# Chapter 19

## Safely lifting, moving and positioning patients

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# Objectives Theory:

1. Describe the anatomy and function of the musculoskeletal system.
2. Explain the importance of proper body mechanics, alignment, and position change for both patient and nurse.
3. Discuss the principles of safe body movement and positioning, giving an appropriate example for each principle.
4. Identify ways to maintain the patients correct body alignment in bed or in a chair.
5. Describe the proper method for transferring a patient between a wheelchair and a bed.

# Skills- Clinical practice

Skill 19-1 Positioning the patient (286)

Skill 19-2 Moving the patient up in bed (290)

Skill 19-3 Passive range of motion exercise (293)

Skill 19-4 Transferring the patient to a wheelchair (298)

Skill 19-5 Transferring the patient to a stretcher (301)

Skill 19.6 Ambulating the patient and breaking a fall (303)

Lifting, moving and positioning patients are integral parts of your workday. To provide the best patient care and prevent self-injury, you MUST know the principles of body mechanics.

# What changes in the system occur with aging? page 280

- Bone strength and mass are lost because of mineral resorption. This may lead to osteoporosis, which is more common in women of Asian or Caucasian descent.
- The loss of bone density predisposes the older adult to fractures. The fractures do not heal quickly because of decreased mineral uptake.
- Muscle cells are lost and replaced by fat. This leads to a loss of muscles strength and endurance.
- Muscle fiber elasticity is decreased or lost, causing decreased flexibility.
- Joint motion may decrease, limiting mobility, activity, and exercise.
- Page 280 Quality and safety box

# Principles of body movement for nurses.

Page 281

- **The body functions best when it is in correct position** or **alignment.**(arrangement in a straight line, bringing a line into order)
- Fig 19.2 page 281
- One of the most common injuries for healthcare workers is lower back strain.
- Box 19.1- Guidelines for moving and lifting: Body mechanics
- It is always best to wait for help than to risk an injury.
- Encourage the patient to assist when transferring and moving if possible.
- **In positioning and transferring, use the large muscles in the legs as much as possible. Use the greatest number of muscles possible when lifting or moving an object.**
- Instead of bending over at the waist to pick up something from the floor, bend at the knees and lower slowly until you can pick up an item without straining the back. (fig19.3, pg 282)
- **Keep feet about shoulders with apart.** This establishes a wide base of support and provides stability for movement. It is easier to lose balance and move away from the center of gravity with feet placed closed together.
- **Use smooth, coordinated movement instead of jerking or sudden pulling motions.**

# Principles of body movement for nurses.

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- **Keep your elbows and work close to the body**. This keeps the workload close to the waist and center of gravity.
- **Work at the same level or height as the object to be moved.** ( changing bed linens is a good example of this principle)

- **Pulling actions require less efforts compared with pushing or lifting**. ( when transferring a patient to a stretcher, two nurses should stand on the far side of the stretcher to pull the patient toward them onto the stretcher.
- **Directly face the object or person to be moved**. It is much easier to move an object if the nurse is facing in its direction.
- Clinical Goldmine box 282
- Lifespan consideration box page 282
- Clinical Goldmine box page 283

# Principles of body movement for patients

page 283

- Body movement and alignment are also important for patients. Many patients are unable to change position or move in bed independently. There are two basic principles for patients:
- **Maintain correct anatomic position**
- **Change position frequently**
- **Hazards of improper alignment and positioning:**
- Interference with circulation, which may lead to **pressure injuries (tissue injuries that form from local inference with circulation.**
- Muscle cramps and possible **contractures (resistance to stretch in damages muscles that pulls a joint into a fixed or "frozen" position)**
- Muscle atrophy ( decrease in muscle mass, flexibility, and strength)
- **Fluid collection in lungs. (pulmonary edema)**

# Pressure ulcers

page 283

- Pressure injuries, previously known as pressure ulcers, decubitus ulcers, or bedsores occur from pressure on the skin. This pressure causes a local area of tissue **necrosis. (local death of tissue from disease or injury**)
- **Shearing force,** is the other main factor In pressure injury development. Shearing is an applied force that causes a downward and forward pressure on the tissues beneath the skin. (Ex. When a patient slides down in a chair, bedclothes are pulled from beneath the patient, or the patient is slid up the head of the bed without lifting the body. )

- Clinical Goldmine Box 283
- Lifespan consideration box 283
- Think critically box page 283

# Assessment of the nursing process(Data collection)

page 283

- When assessing the standing patients body alignment, begin by noting the head position in relation to the rest of the body.
- During the assessment, also observe for an muscles weakness or paralysis, and check symmetry( equality In size, form, and arrangement of parts on the opposite sides of a plane; a mirror image) of extremities.
- When assessing the sitting patient, observe for symmetry. Determine whether the patients head is erect and centered over the shoulders.
- When assessing the lying patient , assess carefully for alignment and correct position. Patients often lie on their back when in bed. It is important to change the position frequently to prevent problems associated with mobility.
- Assess the patients ability to ambulate and change position independently. Observe the patient walking. Is the **gait (style of walkin**g) even and unlabored? Is the patient balanced? This will determine the patients ability to ambulate independently or determine the type of assistance needed.

