



Chapter 44
Care of the Patient With a
Musculoskeletal Disorder

- Lesson 44.1
1. List the five basic functions of the skeletal system.
 2. List the two divisions of the skeleton.
 3. Describe the location of major bones and muscles of the body.
 4. List the types of body movements.
 5. Describe three vital functions muscles perform when they contract.
 6. List diagnostic examinations for musculoskeletal function.
 7. Compare medical and nursing care for patients suffering from gouty arthritis, rheumatoid arthritis, and osteoarthritis.

Basic Functions of the Skeletal System

- Support
- Protection
- Movement
- Mineral storage
- Hematopoiesis



Divisions of the Skeletal System

- Axial skeleton
 - Composed of the skull, hyoid bone in the neck, vertebral column, and thorax
- Appendicular skeleton
 - Composed of the upper extremities, lower extremities, shoulder girdle, and pelvic girdle

Structure of the Musculoskeletal System

- The bones and joints provide the framework of the body
- Muscles are necessary for movement

Types of Body Movements

- Flexion
- Extension
- Abduction
- Adduction
- Rotation
- Supination
- Pronation
- Dorsiflexion
- Plantar flexion

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Functions of the Muscular System

- Muscles are necessary for movement
- Three vital functions muscles perform when they contract
 - Motion
 - Maintenance of posture
 - Production of heat
- Contraction also assists in return of venous blood and lymph to the right side of the heart

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Diagnostic Examinations of the Musculoskeletal System

- X-ray
- Laminography
- Scanography
- Myelogram
- Nuclear scanning
- MRI
- Computed tomography
- Bone scan
- Aspiration
- Synovial fluid aspiration
- Endoscopic examination

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Rheumatoid Arthritis

- The most serious form of arthritis
- Leads to severe crippling
- Characterized by a chronic inflammation of the synovial membrane (synovitis) of the diarthrodial joints

10

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Osteoarthritis (Degenerative Joint Disease)

- Nonsystemic, noninflammatory disorder that causes bones and joints to degenerate
- Most commonly affects the joints of the hand, knee, hip, and cervical and lumbar vertebrae
- Symptoms include pain and stiffness in the joints (most frequently in the morning)

11

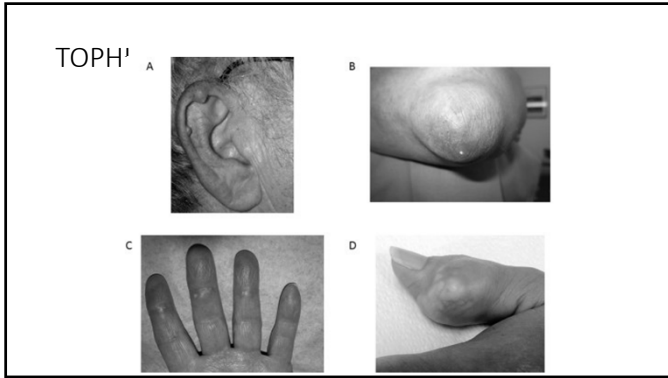
Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Gouty Arthritis (Gout)

- Caused by an accumulation of uric acid in the blood
- Affects men eight times more frequently than women
- Onset usually occurs at night
- Excruciating pain and swelling in the affected joint

12

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.



Lesson 44.2

- List at least four healthy lifestyle measures people can practice to reduce the risk of developing osteoporosis.
- Describe the medical and nursing care for the patient undergoing a total hip or knee replacement.
- Discuss nursing interventions for a patient with a fractured hip after open reduction with internal fixation and bipolar hip prosthesis (hemiarthroplasty).

