PROCEDURE 21.1
Maintaining Proper Body Alignment

OVERVIEW

- To provide the patient with proper body alignment, thus promoting comfort and preventing bone, joint, muscular, skin, neural, lymphatic, circulatory, or tissue damage.

PREPARATION

- Check prescriber’s order to ensure that patient can be moved to various positions.
- Determine need to assist the patient to various positions.
- Determine presence of IV equipment, surgical wounds, drains, or mechanical equipment.
- Determine need for extra pillows and covers, level and position of bed.
- Before beginning, assess skin surfaces for signs of pressure areas, such as blanched or reddened areas.
- Assess patient’s diet (e.g., high protein, high calorie, diabetic, cardiac)
- Avoid serving foods that cause alkaline ash and residue, such as tomato or grapefruit juices. Encourage an adequate amount of vitamin C foods that acidify patient’s urine.
- Monitor patient’s urine for sediment.

Special Considerations

- Most patients require frequent repositioning, but this will vary with each patient and situation.
- Repositioning will require a complete and thorough assessment of the patient to optimize patient comfort and proper alignment.
- Provide intellectual stimulation. Suggest receiving visitors; working crossword puzzles; reading newspapers, books, magazines; and playing computer games.

Elderly and Physically and/or Mentally Challenged Patients

- Will often require more time for communication and understanding of positioning techniques.
- Provide more time for moving and exercising activities.

Pediatric Patient

- Involve parents in procedure and mobility activities to reduce anxiety and enhance cooperation of infants and children.
Procedure 21.1 Maintaining Proper Body Alignment

Relevant Nursing Diagnoses

- Impaired physical mobility related to trauma, surgery, or growth deficit
- Pain/discomfort related to inability to cope with body movements and prescribed alignment plan

Expected Outcomes

- Proper body alignment will be maintained at all times
- Patient will verbalize comfort in prescribed positions
- Patient will experience minimal discomfort in attaining proper body alignment for proper body posture

Equipment/Supplies

Pillows
Blankets
Sheets
Foot-drop stop
Splints
Heel and elbow protectors
Floating mattress
Air or water mattress
Egg crates
Trochanter rolls
Lumbar roll
Chair or positional bed

Implementation

- Review prescriber's order.
  
  *Determine what is to be done and ability of patient to move.*

- Gather all equipment before moving the patient.
  
  *Saves time and allows patient to prepare for movement in/out of bed.*

- Explain procedure and purpose to the patient/caregiver.
  
  *Knowledge of procedure allows the patient to prepare for the procedure.*
  
  *Decreases dependency, disorientation, decreased motivation, and insomnia.*
  
  *Promotes relaxation.*

- Don gloves and gown as necessary.
  
  *Reduces transmission of infectious organisms.*

- Assist patient to desired position for proper body alignment (use assistance of another health-care provider if patient is unable to assist).
  
  *Allows the position of comfort with correct alignment for the patient.*
Use the draw sheet or pull sheet to assist the patient in movement in bed (use assistance of another health-care provider if patient is unable to assist). Another health-care provider may be needed to assist the patient to a chair or to stand.

Assists in repositioning the patient.

Place pillows, foot-drop stops, splints, trochanter (sheet roll or blanket) between legs, under legs, or behind back as appropriate for comfort and positioning.

Maintains position of comfort with correct alignment of the patient. Decreases back pain and/or discomfort. Ensures that joints and muscles are properly supported.

Assess all skin surfaces for pressure signs, such as blanched or reddened areas.

Prevents tissue damage in areas of bony prominences, heavy tissue, or surgical-site areas.
Procedure 21.1 Maintaining Proper Body Alignment

- Gently massage around (never on) pressure areas. *Massage increases circulation to the area to prevent painful, reddened areas and decubitus ulcers. Prevents venous stasis, thrombus formation, and orthostatic hypotension.*

- Perform complete range of motion at least three times per day. *Maintains or increases muscle tone and prevents muscle atrophy. Prevents contractures; promotes relaxation and enhances flexibility.*

- Turn and position patient frequently according to individual needs. Elevate areas as needed. *Prevents contractures, pressure points, thrombus formation, and decubitus ulcers. Prevents backaches and osteoporosis from disuse. Reduces edema.*

- Alternate use of chair, bed, or standing as appropriate for individual patient. *Promotes independence in choices of care. Eliminates the feeling of loss of control and deficient state of wellness.*

![FIGURE 21.1C The oblique position.](image)

![FIGURE 21.1D Assisting patient to chair using a transfer belt.](image)
Provide instructions for and encourage coughing and deep breathing in all positions.  
Prevents pooling of respiratory secretions thus restricting respiratory infections, 
hypostatic pneumonia, atelectasis, respiratory acidosis, and pulmonary emboli.

When positioning is complete, return patient to comfortable position.  
Patient comfort.

Remove gloves (if used), discard, and wash hands.  
Reduces transmission of microorganisms.

**EVALUATION AND FOLLOW-UP ACTIVITIES**

- Assess patient comfort and body alignment position
- Assess for complications such as contractures, decreased muscle tone, muscle atrophy, backaches, or osteoporosis
- Make sure supportive devices are correctly positioned and maintained
- Assess patient’s skin for signs of pressure, such as blanched or reddened areas
- Assess status of the respiratory and circulatory systems for venous stasis, thrombus formation, orthostatic hypotension, pooling of secretions, respiratory infections, atelectasis, respiratory acidosis, or pulmonary emboli
- Assess complications associated with immobility such as anorexia, constipation, renal calculi, urinary retention, or urinary tract infections

**KEY POINTS FOR REPORTING AND RECORDING**

- Position of patient.
- Patient’s response to change.
- Any tissue deviation or damage.
Procedure 21.2 Performing Correct Lifting Techniques

Overview

To provide the patient and health-care provider with knowledge to perform correct lifting techniques, thus preventing stress, fatigue, trauma, and injury to promote comfort and prevent bone, joint, muscular, skin, or neural damage.

Preparation

- Check prescriber’s order to appraise the amount of lifting the patient can perform.
- Determine need to assist the patient in the process of lifting.
- Assess the knowledge the patient has about the process of lifting.
- Determine need for any equipment to assist patient in the lifting process, proper body alignment, and correct body mechanics.

Special Considerations

- Some patients require frequent re-educating about correct lifting positions.
- The ability to perform lifting procedures may vary with each situation.

Elderly and Physically Challenged Patients

- May take longer to perform techniques due to limited mobility.

Relevant Nursing Diagnoses

- Pain/discomfort related to inability to perform correct lifting techniques due to limited mobility from poor muscle tone
- Risk for injury related to improper lifting techniques

Expected Outcomes

- Position will be comfortable and enhance proper body alignment at all times while performing the lifting process
- Patient will experience minimal discomfort in attaining proper body posture for lifting
- Patient will demonstrate proper lifting techniques in all performances
- Patient will express the value to his present and future health from the utilization of proper body alignment during the lifting process
Any positional aids such as pillows or blankets

**Implementation**

➧ Review prescriber’s order.
   *Determine ability of patient to lift.*

➧ Gather all materials/equipment before approaching the patient.
   *Saves time and allows patient to prepare for learning the lifting maneuvers.*

➧ Explain procedures and purposes to the patient and/or caregiver.
   *Knowledge of procedure allows the patient to prepare for the procedure. Decreases dependency, disorientation, decreased motivation, and trauma from improper techniques.*

➧ Don gloves and gown if necessary.
   *Reduces transmission of infectious organisms.*

➧ Assist patient to desired position for proper body alignment (use assistance of another health-care provider if patient is unable to assist). Teach patient to use proper body mechanics.
   *Allows the position of comfort with correct alignment for the patient. Proper body mechanics can prevent back injury, help speed up recovery if injured, and prevent further injury after back is healed.*

➧ Begin teaching the various lifting techniques. Use assistance of another health-care provider if patient has difficulty in standing alone.
   *Knowledge of the actual techniques will increase the patient’s self-confidence and ensure future health.*

➧ Have the patient test the weight of the load. Ascertain that the patient can lift the weight safely. If not, use an assistive device.
   *Safety at a task reduces trauma, pain, discomfort, and future injury. Ensures that joints and muscles are properly positioned.*

➧ Keep the back in its natural curve by bending at the hips and/or knees with the low back erect.
   *Position allows for safe distribution of the forces.*

➧ Maintain a wide base of support with feet.
   *A solid and wide base of support reduces the possibility of slipping.*
Hold objects as close to the body as possible. *A wide base of support reduces stress to the muscles, ligaments, skeletal structure, and tissue of the back.*

Avoid twisting motion when lifting and carrying the object. *Moving or changing the direction with the feet decreases the stress and load on the structures of the back.*

Tighten stomach muscles when lifting. *Assisting with the abdomen reduces strain on the back during the lifting process.*

Plan the lift before beginning the process. *Previous planning decreases the chance of damage to the body.*

Lift with the large muscle group of the legs. *Use of the large muscle groups of the legs diminishes the forces on the low back.*

Make certain that the pathway is clear prior to beginning the move. *A clear pathway eliminates slipping or falling.*

To squat-lift something of moderate size and weight:
- Stand close to the object to be lifted.
Chapter 21  Body Alignment and Mechanics

- Squat down, keeping the back straight, and firmly grasp the container.
- Pick up the container and hold it close to the body.
- Tighten the abdominal muscles and stand up slowly and smoothly letting the large leg muscles do the work.
  
