



Faculty of Medicine

Department of Cellular and Physiological Sciences

CAPS391 Winter term, 2020

January 13, 2020

Subject: Skeletal System III

Covering: Chapter 2

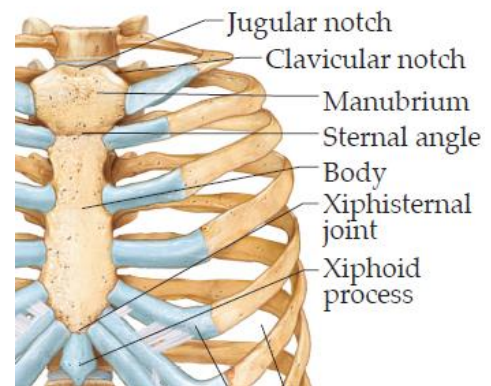
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Learning Objectives:

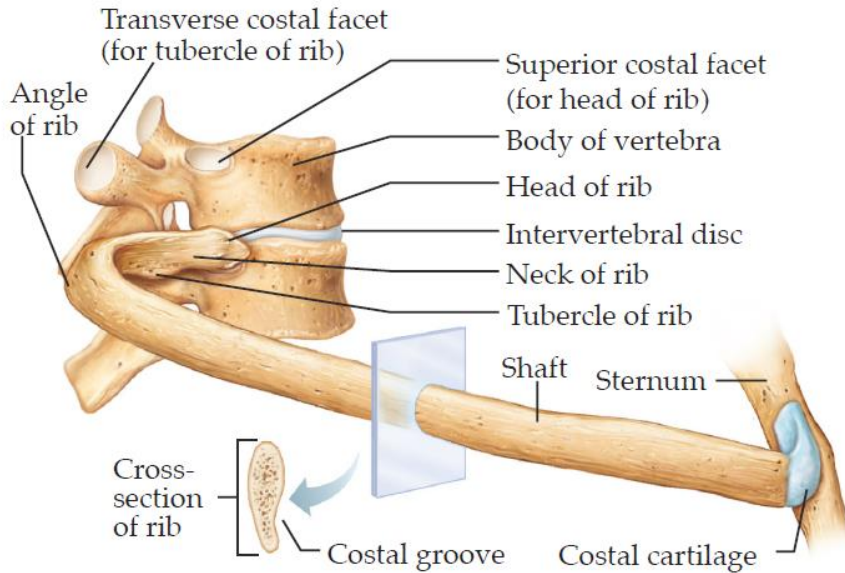
1. Name the different parts of the sternum.
2. Classify the ribs and name the main characteristics of a typical rib.
3. Explain how the ribs articulate with the sternum and the thoracic vertebrae.
4. Name and describe the bones of the shoulder girdle.
5. Name the bones of the upper limb.
6. Identify the major features of the bone of the upper limb.

A-Sternum and Ribs

- 1- Different **parts of the sternum** (manubrium, body, xiphoid process). These are a joint between these (Sternal angle, Xiphisternal joint)
- 2- Bony features of sternum (jugular notch, sternal angle)
- 3- Classification of ribs (flat bones):
 - a. **True ribs** (the first seven): rib directly is attached sternum
 - b. **False ribs** (the last five): are attached the sternum through one cartilage
-Ribs 11 and 12 also known as **free / floating ribs** (part of false ribs).
- 4- Basic features of a **typical rib (3-9 ribs)**
 - Head: articulate with thoracic vertebrate
 - Neck
 - Costal tubercle
 - Costal angle: changing the direction of rib (most of the fracture of the rib)
 - Costal groove: houses the blood vessels and nerve



- a. Body of the rib
- 5. Articulation between a typical rib and a thoracic vertebra;
 - a. Head of the rib with two adjacent vertebral bodies (Rib 4 articulates with T3 & T4" same level and one level higher")
 - b. Costal tubercle with transverse process of the thoracic vertebra at the same level (Rib 4 articulates with T4" same level").

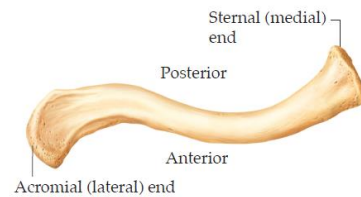


Appendicular skeleton:

Shoulder girdle (clavicle + scapula), connects upper limb to the axial skeleton.

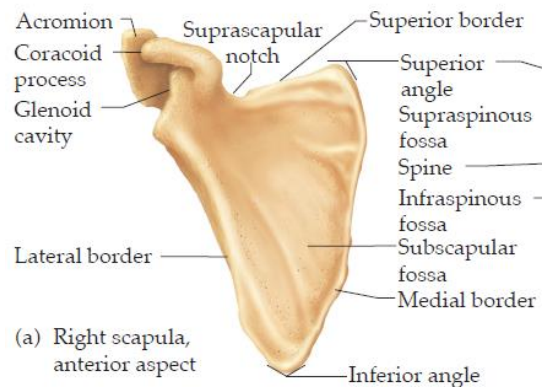
Clavicle:

- The only long bone in **horizontal plane**
- Comprised of:
 - medial / **sternal head** (end),
 - lateral / **acromial head** (end),
 - body.