14 Copyright © 2019, 2015, 2011, 2006, 2003, 1990, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Osteoporosis

- A disorder that results in a loss of bone density
- Can interfere with the mechanical support function of the bone
- Women between the ages of 55 and 65 years are identified as a high-risk group

15 Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Knee Arthroplasty (Total Knee Replacement)

- Replacement of the knee joint to restore motion, relieve pain, or correct deformity

16

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Hip Arthroplasty (Total Hip Replacement)

- Commonly performed when arthritis involves the head of the femur and acetabulum
- May also be performed for fractures, tumors, and injuries

17

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Open Reduction and Internal Fixation (ORIF)

- Assess patient's ability to understand instructions and limitations
- Assist patient to dangle feet at bedside on first postoperative day
- Turn patient every 2 hours
- Prop with pillows between legs or under the back to maintain position
- Assist with range-of-motion exercises to maintain muscle strength
- If a stable plate and screw fixation is used to repair the fractured hip, the patient should not bear weight for 6 weeks to 3 months to protect the fracture site
- A telescoping nail fixation allows minimal to partial weight-bearing during the first 6 weeks to 3 months

18

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Hip Prosthetic Implant

- Teaching for patients who had a fractured hip and received a hip prosthetic implant (hemiarthroplasty) includes the following:
 - Avoid hip flexion beyond 60 degrees for approximately 10 days
 - Avoid hip flexion beyond 90 degrees for 2 to 3 months
 - Avoid adduction of the affected leg beyond midline for 2 to 3 months
 - Maintain partial weight-bearing status for approximately 2 to 3 months
 - Avoid positioning on the operative side in bed
 - Maintain abduction of the hip by using a wedge-shaped foam bolster or pillows arranged in a wedge; this will require nursing assistance

19

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Lesson 44.3

11. Discuss the physiology of fracture healing (hematoma, granulation tissue, and callus formation).
12. Describe the signs and symptoms of compartment syndrome.
13. List nursing interventions for a fat embolism.
14. List at least two types of skin and skeletal traction.
15. Compare methods for assessing circulation, nerve damage, and infection in a patient who has a traumatic insult to the musculoskeletal system.
16. List four nursing interventions for bone cancer.
17. Describe the phenomenon of phantom pain.
18. Define lordosis, scoliosis, and kyphosis.

20

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Physiology of Bone Healing

- When a fracture occurs, there is bleeding at the site
- A clot forms at the ends of the fractured bone
- The hematoma becomes organized and a fibrin network is created
- Osteoblasts enter the fibrous areas
- A callus forms
- Collagen strengthens and calcium deposits increase
- Remodeling occurs

21

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Compartment Syndrome

- Pathologic condition
- Caused by
 - Arterial vessel compression
 - Reduced blood supply to an extremity
- May result from a tight cast or dressing
- Irreversible muscle ischemia can occur within 6 hours
- Paralysis and sensory loss follow

22

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Fat Embolism

- Pulmonary fat embolism involves the embolization of fat tissue within the pulmonary capillaries
- Fat embolism is rare
- Can be life-threatening, as fat occludes the pulmonary artery
- This leads to brain hypoxia and tissue death

23

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Traction

- Skeletal
 - Femur
 - Tibia
 - Humerus
- Skin
 - Buck's
 - Russell's

24

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991 by Mosby, an imprint of Elsevier Inc. All rights reserved.

Traumatic Injury

- Contusion
- Sprains
- Whiplash
- Strains
- Dislocation
- Airbag injuries

25

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Bone Cancer

- Tumors of the bone may be primary or secondary
- They may be benign or malignant

26

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Phantom Pain

- Pain felt in the missing extremity as if it were still present
- May be frightening to the patient
- Phantom pain occurs because the nerves that register pain in the amputated area continue to send a message to the brain
- This is a common finding

27

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.

Lordosis, Scoliosis, Kyphosis

- Lordosis is an increase in the curve at the lumbar spine region that throws the shoulders back
- Scoliosis is a lateral (or S) curvature of the spine
- Kyphosis is a rounding of the thoracic spine

28

Copyright © 2019, 2015, 2011, 2006, 2003, 1999, 1995, 1991
by Mosby, an imprint of Elsevier Inc. All rights reserved.
