

# Bio& 241 (A&P) STUDY GUIDE

## Unit 2: Skeletal System

(G. Brady & G. Blevins, fall 2008)



### CHAPTER 7: Bone Tissue

- 1) Know the six primary functions of the skeletal system.
- 2) Be able to identify the following structures associated with a long bone:  
Diaphysis, distal and proximal Epiphysis, Metaphysis, Articular cartilage, Periosteum, Sharpey fibers, Medullary cavity, Nutrient foramen, Endosteum, Epiphyseal Line
- 3) Know the following structures associated with the histology of bone tissue:
  - A) Cells: osteoprogenitor cells, osteoblasts, osteocytes, osteoclasts,
  - B) Structures or Terms: compact bone, Volkmann's canals, Haversian canals, concentric lamellae, interstitial lamellae, circumferential lamellae, osteon, lacuna, canaliculi, cancellous bone (spongy or diploe), trabeculae, organic matrix or collagen fibers, mineral matrix or hydroxyapatite
- 4) know the steps in Intramembranous ossification.  
Also, know the bones that are formed via this type of ossification.
- 5) Know the steps involved in the process of Endochondral ossification.
- 6) Know the steps and zones associated with bone growth at the epiphyseal plate.  
Zones: Reserve cartilage, Cell Proliferation, Cell hypertrophy, Calcification, Bone deposition  
Understand the process of bone growth and remodeling. (textbook & PowerPoint)
- 7) Know the steps involved in bone fracture repair.  
Fracture hematoma, fibrocartilage (soft) callus, bony (hard) callus, Bone remodeling
- 8) Know the following types of fractures and terms used to describe them:
  - A) **Terms:** closed / open, (simple / compound), Displaced/nondisplaced
  - B) **Fractures:** greenstick, spiral, comminuted, compression, epiphyseal, transverse, Pott's, and Colles'.
- 9) Know the glands and hormones involved in calcium homeostasis; hormones that control normal bone growth, remodeling and repair, and vitamins and minerals required for normal bone growth, remodeling and repair.
- 10) Know the following bone disorders or medical terminology: osteoporosis, rickets, osteomyelitis, osteopenia, osteomalacia, and scurvy, hypocalcemia, hypercalcemia

## **Chapter 8: The Skeletal System: The Axial Skeleton**

- 1) Know the bones, bone processes, and terms listed on the lab sheets.
- 2) Know the following medical terminology and disorders: Craniostenosis, Kyphosis, Lordosis, Scoliosis, Spina bifida.

## **Chapter 8: The Skeletal System: The Appendicular Skeleton**

- 1) Know the bones, bone processes, and terms on the bone list.
- 2) Know the following medical terminology and disorders: congenital talipes equinovarus, carpal tunnel syndrome.

## **Chapter 9: Articulations**

- 1) Know the structural and functional classification used for joints:
  - A) Synarthroses (suture, gomphosis, synchondrosis)
  - B) Amphiarthroses (syndesmosis, symphysis)
  - C) Diarthroses (synovial joints)
- 2) Know the following structures that are found in synovial joints and the details of the knee joint as a synovial joint:  
synovial cavity, articular capsule, synovial membrane, synovial fluid, articular cartilage, meniscus, joint capsule, ligaments, periosteum, bursae.
- 3) Know the following types of diarthroses and know examples for each:  
gliding, hinge, pivot, ellipsoidal (condyloid), saddle, and ball & socket.
- 4) Know the following movements that occur at diarthritic joints:  
flexion/extension, hyperextension, abduction/adduction, circumduction, inversion/eversion; dorsiflexion/plantar flexion, protraction/retraction, supination/pronation, elevation/depression, opposition, lateral flexion, lateral & medial rotation.
- 5) Know the deep or internal anatomical components of the tibiofemoral (knee) joint.
- 6) Know the following disorders and medical terminology:  
arthritis, rheumatism, rheumatoid arthritis, osteoarthritis, bursitis, laminectomy, herniated disc, luxation, subluxation, sprain, bunion.

## GENERAL ANATOMICAL TERMS FOR VARIOUS FEATURES OF BONES

### TERM DESCRIPTION

#### Major Features

**Body** *Main portion*

**Head** *Enlarged (often rounded) end*

**Neck** *Constricted area (between head and body)*

**Margin** or *border* *Edge*

**Angle** *Bend*

**Ramus** *Branch off the body (beyond the angle)*

**Condyle** *Smooth, rounded articular surface*

**Facet** *Small, flattened articular surface*

#### Ridges

**Line or linea** *Low ridge*

**Crest or crista** *Prominent ridge*

**Spine** *Very high ridge*

#### Projections

**Process** *Prominent projection*

**Tubercle** *Small, rounded process*

**Tuberosity** *tuber* *Knoblike process; usually larger than a tubercle*

**Trochanter** *Large tuberosity found only on the proximal femur*

**Epicondyle** *Near or above a condyle*

**Lingula** *Flat, tongue-shaped process*

**Hamulus** *Hook-shaped process*

**Cornu** *Horn-shaped process*

#### Openings

**Foramen** *Hole*

**Nutrient foramen** *Conveys blood vessels supplying the bone itself*

**Canal or meatus** *Tunnel*

**Fissure** *Cleft*

**Sinus** *Cavity or labyrinth* *Cavity*

#### Depressions

**Fossa** *General term for a depression*

**Impression** *Indentation made by a specific structure*

**Notch** *Depression in the margin of a bone*

**Fovea** *Little pit*

**Groove or sulcus** *Deeper, narrow depression*