  Firm abdominal muscles strengthen the back. Use of the large muscle groups of the legs reduces the strain on the structures of the back.

The half-kneel lift may be helpful with things that have an irregular shape or may tend to move when lifted (e.g., pets, children).
- Stand close to the object, and squat down onto one knee.
- Keep the back straight; pick up the object and slide it up onto thigh and then cradle the object against the body.
- Tighten stomach muscles and slowly stand, using the strong leg muscles.
  
  Use of the large muscle groups of the legs reduces the strain on the structures of the back. Proper body mechanics reduces trauma to the various body parts.

The overhead lift is used when lifting objects down from a high surface. A stepstool should be used when the object is higher than the head.
- Move close to the object.
- Place one leg in front of the other.
- Shift weight slightly to the front leg.
- Reach up and firmly grasp the object in both hands while keeping the back straight.
- Slowly lift the object off the shelf and shift equal weight back onto both feet.
- Carefully lower the object down to the chest.
  
  Maintaining proper body mechanics ensures stress and trauma reduction.

EVALUATION AND FOLLOW-UP ACTIVITIES

- Assess patient comfort and body alignment position
- Teach patient about all aspects of lifting
- Assess for complications such as contractures, decreased muscle tone, muscle atrophy, backaches, or osteoporosis
- Supportive devices, if needed, are correctly positioned and maintained
- Monitor that patient assumes correct body mechanics for each lifting procedure
- Assess for injury in the lifting procedure
Procedure 21.2 Performing Correct Lifting Techniques

**KEY POINTS FOR REPORTING AND RECORDING**

- Position of patient when lifting.
- Patient’s responses to lifting procedures.
- Any injury or damage the patient might experience.
Exercise and Ambulation

22.1 Performing Passive Range-of-Motion (ROM) Exercises, 418
22.2 Teaching Isometric Exercises, 422
22.3 Teaching the Patient to Crutch Walk or Use a Walker, 425
PROCEDURE 22.1
Performing Passive Range-of-Motion (ROM) Exercises

OVERVIEW

• To enhance/maintain joint ROM and soft tissue integrity, assist circulation and synovial nutrition, decrease formation of contractions, reduce or inhibit pain, and facilitate active ROM.

PREPARATION

• Check prescriber’s orders to ensure passive ROM can be performed.
• Passive ROM is not the same as stretching.
• Movements should be performed in a pain-free ROM.
• Passive motion does not take the place of active motion.
• Will not prevent muscle atrophy.
• Will not increase strength or endurance.

Special Considerations

• Careful handling needs to be done any time there is a surgical site, and this includes ROM restrictions or contraindications.

Elderly, Pediatric, Unconscious, or Confused Patient

• May take more time and communication to complete correctly.
• Assess skin condition before beginning, and use gentle handling.
• Include caregiver as much as possible because they may be participating when the patient goes home.

RELEVANT NURSING DIAGNOSES

• Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
• Pain/discomfort related to inability to cope with extremity movements
• Potential for injury related to improper ROM techniques used, such as extra force on a joint

EXPECTED OUTCOMES

• Patient will experience comfort
• Maintenance or enhancement of ROM
• Assist in circulation and healing

EQUIPMENT/SUPPLIES

Gloves
## Procedure 22.1 Performing Passive Range-of-Motion (ROM) 419

### IMPLEMENTATION

- **Review prescriber’s order.**
  
  *Determine if patient can be moved and any limitation of movement.*

- **Explain procedure to patient and/or caregiver.**
  
  *Enhances relaxation, understanding, and cooperation.*

- **Don gloves and gown.**
  
  *Reduces transmission of infectious organisms.*

- **Adjust bed to appropriate height for provider.**
  
  *Ensures proper mechanics and decreases strain.*

- **Assess placement of IVs, catheters, etc.**
  
  *Determine if any device will restrict motion.*

- **Lower side rails.**
  
  *Allows easier access to patient and allows good mechanics.*

- **Expose body part/extremity where ROM exercises will be performed, and drape patient appropriately.**
  
  *Allows free motion of patient while providing privacy.*

- **Hold area to be moved close to joint (hand and wrist, hip, knee).**
  
  *Supports affected joint.*

- **Provide support of remaining extremity or injured site.**
  
  *Provides patient comfort and encourages relaxation.*

- **Move extremity through pain-free ROM (PROM) 5 to 10 times.**
  
  *Follow anatomical planes or line of muscle.*
  
  *Accomplishes goals of PROM.*

---

**FIGURE 22.1**

![Neck](image)
Chapter 22 Exercise and Ambulation

Wrist/hand

Shoulder

Hip

Elbow

Knee
Procedure 22.1 Performing Passive Range-of-Motion (ROM)

➧ Monitor patient’s response to treatment, including facial reactions, subjective reports, tissue response, vital signs, and ROM.

  
  Provides information regarding accomplishment of treatment and adjustments in speed and ROM if necessary.

➧ Reposition patient’s extremity and cover appropriately.

  Promotes comfort.

➧ Raise and secure side rails and other protective devices in use.

  Patient safety.


  As required by facility.

EVALUATION AND FOLLOW-UP ACTIVITIES

• Patient appears relaxed and correctly positioned
• Patient verbalizes comfort after treatment

KEY POINTS FOR REPORTING AND RECORDING

• Patient’s response to treatment, including subjective and body response.
• Procedure performed, including direction and repetitions.
• Any limitations felt during motions.
• Report and discuss with prescriber any unusual findings, such as skin breakdown, increased pain after therapy.
PROCEDURE 22.2
Teaching Isometric Exercises

OVERVIEW

● To assist the patient to decrease pain, increase circulation when little resistance is applied, and increase strength, endurance, and circulation when adequate resistance (60%–80% maximum capacity) is applied.

PREPARATION

● Check prescriber's orders to ensure that isometric exercises can be initiated.
● Multiple angles may need to be performed, because strength gains are accomplished at the position performed.
● Site of application of resistance is usually distal to the segment desired to be strengthened.
● Force is applied opposite the desired direction of movement.
● There is no change in joint position during application.

Special Considerations

● Gentle handling may be necessary for a patient with a surgical site, including ROM, muscle contraction, healing restrictions, and contraindications to prevent injury.
● Determine need to educate caregivers about procedure.

Elderly and Physically Challenged Patients

● Determine and give consideration to patient's physical conditioning and cognitive status.

RELEVANT NURSING DIAGNOSES

● Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
● Pain/discomfort related to inability to cope with body movements
● At risk for injury related to improper use of isometric exercises

EXPECTED OUTCOMES

● Patient will increase strength in extremities
● Increase circulation to applied area
● Patient will experience an increase in comfort and healing time

EQUIPMENT/SUPPLIES

Gloves
## IMPLEMENTATION

- **Review prescriber’s orders.**
  
  *Determine if patient can be moved and any limitation or contraindication to treatment.*

- **Explain procedure to patient and caregiver as indicated.**
  
  *Enhances patient/caregiver understanding, participation, and relaxation.*

- **Don clean gloves.**
  
  *Reduces transmission of infectious organisms.*

- **Evaluate patient’s motion and strength.**
  
  *Determines how much resistance and ROM for isometric contraction to be performed.*

- **Place patient in comfortable position.**
  
  *Promotes relaxation.*

- **Position yourself so that you can use good body mechanics.**
  
  *Ensures provider safety.*

- **Assess placement of IVs, and catheters.**
  
  *Determine if devices will restrict techniques.*

- **Expose body part to be exercised.**
  
  *Ensures no restriction from clothing.*

- **Drape patient appropriately.**
  
  *Promotes patient privacy.*

- **Place extremity in desired position.**
  
  *To prevent possible injury.*

- **Stabilize extremity by holding in place.**
  
  *Helps prevent substitution from other muscle groups.*

- **Demonstrate movement by taking extremity through passive ROM.**
  
  *Enhances patient’s understanding of motions.*

- **At desired angle, instruct patient to hold against resistance.**
  
  *Allows proper and safe movements.*

- **Advance slowly to movements that are maximum and pain-free that the patient can tolerate.**
  
  *Provides maximum effect of exercise without pain and/or injury.*

- **Allow resistance to build from minimum to maximum.**
  
  *Allows patient understanding of movements and optimal muscle contraction.*
Exercise and Ambulation

- Hold contraction 10 seconds.  
  *Allows physiological changes to occur.*

- Reassess patient’s status related to strength, pain, and substitution.  
  *Allows adjustments in resistance, joint angle, and patient position.*

- Repeat 10 times and then consider different angles for strengthening entire muscle.  
  *Allows treatment effects to entire muscle length.*

- Adjust resistance, ROM, patient position.  
  *Ensures pain-free but maximum performance.*

- Monitor patient’s response to treatment, including facial reactions, subjective reports, tissue response, vital signs, and ROM.  
  *Provides information regarding accomplishment of treatment and adjustments in speed and ROM if necessary.*

- Reposition patient’s extremity and cover/drape appropriately.  
  *Promotes patient comfort.*

- Raise side rails and replace any other protective devices in use.  
  *Patient safety.*

  *As required by facility.*

### Evaluation and Follow-up Activities

- Assess patient’s ability to perform exercises
- Assess patient’s compliance with exercise schedule
- Assess muscle tone
- Assess for complications of bedrest, including thrombophlebitis, atelectasis, renal calculi, pressure ulcers, joint deformity

### Key Points for Reporting and Recording

- Patient’s response to treatment, including subjective and body response.
- Procedure performed, including body part, direction, resistance, and repetitions.
- Any limitations/restrictions to treatment.
- Patient response/tolerance to treatment.
Procedure 22.3 Teaching the Patient to Crutch Walk & Use a Walker

**OVERVIEW**

- To allow patients to resume daily transfers, improve self ADLs, and increase household and community ambulation following deconditioning and/or surgery.

