

# Musculoskeletal Conditions

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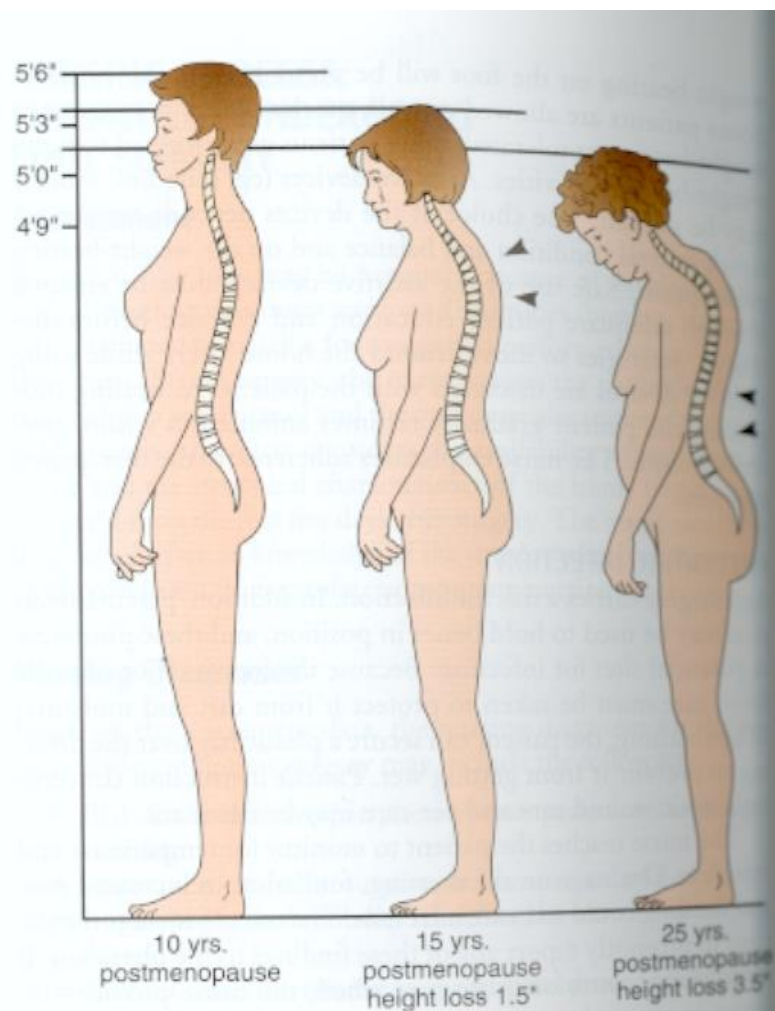
# Learning Objectives

- ▶ Describe musculoskeletal conditions treated in the rehabilitation setting; osteoporosis, arthritis, joint replacements
- ▶ Discuss rehabilitation nursing interventions for these conditions



# Osteoporosis

- ▶ **Definition:** A degenerative disease process in which there is a reduction of bone density causing bones to become fragile and break with minimal to no trauma.
- ▶ **Incidence:** Affects more than 28 million Americans, leads to 1.5 million fractures per year at a cost of \$18 billion. Affects 5 times more women than men.



