

Body Mechanics and Positioning



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LEARNING OBJECTIVES

1. Discuss the primary function of the skeletal muscles, joints, and bones.
2. Describe nursing measures that assist in preserving joints, bones, and skeletal muscles.
3. Describe a minimum of two principles of correct body mechanics.
4. State two expected outcomes of using proper body mechanics.
5. Discuss the objectives for moving and turning clients.
6. Compare and contrast the methods used in moving clients up in bed for a single nurse and when assistants are available.
7. Describe the correct placement of the canvas pieces when placing a client on the Hoyer lift.
8. Explain the rationale of assisted ambulation for clients.
9. Demonstrate the procedures for moving a client to the side of the bed and dangling a client.
10. Outline the steps in logrolling a client.
11. Describe requirements for lift team members.
12. List the pertinent data that should be charted when moving a client from the bed.
13. Write a client care plan using at least three nursing diagnoses for a client requiring moving and turning interventions.

TERMINOLOGY

Alignment: referring to posture, the relationship of body parts to one another.

Ambulate: walking; able to walk.

Appendicular skeleton: composed of 126 bones, which include the shoulder girdle, arm bones, pelvic girdle, and leg bones.

Assistive equipment: used to remove the manual lifting from client care; assumes larger proportion of client's weight.

Axial skeleton: includes the head and trunk, which form the central axis to which the appendicular skeleton is attached.

Balance: client's ability to maintain equilibrium.

Base of support: surface area on which an object rests (e.g., for a client lying in prone position, the base of support is the entire undersurface of the body).

Body mechanics: movement of the body in a coordinated and efficient way so that proper balance, alignment, and conservation of energy is maintained.

Brachial plexus: network of spinal nerves supplying arm, forearm, and hand.

Cartilage: nonvascular, dense supporting connective tissue. Found in joints, thorax, larynx, trachea, nose, and ear.

Center of gravity: midpoint or center of the body weight. In an adult it is the midpelvic cavity between the symphysis pubis and umbilicus.

Dangle: to have a client sit on the edge of the bed with feet in a dependent position, flat on floor, if possible.

Dorsiflexion: upward or backward flexion of a part of the body, such as the foot at the ankle.

Ergonomics: physical stressors involving excessive force; i.e., lifting heavy objects or working in an awkward position.

Flexion: the act or condition of being bent.

Footdrop: a falling or dragging of the foot from paralysis of the flexors of the ankle.

Fowler's position: head of bed is at a 45° angle; client's knees may or may not be flexed.

Gravity: the force that pulls objects toward the earth's surface.

High-Fowler's position: head of bed is at a 60° angle; often used to achieve maximum chest expansion.

Hoyer lift: a mechanical device that enables one person to safely transfer a client from bed to chair.

Joint: the portion of the body where two or more bones join together.

Leverage: the use of a lever to apply force.

Ligament: a band or sheet of strong fibrous connective tissue connecting the articular ends of bones serving to bind them together and to facilitate or limit motion.

Line of gravity: an imaginary line that goes from the center of gravity to the base of support.

Manual client handling: tasks such as lifting, transferring, and repositioning of clients without use of assistive devices.

Mobility: state or quality of being mobile; facility of movement.

Musculo: pertaining to muscles.

Musculoskeletal: pertaining to the muscles and bones.

Orthoses: use of external device or special equipment to support the spine and prevent back injury.

Paralysis: temporary or permanent loss of function, especially loss of sensation or voluntary motion.

Posture: attitude or position of body.

Prone: lying horizontal with face downward.

Reverse Trendelenburg's position: mattress remains unbent, but head of bed is raised and foot is lowered.

Semi-Fowler's position: head of bed is at a 30° angle; often used for clients with cardiac and respiratory problems.

Skeletal system: system of separate bones (206) bound together by ligaments and responsible for supporting, moving, and giving shape to the body.

Sprain: injury caused by wrenching or twisting of a joint that results in tearing or stretching of the associated ligaments.

Stable: when the center of gravity is close to the base of support.

Strain: injury caused by excessive force or stretching of muscles or tendons around the joint.

Trendelenburg's position: mattress remains unbent but the head of the bed is lowered and the foot is raised. "Shock blocks" may be used under the legs of the bed to achieve this position.

Trochanter: either of the two bony prominences below the neck of the femur.

MUSCULOSKELETAL SYSTEM

The musculoskeletal system protects the body, provides a structural framework, and allows the body to move. The primary structures in this system are muscles, bones, and joints.

SKELETAL MUSCLES

Skeletal muscles move the bones around the joints by contracting and relaxing so that movement can take place. Each muscle consists of a body, or belly, and tendons, which connect the muscle to another muscle or to bone.

When skeletal muscles contract, they cause two bones to move around the joint between them. One of these bones tends to remain stationary while the other bone moves. The end of the muscle that attaches to the stationary bone is called the origin. The end of the muscle that attaches to the movable bone is called the insertion.

Muscles are designated flexors or extensors according to whether they flex the joint (decrease the angle between the bones) or extend the joint (increase the angle between the bones). For example, when the deltoid muscle contracts, it abducts the arm and raises it laterally to the horizontal position. The anterior fibers aid in flexion of the arm, and the posterior fibers aid in extension of the arm.

JOINTS

Joints are the places where bones meet. Their primary function is to provide motion and flexibility. Although the internal structure of joints varies, most joints are composed of ligaments, which bind the bones together, and cartilage, or tissue, which covers and cushions the ends of the bones.

BONES

Bones provide the major support for all the body organs. Bone is composed of an organic matrix, deposits of calcium salts, and bone cells. The organic matrix provides

the framework and tensile strength for the bone. The calcium salts, which are about 75% of the bone, provide compressional strength by filling in the matrix. As a result, it is very difficult to damage a bone by twisting it or by applying direct pressure.

Bone cells include osteoblasts, osteocytes, and osteoclasts. Osteoblasts deposit the organic matrix; osteocytes and osteoclasts reabsorb this matrix. Because this process is usually in equilibrium, bone is deposited where it is needed in the skeletal system. If increased stress is placed on a bone, such as the stress of continued athletic activity, more bone is deposited. If there is no stress on a bone, as is often the case with clients on prolonged bedrest, part of the bone mass is reabsorbed, or lost.

SYSTEM ALTERATIONS

Alterations in mobility can result from problems in the musculoskeletal system, the nervous system, and the skin. A primary cause for alterations in muscles is inactivity. With forceful activity muscles increase in size. With inactivity muscles decrease in size and strength. When clients are in casts or in traction, on prolonged bedrest, or unable to exercise, their muscles become weak and atrophied.

Alterations in joints result when mobility is limited by changes in the adjacent tissues. When muscle movement decreases, the connective tissue in the joints, tendons, and ligaments becomes thickened and fibrotic.

Chronic flexion and hyperextension can also cause alterations in the joints. Chronic flexion can cause joints to become contracted in one position so that they are unmovable. Hyperextension occurs when joints are extended beyond their normal limits, which is usually 180°. The results of hyperextension are pain and discomfort to the client and abnormal stress on the ligaments and tendons of the joints.

Alterations in bone are caused by disease processes, decalcification and breaks caused by trauma, or twisting.

Encouraging clients to stand and to walk is important because the body functions best when it is in a vertical position. Physical activity forces muscles to move and increases blood flow, which improves metabolism and facilitates such body functions as gastrointestinal peristalsis.

NURSING MEASURES

Nursing care measures to preserve the joints, bones, and skeletal muscles should be carried out for all clients who require bedrest. Positions in which clients are placed, methods of moving, and turning should all be based on the principles of maintaining the musculoskeletal system in proper alignment. The nurse must also use good body mechanics when moving and turning clients to preserve her or his own musculoskeletal system from injury.

BODY MECHANICS

Knowledge of a client's body and how it moves is important. Knowledge of your own body and what happens to it when you care for clients with altered mobility is also important. Before you lift or move a client, determine the causes and consequences of the client's illness and implement the use of Safe Patient Handling and Management Algorithms to determine the appropriate client moving/transfer protocols. These guidelines also indicate the equipment needed for safe client transfer/moving, or the need for the lift team. This knowledge enables you to move the client without causing additional discomfort.

The most common client handling approaches utilized in the United States include: manual client lifting, education related to body mechanics, education in safe lifting techniques, and the use of back belts. There is strong evidence that each of these approaches is not effective in reducing caregiver injuries. Evidence based practice indicates that use of client handling equipment/devices, client care ergonomic assessment protocols, "NO Lift" policies, education of proper use of client handling equipment/devices, and client lift teams reduce injury to both clients and staff.

