Chapter 6
Musculoskeletal System
Diseases and Disorders

Anatomy and Physiology

• Bones and Joints
• Bones provide framework and support; classified by shape and composition
• Joints: where two or more bones meet
• Muscles structure, movement, and heat

Common Signs and Symptoms

• Musculoskeletal diseases and disorders
  – Pain, swelling, decreased mobility, and deformity

Diagnostic Tests

• X-rays
• CAT scans
• MRIs
• Blood studies including calcium, phosphorus
• Electromyography
• Muscle tissue biopsy

Diseases of Bone

• Mild to severe
• Common as adults age
• Spinal deformities
  – Kyphosis - curvature of thoracic spine
  – Lordosis - exaggerated anterior or inward curve of lumbar spine
  – Scoliosis - lateral curvature of spine
Disease of Bone
- Osteoporosis - metabolic bone disease causing porosity and leading to a decrease in bone mass
- Osteomyelitis - inflammation of bone caused by an staphylococcal infection

Diseases of Joints
- Most diseases occur as slow process
- Arthritis - inflammation
- Osteoarthritis - degenerative process
- Rheumatoid Arthritis - autoimmune disorder affecting joints and connective tissue of entire body

Diseases of Joints
- Gout - metabolic error in breakdown of certain protein foods
- Hallux Valgus - deformity affecting the metatarsophalangeal joint of the big toe; commonly called bunion
- Tempromandibular Joint Syndrome - severe headaches and pain in “jaw”

Diseases of Muscle and Connective Tissue
- Muscular Dystrophy (MD) - inherited, genetic disorder affecting skeletal muscles
- Ganglion cyst - fluid-filled benign tumor on a tendon sheath near the wrist
- Tetanus - also called “lockjaw”

Neoplasms
- Primary neoplasms of musculoskeletal system are uncommon
- Typically neoplasms are secondary, metastasizing from lungs, breast, and prostate

Neoplasms
- Osteosarcoma is most common tumor
- Phabdomyosarcoma-very rare highly malignant tumor of skeletal muscle
Trauma

- Main cause of problems in musculoskeletal system
- Fractures - break in bone
- Types of fractures:
  - Stress, displace, comminuted, compression
  - Longitudinal, transverse, oblique, spiral, stellate

Treatment of Fractures

- Immobilization
- Closed reduction
- Open reduction
- Traction

Strains and Sprains

- Strain is overstretching injury of muscle
- Treatment for strains is rest, moist heat, analgesics, and anti-inflammatories
- Sprain is a traumatic injury to a joint
- Treatment: RICE - rest, ice, compression, elevation

Dislocations and Subluxations

- Dislocation is complete separation of bone from its normal position
- Subluxation is partial separation
- Dislocation causes pain and joint deformity

Low Back Pain

- Very common disorder
- Pain may be acute or chronic
- Treatment is moist heat, analgesics, anti-inflammatory drugs, or muscle relaxants

Herniated Nucleus Pulposus

- Herniated disc, ruptured disc, slipped disc, or bulging disc
- Pressure on spinal nerve may cause pain in sciatic nerve
- Treatment is same as low back pain
Bursitis

• Inflammation of a bursae or small fluid-filled sac near joints
• Bursae help to reduce friction during movement

Bursitis

• Symptoms: severe pain that limits motion
• Treatment includes moist heat, analgesics, and anti-inflammatories

Tendonitis

• Inflammation of tendon, or connective tissue that attaches muscle to bone
• May occur in any tendon
• Treatment is ice, analgesics, anti-inflammatories, exercises, surgery

Carpal Tunnel Syndrome

• Repetitive motion injury affecting hands
• Affects individuals working at repetitive tasks requiring finger and wrist motions
• Treatment: rest, splint, anti-inflammatory, physical therapy, surgery

Plantar Fascitis

• Also called calcaneal spur or heel spur
• Treatment: rest, ice, analgesics, and anti-inflammatories

Shoulder and Knee Disorders

• Torn Rotator Cuff
  – Muscles that hold head of humerus in shoulder socket area
• Torn Meniscus
  – Attached to top of tibia and provides cushion for distal femur
Shoulder and Knee Disorders

- Cruciate ligament tears
  - Located inside knee joint
  - Two ligaments cross to stabilize knee

Shin Splints

- Overuse injury to periosteum and extensor muscles of lower leg
- Occur routinely with sudden increase in activity or new exercise routine
- Treatment: rest, analgesics, anti-inflammatory, heat, and ice

Rare Diseases

- de Quervain's - tendonitis affecting thumb
- Tuberculosis of bone - develops in tissue cavities leading to bone weakness and pain

Rare Diseases

- Paget's disease is chronic metabolic bone disease affecting bone formation
- Myasthenia Gravis - autoimmune disorder characterized by muscle weakness and fatigue