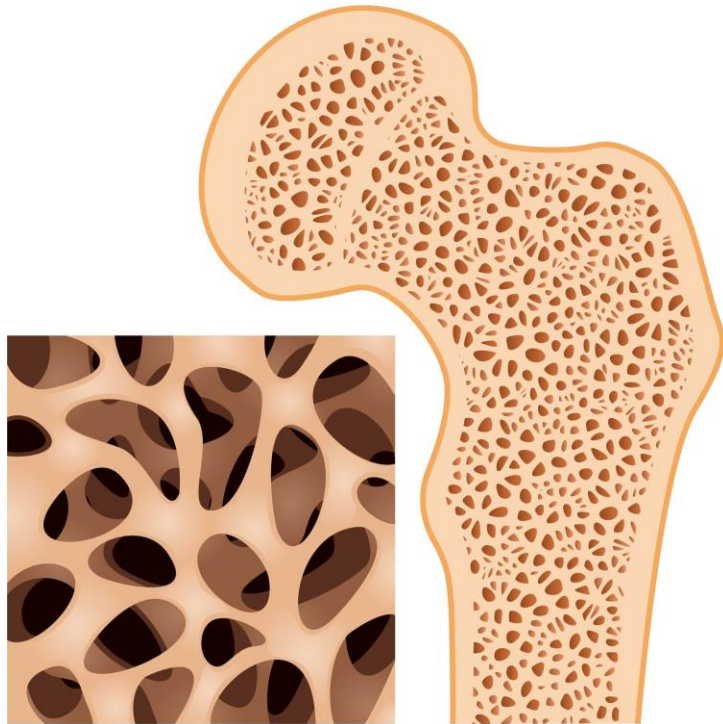
# Disuse Osteoporosis

- ▶ Immobility or disuse increases bone loss due to decreased muscle action, weight bearing stress
  - ▶ Spinal Cord Injury
  - ▶ Poliomyelitis
  - ▶ Stroke

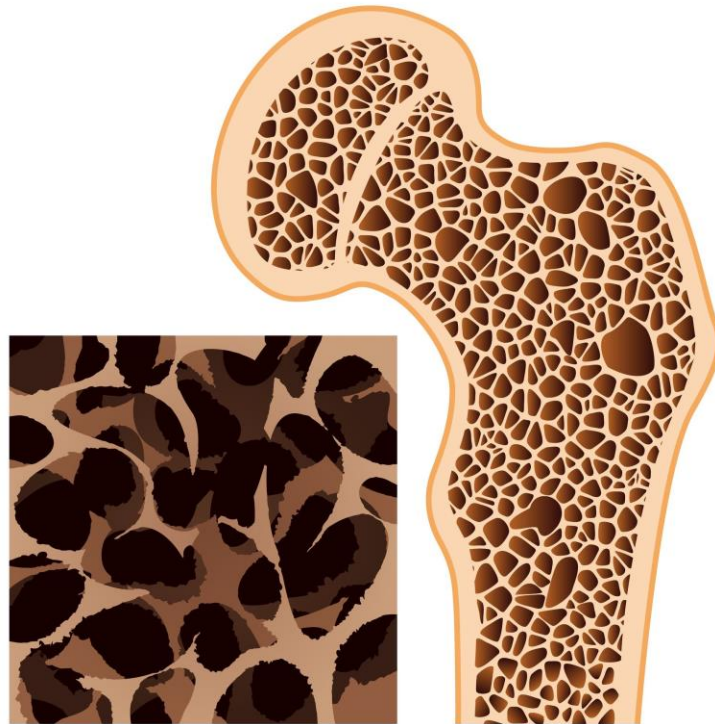
# Risk Factors: Osteoporosis

- ▶ Gender
- ▶ Genetic factors
- ▶ Nutritional factors
- ▶ Lifestyle factors
- ▶ Endocrine factors
- ▶ Pharmacological factors

# Osteoporosis



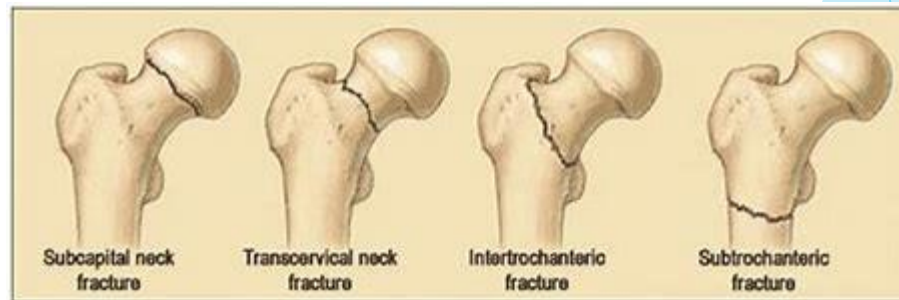
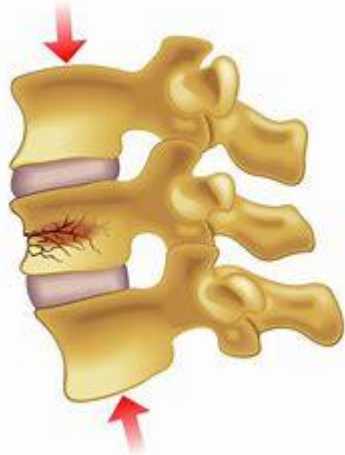
Healthy bone



