	<p>Figure 44-24 ■</p> 



**TABLE 44-2**

**Selected Joint Movements and Example of Corresponding Activity of Daily Living (ADL)—continued**

Body Part—Type of Joint/Movement	Normal Range and Example of Corresponding ADL	Illustration	
<p><b>ANKLE—HINGE JOINT</b>  <b>Extension (plantar flexion).</b> Point the toes of each foot downward (Figure 44-25 ■).</p>	<p>20°                      Example: pressing toes away from face, walking</p>	<p><b>Figure 44-25 ■</b></p> 	
<p><b>Flexion (dorsiflexion).</b> Point the toes of each foot upward (Figure 44-25).</p>	<p>45° to 50°                      Example: pulling toes toward face, walking</p>	<p><b>Figure 44-26 ■</b></p> 	
<p><b>FOOT—GLIDING</b>  <b>Eversion.</b> Turn the sole of each foot laterally (Figure 44-26 ■).</p>	<p>5°                      Example: foot circles clockwise and counterclockwise</p>	<p><b>Figure 44-27 ■</b></p> 	
<p><b>Inversion.</b> Turn the sole of each foot medially (Figure 44-26).</p>	<p>5°                      Example: foot circles clockwise and counterclockwise                      Example: walking, wiggling toes</p>	<p><b>Figure 44-27 ■</b></p> 	
<p><b>TOES: INTERPHALANGEAL JOINTS—HINGE;                      METATARSOPHALANGEAL JOINTS—HINGE;                      INTERTARSAL JOINTS—GLIDING</b></p>	<p>35° to 60°</p>	<p><b>Figure 44-28 ■</b></p> 	
<p><b>Flexion.</b> Curl the toe joints of each foot downward (Figure 44-27 ■).</p>	<p>35° to 60°</p>	<p><b>Figure 44-28 ■</b></p> 	
<p><b>Extension.</b> Straighten the toes of each foot (Figure 44-27).</p>	<p><b>TRUNK—GLIDING JOINT</b>  <b>Flexion.</b> Bend the trunk toward the toes (Figure 44-28 ■).</p>	<p>70° to 90°                      Example: touching toes</p>	<p><b>Figure 44-28 ■</b></p> 
<p><b>Extension.</b> Straighten the trunk from a flexed position (Figure 44-28).</p>	<p><b>Hyperextension.</b> Bend the trunk backward (Figure 44-28).</p>	<p>20° to 30°                      Example: gentle supported back bend with hands on buttocks</p>	<p><b>Figure 44-29 ■</b></p> 
<p><b>Lateral flexion.</b> Bend the trunk to the right and to the left (Figure 44-29 ■).</p>	<p>35° on each side                      Example: gently allow right hand to slide down right side of thigh, repeat on left side</p>	<p><b>Figure 44-29 ■</b></p> 	
<p><b>Rotation.</b> Turn the upper part of the body from side to side (Figure 44-30 ■).</p>	<p>30° to 45°                      Example: gently swing torso right and left, maintaining forward hip alignment</p>	<p><b>Figure 44-30 ■</b></p> 	

## **Bed making**

- Process of keeping bed clean, neat and tidy.
- The technique of preparing different type of bed in making a patient/client comfortable

### **Purpose:**

- Maintain health promotion
- Prevent infection

### **When to do:**

- Daily routine
- As needed

### **Practice Guidelines in Bed making:**

- Wear gloves while handling a client's used bed linen. Linens and equipment that have been soiled with secretions and excretions harbor microorganisms that can be transmitted to others directly or by the nurse's hands or uniform. Wash hands after removing gloves.
- Hold soiled linen away from uniform.
- Linen for one client is never (even momentarily) placed on another client's bed.
- Place soiled linen directly in a portable linen hamper or tucked into a pillow case at the end of the bed before it is gathered up for disposal.
- Do not shake soiled linen in the air because shaking can disseminate secretions and excretions and the microorganisms they contain.
- When stripping and making a bed, conserve time and energy by stripping and making up one side as much as possible before working on the other side.
- To avoid unnecessary trips to the linen supply area, gather all linen before starting to strip a bed.

### **Type of bed making :**

1- Closed bed :

Made the following discharge of patient to keep the bed clean until new patient is admitted .



## 2- Open bed :

- Fanfold ( fold sheets like accordion pleats) top sheets to foot of bed to convert closed bed to open bed
- Done to welcome a new patient or for patients who are ambulatory or out-of-bed.



## 3- Occupied bed :

- Bed is made while patient is in it
- Usually done after the morning bath



2 Moving soiled linen as close to the client as possible.



3 Placing a new bottom sheet on half of the bed.



4 Placing a clean drawsheet on the bed.



5 Client holds the top edge of sheet while the nurse removes the bath blanket.

**Mitering the corner of the bed :**



A



C



D

