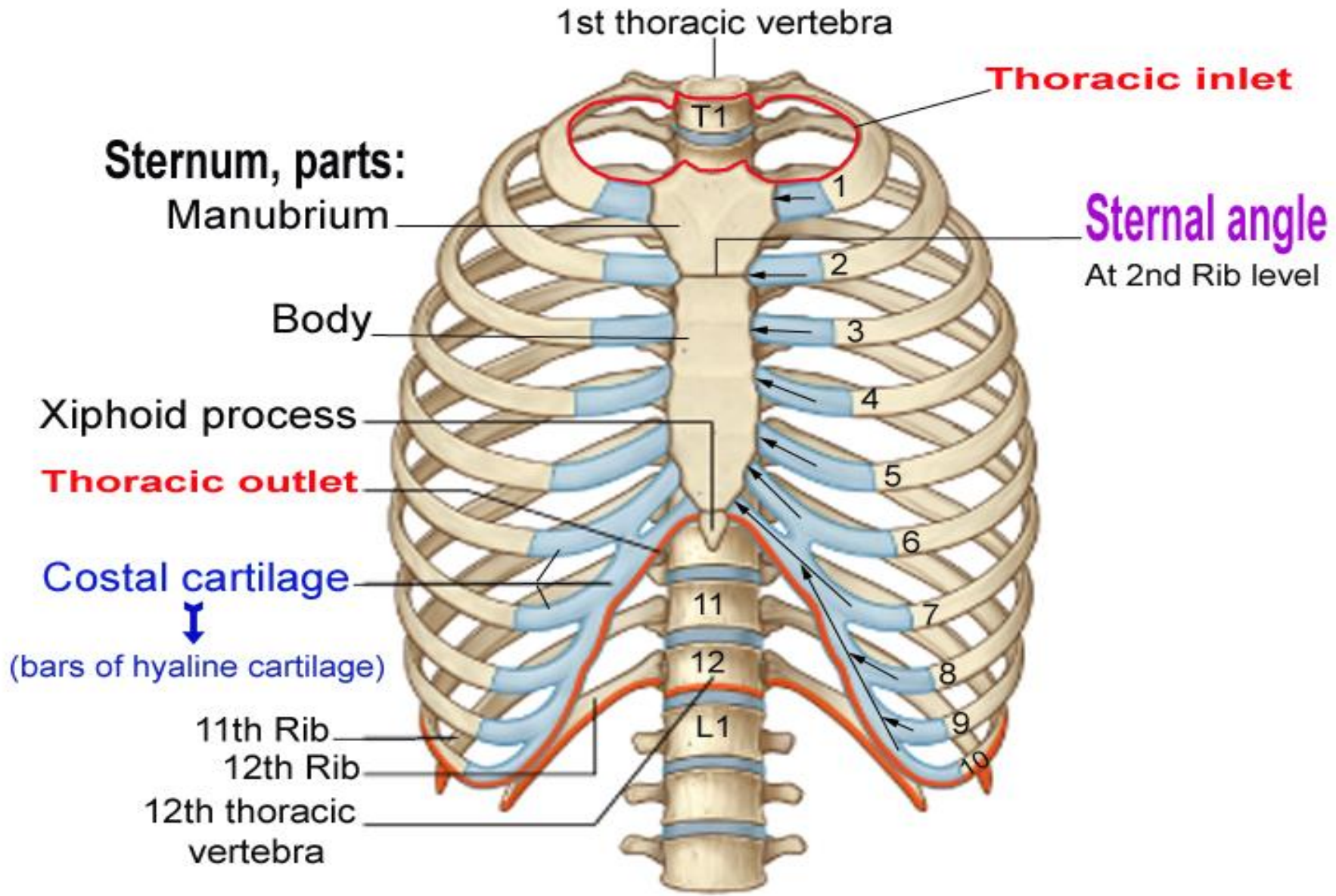


# Thorax

## Lecture (1)

### Parts:

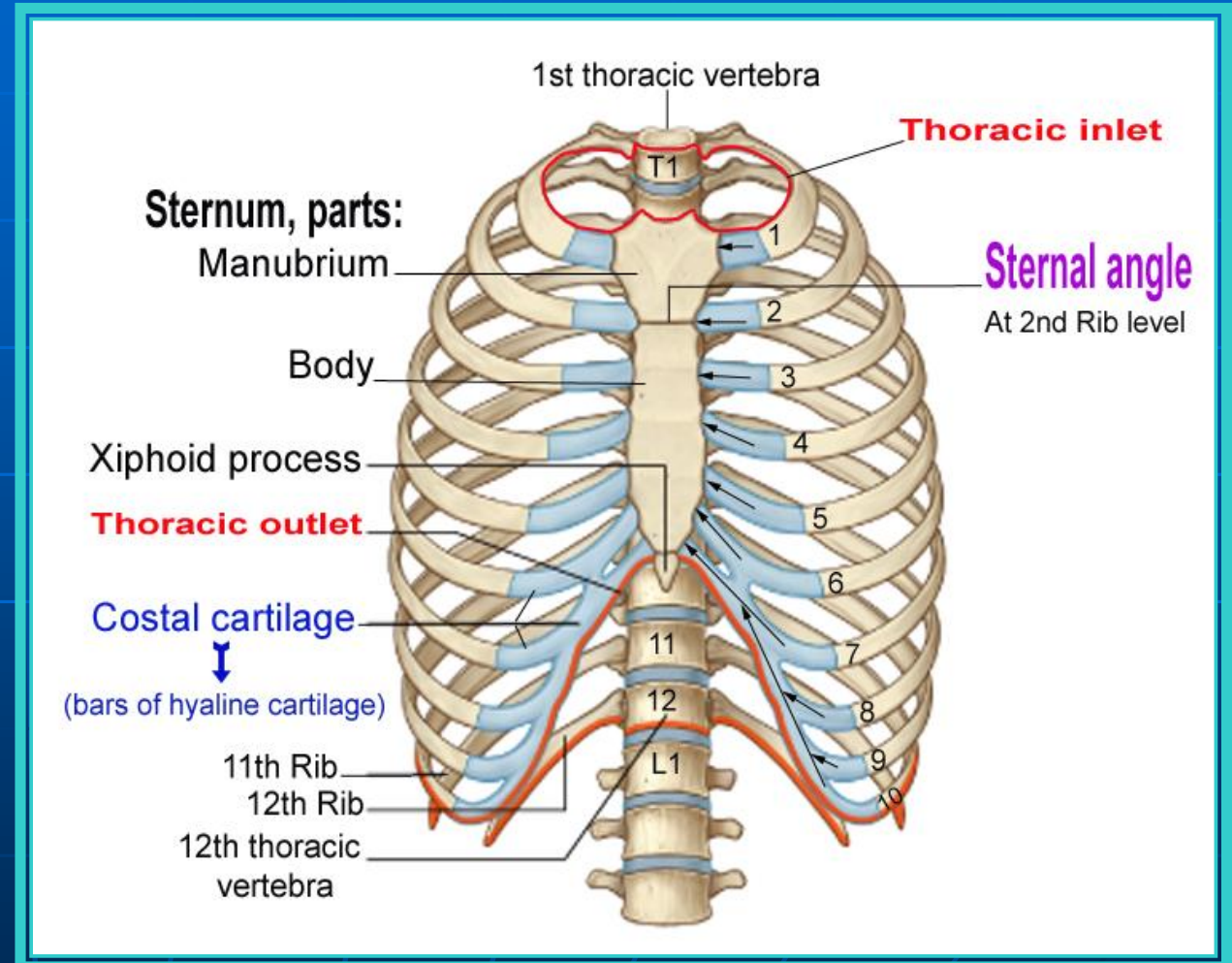
1. Thoracic cage.
2. Thoracic wall.
3. Thoracic cavity.



# Thoracic Cage

## Parts

- Sternum → Anterior.
- 12 vertebrae → posterior.