Osteoporosis

# Resulting Disabilities

- ▶ Hip Fracture
- ▶ Vertebral Compression Fractures
- ▶ Wrist Fracture
- ▶ Balance disturbances/Falls



# Interventions and Management

- ▶ Calcium
- ▶ Vitamin D
- ▶ Weight-bearing exercise
- ▶ Pharmacological
- ▶ Pain management
- ▶ Safety issues/Fall prevention

# Practice Question

- ▶ Body image disturbances caused by the development of a dowager's hump and a protruding abdomen are associated with which of the following diseases or disorders?
  - A. Osteoporosis
  - B. Osteoarthritis of the spine
  - C. Scoliosis
  - D. Multiple sclerosis

# Practice Question/Answer

- ▶ Body image disturbances caused by the development of a dowager's hump and a protruding abdomen are associated with which of the following diseases or disorders?

A. Osteoporosis

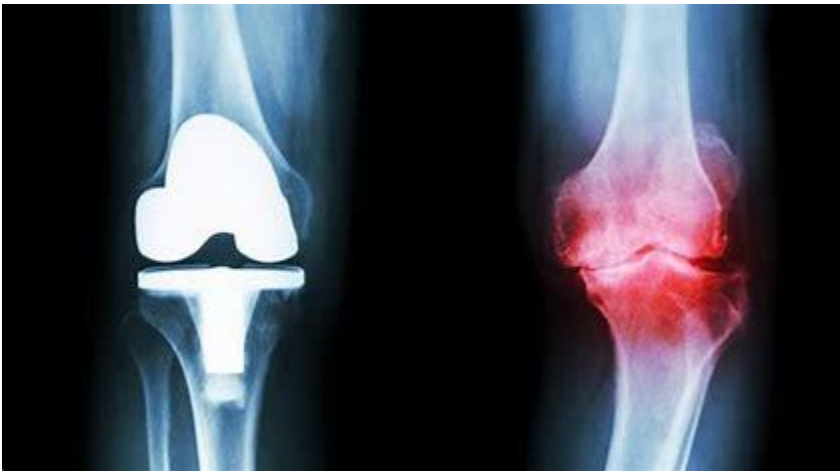
A dowager's hump (kyphosis) with an associated protruding abdomen

# Arthritis

- ▶ Means joint inflammation, general term for painful joint
- ▶ More than 100 different Arthritis Foundation classifications
- ▶ The leading cause of work disability among US adults
- ▶ Affects 50% of those older than 65
- ▶ About 58.5 million adults in US have some form of arthritis, projected to reach 78.4 million by 2040

# Major Types of Arthritis

- ▶ Osteoarthritis (OA)
- ▶ Rheumatoid arthritis (RA)
- ▶ Other forms of arthritis and related disorders
  - Gout
  - Psoriatic arthritis
  - Juvenile arthritis



# Types of Arthritis



Healthy joint



Osteoarthritis



Rheumatoid arthritis

# Osteoarthritis - Degenerative

- ▶ **Definition:** A degenerative joint disease in which the cartilage that covers the ends of bones in the joint deteriorated causing pain and loss of movement as bone begins to rub against bone
- ▶ **Etiology:** Associated with aging, a progressive non-inflammatory process, not systemic; most commonly affects weight-bearing joints

# Signs and Symptoms

- ▶ Pain often in one or more joints
- ▶ Stiffness
- ▶ Joint swelling
- ▶ Decreased ROM

# Contributing Risk Factors

- ▶ Age
- ▶ Gender
- ▶ Genetics
- ▶ Trauma
- ▶ Obesity



# Residual Deficits

- ▶ Joint contractures
- ▶ Loss of joint function
- ▶ Decreased range of motion
- ▶ Pain after activity  
(improved with rest)

# Management Strategies: Osteoarthritis (OA)

- ▶ Supportive care
- ▶ Physical activity
- ▶ Nutritional management
- ▶ Drug therapy
- ▶ Heat/cold modalities
- ▶ Joint protection
- ▶ Ergonomics
- ▶ Joint replacement surgery

# Practice Question

- ▶ Which of the following is **NOT** part of the treatment program for a patient with osteoarthritis?
  - A. Exercise and relaxation techniques.
  - B. Daily steroid therapy.
  - C. Heat and cold modalities.
  - D. Assistive devices for activities of daily living.

