

## Chapter 7: Skeletal System: Gross Anatomy

### I. General Considerations

- A. How many bones in an average adult skeleton? \_\_\_\_\_
- B. Anatomic features of bones are based on \_\_\_\_\_

### II. Axial Skeleton

#### A. Skull

- 1. Functionally the skull or cranium:
  - a. Protects the \_\_\_\_\_
  - b. Supports the organs of \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, & \_\_\_\_\_
  - c. Foundation for structures that take in \_\_\_\_\_, \_\_\_\_\_, & \_\_\_\_\_
- 2. Superior View of the Skull
  - a. List the bones visible from this view:
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
  - b. Where is the sagittal suture? \_\_\_\_\_
  - c. Where is the coronal suture? \_\_\_\_\_
- 3. Posterior View of the Skull
  - a. The major structures seen from the posterior view are:
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
  - b. Where is the lambdoid suture? \_\_\_\_\_
  - c. What are sutural bones? \_\_\_\_\_
  - d. The external occipital protuberance is the site \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
    - 1. Where can this be felt? \_\_\_\_\_
- 4. Lateral View of the Skull
  - a. A large part of the side of the head is formed by \_\_\_\_\_  
& \_\_\_\_\_

- b. Where is the squamous suture? \_\_\_\_\_
- c. The external auditory meatus is a \_\_\_\_\_
- d. Describe the mastoid process \_\_\_\_\_
  - 1. This can be felt \_\_\_\_\_
  - 2. It contains cavities called \_\_\_\_\_
  - 3. What attaches to the mastoid process? \_\_\_\_\_
- e. What part of the sphenoid bone is visible in this view? \_\_\_\_\_
- f. Anterior to the sphenoid is the \_\_\_\_\_
- g. The bridge across the side of the skull is properly called \_\_\_\_\_
- h. Anterior and inferior to the zygomatic bone is the \_\_\_\_\_
- i. The lower jaw is properly called the \_\_\_\_\_
  - 1. It articulates posteriorly with \_\_\_\_\_
  - 2. Describe the body of the mandible \_\_\_\_\_
  - 3. Describe the ramus of the mandible \_\_\_\_\_
    - a. The condyle articulates with \_\_\_\_\_
    - b. What attaches to the coronoid process? \_\_\_\_\_
- j. An alveolar process contains \_\_\_\_\_

5. Frontal View of the Skull

- a. The major structures seen from the frontal view are:
  - 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_
  - 4. \_\_\_\_\_
- b. What are the orbits? \_\_\_\_\_
  - 1. The optic nerve passes through the \_\_\_\_\_
- c. The nasal septum divides \_\_\_\_\_
- d. In addition to hyaline cartilage the nasal septum is composed of:
  - 1. The \_\_\_\_\_ &
  - 2. Perpendicular \_\_\_\_\_
- e. What are the nasal conchae? \_\_\_\_\_
  - 1. The superior & middle nasal conchae are part of what bone? \_\_\_\_\_

2. Functionally the conchae \_\_\_\_\_  
\_\_\_\_\_
- f. What are paranasal sinuses? \_\_\_\_\_
1. Functionally the paranasal sinuses:
- Decrease \_\_\_\_\_ &
  - Act as \_\_\_\_\_
2. List the four bones containing paranasal sinuses:
- \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
6. Interior View of the Skull
- What is removed to expose the cranial cavity? \_\_\_\_\_
  - Describe the crista galli & its location: \_\_\_\_\_
    - What attaches to the crista galli? \_\_\_\_\_
  - Where is the cribriform plate? \_\_\_\_\_
    - What passes through the cribriform plate? \_\_\_\_\_
  - What is the sella turcica? \_\_\_\_\_
    - What sits in the sella turcica? \_\_\_\_\_
  - The large hole in the bottom of the skull is called \_\_\_\_\_
7. Inferior View of the Skull
- What are the occipital condyles? \_\_\_\_\_
    - Where are they located? \_\_\_\_\_
  - Blood vessels going to the brain pass through the \_\_\_\_\_
  - Blood vessels leaving the brain pass through the \_\_\_\_\_
  - What are the styloid processes? \_\_\_\_\_
    - They are part of which bone? \_\_\_\_\_
    - What attaches to the styloid processes? \_\_\_\_\_
  - What is the function of the mandibular fossa? \_\_\_\_\_
  - The medial & lateral pterygoid plates are part of which bone? \_\_\_\_\_
    - What attaches to these plates? \_\_\_\_\_

