Appendicular Skeleton 1

PECTORAL GIRDLE & ARM

Objectives
1. Identify on a skeleton or diagram the bones of the pectoral girdle and the attached limb.
2. Describe the structure and function of the clavicle.
3. Describe the structure and function of the scapula.
4. Discuss the free movement of the shoulder

PECTORAL GIRDLE

• Clavicle & scapula
• Braces arm away from thorax
• Forms shoulder joint

CLAVICLE

• Collarbone
  – 1. sternal extremity – medial end; articulates with sternum; rounded
  – 2. acromial extremity – lateral end; articulates with scapula; flattened
• Helps form shoulder joint
• Braces arm and prevents shoulder dislocation
SCAPULA

- Shoulder blades
- 1. Body – main portion
- 2. Spine – runs diagonally on posterior (dorsal) surface
- 3. Acromion Process – flattened; articulates with clavicle; lateral
- 4. Coracoid Process – beak like; muscle attachment

- 5. Superior border – uppermost edge
- 6. Vertebral border – medial; thin edge; near vertebrae
- 7. Axillary border – lateral; thick edge; closer to arm

- 8. Superior angle – where vertebral border meets superior border
- 9. Lateral angle – superior end of axillary border
- 10. Inferior angle – where vertebral & axillary borders meet

- 11. Glenoid cavity – socket that receives head of humerus
- 12. Supraspinous fossa – depression above spine
- 13. Infraspinous fossa – depression below spine

- 14. Subscapular fossa – shallow depression on anterior (ventral) surface

Shoulder girdle allows free movement because:

- Only one point of attachment to the axial skeleton (sternoclavicular joint)
- Scapula is loosely held in place by trunk muscles (not directly attached) which allows it to slide against the thorax
- Shallow glenoid cavity and joint of shoulder poorly reinforced by ligaments
Objectives
5. Describe the function and structure of the humerus, radius and ulna.
6. Describe the articulation of each.

HUMERUS

1. Head – rounded process at the proximal end; articulates with glenoid cavity of scapula
2. Body – central shaft; diaphysis
3. Anatomical Neck – groove that borders the head
4. Surgical Neck – constricted or narrow area; where head meets body
5. Greater Tubercle – large bony projection on lateral side (opposite of head)
6. Lesser Tubercle – smaller bony projection on anterior surface
7. Intertubercular sulcus (bicipital groove) – depression between greater & lesser tubercles
8. Deltoid tuberosity – roughened area on midpoint of shaft; attachment of deltoid muscle
9. Capitulum – knoblike process on lateral side that articulates with radius; allows forearm to pivot
10. Trochlea – spool like process on medial side that articulates with ulna; extend & flex the forearm
11. Radial fossa – depression that is superior to capitulum; receives the head of radius during arm flexion
12. Coronoid fossa – superior to trochlea; receives ulna during arm flexion
13. Olecranon fossa – depression on posterior surface that receives the ulna during arm extension
14. Medial epicondyle – roughened projection on medial side of distal humerus
15. Lateral epicondyle – roughened projection on lateral side of distal humerus
ULNA – medial bone of forearm

1. Olecranon process – proximal end; posterior surface; fits into the olecranon fossa of humerus during arm extension
2. Coronoid process – proximal end; anterior surface; fits into coronoid fossa of humerus during arm flexion
3. Trochlear notch (semilunar) – depression between olecranon & coronoid processes; holds trochlea of humerus

RADIUS – lateral bone of forearm

1. Head – proximal end; disc shaped; articulates with capitulum of humerus & radial notch of ulna
2. Radial tuberosity – roughened process on medial side for attachment of bicep muscle
3. Ulnar notch – depression on distal end that articulates with head of ulna

Objectives

7. Describe the structure and articulation of the bones of the hand

CARPALS – wrist bones

• 8 bones
• Proximal row:
  – Scaphoid (lateral/thumb)
  – Lunate
  – Triquetral
  – Pisiform (medial/pinky)
• Distal row:
  – Trapezium (lateral/thumb)
  – Trapezoid
  – Capitate
  – Hamate (medial/pinky)
METACARPALS – Hand bones
• 5 bones covering palm of hand
• I (thumb) to V (pinky)
• Structure:
  – Head (articulates w/ phalanges)
  – shaft
  – Base (articulates w/ carpals)

PHALANGES – finger bones
• Phalanx – individual bones; each finger has 3 w/ exception of thumb
• I – articulates w/ metacarpals; proximal
• II - middle
• III – tip of finger ; distal
• Pollex – refers to thumb