**PREPARATION**

- Always use gait belt for patient safety.
- For safety considerations, ensure patient understands procedures.
- Check prescriber’s orders regarding teaching crutch walking and/or using a walker.

**Special Considerations**

- For post-op patients, consideration has to be given to weight-bearing precautions, contraindications, and deconditioning.
- Determine need to educate caregivers about the procedure and importance of safety measures.

**Elderly Patient**

- Most often will require instruction on a walker versus crutches due to decreased physical fitness.

**RELEVANT NURSING DIAGNOSES**

- Impaired physical mobility related to trauma, surgery, and/or neuromuscular dysfunction
- Pain/discomfort related to inability to cope with extremity movements
- Potential for injury related to improper movements with crutches or a walker

**EXPECTED OUTCOMES**

- Patient will be able to perform self ADLs with minimal or no assistance or discomfort
- Patient will be able to ambulate independently while following precautions
- Patient will be able to assist in self-reconditioning

**EQUIPMENT/SUPPLIES**

- Axillary crutches/walker
- Gait belt
Chapter 22  Exercise and Ambulation

IMPLEMENTATION

➢ Review prescriber’s orders regarding the use of crutches or a walker.
   *Determine if patient can be ambulated, and note any precautions or weight-bearing restrictions.*

➢ Don clean gloves.
   *Reduces transmission of infectious organisms.*

➢ Assess patient’s mental status.
   *Determines if patient can follow explanations to ensure safety.*

➢ Assess patient’s upper-extremity and lower-extremity strength.
   *Ensures strength is adequate for gait training.*

➢ Assess patient’s balance.
   *Helps in selection of assistive device.*

➢ Determine appropriate gait pattern and assistive device based on physical and mental assessment, and record review.
   *Ensures safety for patient.
   Follow surgical precautions.*

<table>
<thead>
<tr>
<th>TABLE 22.3A Different Types of Gait Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Four-point pattern</strong></td>
</tr>
<tr>
<td>• Most stable pattern.</td>
</tr>
<tr>
<td>• Requires bilateral ambulation device (crutches, cane).</td>
</tr>
<tr>
<td>• Alternate pattern (i.e., left crutch advances and then right foot advances, right crutch advances and then left foot advances, etc.).</td>
</tr>
<tr>
<td>• Slow gait pattern.</td>
</tr>
<tr>
<td><strong>Two-point pattern</strong></td>
</tr>
<tr>
<td>• Requires bilateral ambulation device (crutches, canes)</td>
</tr>
<tr>
<td>• Faster than four-point.</td>
</tr>
<tr>
<td>• Requires increased balance and coordination.</td>
</tr>
<tr>
<td>• Reciprocal motion (i.e., right foot and left crutch together, then left foot and right crutch, etc.).</td>
</tr>
<tr>
<td><strong>Three-point pattern</strong></td>
</tr>
<tr>
<td>• Used with crutches or walkers.</td>
</tr>
<tr>
<td>• Used when patient requires non–weight-bearing status</td>
</tr>
<tr>
<td>• Less stable pattern.</td>
</tr>
<tr>
<td>• Requires good upper-extremity strength and coordination.</td>
</tr>
<tr>
<td>• Assistive device and non–weight-bearing extremity advanced and then patient steps up to or through with full weight-bearing extremity.</td>
</tr>
<tr>
<td><strong>Modified three-point pattern</strong></td>
</tr>
<tr>
<td>• Crutches or walker.</td>
</tr>
<tr>
<td>• Use when allowed only partial weight-bearing.</td>
</tr>
<tr>
<td>• Progress assistive device and partial weight-bearing extremity simultaneously, and then progress full weight-bearing lower extremity.</td>
</tr>
<tr>
<td>• More stable, than three-point gait pattern.</td>
</tr>
</tbody>
</table>
### Procedure 22.3  
Teaching the Patient to Crutch Walk & Use a Walker

<table>
<thead>
<tr>
<th>2-Point Gait</th>
<th>3-Point Gait</th>
<th>4-Point Gait</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Partial weight bearing, both feet: faster, but less support than a 4-point gait.</td>
<td>• Non-weight bearing; faster than a 4-point gait; can be used with walker</td>
<td>• Partial weight bearing, both feet; patient must shift weight constantly</td>
</tr>
</tbody>
</table>

**2-Point Gait**

1. Advance left foot and right crutch
2. Advance right foot and left crutch
3. Advance left foot and right crutch
4. Advance right foot and left crutch

**3-Point Gait**

1. Advance left foot and right crutch
2. Advance right foot and left crutch
3. Advance left foot and both crutches
4. Advance right foot and left crutch

**4-Point Gait**

1. Advance right crutch
2. Advance right foot
3. Advance left crutch
4. Advance right foot

**FIGURE 22.3**
Assess for IVs, catheters, etc. Determine if any device will restrict and/or interfere with selected gait pattern.

Assess walking area for hazards and/or barriers. Ensure safe walking environment.

Check crutches/walker for safety (i.e., bolts tight, rubber caps not worn). Ensure equipment safety.

If necessary, transfer patient to seated position. Allow patient to watch demonstration of gait pattern.

Apply gait belt. Ensure patient’s safety.

Demonstrate selected gait pattern. Educate patient on correct procedure.

Have patient explain procedure to you. Ensures patient understanding of techniques.

**If performing four-point pattern:**
- Instruct patient to move one crutch, then opposite foot.
- Maintain grip on gait belt.
- Continue with opposite crutch, then opposite foot.
- Repeat. For use with unstable patient.

**If performing two-point pattern:**
- Instruct patient to move one crutch and opposite foot simultaneously.
- Repeat with other side. For use when safety remains a concern.

**If performing three-point pattern:**
- Instruct patient to move crutches/walker forward, advance non–weight-bearing lower extremity.
- Instruct patient to advance uninvolved extremity placing weight through upper extremity.
- Maintain grip on gait belt. For use with non–weight-bearing lower extremity, a walker is more stable. Patient safety.

**If performing modified three-point pattern:**
- Instruct patient to progress assistive device and partial weight-bearing lower extremity.
Procedure 22.3  Teaching the Patient to Crutch Walk & Use a Walker

- Instruct patient to advance uninvolved lower extremity to or through placing weight through upper extremity and partial weight-bearing lower extremity.
- Maintain grip on gait belt.

Patient safety.

Walk at least 20 feet.  
Ensures patient performance safety and understanding.

Ascending (if non–weight-bearing lower extremity)

- **With crutches:** Patient pushes through crutches to raise uninvolved lower extremity to next step.
- **With walker:** Place up onto curb first and then raise uninvolved lower extremity by pushing through walker.  
  To allow clearance to step.
- **With crutches and walker:**
  - Hold non–weight-bearing knee in flexion.
  - Step up and advance crutches or walker.
  - Repeat.

Descending

- **When full weight-bearing allowed with crutches:**
  - Lower crutches/walker and weak lower extremity down to next surface while bending/controlling with strong lower extremity.
  - Step down with strong lower extremity placing weight through walker or crutches.  
    Allows control of weak lower extremity with strong lower extremity.

- **When non–weight-bearing on lower extremity:**
  - Place non–weight-bearing lower extremity in front of body.
  - Place crutches/walker on surface below.  
    Allows control with weight-bearing lower extremity and protects non–weight-bearing extremity.
  - Lower down to next level by bending strong leg and placing weight through crutches/walker.  
    Ensures patient safety.
  - Maintain grip on gait belt.
Chapter 22  Exercise and Ambulation

All Patients

- Monitor patient’s response to treatment including difficulties, safety concerns, subjective reports, and visual signs.

  Provides information regarding appropriateness of device selection and modification, if needed.

- Return patient to sitting or lying position with call button.

  Provides patient comfort.

- Document treatment including any equipment needs for discharge.

  Communication and facilitation of patient care.

EVALUATION AND FOLLOW-UP ACTIVITIES

- Assess patient’s ability to ambulate with assistive device
- Assess patient’s tolerance of activity, distance he or she can ambulate, proper technique

KEY POINTS FOR REPORTING AND RECORDING

- Patient’s response to treatment including subjective, body response, and safety.
- Assistive device, gait pattern, assistance required, and for what length/time of ambulation.
- Any safety concerns for patient and other caregivers.
CHAPTER 23

Transfer and Positioning

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23.2 Transferring a Patient from Bed to Wheelchair, 437

23.3 Teaching Hip Precautions, 439
Chapter 23 Transfer and Positioning

PROCEDURE 23.1
Moving and Positioning the Patient in Bed

OVERVIEW

• To facilitate and maintain correct body alignment, reduce discomfort, and promote normal tissue integrity.