# Practice Question/Answer

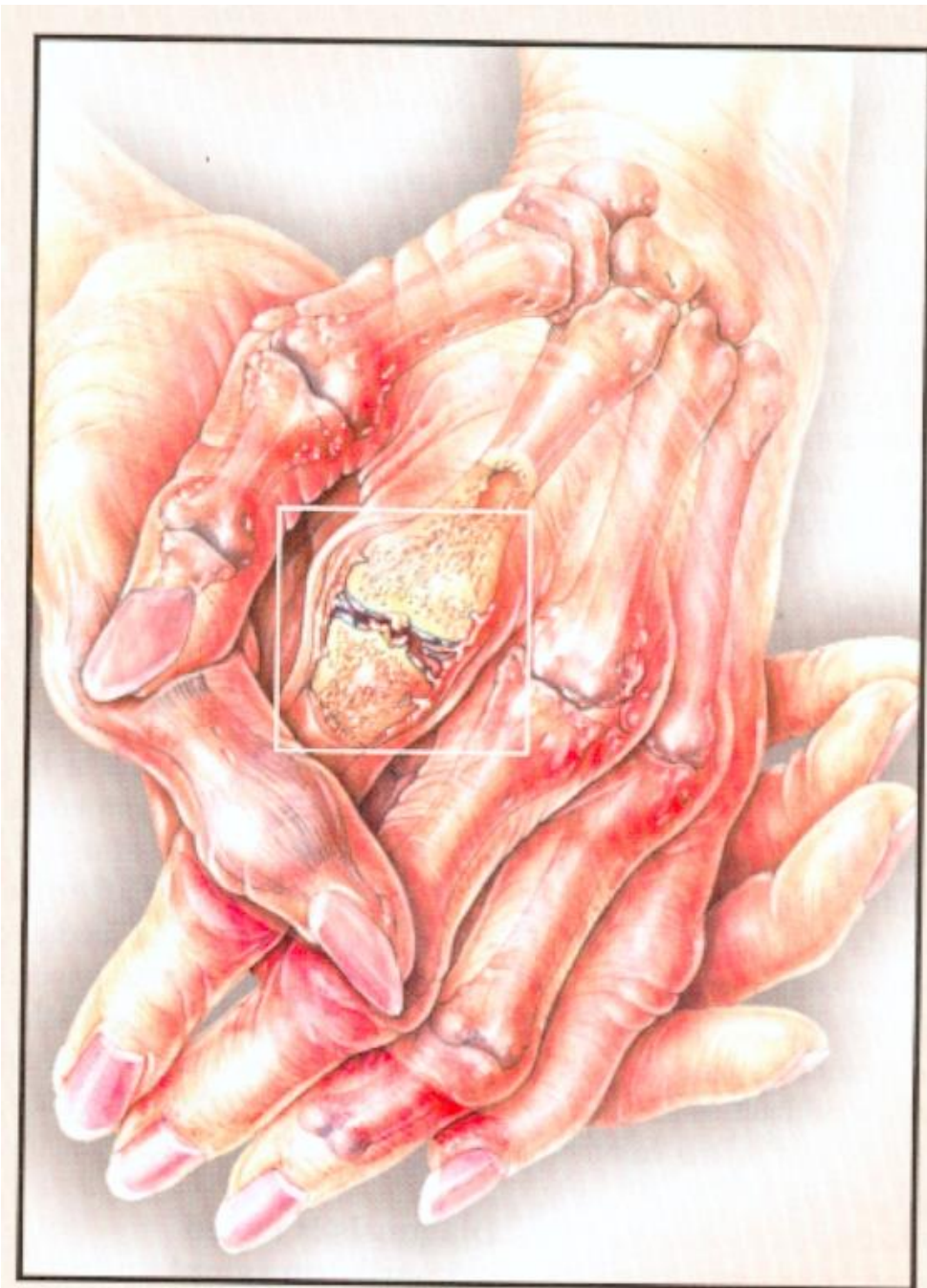
- ▶ Which of the following is **NOT** part of the treatment program for a patient with osteoarthritis?