The physical environment of the health care setting also contributes to work-related injuries. The "tight quarters" and configuration of client rooms, nurses' work areas, and equipment can affect use of appropriate body mechanics as well as equipment for moving clients.

Trying to lift or move too much weight forces you to use your body incorrectly and frequently causes injuries. The average weight of clients who require lifting is 169 pounds. The National Institute for Occupational Safety and Health (NIOSH) states that the average worker should not lift more than 51 pounds under controlled and limited circumstances. Incorrect lifting puts most of the pressure on the muscles of your lower back. Because these muscles are not strong enough to handle the stress,

you can sustain severe injuries. If you do not follow guidelines for promoting proper body mechanics or using equipment, you are putting yourself in jeopardy. It is advisable that health care workers do simple exercises to strengthen and stretch the abdominal muscles and muscles that support the back. This will assist in preventing back injuries.

Low back pain is an occupational hazard for many workers. Back injuries account for about 20% of all injuries and illnesses in the workplace.

Nursing personnel are among the most at risk for musculoskeletal disorders. The ANA research on the impact of musculoskeletal injury indicates 30% of nurses who acquired back pain were required to leave work. Twelve percent of nurses left the profession as a result of back pain. The majority of the injuries occur from manual client handling.

Proper use of body mechanics helps prevent injuries to clients and all members of the health team. Guidelines that underly the implementation of body mechanics appear below.

- Assume a proper stance before moving or turning clients.
- Distribute workload evenly before moving or turning clients.
- Establish a comfortable height when working with clients. Keep the client as close to your body as possible when moving.
- Push and pull objects when moving them to conserve energy.
- Use large muscles for lifting and moving, not the back muscles. Move the hip and shoulders as one unit.
- Avoid leaning and stretching.
- Request assistance from others or use client-handling equipment/devices when working with heavy clients to avoid strain.
- Avoid twisting your body.
- Maintain low back in neutral position.

In addition to proper use of body mechanics, ergonomic protection and education programs must be implemented in all health care facilities to decrease risk factors related to back injuries. Whereas the use of body mechanics, equipment, and devices alone does not prevent back injuries and musculoskeletal disorders among nurses, together, appropriate use of body mechanics and a safe client handling or client care ergonomics program can decrease injuries in both number and severity.

ANA PROMOTES SAFE HANDLING LEGISLATION

The American Nurses Association has been campaigning for the Federal Occupational Safety and Health Administration (OSHA) to develop standards to control ergonomic hazards

in the workplace for the prevention of work-related musculoskeletal disorders. This regulation would include stipulations requiring health care settings to use assistive lift and transfer equipment for client handling tasks and eliminate total manual client handling. In the absence of a national standard, the ANA established the Handle With Care national campaign in 2003. This proactive plan was developed to promote safe client handling and the prevention of musculoskeletal disorders among nurses.

As part of the campaign, the ANA is fostering the development of client care ergonomics, programs that

include the use of assistive client handling equipment and devices and the elimination of manual client handling. As of March, 2006, the American Nurses Association (ANA) with its constituent member associations (CMAs) has successfully promoted state legislation designed to protect nurses from potentially career-ending musculoskeletal injuries while increasing clients' safety and comfort. Several states have already enacted legislation that requires health care facilities to develop safe client handling programs and utilize safe client handling techniques and equipment.

NURSING DIAGNOSES

The following nursing diagnoses are appropriate to use on client care plans when the components are related to body mechanics.

NURSING DIAGNOSIS	RELATED FACTORS
Activity Intolerance	Impaired motor function, weakness or paralysis, pain
Disuse Syndrome, Risk for	Debilitated state, immobility, muscle weakness, decreased motor agility
Injury, Risk for	Altered mobility, impaired sensory function, prolonged bedrest
Mobility: Physical, Impaired	Trauma or musculoskeletal impairment, surgical procedure, muscle weakness, pain, decreased strength
Transfer Ability, Impaired	Weakness, flaccidity, amputation, decreased strength
Walking, Impaired	Muscle weakness, impaired motor function, orthopedic surgery; or dysfunction



The single most important nursing action to decrease the incidence of hospital-based infections is hand hygiene. *Remember to wash your hands or use antibacterial gel before and after each and every client contact.*



Before every procedure, check two forms of client identification, not including room number. These actions prevent errors and conform to JCAHO standards.



Proper Body Mechanics

NURSING PROCESS DATA

ASSESSMENT • Data Base

Evaluate personnel's knowledge of the principles of body mechanics.

Evaluate personnel's knowledge of how to use correct muscle groups for specific activities.

Assess knowledge and correct any misinformation about body alignment and how to maintain it with each position.

Assess knowledge of physical science and application to balance and body alignment.

Assess the competency of spinal cord and associated musculature.

Assess the muscle mass of the long, thick, and strong muscles of the shoulders and thighs.

PLANNING • Objectives

To promote proper body mechanics while caring for clients

To maintain good posture, thereby promoting optimum musculoskeletal balance

To provide knowledge of the musculoskeletal system, body alignment, and balance in order to assist the nurse in caring for clients

To correct body mechanics, promote health, enhance appearance, and assist body function

IMPLEMENTATION • Procedures

Applying Body Mechanics

Maintaining Proper Body Alignment

Using Coordinated Movements

Using Basic Principles

EVALUATION • Expected Outcomes

Correct body mechanics are used when preparing for and providing client care.

Injuries are prevented to both the nurse and the client.

Proper body mechanics facilitate client care.

Clients and nurses are not injured when nursing care is provided.

Center of gravity is maintained when lifting objects.

Applying Body Mechanics

Procedure

1. Determine need for assistance in moving or turning a client. ► *Rationale:* Half of all back pain is associated with lifting or turning clients. The most common back injury is strain on the lumbar muscle group.
2. Establish a firm base of support by placing both feet flat on the floor, with one foot slightly in front of the other.

CLINICAL ALERT

Proper body mechanics is a myth according to the American Nurses Association “Handle With Care” campaign. “Proper body mechanics” training does not translate well into nursing practice. Body mechanics methods primarily concentrate on the lower back for lifting and do not account for other vulnerable body parts involved in other types of client handling tasks, such as lateral transfers.



- Manual transfers from bed to chair should be done only if client is able to assist.

GUIDELINES ON PREVENTION OF LOW BACK PAIN FOR WORKERS

- Physical exercise is recommended for prevention of low back pain. There is insufficient evidence to recommend for or against any specific type or intensity of exercises.
- Lumbar supports or back belts are not recommended.
- Shoe inserts/orthoses are not recommended. There is insufficient evidence to recommend for or against insoles, soft shoes, soft flooring, or antifatigue mats.
- Temporary modified work and ergonomic workplace adaptations can be recommended to facilitate early return to work for individuals with low back pain.
- There is insufficient consistent evidence to recommend physical ergonomic interventions alone for prevention of low back pain.
- Further research is necessary to determine appropriate prevention in low back pain. Future studies need to be high quality, using randomized controlled trials.

Source: www.WG3_Guidelines.pdf.



- Gait belts are routinely used to assist in manual transfer in most facilities.



- Use proper body mechanics whenever moving clients or objects.

3. Distribute weight evenly on both feet.
4. Slightly bend both knees. **▶Rationale:** Allows strong muscles of legs to do the lifting.
5. Hold abdomen firm and tuck buttocks in so that spine is in alignment. **▶Rationale:** This position protects the back.
6. Hold head erect, and secure firm stance.
7. Use this stance as the basis for all actions in moving, turning, and lifting clients.
8. Maintain weight to be lifted as close to your body as possible. **▶Rationale:** This position maintains the center of gravity and provides leverage that reduces lower back strain.
9. Align the three natural curves in your back (cervical, thoracic, and lumbar). **▶Rationale:** Weight of client is evenly distributed throughout spine, lowering risk of back injury.
10. Prevent twisting your body when moving the client. **▶Rationale:** This prevents injury to the back.

EVIDENCE BASED NURSING PRACTICE

Use of Back Brace to Prevent Back Injury

Two studies on prevention of low back pain using a back support differed in their conclusions. One study, Linton and van Tulder, researched the literature and found 27 investigations that were consistently negative about the use of back braces to prevent low back pain. There is strong evidence not only that they are ineffective in prevention, but that lumbar supports or back belts are no more beneficial than either no intervention or preventative interventions; in fact, they may be detrimental. The results of the Linton and van Tulder study were consistently negative about the use of lumbar supports. The study indicated that exercises, conversely, showed positive results in the randomized controlled trials, providing consistent evidence of their function in prevention.