- 12 pairs of ribs → sides.
- 12 pairs of costal cartilages → bars of hyaline cartilage that cap its anterior ends.





# Sternum

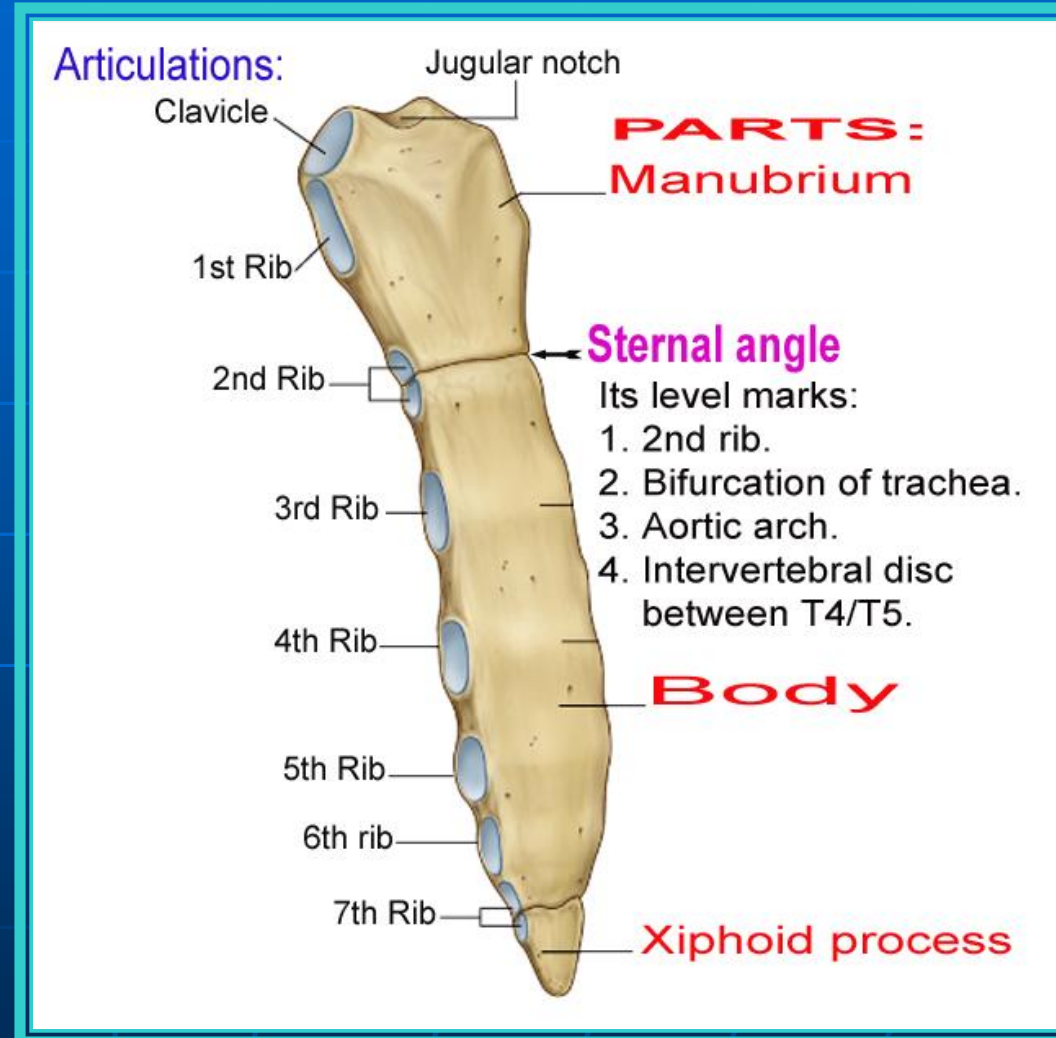
- Flat bone.
- Breast bone.
- Broad & Short in Female.
- Long & narrow in male.

