Anatomy and Physiology 101: Chapter 7, Skeletal System

1. Overview
   1. The science of bones is:
   2. Functions of bones:
   3. Components of bones:
      1. Matrix Salt:
      2. Fibers:
      3. Cells:
         1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form bone
         2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are bone cells
         3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are white blood cells that resorb bone.
2. Bone Classifications – provide examples for each type of bone shape
   1. Long bones
   2. Short Bones
   3. Flat Bones
   4. Irregular Bones
   5. Sesamoid Bones
      1. What is a sesamoid bone?
      2. Example of a sesamoid bone:
3. Parts of a Long Bone
   1. Shaft
      1. The name of the shaft is properly called:
      2. Cavity within the shaft of long bones is the:
         1. List three structures within this cavity:
      3. What type of bone lines the shaft of long bones?
   2. Ends of long bones
      1. The enlarged ends of long bones are called the:
      2. What type of bone fills the ends of long bones:
      3. Name the cartilage that covers the ends of long bones. This cartilage is classified as which type of cartilage?
      4. What are epiphyseal lines?
   3. Coverings of long bones
      1. Name the tough vascular membrane that covers long bones.
         1. List two structures found within this membrane.
      2. Name the thin membrane that lines the cavities within long bones.
         1. What type of bone cells are within this membrane?
4. Osteon
   1. What is an osteon?
   2. Lists the major components of an osteon, and provide a function for each
      1. Opening in center with blood vessels and nerves:
      2. Cavities in which bone cells reside:
      3. Bone Cells:
      4. Small canals filled with the processes of bone cells:
      5. Concentric rings of bony matrix:
      6. Canals that run transverse to diaphysis and convey blood vessels from the periosteum to the osteons:
5. Bone Growth and Development
   1. Describe Intramembranous Ossification:
   2. Which bones are formed by intramembranous ossification?
   3. Which bones are formed by endochondral ossification?
   4. List four major events that occur during endochondral bone formation:
   5. Where do the primary and secondary ossification centers occur during endochondral bone formation?
6. Growth at the Epiphyseal Plates
   1. List the 4 layers (or zones) of cartilage, and describe the events in each layer that occur during bone growth at the epiphyseal plate:
   2. Is new bone added closer to the epiphysis or the diaphysis?
   3. When is bone growth complete in males and females?
7. Homeostasis of Bone
   1. Define bone remodeling:
   2. Distinguish between bone deposition and bone resorption.
   3. Which cells are responsible for bone deposition, and which are responsible for bone resorption?
   4. How often is the human skeleton renewed?
8. Factors affecting bone development, growth, and repair
   1. Nutrients
      1. Effect of Vitamin D on bones:
         1. Lack of vitamin D in children results in:
      2. Effect of Vitamin A on bones:
      3. Effect of Vitamin C on bones:
   2. Sunlight
      1. What effect do UV rays have on bone growth?
   3. Hormones
      1. Describe the effect of Growth Hormone (GH) on bone development:
         1. Condition of excess GH during childhood:
         2. Condition of insufficient GH during childhood:
         3. Condition of excess GH during adulthood:
      2. Describe the effects of testosterone and estrogen on bone growth:
   4. Exercise
      1. What effect does exercise have on bone growth?
9. Fractures
   1. Name and describe the two types of incomplete fractures:
   2. Name and describe the four types of complete fractures.
   3. Which type fracture is most common among children?
   4. Repair of a Fracture: Describe the five major events that occur during a fracture repair.
10. Bone Disorders
    1. Distinguish between osteopenia and osteoporosis:
    2. Site one reason why osteoporosis is most prevalent in postmenopausal women.
    3. List three ways to reduce the likelihood of osteoporosis.