The second study, conducted at UCLA by Kraus, McArthur, and Samaniego, found the opposite results. The UCLA study “found compelling evidence that back support can play an important role in helping reduce back injuries among workers who do a lot of lifting.” The study, completed in 1994 with 36,000 participants, indicated that low-back injuries are reduced by one-third when workers wear a back support. This study recommends worker training and proper workplace ergonomics design, and that back supports should be part of an overall back injury prevention program.

The National Institute of Occupational Safety and Health reviewed the scientific findings in the UCLA study and issued a report in 1994 that concluded the benefit of back supports remained unproven and did not recommend that they be used. A number of preventive

measures have been introduced to prevent work-related back injuries. Training, job screening, and ergonomic modification are recommended by NIOSH, but objective evidence of their effectiveness alone or in combination has been elusive and subject to many issues and problems.

These study results have culminated in a recommendation by the European Guidelines for Prevention in Low Back Pain (November 2004) to promote prevention



- Use of back brace to support back and keep body in alignment is controversial, and most current studies do not support use of the back brace.

of low back pain using activity/exercise, ergonomics, and orthosis. Physical exercise has a positive effect in prevention of back pain. Various types of activities were reviewed, such as aerobic exercises, physiotherapy, and specific trunk muscle training. The researchers found no specific differences in pain intensity between these

interventions. No studies indicated harmful effects of exercise or increased symptoms of pain.

Source: Linton and van Tulder. (2001, April 1). Preventive interventions for back and neck problems: What is the evidence?, *Spine*, 26(7), 778–787. Available at: <http://www.avenco.com/UCLA-Study/ucla.html>, www.backpainurope.org.

Maintaining Proper Body Alignment

Procedure

1. Begin with the proper stance established in the previous intervention.
2. Evaluate working height necessary to achieve objective.
 - a. Test parameters of possible heights (i.e., bed moves within an approximate range of 18 inches from floor).
 - b. Establish a comfortable height in which to work; usual height is between waist and lower level of hip joint.
3. Test that this level minimizes muscle strain by extending your arms and checking that your body maintains proper alignment.
4. If you need to work at a lower level, flex your knees. ►*Rationale:* Bending over at the waist results in back strain.
5. Make accommodations for working at high surface levels. ►*Rationale:* Reaching up may result in injury to the back through hyperextension of muscles.
6. Work close to your body so that your center of gravity is not misaligned and your muscles are not hyperextended. ►*Rationale:* This prevents back strain.



- Ensure that height of bed allows you to work without causing injury.

7. Use your longest and strongest muscles (biceps, quadriceps, and gluteal) when moving and turning clients.
8. Whenever possible, roll, push, and pull objects instead of lifting.



- *Correct:* Keep body in correct alignment when turning and reaching for objects to prevent muscle strain or back injury.



- *Incorrect:* Do not use stretching or twisting movements when you reach for objects out of close proximity to your body.



- **Correct:** Work close to the body so that center of gravity is not misaligned.



- **Incorrect:** Bending over incorrectly could injure back muscles and cause undue strain.

Using Coordinated Movements

Procedure

1. Plan muscle movements to distribute workload before you actually begin turning, moving, or lifting clients.
 - a. Establish a clear plan of action before you begin to move.
 - b. Take a deep breath so oxygen is available for energy expenditure.
 - c. Tense antagonistic muscles (abdomen) to those you will be using (diaphragm) in preparation for the movement.
 - d. Release breath and mobilize major muscle groups (abdominal and gluteal) to do the work.

2. Move muscles in a smooth, coordinated manner.
 - **Rationale:** This avoids putting strain on one muscle and is more efficient.
3. Do not make jerky, uncoordinated movements.
 - **Rationale:** This may cause injury or frighten the client.
4. When you are working with another staff member, coordinate plans and movements before implementing them.



- **Correct:** Move muscles as a unit and in alignment rather than twisting.



- **Incorrect:** Do not twist or rotate upper body when working at lower surface levels.

Using Basic Principles

Procedure

1. Move an object by pushing and pulling to expend minimal energy.
 - a. Stand close to the object.
 - b. Place yourself in proper body alignment stance.
 - c. Tense muscles, and prepare for movement.
 - d. Pull toward you by leaning away from the object and letting arms, hips, and thighs (*not back*) do the work.
 - e. Push away from you by leaning toward object, using body weight to add force.



- *Correct:* Keep body in proper alignment by bending knees and keeping back straight when lifting objects.

2. When changing direction, use pivotal movement—moving muscles as a unit and in alignment, rather than rotating or twisting upper part of body.
3. When working at lower surface levels, do not stoop by bending over. Flex body at knees and, keeping back straight, use thigh and gluteal muscles to accomplish task.
4. Use muscles of arms and upper torso in an extended, coordinated movement parallel to body



- *Incorrect:* Prevent injury to back muscles; for proper alignment, bend at knees and use leg muscles.

stance when reaching to prevent twisting or hyper-extension of muscles.

5. Lift clients or objects with the maximum use of these body alignment principles:
 - a. Determine that the movement is within your capability to perform without injury.
 - b. Place yourself in proper body alignment stance.
 - c. Stand close to and grasp the object or person near the center of gravity.



- *Correct:* Hold objects close to the body to prevent muscle strain and possible back injury.



- *Incorrect:* Holding objects away from the body may cause back strain or injury.



● *Correct:* When pushing an object, place yourself in proper body alignment.



● *Incorrect:* Standing away from object puts body out of proper alignment.

- d. Prepare muscles by taking a deep breath, and set muscles.
- e. Lift object with arms or by stooping and using leg and thigh muscles.

- f. Carry object close to your body to prevent strain on your back.
- g. Take frequent rest periods to prevent additional strain.

The Veteran's Health Administration completed a literature review and determined that body mechanics training has proven to be ineffective.

1. Body mechanics training alone is not effective to prevent job-related injuries.
2. There is no evidence that back belts are effective in reducing risks to caregivers.
3. Literature does not support the myth that physically fit nurses are less likely to be injured.
4. The average worker should lift no more than 51 pounds and only under controlled circumstances.
5. The long-term benefits of proper equipment and mechanical lifts far outweigh the costs related to work-related injuries.
6. Staff will use the equipment when they are included in the decision-making process for purchasing new equipment.

► DOCUMENTATION FOR BODY MECHANICS

- Injury to client resulting from poor body mechanics
- Devices needed for turning and moving
- Number of personnel required for turning and moving
- Ways in which client assists in moving
- Special requirements of client for proper body alignment, such as support pillows



CRITICAL THINKING APPLICATION

EXPECTED OUTCOMES

- Correct body mechanics are used when preparing for and providing client care.
- Injuries are prevented to both the nurse and the client.
- Proper body mechanics facilitate client care.
- Clients and nurses are not injured when nursing care is provided.
- Center of gravity is maintained when lifting objects.

UNEXPECTED OUTCOMES

Incorrect body mechanics are used while giving client care.

Nurse injures self while giving client care.

Nurse uses poor body mechanics and injures client.

Due to staffing shortage, nurse is unable to obtain sufficient assistance with turning and moving clients.

CRITICAL THINKING OPTIONS

- Identify areas of your body where you feel stress and strain.
- Evaluate the way you use body mechanics.
- Attend an in-service program on using body mechanics appropriately.
- Concentrate on how you are using your body when moving and turning clients.
- Position bed and equipment at a comfortable height and proximity to working area.
- Use your longest and strongest muscles to prevent injury.
- Wear a back brace to support back.
- Prevent future episodes of back pain by increasing physical activity and exercises, changing ergonomics, and evaluating use of orthosis.
- Report any back strain immediately to supervisor.
- Complete unusual occurrence form.
- Go to health service or emergency room for evaluation and immediate care.
- Evaluate any activities that led to injury to determine incorrect use of body mechanics.
- Prevent additional injury by obtaining assistance when needed.
- Use devices such as turning sheets or assistive devices to assist in turning difficult clients.
- Assess the extent of client's injury.
- Notify client's physician.
- Complete unusual occurrence form.
- Carry out physician's orders for follow-up treatment.
- Place turning sheets on bed for all clients who are difficult to move.
- Use principles of leverage in moving clients.
- Until adequate staff is available, turn and position client from side to side at least every 2 hours.
- Use Hoyer lift.