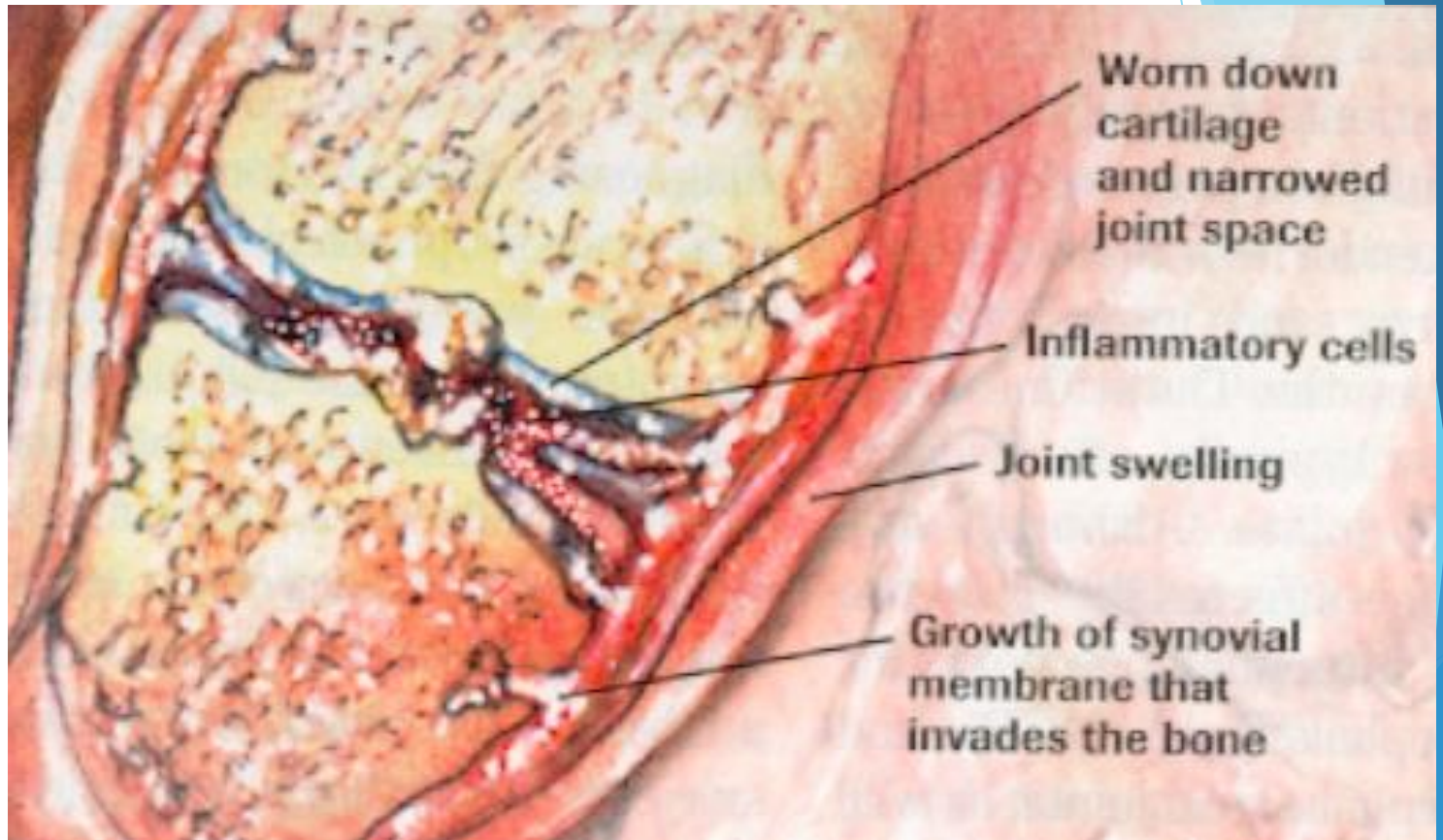
B. Daily steroid therapy.

NSAIDs and other pain-relieving medications are routinely used in the treatment of OA, steroid therapy may be used 3 to 4 times per year.