## Has 3 parts:

1. Manubrium.
2. Body.
3. Xiphoid process.

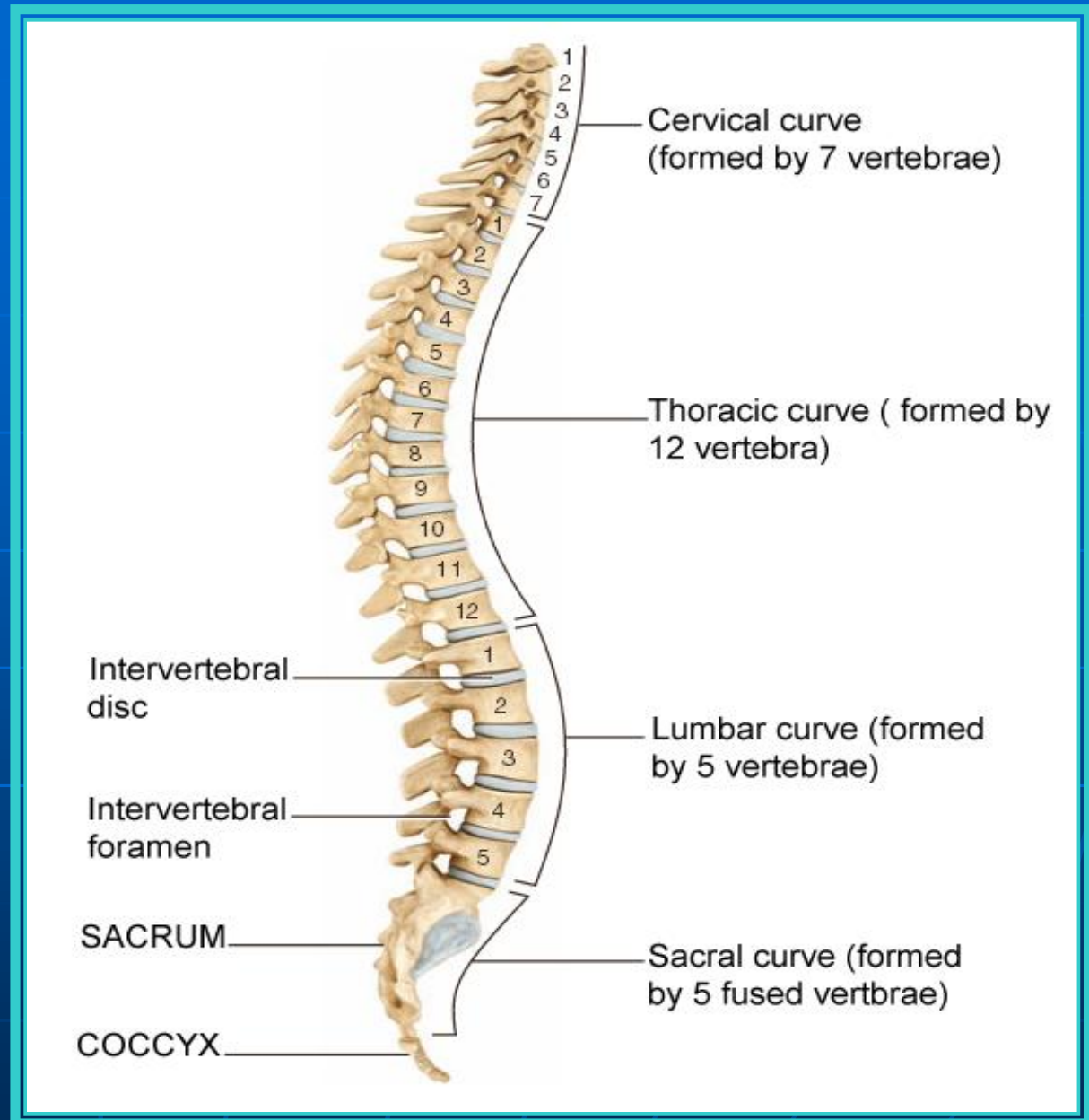
## ➤ Sternal angle:

- Between manubrium and body.
- Clinical importance 1-4.