Moving and Turning Clients

NURSING PROCESS DATA

ASSESSMENT • Data Base

- Observe the client and identify ways to improve the client's position and alignment.
- Determine the client's physical ability to assist you with positioning.
- Assess appropriate mechanical device for moving clients requiring assistance.
- Note the presence of tubes and incisions that alter the positioning and alignment procedures.
- Assess joint mobility.
- Assess skin condition with each turn.

PLANNING • Objectives

- To provide increased comfort
- To provide optimal lung excursion and ventilation
- To prevent contractures due to constant joint flexion
- To promote optimal joint movement
- To help maintain intact skin
- To prevent injury due to improper movement
- To move and transfer clients using mechanical devices

IMPLEMENTATION • Procedures

- | | |
|--|----------------------------|
| Assessing Clients for Safe Moving and Handling | Dangling at the Bedside |
| Turning to Lateral Position | Moving from Bed to Chair |
| Turning to a Prone Position | Using a Hoyer (Sling) Lift |
| Moving Client Up in Bed | Logrolling the Client |
| Moving Client with Assistance | Using a Footboard |
| Transferring Client from Bed to Gurney | Placing a Trochanter Roll |

EVALUATION • Expected Outcomes

- Client's comfort is increased.
- Skin remains intact without evidence of breakdown as a result of moving and turning.
- Breathing is adequate and unlabored.
- Joint movement is maintained.
- Footdrop is prevented.
- Body alignment is maintained.
- Mechanical equipment and devices are used in client transfers and repositioning as needed.
- Client is moved safely using appropriate device.

TABLE 12-1 BED POSITIONS FOR CLIENT CARE

Positions	Placement	Use
High-Fowler's	Head of bed 60° angle	Thoracic surgery, severe respiratory conditions
Fowler's	Head of bed 45°–60° angle; hips may or may not be flexed	Postoperative, gastrointestinal conditions, promotes lung expansion
Semi-Fowler's	Head of bed 30° angle	Cardiac, respiratory, neurosurgical conditions
Low-Fowler's	Head of bed 15° angle	Necessary degree elevation for ease of breathing, promotes skin integrity, client comfort
Knee-Gatch	Lower section of bed (under knees) slightly bent	For client comfort; contraindicated for vascular disorders
Trendelenburg	Head of bed lowered and foot raised	Percussion, vibration, and drainage (PVD) procedure; promotes venous return
Reverse Trendelenburg	Bed frame is tilted up with foot of bed down	Gastric conditions, prevents esophageal reflux



● High-Fowler's position at 60° angle.



● Fowler's position at 45°–60° angle.



● Semi-Fowler's position at 30° angle.



● Low-Fowler's position at 15° angle.



● Reverse Trendelenburg position.



● Trendelenburg position.



● Elevated knee gatch.



● Angle gauge on bed.

Assessing Clients for Safe Moving and Handling

Equipment

Mechanical equipment or devices based on assessment of functional level.

Procedure

1. Perform hand hygiene.
2. Identify client and introduce yourself.
3. Explain use of assessment criteria in preparation for safe moving and handling.

4. Complete check list or document findings in nurses' notes.
 - a. Identify client's level of assistance.
 1. Independent: able to perform task safely with or without staff assistance or assistive devices.
 2. Partial Assist: requires stand-by assistance, cueing, or lifting no more than 35 pounds of client's weight by staff.
 3. Dependent: requires staff to lift more than 35 pounds of client's weight, or is unpredictable in amount of assistance needed. Assistive devices need to be utilized.

Assessment Criteria and Care Plan for Safe Patient Handling and Movement

A: ASSESSMENT CRITERIA

I. Patient's Level of Assistance:
 Independent — Patient performs task safely, with or without staff assistance, with or without assistive devices.
 Partial Assist — Patient requires no more help than stand-by, cueing, or coaxing, or caregiver is required to lift no more than 35 lbs. of a patient's weight.
 Dependent — Patient requires nurse to lift more than 35 lbs. of the patient's weight, or is unpredictable in the amount of assistance offered. In this case assistive devices should be used.

An assessment should be made prior to each task if the patient has varying level of ability to assist due to medical reasons, fatigue, medications, etc. When in doubt, assume the patient cannot assist with the transfer/repositioning.

II. Weight Bearing Capability
 Full
 Partial
 None

III. Bi-Lateral Upper Extremity Strength
 Yes
 No

IV. Patient's level of cooperation and comprehension:
 Cooperative — may need prompting; able to follow simple commands.
 Unpredictable or varies (patient whose behavior changes frequently should be considered as "unpredictable"), not cooperative, or unable to follow simple commands.

V. Weight: _____ **Height:** _____
Body Mass Index (BMI) [needed if patient's weight is over 300]: _____
If BMI exceeds 50, institute Bariatric Algorithms

The presence of the following conditions are likely to affect the transfer/repositioning process and should be considered when identifying equipment and technique needed to move the patient.

VI. Check applicable conditions likely to affect transfer/repositioning techniques.

<input type="checkbox"/> Hip/Knee Replacements	<input type="checkbox"/> Postural Hypotension	<input type="checkbox"/> Amputation
<input type="checkbox"/> History of Falls	<input type="checkbox"/> Severe Osteoporosis	<input type="checkbox"/> Urinary/Fecal Stoma
<input type="checkbox"/> Paralysis/Paresis	<input type="checkbox"/> Splints/Traction	<input type="checkbox"/> Contractures/Splints
<input type="checkbox"/> Unstable Spine	<input type="checkbox"/> Fractures	<input type="checkbox"/> Tubes (IV, Chest, etc.)
<input type="checkbox"/> Severe Edema	<input type="checkbox"/> Respiratory/Cardiac Compromise	<input type="checkbox"/> Severe Pain, Discomfort
<input type="checkbox"/> Very Fragile Skin	<input type="checkbox"/> Wounds Affecting Transfer/Positioning	

Comments: _____

B: CARE PLAN

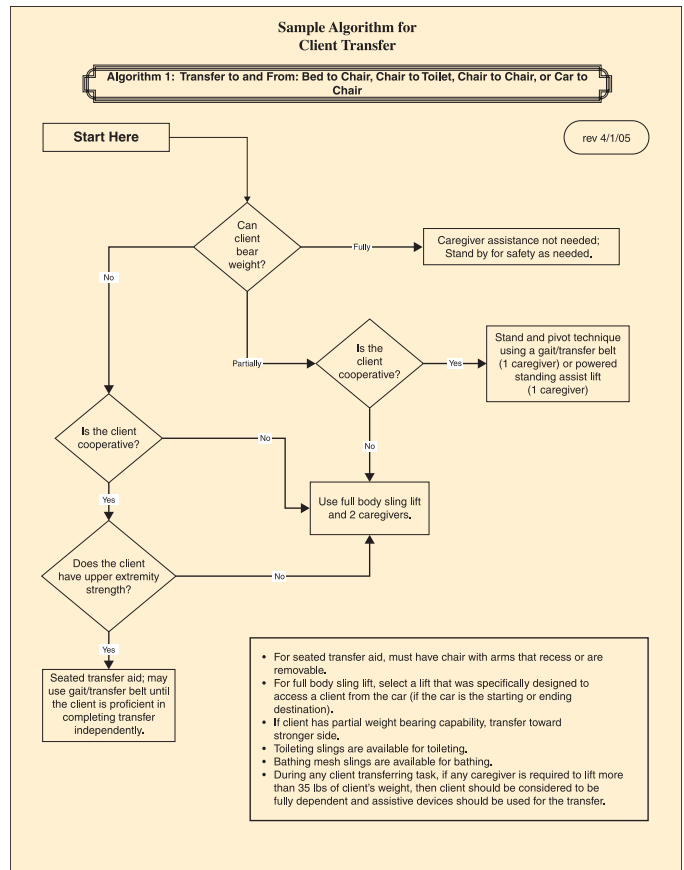
VHL Care Plan:	Task	Equipment/ Assistive Device	# Staff
1	Transfer To and From: Bed to Chair, Chair to Toilet, Chair to Chair, or Car to Chair.		
2	Lateral Transfer To and From: Bed to Stretcher, Trolley.		
3	Transfer To and From: Chair to Stretcher, or Chair to Exam Table.		
4	Reposition in Bed: Side-to-Side, Up in Bed.		
5	Reposition in Chair: Wheelchair and Dependency Chair.		
6	Transfer Patient Lip from the Floor.		
Bariatric 1	Bariatric Transfer To and From: Bed to Chair, Chair to Toilet, or Chair to Chair		
Bariatric 2	Bariatric Lateral Transfer To and From: Bed to Stretcher or Trolley.		
Bariatric 3	Bariatric Reposition in Bed: Side-to-Side, Up in Bed		
Bariatric 4	Bariatric Reposition in Chair: Wheelchair, Chair or Dependency Chair		
Bariatric 5	Patient Handling Tasks Requiring Access to Body Parts (Limb, Abdominal Mass, Gluteal Area)		
Bariatric 6	Bariatric Transporting (Stretcher)		
Bariatric 7	Bariatric Toileting Tasks		