# Page 284

## Data Analysis/problem identification (Nursing diagnosis)

- Common problems statements for patients who require assistance with body movement include:
- Potential for injury
- Altered mobility
- Potential for altered  skin integrity

## Planning

- The data collected during the assessment phase give information about how to best promote independence or assist the patient.
- Ex. Patient is immobile and unable to self-turn, turn the patient every 2 hours or as needed.
- During planning, decide how to change the patient's position and whether you can delegate this task to assistive personnel.

# Page 284

## Implementation

- Take Action: Interventions for patients requiring assistance with body movement include positioning, use of positioning devices, moving the patient up in bed, use of therapeutic exercise, lifting and transferring, and the use of transfer devices.
- **Positioning: Changing position accomplishes 4 things 1. it provides comfort 2. It relieves pressure on bony prominences and other parts 3. it helps prevent contractures, deformities, and respiratory problems 4. it improves circulation.**
- **Supine position is appropriate for patients who are resting on their back.**
- **Fowler** position is arranged by elevating the head of the bed **60-90** degrees.
- **Semi-Fowlers** is an elevation of **30-45** degrees,
- **Low-Fowlers** is an elevation of **15-30** degrees.
- The knees can be raised **10-15** degrees in these position. Elevation of the knees above 15 degrees is contraindicated in older and postoperative patients because it is associated with decreased circulation of lower extremities., CHECK MD ORDERS
- Clinical goldmine box page 284
- Place a footboard at the bottom of the bed to brace the patients feet in correct alignment.
- Do not place a patient who had abdominal surgery in fowlers position unless order.

# Dorsal recumbent and dorsal lithotomy position

page 285

- Dorsal recumbent and dorsal lithotomy positions are other variations of the supine position.
- The dorsal recumbent the patients are on their back with knees flexed and soles of the feet flat on the bed (fig 19.6)
- The dorsal lithotomy is used for examining the pelvic organs. (fig 19.7), it is like the dorsal recumbent position except the feet are usually placed in stirrups and the legs are spread farther apart and abducted.
- Patients with joint problems or arthritis may have difficulty assuming this position.

# Types of positions

page 285

- **The side-lying or lateral position,** Achieved by having patients rest on their side. It alleviates pressure form bony prominences on the back. The major portion of the patients weight is on the dependent shoulder and hip.
- The **oblique side-lying position** removes pressure from the dependent shoulder and hip and is easier for patients to maintain.
- **Modified left lateral recumbent position** of a variation of the side-lying position. It is used for rectal examinations, administering enemas, and inserting suppositories. HAS TO BE DONE ON LEFT SIDE FOR THESE PROCEDURES
- **Prone position** is lying face down. It provides an alternative for patients on prolonged bed rest or who are immobilized. **Spinal cord injured** patients sometimes use this position. If the head is not turned or the patient is not in a special bed with a removable piece at the head, the patient will not be able to breath.
- **The knee to chest position**, a variation of the prone position (fig 19.8). The patient is face down on the bed with head turned to one side. The chest, elbows, and knees rest on the bed, and the thighs are perpendicular to the bed. The lower legs are flat on the bed. This is used for rectal examinations and as a method to restore the uterus to a normal position.

# Positioning devices

page 289

- Pillows, boots or splints, positioning wedges, foot-boards, cushioned boots or high-top sneakers, a trapeze bar (fig 19.9A) sandbags, hand rolls, trochanter rolls (fig 19.9B) siderails and bed boards. **USE pillows to support the body or extremities and elevate body parts.**
- Boots or splints help maintain dorsiflexion of the feet and may help prevent heel pressure.
- Footboards and high-top sneakers are alternative devices used to maintain foot dorsiflexion.
- Trochanter rolls prevent external rotation of the hips and legs when a patient is lying in a supine position.
- Sandbags immobilize an extremity, provide support, and maintain correct body alignment.
- Hand rolls and splints for the hands and wrists help prevent contractures of the hands, promote thumb adduction, keep fingers slightly flexed, and prevent dorsiflexion of the wrist.
- A trapeze bar allows a patient to adjust position by raising the trunk and buttocks off the bed.
- Side rails assist the patient in changing position and turning in bed.
- Bed boards are boards that are placed under the home mattress to give more support to the mattress and thereby improve vertebral alignment.

# Moving patients up in bed

page 290-292

- Before moving a patient up in bed, one of the most important steps is to determine how much help you will need.
- **Dependent patients rely on the nursing staff for this procedure**.
- When manually lifting, if there is any doubt about whether a patient is too heavy or immobile to be moved by you, enlist at least one other persons help. (Two to three nurses)
- Skill 19.2 page 290
- **Logrolling** is turning the patient as a single unit while always maintaining straight body alignments. Logrolling is often used for patients with injuries or surgery to the spine and for those who must avoid twisting.  fig19.10 page 292
- Logrolling can be done with or without a lift sheet. If a lift sheet is used, as many as four people are needed to accomplish the move, depending on the patients size. It takes three people to logroll a patient safely without a lift sheet.