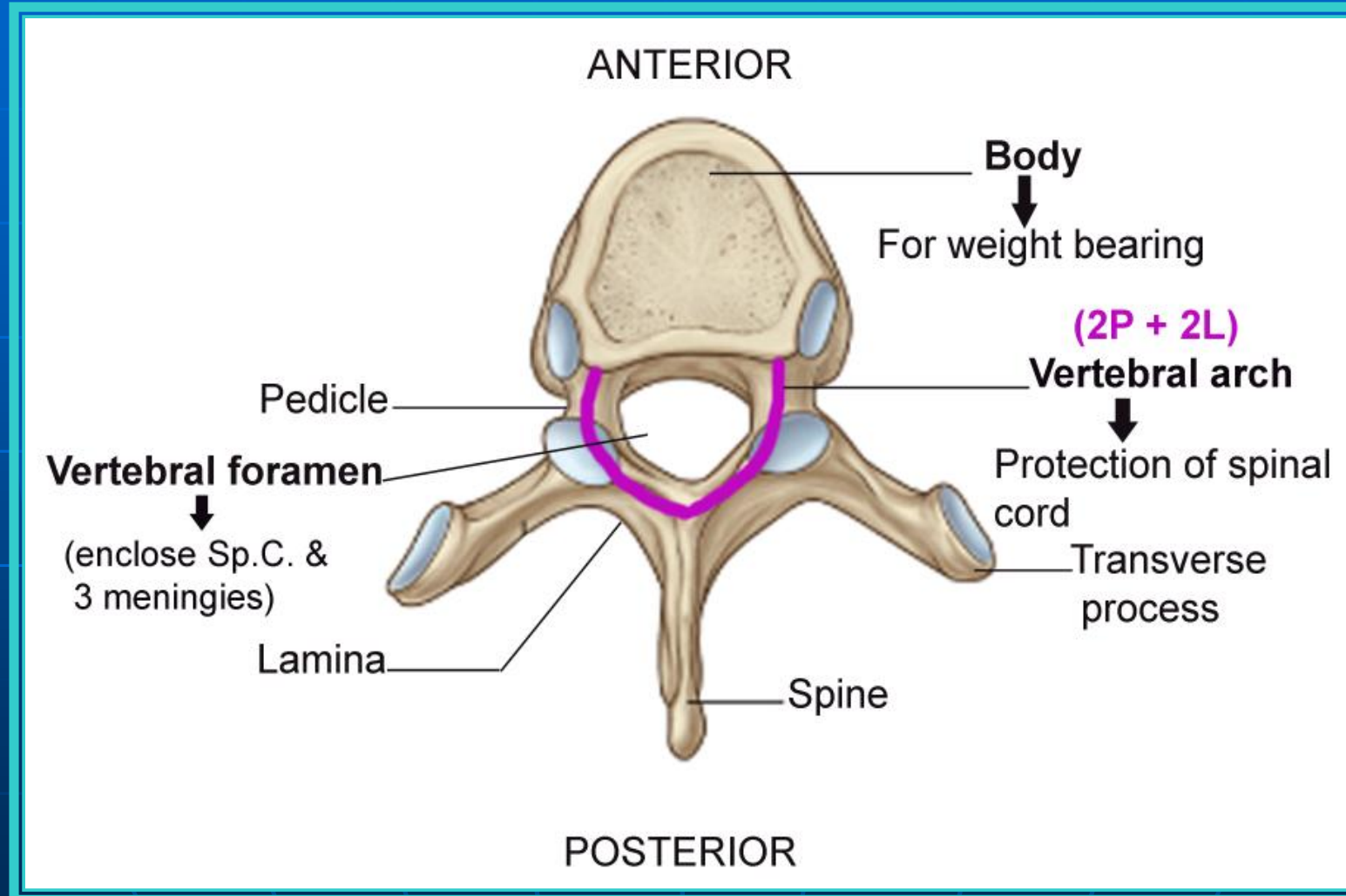


# Vertebral column

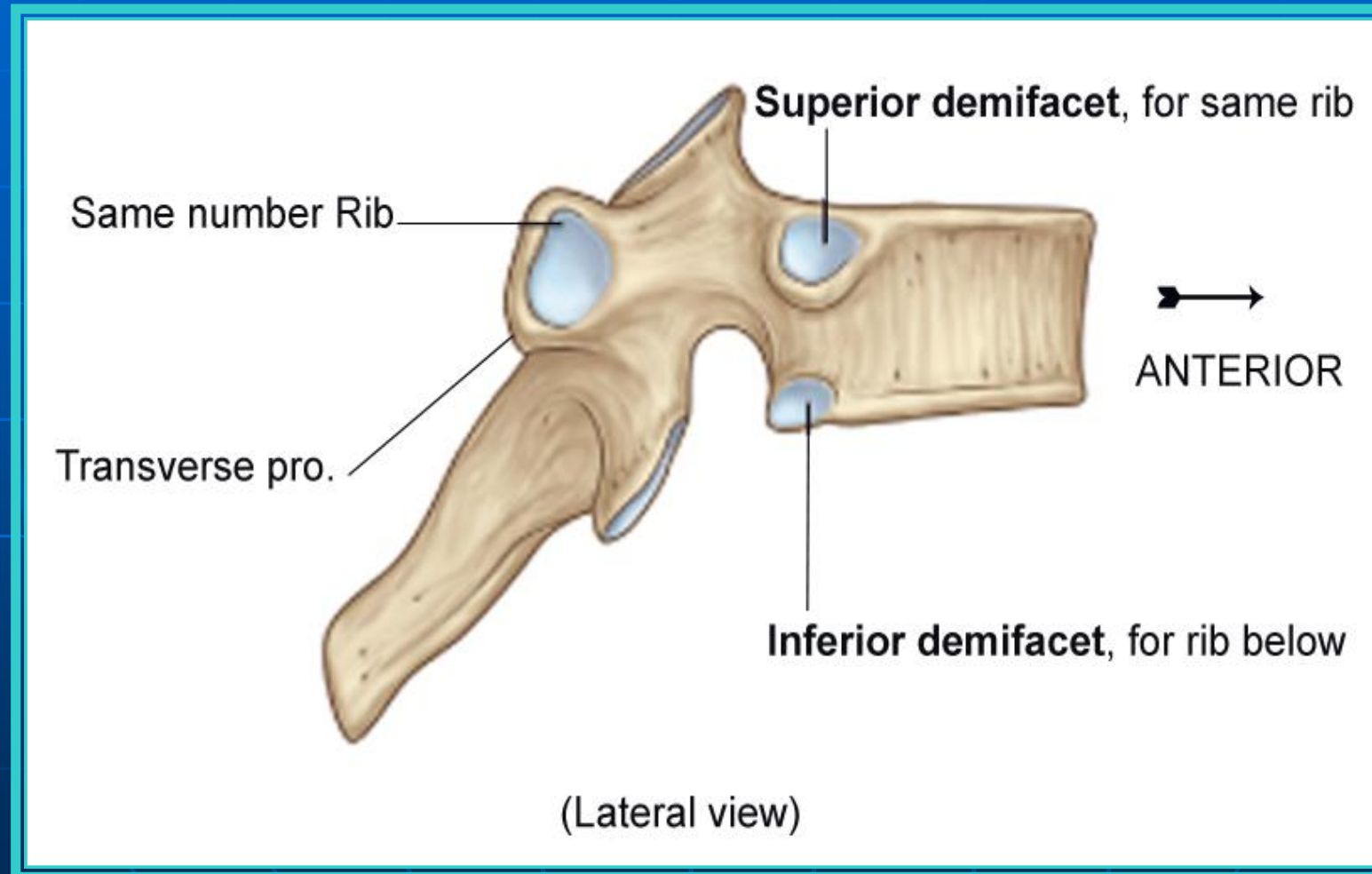
- In adult, form of 33 vertebrae.
- Regions:
  - Cervical → 7.
  - Thoracic → 12.
  - Lumbar → 5.
  - Sacrum → 5 fused.
  - Coccyx → 4 fused and rudimentary.