- g. The vomer forms what? \_\_\_\_\_
  - h. The floor of the nasal cavity is called \_\_\_\_\_
    - 1. The anterior two-thirds is formed by \_\_\_\_\_
    - 2. The posterior one-third is formed by \_\_\_\_\_
8. Bones of the Skull
- a. What is the function of the auditory ossicles? \_\_\_\_\_
    - 1. They are found inside which bone? \_\_\_\_\_
  - b. The eight bones that surround and protect the brain form \_\_\_\_\_
  - c. The 14 bones of facial structures form \_\_\_\_\_
- B. Hyoid Bone
- 1. The hyoid bone is attached to the skull by \_\_\_\_\_
  - 2. The hyoid bone provides attachment for:
    - a. Some \_\_\_\_\_ &
    - b. Neck muscles that \_\_\_\_\_
- C. Vertebral Column
- 1. List the five regions of the vertebral column and the number of bones in each:
    - a. \_\_\_\_\_
    - b. \_\_\_\_\_
    - c. \_\_\_\_\_
    - d. \_\_\_\_\_
    - e. \_\_\_\_\_
  - 2. Curves that are concave anteriorly appeared during \_\_\_\_\_
  - 3. The convex curve of the cervical region forms \_\_\_\_\_
  - 4. The convex curve of the lumbar region forms \_\_\_\_\_
  - 5. Intervertebral Disks
    - a. They are composed of \_\_\_\_\_ & located \_\_\_\_\_
    - b. Functionally intervertebral disks:
      - 1. Provide \_\_\_\_\_ &
      - 2. Prevent \_\_\_\_\_

6. General Plan of the Vertebrae

a. List the five major functions of the vertebral column:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

b. What is the body of a vertebra? \_\_\_\_\_

c. What projects posteriorly from the body? \_\_\_\_\_

1. Which portion is the pedicle? \_\_\_\_\_

2. Which portion is the lamina? \_\_\_\_\_

d. What is the vertebral foramen? \_\_\_\_\_

e. What is a transverse process? \_\_\_\_\_

1. Where does it attach to the vertebral arch? \_\_\_\_\_

f. What is a spinous process? \_\_\_\_\_

1. Where does it attach to the vertebral arch? \_\_\_\_\_

g. Functionally the transverse & spinous processes? \_\_\_\_\_

h. Spinal nerves exit the vertebral column through \_\_\_\_\_

1. These are formed by notches in the \_\_\_\_\_

i. What is the function of the superior and inferior articular processes?

\_\_\_\_\_

1. What is an articular facet? \_\_\_\_\_

7. Regional Differences in Vertebrae

a. Cervical vertebrae

1. Have very \_\_\_\_\_, partly \_\_\_\_\_, & a \_\_\_\_\_

2. Atlas - first cervical vertebrae

a. Has no \_\_\_\_\_ & has no \_\_\_\_\_ but it does have \_\_\_\_\_

b. What part of the skull does the atlas articulate with? \_\_\_\_\_

3. Axis - second cervical vertebrae

a. What is the dens or odontoid process? \_\_\_\_\_

b. Thoracic vertebrae

1. Possess \_\_\_\_\_ which are directed \_\_\_\_\_ and they have \_\_\_\_\_
2. What is the function of the articular facets on the transverse process?  
\_\_\_\_\_
3. Where does the head of a rib articulate? \_\_\_\_\_  
\_\_\_\_\_

c. Lumbar vertebrae

1. Have \_\_\_\_\_ and \_\_\_\_\_
2. The superior articular process faces \_\_\_\_\_
3. The inferior articular process faces \_\_\_\_\_
  - a. When these two articulate it adds \_\_\_\_\_ to the inferior portion of the vertebral column and limits \_\_\_\_\_

d. Sacral vertebrae

1. The five vertebrae are fused into the \_\_\_\_\_
2. What forms the alae? \_\_\_\_\_
3. What forms the median sacral crest? \_\_\_\_\_
4. Why is there a sacral hiatus? \_\_\_\_\_
5. What forms the sacral foramina? \_\_\_\_\_
6. The sacral promontory is formed by \_\_\_\_\_
  - a. It is used as a point of reference \_\_\_\_\_

e. Coccyx

1. Is composed of how many bones? \_\_\_\_\_
2. What is the basic shape of the coccyx? \_\_\_\_\_

D. Thoracic Cage

1. Protects \_\_\_\_\_ and forms \_\_\_\_\_ that \_\_\_\_\_
2. Ribs and Costal Cartilages
  - a. What is the difference between a "true rib" and a "false rib"? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- b. Ribs that do not attach to the sternum are called \_\_\_\_\_
  - c. The head of a rib articulates with \_\_\_\_\_
  - d. The tubercle of a rib articulates with \_\_\_\_\_
  - e. Where is the neck of a rib? \_\_\_\_\_
  - f. What is the body of a rib? \_\_\_\_\_
  - g. What is the angle of a rib? \_\_\_\_\_
3. Sternum
- a. List the three parts of the sternum:
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
  - b. What is the jugular notch? \_\_\_\_\_
  - c. What is the sternal angle? \_\_\_\_\_