Sling Type (circle choice): Seated Seated (Amputation) Standing Supine Ambulation Limb Support

Sling Size: _____

Signature: _____ Date: _____

*If patient's weight is over 300 pounds, the BMI is needed. For Online BMI table and calculator see: http://www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm



Source: Nelson, A. VISN 8 Patient Safety Center. www.VISN8.med.va.gov/patientsafetycenter

Source: Nelson, A. VISN 8 Patient Safety Center. www.VISN8.med.va.gov/patientsafetycenter

- b. Weight-bearing capacity.
 1. Full.
 2. Partial.
 3. None.
- c. Bilateral upper extremity strength.
 1. Yes.
 2. No.
- d. Client's level of cooperation and comprehension.
 1. Cooperative: may need prompting, able to follow simple commands.
 2. Unpredictable or varies: Client's behavior changes frequently, client is not cooperative, or unable to follow simple commands.
- e. Record client's:
 1. Height.
 2. Weight.
 3. Client more than 300 pounds, must use Bariatric Algorithms for assistance.
 - f. Identify conditions which will likely affect transfer/repositioning techniques, i.e., surgical incision, fragile skin, fractures, etc.

Note: See Sample Assessment Criteria and Care Plan for Safe Patient Handling and Movement and Algorithms. (Nelson, A. VISN 8 Patient Safety Center.)

5. Review algorithms or appropriate use of equipment and devices to determine equipment necessary to meet client's needs.
6. Determine number of staff needed for moving/handling based on algorithms or client assessment.

Turning To Lateral Position

Equipment

Pillows for positioning
Lateral-assist device or friction-reducing sheet
(see Table 12.3)
Drawsheet for trochanter roll

Procedure

1. Identify client and perform hand hygiene.
2. Explain rationale for procedure to client.
3. Lower head of the bed completely or to a position as low as client can tolerate.



● Use pillows to support proper alignment.

4. Elevate bed to a comfortable working height.
5. Move client to your side of bed. Put side rails up, and move to other side of bed. Use lateral-assist device or friction-reducing sheet if necessary.
6. Flex client's knees.
7. Place one hand on client's hip and one hand on client's shoulder; roll onto side.
8. Position pillow to maintain proper alignment.
9. Be sure to position client's arms so they are not under the body.
10. Perform hand hygiene.



● Lateral (side-lying) position.

Turning to a Prone Position

Equipment

Pillows for positioning
Lateral-assist device or friction-reducing sheet

Procedure

1. Identify client and perform hand hygiene.
2. Explain rationale for procedure to client.
3. Lower head of bed completely or to a position that is as low as client can tolerate.
4. Elevate bed to a comfortable working height.
5. Move client to side of bed away from side where he or she will finally be positioned. Use lateral-assist device or friction-reducing sheet if necessary.

6. Position pillows on side of bed for client's head, thorax, and feet.
7. Roll client onto pillows, making sure that client's arms are not under his or her body.



● Supine position.

8. Reposition pillows as necessary for client's comfort.
9. Perform hand hygiene.



● Prone position.

Moving Client Up in Bed

Equipment

Trapeze (optional)
Friction-reducing sheet

Procedure

1. Identify client and perform hand hygiene.
2. Explain rationale for procedure to client.
3. Lower head of bed so that it is flat or as low as client can tolerate.
4. Raise bed to a comfortable working height.
▶ *Rationale:* Allows nurse's center of gravity to assist in turning.
5. Remove pillow and place it at head of bed.
▶ *Rationale:* This prevents striking client's head against bed.
6. Place one arm under client's shoulders and other arm under client's thighs. Use this method of moving only if the client can assist with move.



● Encourage client to help when moving up in bed.

7. Flex your knees and hips. Move feet close to bed.
8. Place your weight on your back foot.
9. Instruct client to put arms across chest, bend legs, and put feet flat on the bed.
10. Shift your weight from back to front foot as you lift client up in bed. ▶ *Rationale:* Shifting weight reduces force needed to move client up in bed.
11. Ask client to push with feet as you move him/her.



● Place one arm under shoulders and other under thighs.



● Maintain proper body alignment when moving client up in bed.

12. Position client comfortably, replacing pillow and arranging bedding as necessary.
13. Perform hand hygiene.

Note: There are several other methods of moving a client up in bed—including using assist devices such as friction-reducing sheet or total lift devices for clients who are unable to assist with moving and turning.

Moving Client with Assistance

Equipment

Friction-reducing sheet

Procedure

1. Identify client and perform hand hygiene.
2. Explain rationale for procedure to client.
3. Lower head of bed so that it is flat or as low as client can tolerate.
4. Raise bed to a comfortable working height.
5. Remove pillow, and place it at head of bed. **►Rationale:** To prevent head being bumped when moved.
6. Coordinate the movements of all nurses. **►Rationale:** One nurse is responsible for stating when to move client, “on count of three.”
7. Position client with two nurses or staff members.
 - a. Position one nurse on each side of client. Assume broad base of support; position front foot facing head of bed, body slightly turned toward head of bed.
 - b. Assist client to flex knees, if possible.
 - c. Each nurse firmly grasps sheet at level of client’s upper back with one hand and at level of buttocks with other hand.
 - d. Each nurse places weight on back foot.
 - e. Then with one firm, coordinated, rocking movement (shifting weight from back to front foot), lift client toward head of bed.
 - f. Place client in a comfortable position.
8. Perform hand hygiene.

CLINICAL ALERT

The ANA reports that an average health care worker should lift no more than 51 pounds and only under very controlled circumstances. It is advisable to use lifting and transferring devices.

CULTURAL COMPETENCE

Different cultures may have cultural variances regarding distance and space. When clients are being moved, transferred to a bed or gurney, client is brought close to nurse’s body. It is important to explain the transfer process to client, particularly Americans, Canadians, and British clients. They may be threatened by invasion of personal space and touch. Japanese, Arabs, and Latin Americans aren’t as concerned about personal space.



- Use friction-reducing sheet and shift weight from back to front leg when moving client up.

CLIENT LIFT TEAMS

A lift team consists of two physically fit individuals competent in lifting techniques, who work together to perform high-risk client transfers.

The individuals on the team must have no prior history of a musculoskeletal injury and must depend on their physical strength and capabilities. They must have a physical examination and an x-ray of their spine, in addition to not having a history of back injury. They are trained on the use of mechanical lifting devices. Several clinical trials have been conducted on the use of client lift teams. The outcomes indicated this intervention was effective in decreasing the loss of work days, and compensable injury costs.



Source: Nelson, A. and Baptiste, A. Evidence-based practices for safe patient handling and movement. Available at www.nursingworld.org/ojin. Accessed September 30, 2004.

EVIDENCE BASED NURSING PRACTICE

Use of Draw Sheet for Moving Clients

Few evidence-based studies disagree that the critical task of repositioning a client in bed places caregivers at an increased risk of back injury due to high spinal loads. Although the two-person draw sheet method of repositioning clients has the lowest low-back disorder risk, spinal loads were still high, thus increasing the risk of a back injury.

Most low back injuries are not the result of a single exposure to a high load but repeated small loads (bending) or a sustained load (sitting). Low back pain is shown to result from repetitive motion and excessive loading.

Source: Marras et al. A comprehensive analysis of low-back disorder risk and spinal loading during transferring and repositioning of patients using different techniques. *Ergonomics*, 42(7), 904–926, July 1, 1999.