# 3 Parts of vertebra

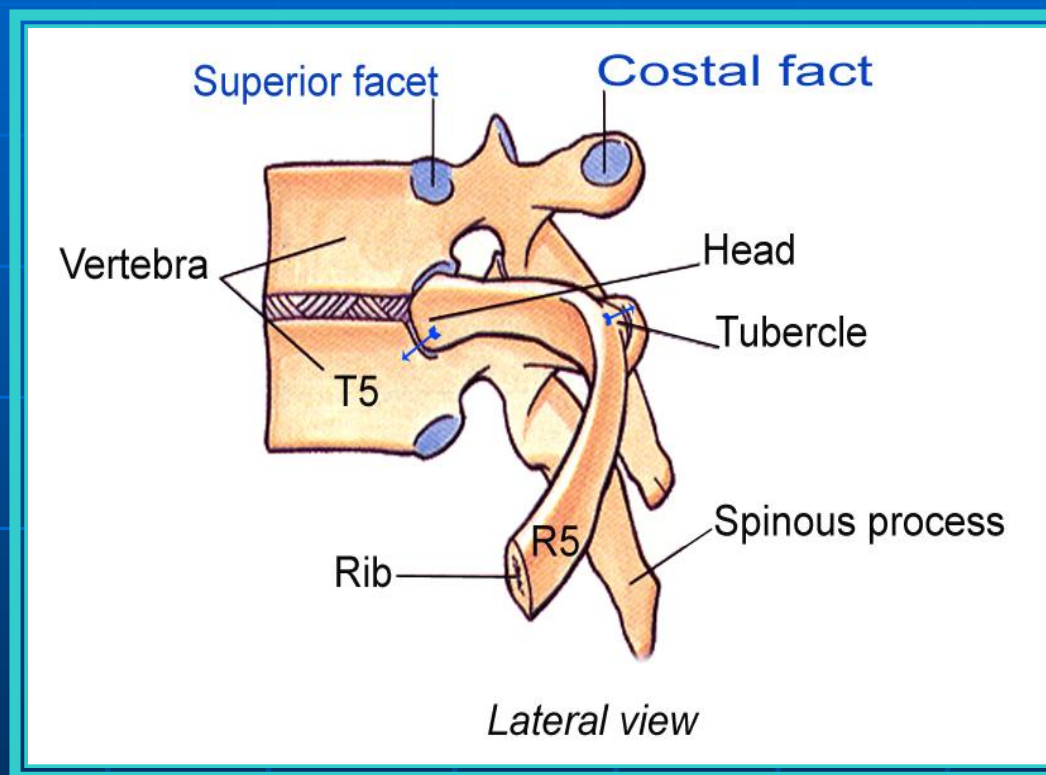


# Thoracic vertebra- Lateral view



# Articulation with Ribs

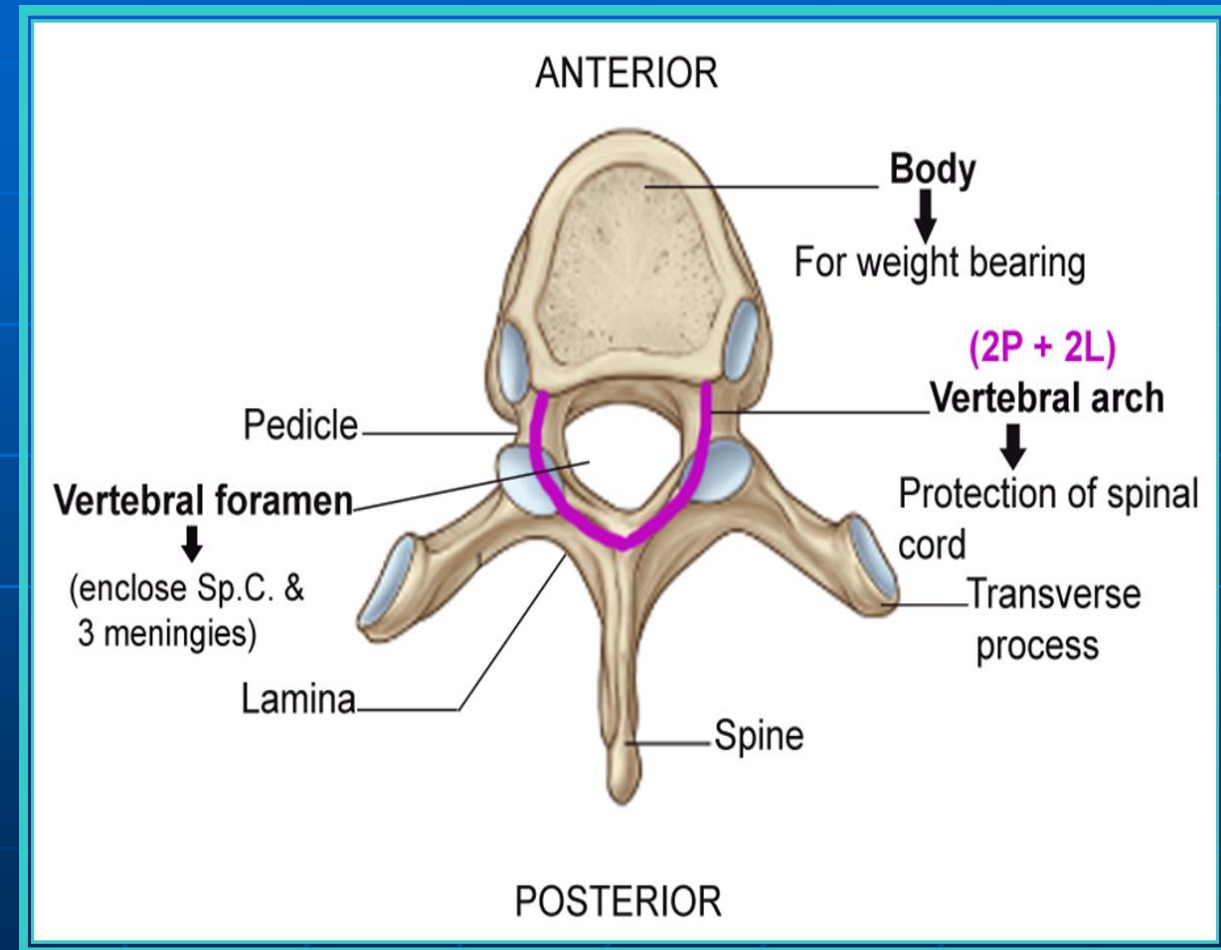
- Inferior facet, with vertebra of same number.
- Articular tubercle, with transverse process of same the number vertebra.