PREPARATION

• Check prescriber’s orders for specific restrictions.
• Assess patient’s ability to assist with moving.
• Determine patient’s and/or caregiver’s ability to understand and follow instructions.
• Assess patient’s activity tolerance.
• Determine comfort level of patient.

Special Considerations

• Be sure that IV and/or drainage tubing is positioned to prevent tension or tangling during procedure.
• If the patient is in isolation or if there is presence of body fluids or wet bed/clothing, wear gloves, gown, and any other personal protective equipment as indicated.

Elderly and Physically Challenged Patients

• Often have fragile skin; be careful not to drag the patient across the sheets, because it could cause skin sheering or tearing.
• May take more time due to contractures and fragile bones.

RELEVANT NURSING DIAGNOSES

• Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
• Pain/discomfort related to inability to tolerate body movements
• Impaired skin integrity related to limited mobility and prolonged pressure on bony prominences
• Self-care deficit related to mental and/or physical impairment

EXPECTED OUTCOMES

• Patient will be moved and positioned in bed without injury or discomfort
• Patient will maintain proper skin integrity with positioning regimen
Procedure 23.1 Moving and Positioning the Patient in Bed

**EQUIPMENT/SUPPLIES**

- Hospital bed with side rails
- Pillows
- Trapeze if indicated
- Turn sheet or draw sheet
- Clean gloves
- Personal protective equipment (if indicated)

**IMPLEMENTATION**

### Moving Patient Up in Bed (One Nurse)

- Wash hands and don gloves and any other personal protective equipment, if indicated.
  - *Reduces transmission of microorganisms.*
- Explain procedure to patient and/or caregiver as indicated, and how to assist if able.
  - *Reduces anxiety, Increases comprehension and cooperation. Promotes patient autonomy.*
- Raise bed to your thigh level. Place patient on back with head of bed in flat position. Lower side rails on side nearest you. Lock bed wheels.
  - *Lessens strain on nurse’s back muscles. Reduces gravity’s pull on patient’s upper body. Promotes patient safety.*
- Remove pillow and place against the headboard.
  - *Prevents striking patient’s head against head of bed.*
- Have patient fold arms across chest.
  - *Prevents injuring the patient’s arms during the move.*
- If available, have patient hold on to overhead trapeze.
  - *Allows patient to assist with move, thus promoting patient’s autonomy.*
- Have patient flex knees, and place feet flat on bed.
  - *Allows patient to assist with move.*
- Stand at an angle to the head of the bed, feet apart, knees bent, and feet toward the head of bed.
  - *Promotes good body mechanics.*
- Place one hand and arm under patient’s shoulder, and the other under patient’s thigh.
  - *Distributes patient’s weight more evenly. Supports shoulder and hip joints.*
Chapter 23 Transfer and Positioning

Rock forward toward the head of the bed, lifting patient with you while having patient push with his/her legs. Note: If trapeze available, have patient pull up holding onto trapeze as you move patient upward in bed.

Allows a smooth motion to lift patient. Assistance from patient reduces strain on nurse’s back muscles. Promotes patient autonomy.

Replace patient’s pillow under the head. Elevate head of bed to position tolerated by patient.

Promotes patient comfort. Facilitates activities such as eating and drinking.

Repeat steps if necessary until patient is high enough in bed.

Heavy or immobile patients are often not moved far enough in one step.

Raise side rails. Lower bed.

Promotes patient safety.

Wash hands.

Reduces transmission of microorganisms.

Moving Patient Up in Bed (Two Nurses)

With two nurses on opposite sides of bed, lower side rails. Lock the wheels on the bed.

Promotes patient safety.

Remove pillow and place against headboard.

Prevents striking patient’s head against top of bed.

Place draw sheet on bed under patient’s midsection.

Supports patient’s weight and reduces friction during move.

Roll or bunch sheet so edges are close to patient’s body and grasp firmly next to patient’s shoulders and hips.

Provides support under heavy parts of the body and places the nurse’s hands close to the weight to be moved.

If able to assist, have patient flex knees and place feet flat on bed.

Allows patient to assist with move.
Procedure 23.1  Moving and Positioning the Patient in Bed  435

Facing head of bed, the nurses stand on either side of the patient’s center with knees flexed and feet apart in a broad stance.

*Increases stability and provides balance. Promotes good body mechanics.*

On signal, rock and shift weight from back to front leg, moving patient upward in bed in one smooth motion. If possible, patient can assist with this move by pushing with his or her legs. Repeat the move if necessary.

*Provides additional force of body weight, reduces force needed to move load and decreases work of muscles during movement. Patient’s assistance lessens strain on nurse’s back muscles and promotes patient autonomy.*

After each positioning, realign patient, replace pillows and other positioning aids. Replace bed to safe position; remove gloves and other protective equipment; wash hands.

*Promotes patient comfort. Maintains correct body alignment. Reduces transmission of microorganisms.*

**Turning a Patient in Bed**

Position patient near far side of bed in supine position.

*Provides room for patient to safely turn to side.*

Position patient’s near arm across the chest. Slightly abduct the patient’s far shoulder from the side of the body. Place the patient’s near ankle and foot across the far ankle and foot.

*Prevents injury to patient’s arm. Facilitates movement during roll.*
Place your hands on patient’s far shoulder and hip and roll patient toward you. If drawsheet is in place, grasp it near patient’s shoulder and hip instead. 

*Maintains proper body alignment. Drawsheet provides continuous support for patient’s back and should be used when available.*

Stand opposite patient’s center with feet in wide stance and one foot ahead of the other. Tighten abdominal and gluteal muscles, and flex your knees.

*Promotes good body mechanics. Wide stance provides a stable base of support. Increases stability and provides balance.*

Position patient with pillows and other positioning aids; raise side rails; lower bed; remove gloves and other protective equipment; wash hands.

*Promotes safety and reduces transmission of microorganisms.*

**EVALUATION AND FOLLOW-UP ACTIVITIES**

- Patient was repositioned without injury and reports comfort
- Patient will maintain adequate skin integrity after moving and positioning therapy

**KEY POINTS FOR REPORTING AND RECORDING**

- Patient’s body alignment and position, and comfort level.
- Any change in skin condition.
PROCEDURE 23.2
Transferring a Patient from Bed to Wheelchair

OVERVIEW

- To promote safety, prevent injury, and maintain correct body alignment.

PREPARATION

- Check prescriber’s orders for specific restrictions regarding patient activity and positioning.
- Assess patient’s ability and motivation to assist.
- Determine patient’s and/or caregiver’s ability to understand and follow instructions.
- Assess joint mobility and muscle strength of extremities.
- Determine presence and location of any equipment and tubing.

Special Considerations

- Some patients may need analgesic medication to enhance comfort prior to moving.

Elderly, Pediatric, Confused, and Physically or Mentally Challenged Patients

- May require more time, teaching, and assistance.
- Involve family and/or caregiver in teaching of this procedure.
- Monitor activity while in wheelchair.
- Use seat belts/special restraint devices that fasten behind the wheelchair to protect from sliding down and falling.

RELEVANT NURSING DIAGNOSES

- Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
- Pain/discomfort related to inability to tolerate moving, sitting, and/or standing
- Self-care deficit related to mental and/or physical impairment

EXPECTED OUTCOMES

- Patient will be transferred from bed to wheelchair without injury and with minimal or no discomfort
- Patient and/or caregiver will be able to assist with the procedure
## Chapter 23  Transfer and Positioning

### EQUIPMENT/SUPPLIES
- Wheelchair
- Clean gloves
- Any other personal protective equipment as needed

### IMPLEMENTATION
- Explain procedure to patient and significant others.
  *Reduces anxiety and enhances participation.*
- Wash hands and don gloves.
  *Reduces spread of microorganisms.*
- Close door or curtain.
  *Provides for privacy.*
- Assist patient to put on robe and non-slippers or shoes.
  *Promotes safety by reducing the risk for falls and injury.*
- Place bed in lowest position.
  *Facilitates transfer to wheelchair.*
- Position the wheelchair as close as possible to the bedside facing the foot of the bed. When sitting at side of bed, patient should be able to steady self by using the hand on the unaffected side to grasp the arm of the wheelchair.
  *Facilitates use of stronger side to provide balance and improve stability during transfer.*
- Lock wheels of bed and wheelchair. Raise foot pedals on wheelchair.
  *Promotes patient safety.*
- Raise head of bed to highest position.
  *Decreased expenditure of energy.*
- Assist patient to sitting position on side of bed by supporting patient’s head and neck while moving patient’s legs over edge of the bed to dangle. Steady patient in this position for a few minutes.
  *Facilitates transfer to the wheelchair and allows circulatory system to adjust to change in position (reduces risk for postural hypotension).*
- To assist patient to standing position, face patient and brace your feet and knees against the patient (especially against the patient’s affected extremity).
  *Promotes stability and use of unaffected extremities to facilitate movement.*
- Pivot the patient (on unaffected limb if applicable) toward seat of chair with legs positioned against the chair.
  *Enhances patient’s sense of security and ensures proper position before sitting.*
Procedure 23.3 Teaching Hip Precautions

The patient may use one arm (the unaffected limb if applicable) to place on the arm of the wheelchair while slowly easing self to sitting position in wheelchair. 