Transferring Client from Bed to Gurney

Equipment

Transfer board: polyethylene board
about 18–22 inches
wide by 72 inches long
Sheets to cover board, gurney, and client
Bath blanket (optional)
Gurney, bed, or CT table

Procedure

1. Perform hand hygiene.
2. Introduce self and explain procedure to client and show client transfer board. ►*Rationale:* To allay client's fears of being dropped from board.

3. Cover client with sheet or bath blanket and cover board and gurney with sheets.
4. Position client on side of bed away from gurney in lateral position.
5. First nurse supports client while second nurse places board as close to client as possible. ►*Rationale:* This allows client to be positioned on entire board after turn.
6. Instruct client to turn onto back, directly onto board. Client may need assistance to turn.
7. Place both nurses on side of gurney or bed toward which client will be turned.



- Move client to side of bed in lateral position and position transfer board.



- Use handholds on board to move client to gurney; maintain proper body mechanics.



- Two nurses move to transfer board side of gurney before moving client.



- Remove transfer board after centering client on gurney.

8. Assume appropriate body mechanics (broad base of support, one foot in front of the other, knees and hips flexed). Place weight on front foot.
9. Transfer weight on count of three from front to back foot as you lift board and pull it toward you.
10. Center client on gurney or bed and remove board by pulling board out and up using handholds along edge of board and using good body mechanics.
11. Place side rails in UP position, or according to facility policy.

LEGAL ALERT

Back Injuries from Lifting and Transferring

A suit was filed against a large nursing home chain by nursing assistants at five Pennsylvania nursing homes. The complaint with OSHA alleged they had suffered back injuries from lifting and transferring clients. After a 15-month investigation, OSHA issued citations against the nursing home for ergonomics violations under the “general duty” clause of the Occupational Safety and Health Act. The clause states that an employer must provide employees with a workplace free of recognized hazards that are causing or likely to cause death or physical harm. OSHA argued that transferring clients exposed CNAs to serious injury to the upper back and upper extremities. OSHA settled with the nursing home chain. Under the terms of the settlement the nursing home chain agreed to purchase mechanical lifting equipment at all facilities, nationwide, and to train all workers in the use of the equipment.

Source: Mannix, Richard. Health Care Law, 2002.

TABLE 12-2 ASSISTIVE DEVICES FOR MOVING/TURNING CLIENTS

Equipment/Device	Use for Client Moving/Handling
Gait belt	Assists client to walk when he/she has leg strength, can cooperate, and requires minimal assistance.
Lateral-assist devices (roller boards, side boards, friction-reducing lateral-assist devices)	Assists clients in lateral transfers, bed-to-gurney, and reduces client-surface friction during transfers, thus preventing skin breakdown and client discomfort. Friction-reducing sheets are used to position clients in bed and in lateral transfers.
Electric beds	Assists clients in lateral transfers. Position the bed so transfer surface (gurney) slightly lower than bed to allow client to move onto new surface. Beds can be placed in high-Fowler’s position to assist client into sitting position for easier transfer out of bed.
Nonmechanical sit-to-stand aids	Assists clients with some arm strength and weight-bearing ability, and who can follow simple directions to move out of bed. Once client stands, pulling self up by holding onto bars, a seat flap is lowered and the client can rest on the seat. Transfers to commodes, toilets, showers can be accomplished using this device.
Powered stand-assist device	Assists clients who can bear weight on at least one leg, can follow simple instructions. Client is instructed to place feet on footrest, while a sling is placed under arms and around back. Legs are positioned against padded shin rest and client’s hands are placed on handles. Machine will lift client to a standing position, once electronic hand control is pushed by nurse. Device can be used to transport client to bathroom or chair.
Powered full-body lifts	Assists clients who are unable to bear any weight. These lifts can also be used to pick clients off the floor following falls. Sling is placed under client, then attached to a positioning bar. Client is then lifted from bed or floor. These lifts are portable or ceiling mounted.

Dangling at the Bedside

Procedure

1. Perform hand hygiene.
2. Introduce self and explain procedure to client.
3. Lower bed to lowest position.
4. Move client to edge of bed and instruct client to bend knees. **►Rationale:** This allows client to easily move legs and feet over side of bed onto floor.
5. Turn client onto side, keeping knees flexed, or place bed in Fowler’s position (head elevated at 45° angle). **►Rationale:** This position is sometimes preferred; it may be easier for nurse to pivot client to sitting position.
6. Stand at client’s hip level. Assume broad base of support with forward foot closest to client. Flex your knees, hips, and ankles.



● Move client to side of bed and instruct to flex knees.

7. Place one of your arms under client's shoulders and other arm beneath client's thighs near knees. Instruct client to use arms to push shoulders up from bed. ►*Rationale:* This prevents client falling backward onto bed.
8. Lift client's thighs slightly and pivot on balls of your feet as you move client into sitting position. Use gluteal, abdominal, leg, and arm muscles to move client.
9. Stand in front of client until client is stable in upright position. ►*Rationale:* Client may experience



● Turn client onto side, maintaining knees in flexed position.

- orthostatic hypotension if he/she has been on bed rest for a period of time.
10. Take vital signs especially if this is first time client is dangled. ►*Rationale:* To determine if orthostatic hypotension is present.
11. Dangle client with feet flat on the floor for a few minutes before transferring to chair or ambulating. ►*Rationale:* When feet are on floor, it helps to prevent clot formation.



● Maintain broad base of support as you pivot client to sitting position.



● Dangle client with feet flat on floor for several minutes before transferring to chair or ambulating.

Moving from Bed to Chair

Equipment

Chair
Gait belt

Procedure

1. Identify the client and perform hand hygiene.
2. Lock bed in place.
3. Place chair at head of bed. If using wheelchair, remove arm and foot closest to bed to facilitate transfer.
4. Lock chair wheels or have someone hold chair as you move client.
5. Follow steps 4–6 in skill *Dangling at the Bedside*.
6. Dangle client until he or she is stable.
7. Give client nonslip shoes or slippers.

8. Move client to side of bed using gait belt for support. **►Rationale:** Helps stabilize client to prevent falls during transfer to chair.
9. Place your foot closest to chair between client's feet.
10. Rock client and, on count of three, assist client to standing position.
11. Grasp gait belt firmly for safe transfer, while using leg muscles to pivot client to chair.
12. Slowly lower client into chair.
13. Position client in chair to prevent pressure areas. If client has circulatory impairment, elevate legs while out of bed. **►Rationale:** This promotes venous return.

Note: It is preferable to use the nonmechanical sit-to-stand aid for transferring clients out of bed unless they require minimal assistance.



- When using wheelchair, remove arm and foot closest to bed for ease of transfer.



- Pivot client to dangling position before placing feet on floor.



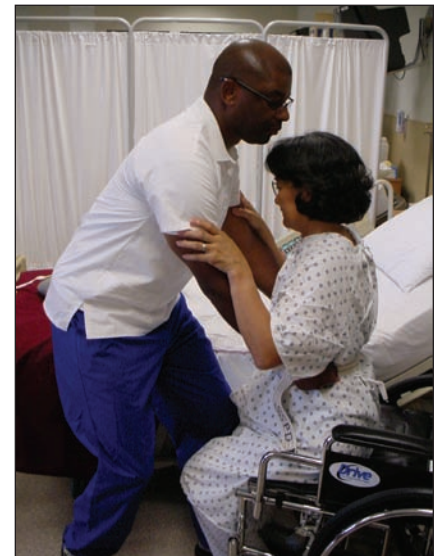
- Move client to side of bed using gait belt for support.



- Stand with your foot between client's feet; assist client to standing position.



- Grasping gait belt for safe transfer, use leg muscles to pivot client into chair.



- Slowly lower client into chair while holding gait belt securely.

EFFECTIVENESS OF SAFE CLIENT HANDLING USING ASSISTIVE EQUIPMENT AND DEVICES

Health Care Staff Benefits

- Use of assistive client handling equipment and devices has made manual client handling unnecessary.
- New assistive devices control the ergonomic hazard associated with lifting and transferring clients, preventing injuries to staff.
- Injuries to nursing staff have decreased dramatically since the advent of the new devices and equipment, leading to cost savings for facilities for worker's compensation benefits.

Client Benefits in Use of Assistive Devices and Equipment



- Reduction in client falls and skin tears, as a result of the new equipment and devices.
- Clients feel more secure with transfer and ambulation with new equipment and devices.
- Client is more comfortable in moving and turning using the new devices and equipment.
- Client's dignity is protected by using assistive equipment and devices.
- Assistive devices and equipment are selected to match the client's ability to assist in own movement, allowing client more autonomy.

