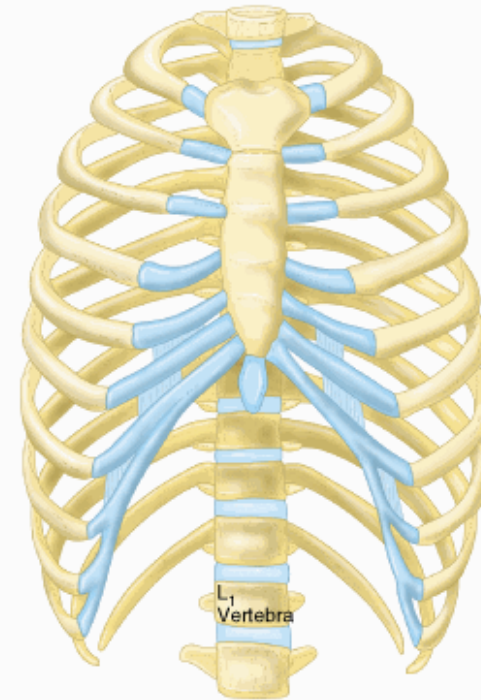


Thoracic Cage

Thoracic Cage

- Composed of the thoracic vertebrae, ribs, sternum, and costal cartilage
- Forms a protective cage around the organs of the thorax (heart, lungs, blood vessels)
- Supports the shoulder girdles and upper limbs
- Provides attachment points for muscles of the neck, back, chest, and shoulders

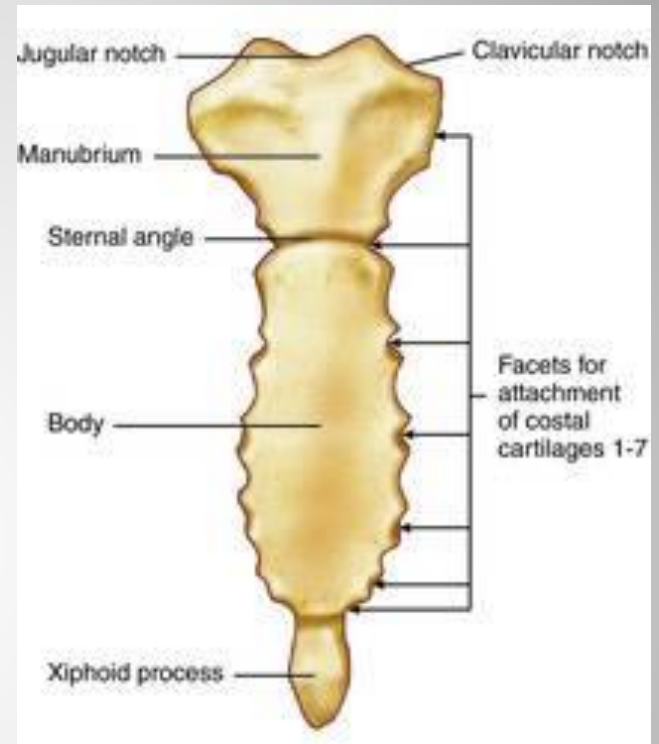


(a)

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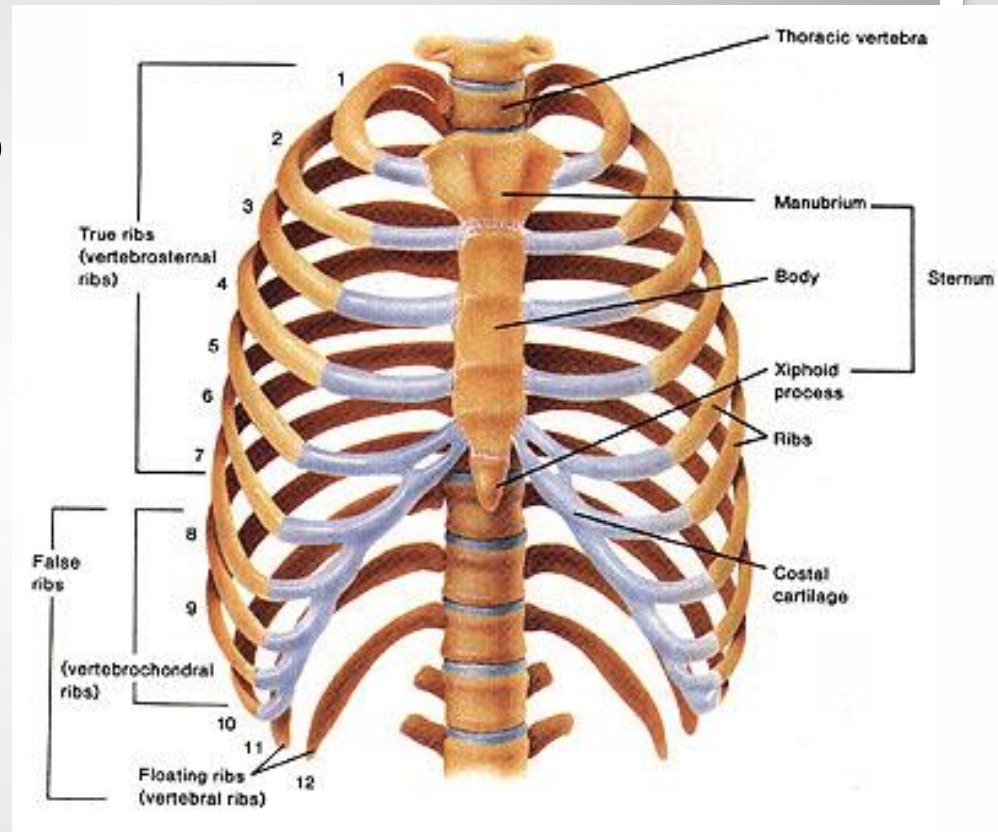
Sternum