*Ability to use own arm provides support and stability for patient.*

Continue to brace patient’s knees with your knees and flex your hips and knees when lowering patient to sitting position.

*Reduces potential for strain on the nurse’s back.*

Adjust or support patient’s position with pillows where necessary.

*Promotes proper body alignment and comfort.*

Place call light within reach.

*Promotes patient safety.*

Remove gloves and other protective equipment, and wash hands.

*Reduces spread of microorganisms.*

**EVALUATION AND FOLLOW-UP ACTIVITIES**

- Assess patient’s tolerance of activity
- Assess patient’s ability to transfer safely
- Reinforce teaching

**KEY POINTS FOR REPORTING AND RECORDING**

- Patient tolerance of procedure and length of time in wheelchair.
- Ability to assist with transfer.
- Patient’s level of comfort during transfer and while sitting in wheelchair.

**PROCEDURE 23.3**

Teaching Hip Precautions

**OVERVIEW**

- To facilitate postoperative recovery and prevent artificial hip dislocation.
PREPARATION

- Check prescriber’s orders for specific restrictions regarding patient activity and positioning.
- Assess patient’s readiness and ability to learn.

Special Considerations

- Some patients may need analgesic medication to enhance comfort prior to moving.

**Elderly, Pediatric, Confused, and Physically or Mentally Challenged Patients**
- May require more time, teaching, and assistance.
- Involve family and/or caregiver in teaching of this procedure.

RELEVANT NURSING DIAGNOSES

- Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
- Pain/discomfort related to inability to tolerate moving
- Self-care deficit related to mental or physical impairment
- Risk for injury related to improper use of positioning techniques

EXPECTED OUTCOMES

- Patient will be free of complications from hip replacement
- Patient will use and maintain proper positioning for optimum comfort

EQUIPMENT/SUPPLIES

Wedge or pillow

IMPLEMENTATION

- Teach patient to avoid:
  - Adduction of legs by using abduction pillow or bed pillow between legs.
  - Hip flexion, external rotation.
  - Crossing leg (either in bed or seated).
  - Bending hip past 90 degrees.
  - Turning or rolling foot of operated leg inward.
  - Lying on operated hip.

  *Maintains proper position and reduces risk for hip dislocation.*
Instruct patient to keep the abduction wedge or pillow between knees/legs when in bed. 
Prevents patient from crossing legs.
Instruct patient to keep the toe of affected leg pointed forward when standing, sitting, or lying. Also, instruct patient not to stand pigeon toed.

*Maintains proper position and reduces risk for hip dislocation.*

Instruct patient on signs and symptoms of dislocated hip (begins with popping or slipping sensation; patient will not be able to bear weight on affected limb and may experience a fair amount of pain and discomfort). If signs and symptoms are experienced, notify prescriber immediately.

*The earlier complications are identified and treated, the less permanent the damage that will occur.*

Instruct patient on looking after hip joint:
- Look for signs and symptoms of infection in the hip including pain, redness, swelling, or increased warmth.
- Follow all instructions regarding any activity or positioning limitations or restrictions.

*The earlier complications are identified and treated, the less permanent the damage that will occur.*
- Assist patient or have patient perform leg exercises as ordered by prescriber.

*Reduces risk for blood clots forming in legs and possibly traveling to lungs.*

**EVALUATION AND FOLLOW-UP ACTIVITIES**
- Assess patient’s understanding of hip precautions
- Monitor patient’s position to maintain hip abduction and leg in neutral position
- Provide written instructions for discharge activities and positioning

**KEY POINTS FOR REPORTING AND RECORDING**
- Patient/caregiver understanding and willingness to follow hip precautions.
- Patient’s self-care capabilities.
- Patient’s level of comfort and response to positioning and pain management.
Orthopedic Interventions

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PROCEDURE 24.1
Providing Cast Care

OVERVIEW

• To immobilize an injured structure that needs to maintain anatomical position.
• Used chiefly for fractures after they have been realigned.

PREPARATION

• Maintaining the cast—preventing cracks, exposure to dirt, wetness; keeping it clean.
• Evaluation of extremity in the cast—swelling, circulation.
• Detecting and evaluating bleeding.

Special Considerations

• If the patient has had a compound fracture that required internal fixation or open reduction, the nurse should watch the cast for signs of bleeding for the first 24 to 48 hours.

Elderly Patient

• Elderly patients, due to trauma and pain medication, can easily become disoriented and lose balance or have difficulty with unbalanced gait.

Pediatric Patient

• With pediatric patients, it is especially important to instruct the family in recognizing signs of infection and drainage, and in the need to discourage children from scratching under the cast.
• Instruct on ways to keep cast dry, especially when patient needs to be bathed.

RELEVANT NURSING DIAGNOSES

• Alteration in comfort related to trauma
• Impaired tissue perfusion related to trauma

EXPECTED OUTCOMES

• Patient will not experience pain, discoloration, or sensory or motor impairment of affected extremity
• Extremity in the cast will have good capillary refill
**Procedure 24.1 Providing Cast Care**

- Patient will be able to ambulate and perform active range-of-motion (ROM) and isometric exercises as ordered by physician
- No evidence of neurovascular impairment in extremity in the cast
- No evidence of infection

**EQUIPMENT/SUPPLIES**

- Thermometer (to monitor for signs of infection)
- Pillows
- Bed linens
- Towels
- Washcloths
- Alcohol pads

**IMPLEMENTATION**

- Explain to the patient that you will be assessing the status of the cast and extremity every 1 to 2 hours. *Understanding promotes acceptance.*

- Remove any cast residue that might be around the cast and on the skin. *This residue can be irritating to the patient’s skin. Removing it can prevent rashes or skin irritation.*

- Elevate the extremity in the cast. Determine that each distal joint is higher than the preceding one. *Elevation promotes venous return and decreases swelling that could increase pressure and compromise neurovascular integrity.*

- Ice bags can be placed next to a cast, especially next to an incision if physician warrants its use. *This controls swelling and bleeding.*

- Expose cast directly to the air—do not cover the cast with blankets or sheets. *A cast produces heat as it dries, and if it is covered up, moisture can accumulate and delay the drying process.*

- Ensure that nothing rests or lays on a wet cast. Pillows are to be used under the cast to allow the cast to dry on a soft surface. Handle the cast only if necessary and use only the palms of your hands,
Heavy objects or pressure from fingers that are placed on a wet cast can cause indentation and pressure points. This can result in neurovascular compromise.

Footboards or cradles can be used to keep the patient covered but off wet cast. Linen can be supported on these cradles or footboards to provide warmth and protect patient’s privacy. This will still allow air to circulate for the cast to dry.

Turn patient to a different position every 2 hours. Repositioning helps to expose the cast to air and allows the cast to dry evenly.

Assess for signs and symptoms of excess swelling and pressure on the casted extremity every 30 minutes initially, then every 1 to 2 hours, if the assessment has been normal:
- Inspect and palpate to test for swelling, paleness, cyanosis, coolness of the skin.
- Check for capillary refill by putting pressure on the nail bed and releasing to determine return of blood flow to nail bed.
- Take pulses distal to casted areas.
- Determine degree of sensation in the extremity, and take note of any change.
- Ask patient to alert you to any areas of numbness or tingling.
- Check temperature of the skin above and below the casted extremity.
- Ask the patient to move his or her fingers or toes (whatever applicable) to check ability for movement.

The cast is a rigid object that cannot expand when the tissue under it expands or swells. When the extremity does swell, neurovascular integrity can be compromised. Frequent assessments help to identify problems before they occur.
Procedure 24.1 Providing Cast Care

Watch for signs of drainage or bleeding on the cast.

*Bleeding can occur especially with compound fractures and open reduction.* Venous blood turns brown and stops in a short time; arterial bleeding is bright red and continues to spread on the cast.