TABLE 12-3 SAFE CLIENT HANDLING DEVICES

	Device	Use
	Gait belt	Assist client in walking if he/she has leg strength, can cooperate, and requires minimal assistance.
	Lateral assist device	Slide boards can be used to transfer clients from bed to gurney.
	Nonmechanical sit-to-stand aid	Used to assist clients who have some arm strength and some weight-bearing ability out of bed. Client pulls self up by holding onto bar. Unfold a seat flap and have client sit on seat.

(continued)

TABLE 12-3 SAFE CLIENT HANDLING DEVICES (*continued*)

	Device	Use
	Friction-reducing sheet	Allows clients to be positioned in bed without causing shearing of the skin.
	Powered full-body lift	Used for clients unable to bear weight. Clients can be moved out of bed or lifted off the floor following a fall. Ceiling-mounted lifts are also available.

Note: Follow manufacturer's directions for use of these assist devices.

Using a Hoyer (Sling) Lift

Equipment

Hoyer lift base
2 canvas pieces: 1 large, 1 small
2 sets of canvas straps

Procedure

1. Check orders and client care plan. Determine that lift can safely move the weight of the client.
2. Explain procedure to client. ►*Rationale:* Clients may be frightened by use of a mechanical device.
3. Perform hand hygiene.
4. Bring Hoyer frame to bedside.
5. Provide privacy for client.
6. Lock wheels of bed.
7. Place client's chair by the bed. Allow adequate space to maneuver the lift.
8. Raise bed to HIGH position and adjust head and knee gatch so that mattress is flat.
9. Keep side rail on opposite side in UP position.
10. Roll client away from you.
11. Place lower edge of wide canvas piece under client's knees.
12. Place upper edge of narrow canvas piece under client's shoulders.
13. Raise side rail on your side of bed.
14. Move to opposite side of bed, and lower side rail.
15. Roll client away from you to opposite side, and straighten out canvas pieces. Turn client to supine position.
16. Place U base of frame under bed on side where chair is positioned.
17. Lock wheels of frame. Lower side rail.
18. Attach canvas straps from swivel bar to each canvas piece using hooks.
19. Place straps evenly on canvas pieces. Sling extends from shoulders to knees. ►*Rationale:* This supports client's weight equally.
20. Elevate head of bed.
21. Raise client by turning release knob clockwise to close pressure valve.
22. Pump lift handle until client is lifted clear of the bed.
23. Maneuver client over the chair.
24. Lower client by turning release knob *slowly* counterclockwise.
25. Guide client into chair.
26. Align client into chair.
27. Remove straps from bar, and move lift out of the way.
28. Check for client's comfort in chair; place call bell close at hand.
29. Perform hand hygiene.
30. Return client to bed using reverse method.



● Place canvas piece under client from knees to shoulders.



● Raise client off bed by turning release knob clockwise.



● Use one nurse to stabilize client as second nurse guides client into chair.

Logrolling the Client

Equipment

Pillows, towels, blankets for positioning
Turning sheet

Procedure

1. Check order for logrolling client and client care plan as to exactly why client needs to be logrolled.
2. Perform hand hygiene.
3. Obtain sufficient assistance to complete procedure with ease. Three nurses are preferable.
4. Place a pillow between the client's knees before moving the client. ► *Rationale:* To prevent adduction of hip. This will prevent spinal torque.
5. Position two nurses on side of bed to which client will be turned. Position third nurse on other side of bed.
6. Designate person at head of bed to be in charge of coordinating move.
7. Assume correct position for client move:
 - a. Nurse at head: one arm supports client's head, second arm supports shoulders and neck.
 - b. Second nurse: one hand grasps client's other shoulder, the other hand and arm around knee.
 - c. Third nurse: on the opposite side of the bed, nurse holds drawsheet firmly to support torso. ► *Rationale:* This maintains the body in alignment.



● 1. Position nurses on each side of client



● 2. Maintain proper alignment while turning client.

8. Instruct client to place arms across chest to keep body straight.
9. Assume broad stance with one foot ahead of the other and knees flexed.
10. Rock onto back foot, and use leg and arm muscles to move client in one coordinated movement when nurse at head of bed signals. ►*Rationale:* To maintain proper alignment, all of the body parts must be



● 3. Maintain client's position with pillow support under client's back.

11. Moved at the same time. If not, injury to client's neck and spinal column may occur.
11. Maintain client's position in alignment with pillows, towels, or folded blankets.
12. Change client's position frequently (minimum 2 hours) according to physician's orders.

Note: It is recommended that a friction-reducing sheet be used instead of manual turning.



● 4. After positioning pillow, allow client to lean back for support.

Using a Footboard

Equipment

Footboard

Procedure

1. Provide a footboard if client is unable to place feet in dorsal flexion or plantar flexion is continuous.
2. Cover footboard with a bath blanket to protect feet from rough surfaces.
3. Place footboard on bed in a place where client's feet can firmly rest on it without sliding down in bed.
4. Observe legs to ensure that they are not in a flexed position when feet are against the board.
5. Tuck top linen under mattress at foot of bed, and bring linen up over the footboard to the top of the bed. Do not drape top linen over footboard as it can easily be pulled off the bed.

CLINICAL ALERT

Footboards are used to prevent plantar flexion. Extended periods of plantar flexion can lead to footdrop.

6. Put feet and ankles through range-of-motion exercises every 4 hours for clients on prolonged bedrest.
7. Observe heels and ankles frequently for signs of breakdown.
8. Place pillow under client's calves (not under heels) allowing heels to be off mattress if skin breakdown is assessed.

Note: Clients are encouraged to wear high-top sneakers while on bedrest, along with the footboard. ►Rationale: Aids in preventing footdrop.

Placing a Trochanter Roll

Equipment

Bath blanket

Procedure

1. Perform hand hygiene and place client in supine or prone position.
2. Place folded bath blanket on bed next to client.

3. Extend blanket from greater trochanter to thigh or knee.
4. Place blanket edge under leg and buttocks to anchor.
5. Roll bath blanket toward client by rolling it under.
6. Rotate affected leg to slight internal hip rotation. ►*Rationale:* The purpose is to prevent external rotation of the head of the femur in the acetabulum.

7. Tighten the roll by tucking the roll under the hip joint.
8. Allow affected leg to rest against trochanter roll. Hip should be in normal alignment, not internally or externally rotated. Patella should be facing upward if client in supine position. **►Rationale:** This is used most commonly for clients who have a muscle weakness or paralysis of that side of the body.

HANDROLL POSITIONING

When positioning clients who are on long-term bedrest, all areas of the body must be considered. Handrolls made from folded washcloths rolled into a cone shape (or commercially available) may be used to position and maintain wrist and fingers in a functional position. The purpose is to prevent deformity and contractures.



- Use trochanter rolls made from bath blankets to align client's hips.

► DOCUMENTATION FOR MOVING AND TURNING CLIENTS

- How often client turned or moved
- Condition of skin and joint movement
- Unexpected problems with moving or positioning client and solutions to problems
- Client's acceptance of and feelings about the procedure
- Number of staff needed to complete the procedure
- Transferred by assistance devices from bed to chair, if appropriate
- Time client was in chair or dangling at bedside
- Use of a footboard or trochanter roll



CRITICAL THINKING APPLICATION

EXPECTED OUTCOMES

- Client's comfort is increased.
- Skin remains intact without evidence of breakdown as a result of moving and turning.
- Breathing is adequate and unlabored.
- Joint movement is maintained.
- Footdrop is prevented.
- Body alignment is maintained.
- Mechanical equipment and devices are used in client transfers and repositioning as needed.
- Client is moved safely using appropriate device.

UNEXPECTED OUTCOMES

Client unwilling to move due to fear of pain or discomfort.

Client unable to assist with movement.

Client unable to maintain any type of position without assistance.

Skin begins to break down.

CRITICAL THINKING OPTIONS

- Explain rationale and need for the procedure more thoroughly
- If possible, check if client can be medicated before the procedure.
- Obtain additional assistance to decrease client's apprehension.
- Use a friction-reducing sheet to provide more support for client.
- Obtain additional assistance to help with moving "dead" weight.
- Use trochanter roll to prevent external rotation of client's hip
- Use foam bolsters to maintain side-lying positions.
- Using folded towels, blankets, or small pillows, position client's hands and arms to prevent dependent edema.
- Change client position every 2 hours.
- Check with physician for therapeutic mattress or dressings for pressure ulcer(s) care.