- Resembles a dagger
- Fusion of three bones
 - Manubrium-shaped like the knot of a tie; articulates with the clavicles and first two pairs of ribs
 - Body-bulk of sternum; articulates with cartilages of 2nd-7th ribs
 - Xiphoid process-forms inferior end; attachment point for some abdominal muscles



Ribs

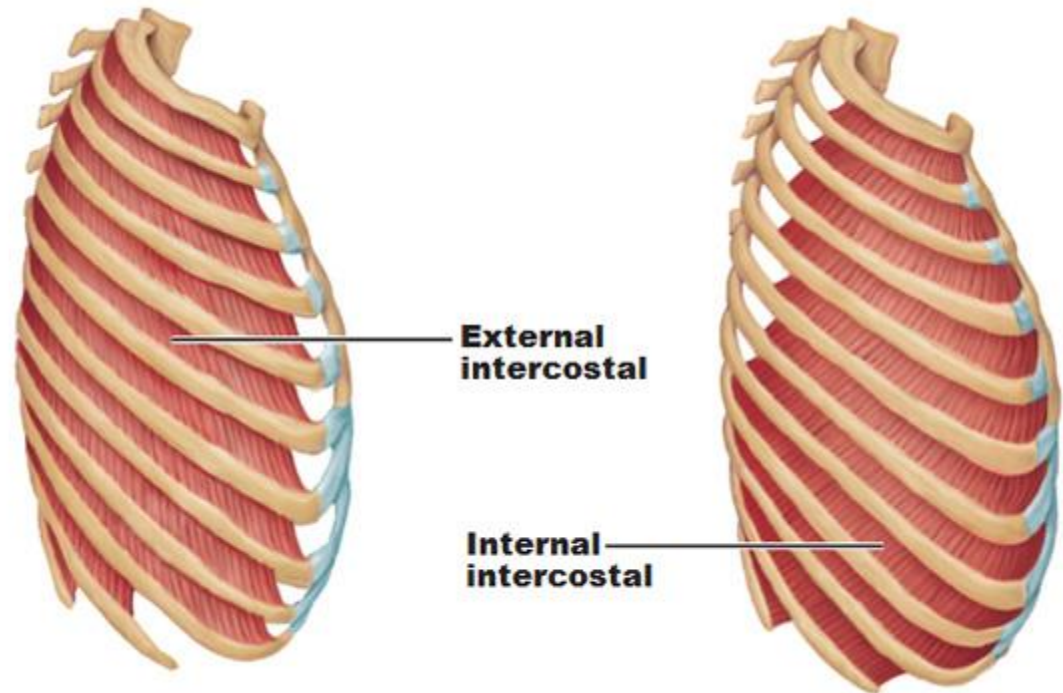
- 12 pairs of ribs
- All attach posteriorly to the thoracic vertebrae
- 7 superior pairs attach directly to the sternum via costal cartilage
 - Called true ribs
- 5 inferior pairs attach indirectly to the sternum or do not attach at all
 - Called false ribs
 - Ribs 8-10 attach indirectly
 - Ribs 11-12 do not attach anteriorly
 - Called floating ribs



Muscles

External and Internal Intercostals

- Origin-
 - External: lower border of a rib
 - Internal: upper border of a rib and costal cartilage
- Insertion-
 - External: upper border of rib below
 - Internal: lower border of rib above
- Action-stabilize ribcage during movement; aids in respiration



Diaphragm

- Origin-xiphoid process, lower 6 ribs, L1-L3
- Insertion-converges into central tendon
- Action-forms floor of thoracic cavity; pulls central tendon down during respiration creating more space in thoracic cavity