Draw a ring around the drainage and add date, time, and initials. Infection will produce drainage that may produce an odor. The color of the drainage will be tan or light brown. *Determine degree of bleeding or discharge.*

Change a patient’s position every 1 to 2 hours. *Mobility can decrease incidence of venous stasis, which could lead to vein thrombosis and pressure spots, leading to skin breakdown.*

Encourage ROM exercises for all extremities. Isometric exercises can be used for the cast extremity. *Exercise promotes circulation and muscle tone and prevents atrophy of casted muscles.*

Inspect the edges of the cast for rough edges or chipping plaster. Cover rough edges with tape. *Rough edges or chipped areas can cause skin abrasion and subsequent breakdown. Pieces of chipped plaster can become lodged inside the cast and further compromise skin integrity.*

Instruct patient not to insert objects into casted extremity, such as straws and tooth brushes, when skin itches. *Skin becomes dry and itchy under cast. Keeping skin lubricated by using lotion can help with dry itchy skin. Objects inserted inside cast can increase chance for skin abrasion and further skin breakdown.*

Periodically remove dry, flaked skin debris or chipped plaster from inside the cast with vacuum cleaner or hair dryer hose using cool settings. *Air can blow out debris keeping area free of debris.*

Protect the cast from wetness, especially when patient needs to bathe. Cover the cast with plastic wrap and tape securely whenever patient needs to perform personal hygiene. *Wet plaster softens and is not as strong as it needs to be to be an effective immobilizer. Plastic wrap can be taped securely and is waterproof if applied correctly.*

Instruct patient on avoiding overzealous activities that may dislodge or misalign extremity or cast. *Patient may dislodge or misalign extremity or cast and cause trauma to injured extremity.*
Chapter 24 Orthopedic Interventions

### Evaluation and Follow-up Activities

- Casted extremity should be assessed every 30 minutes for 1 to 2 hours and, if assessment is within normal limits, then every hour for 24 hours and, if assessment is within normal limits, every 4 hours from that time on.
- Check cast daily for odor, drainage, bleeding, cracks, crumbling plaster.
- Neurovascular checks: temperature, color, capillary refill, edema, numbness, tingling sensation every 30 minutes for 1 to 2 hours and, if assessment is within normal limits, every hour for 24 hours and, if assessment is within normal limits, every 4 hours from that time on.
- Instruct patient on avoiding overstrenuous activities that may dislodge or misalign extremity or cast.

### Key Points for Reporting and Recording

- Neurovascular assessment findings.
- Patient's complaints and nursing responses.
- Presence of any drainage.
- Patient's acceptance of cast.
- Type of cast applied if applied on your shift.
- Patient's complaints and nursing responses.

### Procedure 24.2

Managing Skin Traction

#### Overview

- To provide pull and counterpull on a particular area of an extremity.
- To provide correct alignment of bony ends.
PROCEDURE 24.2 Managing Skin Traction

PREPARATION

- Applied directly to the skeletal system by attaching weight to the skin.
- Comes in various types, such as Buck’s traction or Russell’s traction.

![Buck’s traction](image1)

**FIGURE 24.2A** Buck’s traction.

- Usually applied while patient is in bed.
- The pull is achieved by using weights in the form of sandbags, free-weight discs; counterpull is produced by patient’s own weight.
- Traction is possible through use of slings, ropes, pulleys, and weights.

![Russell’s traction](image2)

**FIGURE 24.2B** Russell’s traction.
Special Considerations

- Patients with previous compromised neurovascular status need extra assessment. Nurse should check patient’s status every 30 minutes to ensure that no further loss of integrity is noted.

Elderly Patient

- Elderly patient has increased chance for venous stasis. Extra care needs to be taken to ensure the patient is free of thrombosis and emboli.
- Constipation is another concern due to decreased motility, poor appetite, and decreased intake of fluids. Nurse needs to determine patient’s bowel habits and provide measures to ensure adequate elimination.

RELEVANT NURSING DIAGNOSES

- Altered tissue perfusion related to impaired blood flow
- Risk for infection related to diabetes

EXPECTED OUTCOMES

- Extremity is maintained in correct position
- Bone ends are aligned and do not override
- Skin of affected extremity remains intact
- Patient maintains good body alignment

EQUIPMENT/SUPPLIES

- Ropes, pulleys, and weights
- Tape
- Foam rubber or plastic sheeting
- Metal block spreader
- Traction foam boot
- Elastic bandage
- Sheepskin pad
- Shock blocks

IMPLEMENTATION

- Review the physician’s order and ensure that you have correct traction equipment available. *There are different types of traction. Making sure you are setting up for the correct, prescribed type will prevent injury to the patient.*
- Explain the procedure to the patient. *Understanding promotes acceptance.*
PROCEDURE 24.2  MANAGING SKIN TRACTION

大多数人医院里都有矫形技术员，负责设置牵引。如果医院没有技术员，可以与具有相关经验和技能的其他护士进行沟通，或者向医生询问相关事宜。

1. **Most hospitals have an orthopedic technician who sets up the traction.** If the hospital does not have a technician, review the procedure with other nurses who may have experience in setting up traction. *Call the orthopedic technician and provide him with copy of physician’s order for traction.*

2. **If you anticipate that the patient will have pain or discomfort during the procedure, consider premedicating the patient as ordered by physician.** *Providing premedication will lessen the pain and discomfort when applying skin traction or assessing the traction effectiveness. Make sure there is a physician order; if there is not one, call physician and explain your desire to provide the patient with pain relief.*

3. **Lay out all equipment.** *Facilitates procedure, ensures safe efficient care of patient.*

4. **Place bed in semi-Trendelenburg position.** Make sure this position will not compromise patient’s condition—verify with physician before moving patient to this position. *Trendelenburg position helps keep the traction intact, but in some cases patients cannot tolerate this position without compromise in respiratory status.*

5. **Inspect skin for any signs of abrasion or lesions that could be disturbed when skin traction is applied.** Make sure skin is clean and dry. *Skin traction (tape and pressure) placed over abraded areas could aggravate skin condition.*

6. **Assess neurovascular status of patient’s extremities, and document findings for referral later.** *Sets a baseline for later comparison.*

7. **Position the patient in the center of the bed in good body alignment.** *Ensures effective counterpull without compromising neurovascular status.*

8. **Have a second person support the affected extremity so that you can apply the elastic bandage and foam boot.** *Ensures that the affected extremity remains in alignment; reduces discomfort; allows the nurse the ability to apply the foot boot and elastic bandage (from the ankle up to knee).*

9. **Place leg in foam boot, making sure to adjust the heel of the foot snugly into boot.** *Prevents neurovascular compromise.*
Secure Velcro bootstraps, but avoid bony prominences.  
Prevents skin abrasion and breakdown.

Apply metal spreader to allow the nurse to attach ropes and weights as directed by physician.  
Spreads the ropes to equal distance so that traction is equally distributed.

Apply weights, making sure they are not touching the bed, frame, or floor.  
Weights should be free for adequate counterpull.

Check with physician to determine the need for thromboembolic disease stockings (TEDS) to other extremity.  
Prophylaxis against venous stasis.

Assess neurovascular status of patient’s extremities and document findings every 30 minutes when first applied; if there is no change, check status every 1 to 2 hours.  
This ensures adequate neurovascular integrity. Changes can be quickly noted.

Check patient’s position every 1 to 2 hours to ensure that the patient is in proper position to allow adequate counterpull of traction.  
Allows adequate counterpull of traction.

**EVALUATION AND FOLLOW-UP ACTIVITIES**

- Determine that patient is in good body alignment
- Check to make sure elastic bandage and foot boot are in proper position
- Check that traction is equally distributed
- Determine if patient is warm and free of discomfort
- Assess neurovascular status

**KEY POINTS FOR REPORTING AND RECORDING**

- Neurovascular status before and after traction applied.
- Traction is maintained.
- Patient comfort.
- Skin integrity.
PROCEDURE 24.3
Managing Skeletal Traction

OVERVIEW

- To provide pull and counterpull on a particular area of an extremity.
- To provide correct alignment of bony ends.

![Balanced suspension and skeletal traction for femur.](image)

PREPARATION

- Applied directly to the skeletal system by attaching weight to the bone.
- Usually applied in the operating room and maintained while patient is in bed.
- The pull is achieved by using weights in the form of sandbags and free-weight discs; counterpull is produced by patient’s own weight.
- Traction is possible through use of slings, ropes, pulleys, and weights.

Special Considerations

Elderly Patient

- Skin is fragile and needs extra protection—take care to protect bony prominences to prevent skin breakdown.
- Encourage range-of-motion (ROM) exercises to prevent venous stasis.
- Encourage the patient to decorate his or her room to feel more at home.
Encourage visitors.
Encourage self-care activities.

*Pediatric Patient*
- Check patient’s position—the child is small and can change position, making traction inadequate or harmful to neurovascular integrity.
- Check to make sure patient has “safe toys” to play with.
- Take precautions when child eats in the supine position—avoid aspiration.

**RELEVANT NURSING DIAGNOSES**
- Altered tissue perfusion related to impaired blood flow
- Risk for infection related to trauma

**EXPECTED OUTCOMES**
- Extremity is maintained in correct position
- Bone ends are aligned and do not override
- Skin of affected extremity remains intact with no signs of infection
- Patient maintains good body alignment

**EQUIPMENT/SUPPLIES**
- Slings, ropes, pulleys, and weights
- Tape
- Sterile cotton tip applicators
- Hydrogen peroxide
- Normal saline solution
- Foam rubber or plastic

**IMPLEMENTATION**
- Traction is usually applied in the operating room under aseptic technique.
  
  *Procedure is painful and requires bone alignment and perforation of skin. General anesthesia is usually required to allow the surgeon to manipulate the fracture and align it correctly.*

- When patient returns to his or her room, the nurse should inspect the traction and other equipment to make sure weights and traction equipment are applied correctly.
  
  *Ensures proper functioning of equipment, preventing injury.*

- Make sure the patient’s bed has trapeze attached to bed frame.
  
  *This will allow patient to move safely and perform ROM exercises, keeping muscles from atrophy.*
**Procedure 24.3 Managing Skeletal Traction**

- Regularly check to make sure patient is in center of bed.
  