# Rheumatoid Arthritis - Autoimmune

- ▶ **Definition:** A chronic inflammatory systemic condition that affects primarily joints but can also damage muscles, lungs, skin, blood vessels, nerves, and eyes.
- ▶ **Etiology:** unknown, theories include infectious agent, environmental, hormonal, genetic factors may have a significant role in triggering the disease process





# Joint Symptoms

- ▶ Affected symetrically
- ▶ Tender and painful
- ▶ Particularly stiff after inactivity

# Systemic Symptoms

- ▶ Fatigue
- ▶ Weight loss
- ▶ Generalized pain
- ▶ Fever
- ▶ Generalized weakness

# Contributing Risk Factors

- ▶ Age
- ▶ Gender
- ▶ Smoking
- ▶ Obesity
- ▶ Genetics

# Management Strategies: Rheumatoid Arthritis (RA)

- ▶ Self-care activities
- ▶ Rest and supportive care
- ▶ Energy conservation
- ▶ Joint protection
- ▶ Exercise
- ▶ Pharmacological methods
- ▶ Surgery

# Practice Question

- ▶ All of the following are therapeutic methods to use in protecting joints EXCEPT:
  - A. Using a lapboard to prevent shoulder subluxation
  - B. Using a hard cone to maintain a functional hand position
  - C. Using a trochanter roll to prevent outward rotation of the hip
  - D. Using a footboard to prevent foot drop

# Practice Question/Answer

- ▶ All of the following are therapeutic methods to use in protecting joints EXCEPT:
  - D. Using a footboard to prevent foot drop

Answers A, B, and C are all appropriate to protect joint function. The use of a footboard has not been found to be effective and may cause spasticity in some patients.

# Practice Question

- ▶ Mrs. R., a patient with rheumatoid arthritis, wants to avoid excessive fatigue and still maintain her independence. The nurse might advise her to:
  - A. Have others do tasks for her
  - B. Learn pacing and energy conservation techniques
  - C. Decrease her involvement in activities
  - D. Perform activities in the morning only after a full night's rest

# Practice Question/Answer

▶ Mrs. R., a patient with rheumatoid arthritis, wants to avoid excessive fatigue and still maintain her independence. The nurse might advise her to:

B. Learn pacing and energy conservation techniques

Using pacing and energy conservation techniques are interventions that help maintain independence while reducing fatigue.

# Practice Question

- ▶ Mrs. G. has recently developed rheumatoid arthritis. Which of the following is an INAPPROPRIATE principle to teach Mrs. G. about joint protection?
  - A. Use the largest joint for the largest task
  - B. “Work through” the pain because a certain level of pain is a part of daily living
  - C. Perform tasks in small steps to avoid joint stress and fatigue
  - D. Avoid putting stress on a painful joint

# Practice Question/Answer

- ▶ Mrs. G. has recently developed rheumatoid arthritis. Which of the following is an INAPPROPRIATE principle to teach Mrs. G. about joint protection?

B. “Work through” the pain because a certain level of pain is a part of daily living

Although pain might be a part of daily living for many patients with rheumatoid arthritis, “working through” pain may produce additional joint damage. All the other answers are appropriate teaching principles to protect joints.

# Practice Question

- ▶ In an attempt to assure that a patient with rheumatoid arthritis who lives alone receives adequate nutrition the nurse would:
  - A. Encourage the patient to order fast foods that can be delivered
  - B. Encourage the patient to transfer to a skilled nursing facility where meals are prepared by others
  - C. Discourage any nonmedical remedies for the rheumatoid arthritis
  - D. Coordinate an occupational therapy visit to provide strategies for joint protection during meal preparation and cleanup

# Practice Question/Answer

- ▶ In an attempt to assure that a patient with rheumatoid arthritis who lives alone receives adequate nutrition the nurse would:  
D. Coordinate an occupational therapy visit to provide strategies for joint protection during meal preparation and cleanup.

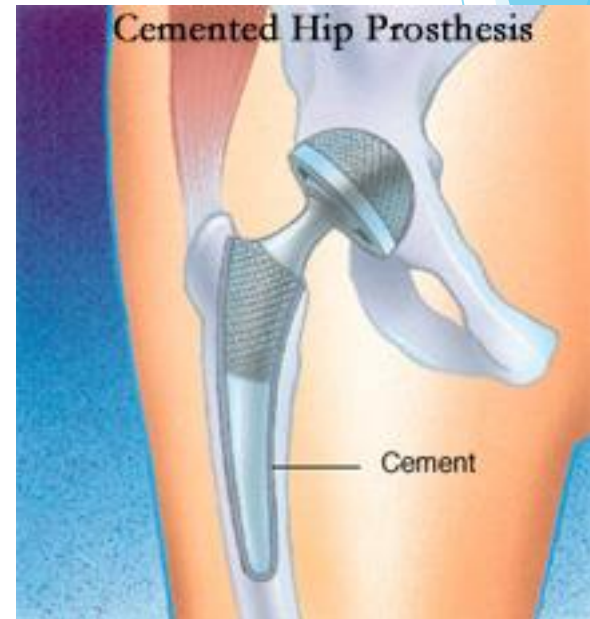
The nurse should recommend a balanced diet and have an occupational therapist become involved in assessing the patient's home environment and providing education for kitchen organization and methods of joint protection and energy conservation during meal preparation and cleanup.