# Therapeutic exercise (ROM)

page 292

- Physical therapy is often ordered for the patient who is immobilized for an extended period. The primary care provider indicates the patients problems, and the therapist performs an evaluation and then designs an exercise program to help maintain or regain function and to prevent further musculoskeletal problem from occurring. If the therapist is not available, you must assist your patient in performing these exercises.
- **Full Range of motion (ROM) exercises should be performed either actively or passively several times a day.**
- **Active ROM** exercises are used for the patient who **independently performs activities** of daily living but for some reason is immobilized or limited in activity or is unable to move one extremity because of injury or surgery.
- **Passive ROM** exercises are performed on the patient who **cannot actively move.** The patient cannot contract muscles, so muscle strengthening cannot be accomplished.
- All muscles over a joint are maximally stretched to achieve or maintain flexibility of the joint. This is accomplished by moving the muscle to the point of slight resistance but **NOT** beyond. Why?
- Clinical Goldmine Page 293
- BOX 19.2- principles guiding ROM exercise. Page 293
- Skill 19.3
- Perform plantar flexion – **prevents foot drop** and promotes mobility when patient is able to resume ambulation

# Lifting and transferring

page 296

- Lifespan consideration box 296
- Lifting and transferring patients require the use of proper body mechanics and positioning principles
- Before transferring a patient to a wheelchair, have them dangle their legs over the side of the bed first.
- Dangling is the term used for the patient position of sitting on the side of the bed with legs and feet over the side.
- **The feet either are on the floor or supported on a foot stool.** Dangling is often the first step before sitting in a chair or ambulation.
- The purpose of this is to accustom the body gradually to the position change.
- **Assess the patients balance, dizziness, or nausea before getting the patient out of bed.** (monitor for orthostatic hypotension)
- Wheelchairs are often used to transport an ambulatory patient to different areas for test or procedures or for the patient who is unable to walk.
- **Place wheelchair so that it is closest to the patients strongest side**.
- Skill 19.4 page 298

# Lifting and transferring continued

page 296

- Stretchers may also be used for transporting a patient who is unable to sit in a wheelchair or is having certain procedures done. Stretchers have side rails and a safety belt that should be secured before moving the patient.
- Some hospitals require patients to be transferred with the head of the stretcher elevated to semi-fowlers position to decrease the potential for hospital acquired pneumonia.
- Safety alert box 297
- Think critically box page 297
- Clinical goldmine box page 297
- Moving a wheelchair or a stretcher is an exception to a principle of body mechanics.
- **Both devices are PUSHED rather than pulled!!**
- Pulling a wheelchair or stretcher would cause back strain and twisting.

# Transferring devices

page 297

- Devices that may be used in lifting and transferring patients include mechanical lifts, lift or pull sheets, air assisted lateral transfer devices, slide boards, roller boards, or transfer (gait) belts.
- Lift sheets are often used to move and transfer a patient. Low-friction sheets may be used.
- Skill 19.5
- **Slide board**- also called a transfer board, is a long semirigid polyurethane board, treated with an antistatic coating, to allow the patient to be transferred from bed to stretcher (or vise versus) smoothly and easily.
- A less commonly used piece of equipment, **the roller board,** works similarly to a slide board except that it contains several roller bars between fixed-end bars, and it rolls the patient in a "conveyor belt" sort of way.
- **Air-assisted** transfer devices are placed under the patient as a flat air mattress. After the safety straps are engaged, the mattress is inflated, creating a frictionless transfer from one bed or gurney to another. The mattress has pull handles to allow the healthcare workers to keep a safe grasp on the mattress during transfer.
- A **transfer belt or gait belt**, should be used to ambulate or transfer the weak or unsteady patient. The material on the belt is rough so always apply it over clothing.
- Insert your hand into the bely from the bottom so that, if the patient falls, you will be able to support the weight.
- If you hold the belt from the top, it could slip out of your hand from the patients weight during a fall.
- SKILL 19.6

# Key points

- The musculoskeletal system is involved in positioning and moving patients
- Observing proper alignment and mechanics  helps prevents injuries. Lower back strain is one of the most common injuries for health care workers
- Get HELP when necessary, before moving or positioning a patient.
- These principles help prevent the hazards of improper positioning: pressure injuries, muscle contractures, and fluid collection in the lungs.
- Pressure and shearing force are the main factors in developing pressure injuries.
- 3 basic positions: SUPINE, SIDE-LYING, and PRONE. Other positions include: fowler, semi-fowler, low fowler and modified left lateral recumbent position.
- Positioning devices: pillows, boots, splints, trochanter rolls, sandbags, trapeze bars, side rails, and bed boards.
- Lift sheets support a patient from the shoulders to below the buttocks
- While the patient is dangling, monitor for orthostatic hypotension, dizziness, or nausea before getting the patient out of bed.
- Pulling motions are better than pushing motions, except for wheelchairs and stretchers, which are pushed to maintain alignment.

# Helpful videos to better understand

- Understanding Body Movements: Key Movements for Nurses – Flexion, Abduction & More
- Patient Positioning Made Easy #RN #BSN #futurenurse
- Range of Motion Exercises - YouTube
- Body Mechanics