  *Good body alignment = adequate counterpull of traction.*

- Avoid tucking in bed clothes.
  
  *Tucking in bed clothes can impede traction.*

- Instruct patient and family regarding ROM and body positions.
  
  *Patient needs to be reminded not to turn to the side, because it disrupts traction integrity.*

- Allow patient to do as much self care as possible—personal hygiene, etc.
  
  *Self-care activities can help a patient feel confident and useful.*

- Clean back and buttocks and provide lotion and extra padding to body prominences each day.
  
  *Helps the patient feel clean; keeps skin from breakdown.*

- Apply sheepskin or egg-crate mattress to patient’s bed to protect skin from abrasion and pressure, especially to heels, back, pelvis, and elbows.
  
  *Avoids skin breakdown and provides comfort for patient.*

- Avoid using more than two pillows under patient’s head.
  
  *Pillows can disrupt counterpull of traction.*

- Use fracture bedpan for patient’s elimination needs.
  
  *Facilitates elimination and ensures counterpull of traction.*

- Encourage ROM exercises—isometric and isotonic exercises—and frequent dorsiflexion of extremities.
  
  *Facilitates circulation and prevents venous stasis.*

- Inspect skin areas around traction attachment, checking for redness and swelling.
  
  *Keeps skin from infection and further breakdown.*

- Clean skeletal attachment areas as directed by physician.
  
  *Keeps skin from infection and further breakdown.*

- Cover sharp edges or points with gauze or tape.
  
  *Prevents possible injury to patient, family, or caregiver.*

- Assess neurovascular status as directed by physician.
  
  *Ensures proper circulation and nerve integrity.*

- Allow patient to schedule personal activities and decorate room.
  
  *Encourages self-control; prevents social isolation.*
EVALUATION AND FOLLOW-UP ACTIVITIES

- Neurovascular state of extremity checked often to ensure adequate circulation and nerve function.
- Frequent encouragement of patient to perform ROM exercises and set times for the patient to perform that are understandable to nurse and patient.
- Vital signs taken as ordered.
- Patient’s mental status will remain normal.
- Integrity of the skin maintained.
- Integrity of traction maintained.

KEY POINTS FOR REPORTING AND RECORDING

- Neurovascular state of extremity in traction.
- Patient’s ability to perform ROM exercises and times performed.
- Vital signs.
- Patient’s mental status.
- Integrity of the skin.
- Integrity of traction.
- Bowel and bladder integrity.
- Intake and output.

PROCEDURE 24.4

Applying a Moist Compress

OVERVIEW

- Local applications of moisture to an area to reduce pain, swelling, and temperature.

PREPARATION

- May be hot or cold applications depending on desired purpose.
- Several layers of moist cloths may be used.
- Application of heat is generally more concentrated than cold.
- Duration of use longer than a soak.
- Application of hot or cold moist compresses will depend on patient’s tolerance.
**Procedure 24.4 Applying a Moist Compress**

**Special Considerations**
- With elderly and pediatric patients, do not use too hot or too cold compresses due to fragility of skin.
- Protect bed linens from wetness, which could further compromise skin integrity.

**RELEVANT NURSING DIAGNOSES**
- Altered tissue perfusion related to impaired blood flow
- Risk for infection related to diabetes

**EXPECTED OUTCOMES**
- Reduced swelling
- Reduced bleeding
- Keeps area lubricated
- Decreased pain

**EQUIPMENT/SUPPLIES**
- Clean basin
- Clean washcloths
- Tape
- Plastic wrap/bag
- Linen saver/chucks
- Disposable gloves
- Gauze pads
- Hot water, or ice water

**IMPLEMENTATION**
- Check physician’s order for application of moist compresses: check to see if order calls for hot or cold applications.
  
  *Ensures that correct process is followed as ordered by attending physician.*

- Gather all equipment to the bedside.
  
  *Facilitates procedure, saves time.*

- Explain process to the patient.
  
  *Understanding promotes acceptance.*

- Prepare moist compress by soaking gauze pads in selected solution (hot/cold).
Make sure gauze pads are big enough and plentiful enough to cover area desired. Make sure they are thoroughly soaked before applying to area.

- Don gloves. Prevents transfer of microorganisms.

- Cover with dry covering, preferably a plastic bag or linen saver, and mold it to the body area. Insulates the heat or cold application and concentrates it on the desired area.

- Check area every 15 minutes to ensure heat is not “cool” and cold is not “warm.” Keeps temperature even to area that needs the application of moist compress.

- Apply moist compress for approximately 15 to 30 minutes four to five times per day (check physician order). Avoid overexposure to moist compress, which may impair skin integrity.

- Keep the patient as dry as possible—check to make sure you have dried area after moist compress has been completed. Promotes comfort.

- Assess the effects of the application of moist compresses. Report and record the positive and negative effects of the application—this may require the nurse to adjust plan of care if the treatment is not favorable or if the patient does not tolerate the procedure.

- Dispose of gloves and all contaminated equipment. Prevents transfer of microorganisms.

- Reposition patient in comfortable position. Promotes comfort.

**EVALUATION AND FOLLOW-UP ACTIVITIES**

- Assess area every 4 to 6 hours to determine effectiveness of treatment
- Ask patient to evaluate effectiveness of the treatment
- Patient will have reduced pain, swelling, and redness of area
Procedure 24.5 Applying an Ice Bag, Ice Pack, or Collar

Key Points for Reporting and Recording

- Patient’s tolerance to treatment.
- Treatment times and duration.
- Physical effects of the application of moist compresses.

Procedure 24.5

Applying an Ice Bag, Ice Pack, or Collar

Overview

- To reduce swelling and pain.
- To control bleeding by constricting blood vessels.
- To reduce body temperature and body’s metabolic rate.
- To produce an anesthetic effect.

Preparation

- No one optimum temperature can be documented for cold applications.
- Selection of temperature depends on duration of application, method of application, condition of the patient, and condition and sensitivity of the skin.
- It is considered dangerous to expose skin to extreme cold temperatures.

Relevant Nursing Diagnoses

- Altered tissue perfusion related to impaired blood flow
- Risk for infection related to impaired tissue integrity

Special Considerations

- Very cold temperatures should be avoided in skin disease.
- Avoid use of cold applications in patients with circulatory or heart disease.
- Always consider patient’s age and condition of the skin before application of cold therapy.
- Check elderly and pediatric patients’ skin and effects of cold treatment on their fragile skin.
- Watch for possible sharp edges on ice that could abrade skin.
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EXPECTED OUTCOMES

- Reduction of edema at trauma site
- Decreased pain sensation
- No alteration in skin integrity

EQUIPMENT/SUPPLIES

Ice bag, collar, plastic bag
Bed protection (plastic diaper or chucks)
Cold solution or crushed ice
Tape
Towels (2)

IMPLEMENTATION

☐ Check physician’s order for cold application and determine what equipment is necessary.
  
  *Promotes effective use of time.*

☐ Gather equipment to bedside.
  
  *Promotes effective use of time.*

☐ Explain procedure to the patient.
  
  *Understanding promotes acceptance.*

☐ Fill bag/collar with ice. If using a commercial ice pack, make sure pack is not leaking; chemicals could cause damage to skin.
  
  *Provides the main cold application.*

☐ Squeeze excess air from bag or collar.
  
  Commercial ice pack will already be free of air but will need to be shaken to distribute inner contents.
  
  *Allows the bag/collar to lie flat and ice to evenly lay around collar.*

☐ Tape/secure bag/collar.
  
  *Make sure ice does not leak out and wet the patient’s clothes or bed linen.*

☐ Cover the bag/collar with towel, and secure with tape.
  
  *Provides smooth soft covering to prevent direct contact of plastic to skin, which could impair skin integrity.*

☐ If the patient has an open wound or drainage, don gloves. Remove old dressing or cold packs from area, noting amount and quality of drainage. Remove gloves and don new pair.
  
  *Reduces transmission of microorganisms.*
Place covered ice bag/collar/pack on affected area. *Allows the transfer of cold to area affected.*

Assess patient’s tolerance to cold application. If patient cannot tolerate sensation of cold, apply a second towel over the bag/collar/pack. *Assessing skin and patient’s tolerance of cold will allow better treatment of area and better patient compliance.*

After 30 minutes, terminate cold treatment, and gently dry area treated. *Allows the nurse to assess for redness and how well the treatment affected edema/swelling.*

If dressing is needed, follow guidelines for application of dressing. *Decreases chances for infection and promotes wound healing.*

Remove all soiled equipment, and reposition patient as he desires. *Eliminates chances for cross contamination and provides patient comfort.*

**EVALUATION AND FOLLOW-UP ACTIVITIES**

- Patient verbalizes positive effects of treatment.
- Decreased edema
- No complications evidenced from treatment
- Decreased pain

**KEY POINTS FOR REPORTING AND RECORDING**

- Treatment area before and after therapy.
- Duration of treatment.
- Patient’s tolerance to the treatment.
- Effects of treatment.
- Date and times treatment used.
- Where cold treatment was applied.
CHAPTER 25

Beds, Frames, and Mattresses

25.1 Placing the Patient on a Specialty Surface, 464

25.2 Placing the Patient on an Air-Suspension or Air-Fluidized Bed, 467
PROCEDURE 25.1
Placing the Patient on a Specialty Surface

OVERVIEW

- To reduce pressure on tissues underlying bony prominences.
- To be used as a replacement mattress or used as an overlay that rests on top of an existing mattress.
- To promote optimal comfort and body alignment.