# Arthroplasty Rehabilitation

- ▶ Indications for Joint Replacement
  - Severe RA
  - Severe OA
  - Chronic and uncorrected dislocations
  - Bone necrosis
  - Joint destruction due to chronic gout



# Hip Prosthesis



# Management

- ▶ Pain management
- ▶ Early mobilization
- ▶ Wound healing
- ▶ Teach precautions

# THR/TKR Precautions

- ▶ Bathing
- ▶ Dressing
- ▶ Sitting
- ▶ Lying
- ▶ Stepping
- ▶ Weight bearing
- ▶ Reaching
- ▶ Turning
- ▶ Toileting

# Complications after Joint Replacement

- ▶ Joint loosening/dislocation
- ▶ Infection
- ▶ Deep Vein Thrombosis
- ▶ Pulmonary Embolus



## Avoiding Hip Dislocation After Replacement Surgery

Until the hip prosthesis stabilizes after hip replacement surgery, the patient needs to learn about proper positioning so that the prosthesis remains in place. Dislocation of the hip is a serious complication of surgery that causes pain and loss of function and necessitates reduction under anesthesia to correct the dislocation. Desirable positions include abduction, neutral rotation, and flexion of less than 90 degrees. When the patient is seated, the knees should be lower than the hip.

Methods for avoiding displacement include the following:

- Keep the knees apart at all times.
- Put a pillow between the legs when sleeping.

- Never cross the legs when seated.
- Avoid bending forward when seated in a chair.
- Avoid bending forward to pick up an object on the floor.
- Use a high-seated chair and a raised toilet seat.
- Do not flex the hip to put on clothing such as pants, stockings, socks or shoes.

Positions to avoid after total hip replacement are illustrated below.



Affected leg should not cross the center of the body

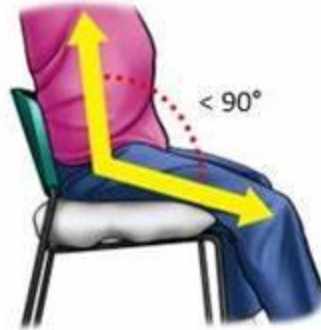


Hip should not bend more than 90 degrees



Affected leg should not turn inward

## DO AND DONTs



In sitting **Do Not** bend hip above 90 degree



**Do Not** cross legs when sitting



**Do Not** bend body forward to pick objects



**Do Not** rotate leg when standing. Keep leg straight

# Practice Question

- ▶ A patient recently discharged after having a total hip replacement calls and reports acute groin pain and shortening of the involved extremity in external rotation.
- ▶ **The case manager should advise the patient to:**
  - A. Increase the exercises prescribed by the PT
  - B. Take pain meds on a regular basis rather than PRN
  - C. Decreased activities until the symptoms subside
  - D. Contact the physician immediately or go to an ER

# Practice Question

- ▶ All of the following are appropriate choices for a patient who had total hip replacement surgery 2 weeks ago and is receiving daily physical therapy in a rehabilitation setting **EXCEPT**
  - A. Ambulating with a walker, cane, or crutches with supervision.
  - B. Gluteal sets, quadriceps sets, and ankle pumps lying flat.
  - C. Climbing stairs with assistance.
  - D. Exercises that involve adduction, internal rotation, or hip flexion of the operative hip.

# Practice Question/Answer

- ▶ All of the following are appropriate choices for a patient who had total hip replacement surgery 2 weeks ago and is receiving daily physical therapy in a rehabilitation setting **EXCEPT**

**D.** Exercises that involve adduction, internal rotation, or hip flexion of the operative hip.

Exercises that involve adduction, internal rotation, or hip flexion soon after THR can result in joint dislocation. Therefore, exercises, such as ankle pumps, ankle rotations, bed-supported knee bends and buttock contractions should be encouraged.

# References

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