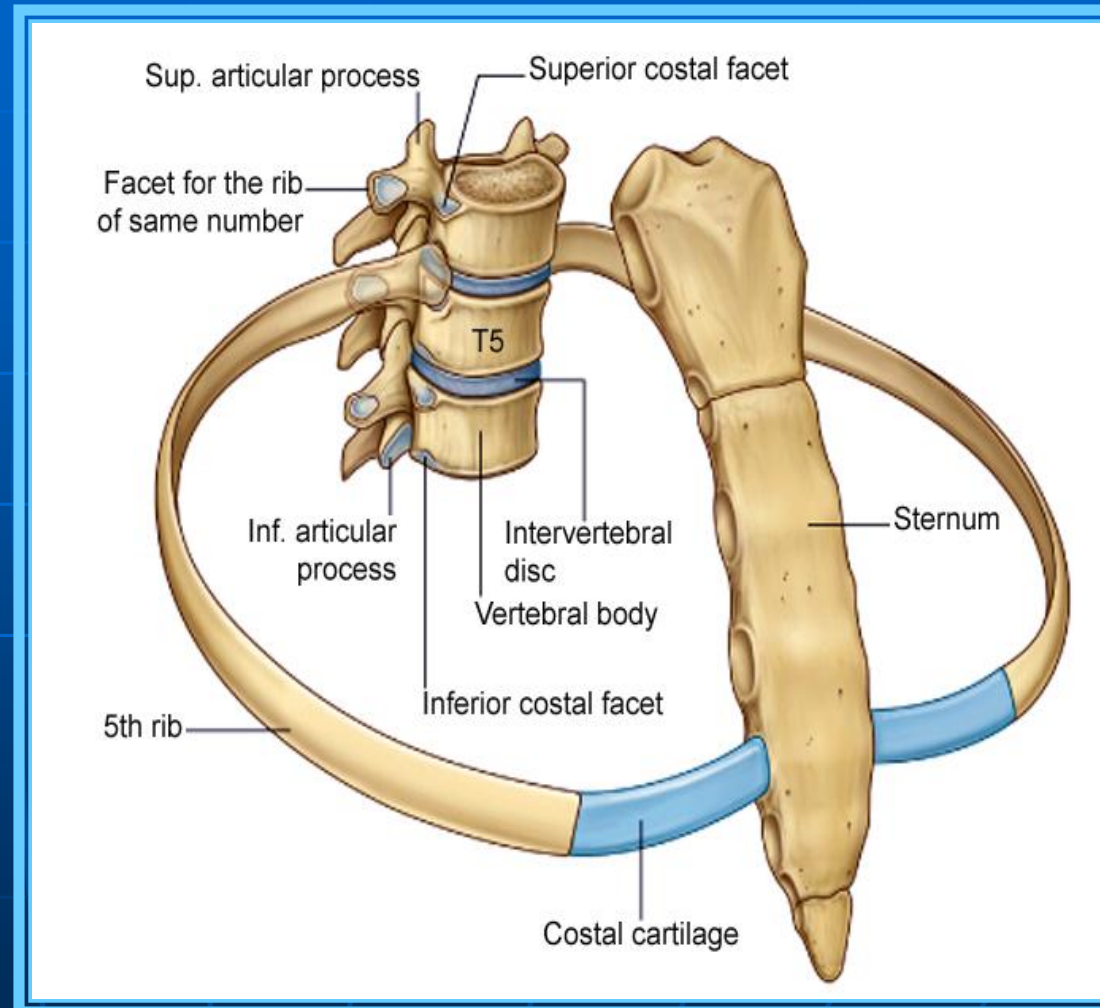
# Special features of thoracic vertebra

1. Body, heart shaped.
2. Foramen, circular.
3. Transverse process has facet to articulate with the rib of the same number.
4. Spine, long and oblique.
5. Body 2 Superior facets, for inferior facet of the same Rib number.



# RIBS

- Flat bones.
- 12 pairs.
- All extending from vertebrae posterior to sternum anterior except 11, 12 to muscles of anterior abdominal wall.
- Oblique in direction → posterior end higher than anterior end.