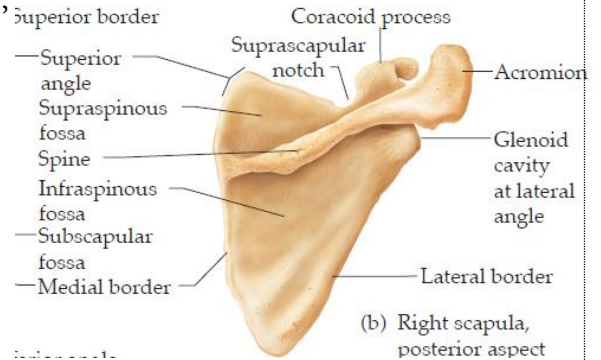


Scapula:

- Three borders:
 - medial/ vertebral border,
 - lateral/axillary border,
 - superior border
- Three angles:

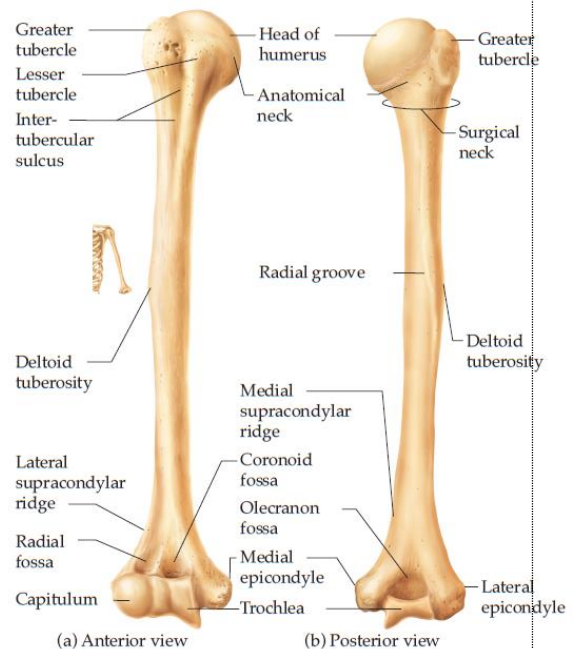


- Superior angle “level of spinous process of T2”,
- Inferior angle “level of T7”,
- Lateral glenoid cavity
- Two processes (coracoid process and **spine of scapula**, laterally ending to **acromion** process)
- Two surfaces
 - anterior** / subscapular fossae and
 - posterior** – divided by **spine of scapula** to supraspinous fossae and infraspinous fossae).



Humerus:

- **Proximal end:**
 - Head: articulate with scapula (glenoid cavity),
 - Anatomical neck,
 - Greater tubercle (more lateral),
 - Lesser tubercle (more medial),
 - Intertubercular groove (housing of long head of biceps muscle)
 - Surgical neck (horizontal, most common site of fracture)
- **Shaft:**
 - Radial groove (posterior, houses of radial nerve)
 - Deltoid tubercle / tuberosity (insertion of deltoid muscle)
- **Distal end:**
 - Condyle (trochlea “medial part” + capitulum “lateral part”),
 - Medial (more prominent) and lateral epicondyles (above the condyle),
 - medial and lateral supracondylar ridges,
 - Coronoid fossa,
 - Radial fossa,
 - Olecranon fossa



Forearm

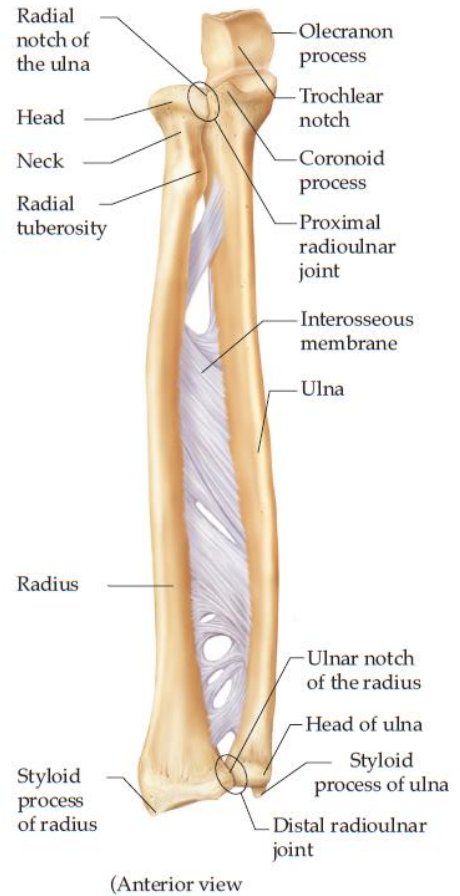
Ulna:

- **Proximal end:**
 - olecranon process,

- coronoid process,
- trochlear notch,
- ulnar tuberosity** (insertion of brachialis muscle)
- **Shaft:** lateral / interosseous border
- **Distal end:**
 - head (medial side),
 - styloid process

Radius bone

- **Proximal end:**
 - head (cylindrical part),
 - neck (narrow part immediately distal to head),
 - radial tuberosity (attach the biceps brachii muscle),
 - shaft (medial = interosseous border)
- **Distal end** (2-3x bigger than proximal end): styloid process of radius (palpable under skin)



Don't forget to complement this summary with more details from your reference!

Good luck
Manouchehr