CHAPTER ADDENDUM

GERONTOLOGIC CONSIDERATIONS

PHYSIOLOGIC AGE CHANGES IN THE MUSCULOSKELETAL SYSTEM THAT AFFECT NURSING CARE OF THE ELDERLY

- Contractures—muscles atrophy, regenerate slowly; tendons shrink and sclerose.
- Range of motion of joints decreases—lack of adequate joint motion, ankylosis.
- Mobility level is limited—muscle strength lessens and gait may be unsteady.
- Kyphosis occurs—cervical vertebrae may be flexed; intervertebral discs narrow.
- Bodies of thoracic vertebrae compress slowly with aging leading to the hunchback appearance—loss of overall height results from disk shrinkage and kyphosis.
- Bone changes—loss of trabecular bones and bones become brittle.
- Osteoporosis occurs as a result of calcium loss from the bone and insufficient replacement.
- Osteoarthritis increases with age, equally affecting men and women. This condition results in physical stress on joints as a result of long-term mechanical, horizontal, chemical, and genetic factors.

PSYCHOSOCIAL AND PHYSIOLOGICAL CHANGES IN ELDERLY WHO ARE IMMOBILIZE

- At risk for confusion, depression and disorientation—keep clock and calendar in room to help reorient to time and place.

- More susceptible to hazards of immobility—maintain own ADLs as much as possible and change position every 2 hours.

AGING AND CHANGES IN ABILITY TO MAINTAIN ACTIVITY LEVELS

- As aging occurs, there is a decrease in the rate or speed of activity.
- Loss of muscle mass interferes with activities that require strength such as bending down, dressing, and reaching for objects.
- Dexterity decreases, leading to a change in performing manipulative skills.

NURSING CARE FOR POSITIONING ELDERLY CLIENTS

- Ambulate within limitations of age.
- Alter position every 2 hours; align correctly.
- Prevent osteoporosis of long bones by providing exercises against resistance as ordered.
- Provide active and passive exercises—rest periods necessary and exercise paced throughout the day for the elderly.
- Provide range-of-motion exercises to all joints three times a day.
- Educate family that allowing the client to be sedentary is not helpful.
- Encourage walking, which is best single exercise for the elderly.

MANAGEMENT GUIDELINES

Each state legislates a Nurse Practice Act for RNs and LVN/LPNs. Health care facilities are responsible for establishing and implementing policies and procedures that conform to their state's regulations. Verify the regulations and role parameters for each health care worker in your facility.

DELEGATION

- All levels of health care workers can be assigned to move and turn clients, and provide assistance with transfers.

- Positioning clients in bed can be assigned to all levels of health care workers.
- Frequently, the physical therapist is assigned to work with postoperative clients or clients requiring special transfer techniques or ambulation until clients are released to nursing.
- Before assigning staff to logroll a client or use the Hoyer lift for moving a client out of bed, ensure they have been properly instructed in the procedures and safety issues associated with these activities.

COMMUNICATION NETWORK

- The RN must give specific directions to the health care workers on appropriate positions for clients on bed rest or specifics on how to transfer clients to a chair or gurney.
- Before physical therapy releases clients to nursing for transfer or ambulation activities, the RN must obtain explicit information on the procedures to be used. This information must be written on the Kardex or computer record, as well as reviewed with all staff assigned to the client.
- A team conference may be necessary if special equipment or specific activities are required by a client. This conference ensures all staff will be given a demonstration and provided information necessary for safe client care.
- The RN must ensure that all new personnel are proficient in transfers, logrolling and use of the Hoyer lift before assigning them to care for clients requiring these skills.
- It is crucial for safe client care that the RN monitors health care workers when they perform logrolling or use mechanical devices for transfer after the initial demonstration.

CRITICAL THINKING STRATEGIES

SCENARIO 1

You are assigned to a medical unit where many of the clients require assistance moving in and out of bed. The following clients are assigned to you for care on the day shift.

- Onica Jones, 89-year-old (CVA) client who has weakness on the right side and is unable to communicate but seems to understand directions. She has been in the hospital for 4 days and will be transferred to a SNF this afternoon.
- James Metcalf, 60-year-old (MI) client who is about to be discharged. However, you notice he still has not been able to ambulate by himself.
- Madeline Oscar, 70-year-old client with Parkinson's disease and hospitalized for pneumonia. She was admitted last night. She has orders to be up in the chair b.i.d.
- Joseph Nichols, 40-year-old client, hospitalized for possible kidney stones. He is in severe pain and the MD has ordered that he remain on bedrest until further orders.
 1. Which client will you assess first? Provide rationale for your answer.

2. How will you determine the client's ability to assist with his or her own care and movement in bed?
3. For each client, identify the type of assistance he or she might need; provide rationale for your answer.
4. Describe the body mechanics you will use when moving clients; this will be based on the type of moving that will need to be performed for each of the four clients.

SCENARIO 2

You are assigned to care for a client who weighs 300 pounds. The client was out of bed for lunch and now insists on getting back into bed. There are no male staff members available to help you.

The client is able to weight bear but needs maximal assistance to stand.

1. Suggest creative resolutions to this problem.
2. Describe the procedure you will use to transfer the client from chair to bed.
3. If mechanical devices are not available, what action will you take?

NCLEX[®] REVIEW QUESTIONS

Unless otherwise specified choose only one (1) answer.

- 1 The most effective method for teaching student nurses principles of moving clients is to discuss
 1. Using a back brace when lifting clients.
 2. Instructions on safe lifting techniques using 2 to 3 nurses for heavy clients.
 3. Education related to body mechanics.
 4. Proper use of lift teams for moving clients.
- 2 According to the National Institute for Occupational Safety and Health (NIOSH), the average client weight that should be lifted by health care workers is _____ pounds.
 1. 51.
 2. 75.
 3. 100.
 4. 169.

continued

continued

- 3** Applying body mechanics includes which of the following principles? Select all that apply.
1. Establish a base of support by placing the feet close together.
 2. Hold abdomen firm and bend at the waist when lifting client.
 3. Keep weight to be lifted as close to your body as possible when moving clients.
 4. Align three natural curves in your back when moving clients.
- 4** Maintaining proper body alignment is critical for nurses to prevent injuries when providing client care. Which of the following steps would *not* be included in teaching appropriate body alignment?
1. The most comfortable height at which to provide client care is above the nurse's waist.
 2. Flex your knees if you need to work at lower than waist level.
 3. Triceps, quadriceps and gluteal muscles are used when moving and turning clients.
 4. Push, pull, or roll objects instead of lifting whenever possible.
- 5** If you are injured while providing client care, it is important you immediately
1. Complete an unusual occurrence form.
 2. Inform charge nurse you need to go home to rest and apply ice.
 3. Report the injury to your supervisor.
 4. Ask for a change in your assignment to prevent reinjury.
- 6** There is an order for a client to be placed in a low-Fowler's position. You will place the bed in a _____ degree position.
1. 60.
 2. 45.
 3. 30.
 4. 15.
- 7** During report the team leader stated the client needs to be turned to a lateral position every two hours. You recall the best way to turn the client is to
1. Ask a second nurse to assist you in turning the client to his/her side.
 2. Ask the lift team to come every two hours to turn the client.
 3. Place a friction-reducing sheet under the client to assist in turning.
 4. Explain to the client that he/she needs to move up in bed before you can assist in turning the client to a lateral position.
- 8** A client is being moved from the bed to a gurney using a transfer board. The directions given to the client include
1. "You need to move toward the side of the bed nearest the gurney before being placed on the slide board."
 2. "Roll directly onto the transfer board and position yourself on your side."
 3. "The nurse will place the board close to you and you need to roll over the edge of the board onto the gurney while staying in a side-lying position."
 4. "Turn onto your back, directly onto the transfer board."
- 9** A client assessment indicates the client has some arm strength and weight-bearing ability, and can follow simple directions to move out of bed. The most appropriate assistive device to move this client out of bed is the
1. Powered full-body lift.
 2. Powered stand assist device.
 3. Non-mechanical sit-to-stand aid.
 4. Lateral assist device.
- 10** As part of an admission assessment, you need to determine a client's "Safe Handling and Movement" abilities. This assessment criteria includes Select all that apply.
1. Weight bearing capability.
 2. Client's level of cooperation and comprehension.
 3. Body Mass Index (BMI).
 4. Client's level of assistance.