PREPARATION

- Determine patient’s ability to understand procedure.
- Determine patient’s ability to participate.
- Assess patient’s skin for erythema, induration, and blistering, especially over bony prominences.
- Assess patient’s level of comfort and presence of pain.

Special Considerations

- Depending on medical condition, some patients may need analgesic medication to enhance comfort before moving.

Elderly, Pediatric, Confused, and Physically or Mentally Challenged Patients

- May take more time to complete procedure, especially if patient is immobile.
- Involve family/caregiver if indicated.

RELEVANT NURSING DIAGNOSES

- Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
- Pain/discomfort related to inability to tolerate moving
- Impaired skin integrity related to prolonged pressure on joints and bony prominences

EXPECTED OUTCOMES

- Patient’s skin remains intact without evidence of abnormal reactive hyperemia or mottling
- Existing pressure ulcers show evidence of healing by formation of granulation tissue
- Patient exhibits signs of comfort after specialty surface is in place
## Procedure 25.1 Placing the Patient on a Specialty Surface

### Equipment/Supplies

<table>
<thead>
<tr>
<th>Mattress support surface of:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Foam or air overlay</td>
<td></td>
</tr>
<tr>
<td>Foam or air mattress</td>
<td></td>
</tr>
<tr>
<td>Clean gloves</td>
<td></td>
</tr>
<tr>
<td>Sheets for bed and mattress</td>
<td></td>
</tr>
</tbody>
</table>

### Implementation

- Identify patient; explain purpose, procedure and how patient can assist if indicated. Assess patient’s ability to move if on bed rest. Confirm type of support surface to be used with prescriber.
  
  *Meets patient’s right to be informed; encourages cooperation and participation; identifies type of support surface most beneficial to the patient.*

- Gather equipment and place at bedside; adjust lighting as needed.
  
  *Enhances organization; ensures good visualization to prepare bedding.*

- Wash hands and don clean gloves.
  
  *Reduces transmission of infectious microorganisms.*

- Apply support surface to bed (bed may be occupied or unoccupied). (See Chapter 1).
  
  *Ensures correct application of the surface support whether the bed is occupied or unoccupied.*

### Applying a Foam-Mattress Replacement

- Remove the mattress and replace with foam mattress. Remove cushions as needed in areas of high risk for skin breakdown, such as elbows and heels. Apply sheet, and avoid wrinkles.
  
  *To reduce pressure in direct contact with skin surfaces.*

### Applying a Foam-Mattress Overlay

- Apply foam overlay directly on hospital mattress. Leave thin, protective covering in place. Apply sheet. Avoid wrinkles.
  
  *Foam egg-crate surface is primarily for comfort. It reduces pressure in direct contact with the skin.*
Applying an Air-Mattress Replacement

- Remove standard hospital mattress and replace with air mattress. Use blower to inflate to the appropriate pressure. Apply sheet, and avoid wrinkles. Limit the use of incontinent pads.
  
  *Air pressure is used to distribute patient’s weight. A company representative usually participates in the setup of this device.*

Applying an Air-Mattress Overlay

- Apply deflated overlay directly over the bed mattress. Use supplied flaps or clips to secure mattress. Use blower or other continuous inflation device to inflate mattress to the desired pressure. Apply sheet, and avoid wrinkles. Check cycling on continuous-cycling unit. Avoid use of sharp objects near mattress.
  
  *Intermittent cycling inflates portions of the mattress at a time, which alternates pressure against the skin; checking cycling on the unit ensures proper functioning; avoiding use of sharp objects near the mattress ensures that the mattress material will not be punctured.*

With Any Support Surface

- Reposition patient over support surface as frequently as condition allows to minimize pressure (see Chapter 23). Perform range-of-motion (ROM) exercises every shift as tolerated (see Chapter 22).
  
  *Enhances patient comfort, relieves pressure, and facilitates removal of secretions from the airways.*
  
  *Range-of-motion (ROM) exercises are necessary to prevent contractures and promote good circulation.*

- Remove gloves and wash hands before leaving patient’s room.
  
  *Prevents transmission of infectious microorganisms.*
**Procedure 25.2 Placing the Patient on an Air-Suspension Bed**

**EVALUATION AND FOLLOW-UP ACTIVITIES**
- Evaluate patient compliance and ability to participate in procedure
- Inspect skin condition every 2 hours
- Monitor turning schedule and assess effectiveness of the support mattress
- Inspect any existing pressure ulcers for evidence of granulation tissue
- Assess patient’s comfort level at least every 2 hours or PRN

**KEY POINTS FOR REPORTING AND RECORDING**
- Date and time support surface was applied.
- Patient’s overall skin condition.
- Patient participation in moving and turning schedule.

**PROCEDURE 25.2**

**Placing the Patient on an Air-Suspension or Air-Fluidized Bed**

**OVERVIEW**
- To reduce pressure on tissues underlying bony prominences.
- To promote optimal skin integrity in the immobile or bedridden patient.
- To promote optimal comfort and body alignment by cushioning support and redistributing weight.
- To reduce the effects of shear, friction, maceration, and pressure.

**PREPARATION**
- Determine patient’s ability to understand the purpose of using an air-suspension or air-fluidized bed.
- Determine patient’s ability to participate.
- Assess patient’s skin for erythema, induration, and blistering, especially over bony prominences (risk for pressure-ulcer formation).
- Assess patient’s level of comfort and presence of pain.

**Special Considerations**
- Depending on medical condition, some patients may require analgesic medication to enhance comfort before moving.
Chapter 25  Beds, Frames, and Mattresses

Elderly, Pediatric, Confused, and Physically or Mentally Challenged Patients

- May take more time to complete procedure, especially if patient is immobile.

RELEVANT NURSING DIAGNOSES

- Impaired physical mobility related to trauma, surgery, or neuromuscular deficit
- Pain/discomfort related to inability to tolerate moving
- Impaired skin integrity related to prolonged pressure on joints and bony prominences

EXPECTED OUTCOMES

- Patient’s skin remains intact without evidence of abnormal reactive hyperemia or mottling
- Existing pressure ulcers show evidence of healing by formation of granulation tissue
- Patient exhibits signs of comfort after being placed on specialty bed

EQUIPMENT/SUPPLIES

- Air-suspension or air-fluidized bed (as ordered/indicated)
- Gortex sheet (supplied by distributor)
- Clean gloves
- Disposable bed pads, if indicated

IMPLEMENTATION

- Identify patient; explain purpose, procedure, and how patient can assist if indicated. Assess patient’s ability to move if on bed rest. *Meets patient’s right to be informed; encourages cooperation and participation.*

- Have bed placed in patient’s room. Gather all other equipment needed and place at bedside, and adjust lighting as needed. *Enhances organization; ensures good visualization to prepare bedding.*

- Wash hands and don clean gloves. *Reduces transmission of infectious microorganisms.*

- After applying Gortex sheet and disposable pads (if needed), transfer patient onto air-suspension bed using appropriate transfer techniques (see Chapter 23). *Ensures correct transfer techniques and reduces the risk for injury.*
Procedure 25.2 Placing the Patient on an Air-Suspension Bed

- Turn bed on by depressing switch.  
  *Activates air action of bed operation.*

- Position patient.  
  *Promotes patient comfort and maintains proper body alignment.*

- Establish and maintain a turning schedule, as indicated by patient’s plan of care, diagnosis, and mobility status.  
  *Frequent turning is necessary to prevent skin breakdown and facilitate removal of secretions from the airways.*

- Establish a schedule and perform ROM exercises as indicated by patient’s plan of care, diagnosis, and mobility status (see Chapter 22).  
  *Frequent and consistent exercising is necessary to prevent joint deformity, contractures, and skin breakdown.*

- Activate maximum inflation switch for turning, positioning, use of bedpan, or other procedures. Release maximum inflation when procedure concluded.  
  *Maximum inflation hardens the bed, thereby eliminating pressure relief. A firm surface is necessary for turning and various other procedures.*

- Leave patient in a comfortable position with side rails up.  
  *To ensure patient comfort and safety.*

- Remove gloves and wash hands.  
  *To prevent transmission of infectious microorganisms.*

### EVALUATION AND FOLLOW-UP ACTIVITIES

- Evaluate patient compliance and ability to participate in procedure.
- Inspect skin condition every 2 hours or according to turning schedule and PRN to determine any changes and assessing effectiveness of the air-suspension or air-fluidized bed.
- Inspect any existing pressure ulcers for evidence of granulation tissue.
- Assess patient’s comfort level at least every 2 hours and PRN.

### KEY POINTS FOR REPORTING AND RECORDING

- Date and time air-suspension or air-fluidized bed was applied.
- Patient participation in moving and turning schedule.
- Overall skin condition and any problems patient has with the air-suspension or air-fluidized bed.