### III. Appendicular Skeleton

#### A. Pectoral Girdle and Upper Limb

1. Pectoral Girdle (Shoulder Girdle)
- a. Consists of two \_\_\_\_\_ of bones that attach \_\_\_\_\_
  - b. List the pair of bones forming the pectoral girdle:
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
  - c. What shape is the scapula? \_\_\_\_\_
  - d. What is the acromion process? \_\_\_\_\_
  - e. List the three functions of the acromion process?
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
  - f. Describe the scapular spine \_\_\_\_\_
  - g. Identify the location of the following fossa:
    - 1. Supraspinous fossa \_\_\_\_\_
    - 2. Infraspinous fossa \_\_\_\_\_

3. Subscapular fossa \_\_\_\_\_
  - h. Functionally the coracoid process \_\_\_\_\_
  - i. The glenoid cavity articulates \_\_\_\_\_
  - j. What shape is the clavicle? \_\_\_\_\_
  - k. What does the clavicle articulate with:
    1. At its lateral end \_\_\_\_\_
    2. At its medial end \_\_\_\_\_
2. Arm
- a. Structurally the arm runs from \_\_\_\_\_ to the \_\_\_\_\_
  - b. It contains a single bone called the \_\_\_\_\_
  - c. The head of the humerus articulates with \_\_\_\_\_
  - d. Immediately distal to the head is the \_\_\_\_\_
  - e. What is the significance of the surgical neck? \_\_\_\_\_  
\_\_\_\_\_
  - f. The proximal end of the humerus has a:
    1. Greater tubercle that is located \_\_\_\_\_
    2. Lesser tubercle that is located \_\_\_\_\_
      - a. Functionally both tubercles are \_\_\_\_\_
    3. The groove between the tubercles is called \_\_\_\_\_
      - a. What is found in this groove? \_\_\_\_\_
  - g. Where is the deltoid tuberosity found? \_\_\_\_\_
  - h. Functionally the deltoid tuberosity is \_\_\_\_\_
  - i. The distal end of the humerus has a:
    1. Capitulum that is very \_\_\_\_\_ & located \_\_\_\_\_
      - a. The capitulum articulates with \_\_\_\_\_ of the forearm
    2. Trochlea that is shaped \_\_\_\_\_ & located \_\_\_\_\_
      - a. The trochlea articulates with \_\_\_\_\_ of the forearm
    3. Functionally the medial and lateral epicondyles \_\_\_\_\_
3. Forearm - from shoulder to wrist
- a. Which bone is on the medial side of the forearm? \_\_\_\_\_
  - b. Which bone is on the lateral side of the forearm? \_\_\_\_\_



- c. The proximal end of the ulna has a:
    - 1. Trochlear (semilunar) notch that is shaped like \_\_\_\_\_
      - a. What does the trochlear notch articulate with? \_\_\_\_\_
    - 2. Olecranon process which is commonly referred to \_\_\_\_\_
      - a. This process is larger and located \_\_\_\_\_
      - b. Functionally the olecranon process is \_\_\_\_\_
    - 3. Coronoid process which is \_\_\_\_\_, and located \_\_\_\_\_
    - 4. Radial notch where the \_\_\_\_\_ of the radius articulates
  - d. The distal end of the ulna has a:
    - 1. Small head which articulates with \_\_\_\_\_ & \_\_\_\_\_
    - 2. Styloid process located on the \_\_\_\_\_ side of the head
      - a. Functionally the styloid process \_\_\_\_\_
  - e. The proximal end of the radius has a:
    - 1. Head that has a \_\_\_\_\_ shape & articulates with \_\_\_\_\_
    - 2. Radial tuberosity that functionally is \_\_\_\_\_
  - f. The distal end of the radius articulates with \_\_\_\_\_ & \_\_\_\_\_
    - 1. The styloid process is on \_\_\_\_\_ side of the \_\_\_\_\_ end
    - 2. Functionally the styloid process \_\_\_\_\_
4. Wrist
- a. Is composed of how many bones \_\_\_\_\_ called \_\_\_\_\_
  - b. The bones are arranged in \_\_\_\_\_ rows of \_\_\_\_\_ bones
5. Hand
- a. The palm of the hand is composed of five \_\_\_\_\_ bones
  - b. The digits are composed of bones called \_\_\_\_\_
- B. Pelvic Girdle and Lower Limb
1. Pelvic Girdle
- a. Consists of right and left \_\_\_\_\_ or \_\_\_\_\_
  - b. Describe what structures form the pelvis \_\_\_\_\_  
\_\_\_\_\_
  - c. What is the obturator foramen? \_\_\_\_\_
  - d. What is the acetabulum? \_\_\_\_\_

