



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

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Common Signs and Symptoms

- Musculoskeletal diseases and disorders
 - Pain, swelling, decreased mobility, and deformity

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Diagnostic Tests

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

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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 spin
 - Scoliosis - lateral curvature of spine

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Disease of Bone

- Osteoporosis - metabolic bone disease causing porosity and leading to a decrease in bone mass
- Osteomyelitis - inflammation of bone caused by a staphylococcal infection

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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

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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
- Temporomandibular Joint Syndrome - severe headaches and pain in "jaw"

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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"

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Neoplasms

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

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Neoplasms

- Osteosarcoma is most common tumor
- Rhabdomyosarcoma - very rare highly malignant tumor of skeletal muscle

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Trauma

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

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Treatment of Fractures

- Immobilization
- Closed reduction
- Open reduction
- Traction

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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

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Dislocations and Subluxations

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

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Low Back Pain

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

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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

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Bursitis

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

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Bursitis

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

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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

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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

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Plantar Fasciitis

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

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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

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Shoulder and Knee Disorders

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

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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

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Rare Diseases

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

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Rare Diseases

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

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