1. Functionally the acetabulum is \_\_\_\_\_
- e. List the three bones which fuse together to form the coxa:
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
- f. What is the iliac crest? \_\_\_\_\_
  1. The front end is called \_\_\_\_\_
  2. The back end is called \_\_\_\_\_
- g. Where is the greater ischiadic notch? \_\_\_\_\_
- h. What joins to the ilium at the articular surface? \_\_\_\_\_
  1. This connection is properly called the \_\_\_\_\_ joint
- i. What is the iliac fossa? \_\_\_\_\_
- j. What structure does a person sit on? \_\_\_\_\_
- k. Functionally the ischial tuberosity \_\_\_\_\_
- l. Functionally the pubic crest \_\_\_\_\_
- m. What is the connection between the 2 coxa called? \_\_\_\_\_
- n. What are the iliopectineal lines? \_\_\_\_\_
- o. Distinguish between false (greater) pelvis and true (lesser) pelvis: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- p. Where is the pelvic inlet? \_\_\_\_\_
- q. Where is the pelvic outlet? \_\_\_\_\_
2. Comparison of the Male and Female Pelvis
  - a. In which sex is the pelvis more massive? \_\_\_\_\_
  - b. The pelvis is broader and has more rounded openings in \_\_\_\_\_
3. Thigh - hip to knee
  - a. Contains a single bone called \_\_\_\_\_
  - b. The proximal end of the femur has a:
    1. Prominent \_\_\_\_\_
      - a. This structure articulates with \_\_\_\_\_
    2. Well-defined \_\_\_\_\_

3. Greater trochanter which is \_\_\_\_\_ to the neck
  4. Lesser trochanter which is \_\_\_\_\_ & \_\_\_\_\_ to the neck
    - a. Functionally both trochanters \_\_\_\_\_
  - c. The distal end of the femur has:
    1. Smooth rounded surfaces called \_\_\_\_\_ & \_\_\_\_\_
      - a. These structures articulate with \_\_\_\_\_
    2. Where are the medial and lateral epicondyles located? \_\_\_\_\_
      - a. Functionally the epicondyles \_\_\_\_\_
  - d. What is the patella (kneecap)? \_\_\_\_\_
    1. The patella is actually located within \_\_\_\_\_
    2. What does the patella articulate with? \_\_\_\_\_
4. Leg - knee to ankle
- a. Which bone is on the medial side of the leg? \_\_\_\_\_
  - b. Which bone is on the lateral side of the leg? \_\_\_\_\_
  - c. Functionally the tibial tuberosity \_\_\_\_\_
  - d. The proximal end of the tibia has:
    1. Medial and Lateral condyles that articulate with \_\_\_\_\_
    2. Intercondylar eminence which is a \_\_\_\_\_
  - e. The distal end of the tibia has \_\_\_\_\_
  - f. The proximal head of the fibula articulates with \_\_\_\_\_
  - g. The distal end of the fibula is enlarged to form \_\_\_\_\_
5. Foot
- a. The proximal portion of the foot consists of \_\_\_ bones called \_\_\_\_\_
  - b. The talus articulates with \_\_\_\_\_ & \_\_\_\_\_ forming \_\_\_\_\_
  - c. The calcaneus is located \_\_\_\_\_ to the talus
    1. Functionally the calcaneus \_\_\_\_\_
    2. The calcaneus is commonly referred to as the \_\_\_\_\_
  - d. The metatarsals are arranged similarly to \_\_\_\_\_ of the hand
  - e. The bones of the toes are called \_\_\_\_\_
  - f. How many major arches does the foot have? \_\_\_\_\_

g. Describe the sequence of weight transfer as the foot is placed on the ground: \_\_\_\_\_

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