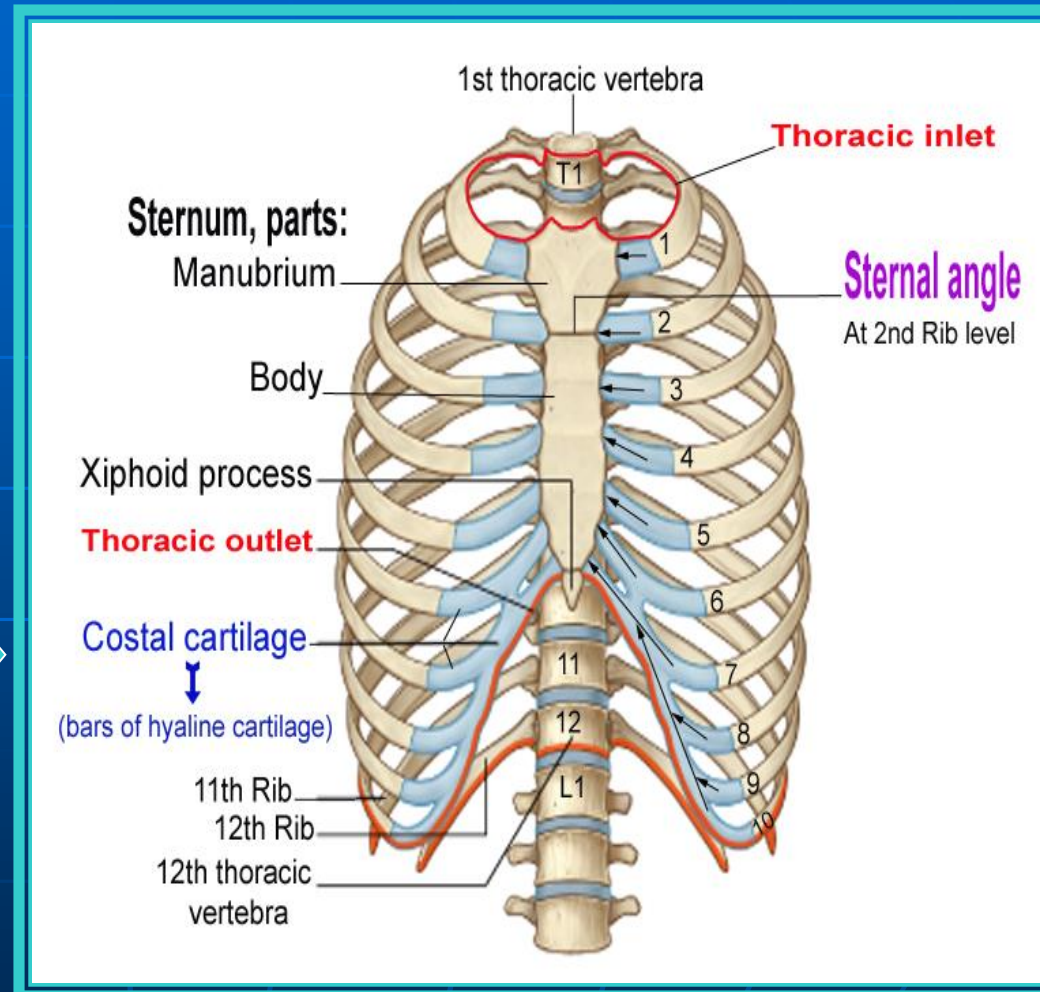
# RIBS- Classification

## 1. According to connection to sternum:

- True ribs (Direct) → 1-7.
- False ribs (Indirect) → 8-10.
- Floating (to muscles) → 11, 12.

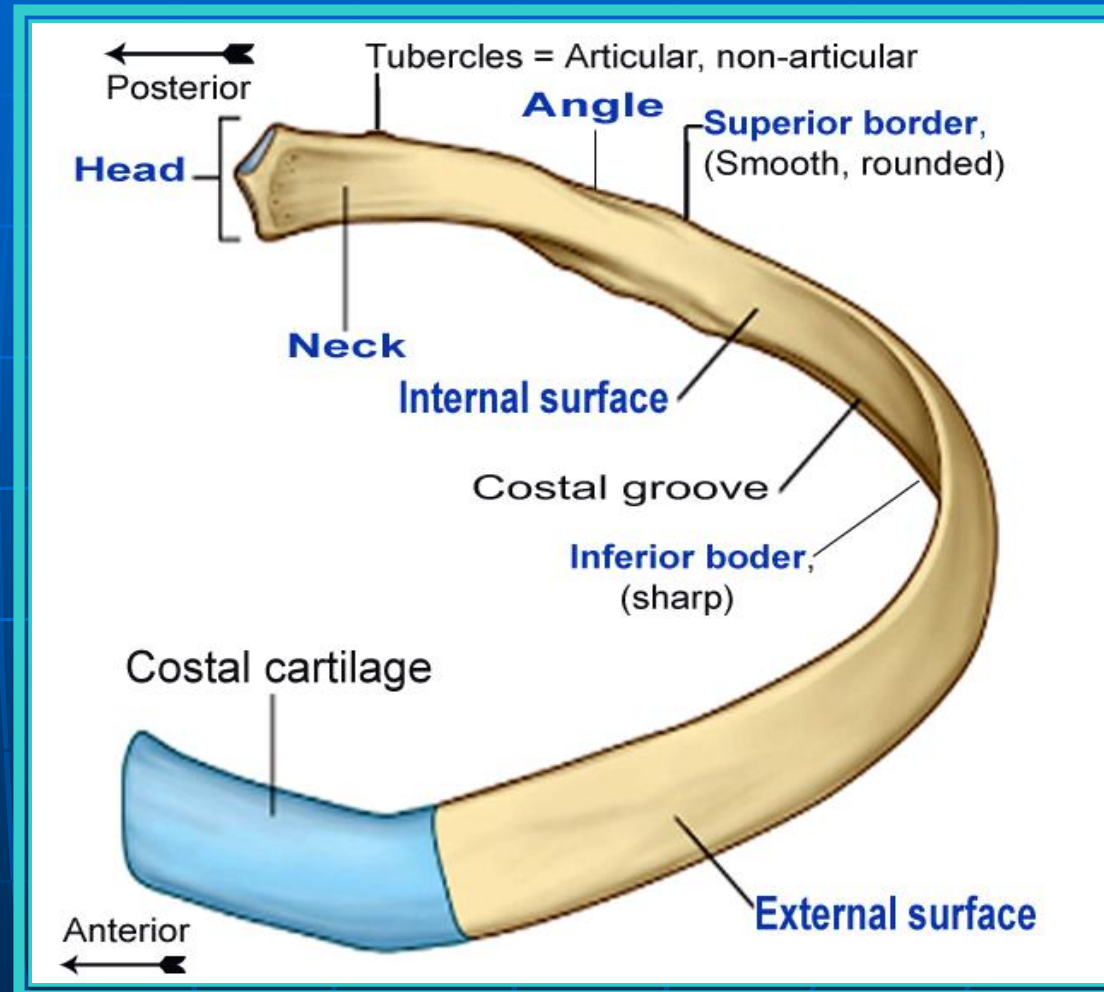
## 2. According to parts

- Typical ribs (all parts) → 3-9.
- Atypical ribs (missing part/s) → 1, 2, 11, 12.



# Parts of Typical Ribs

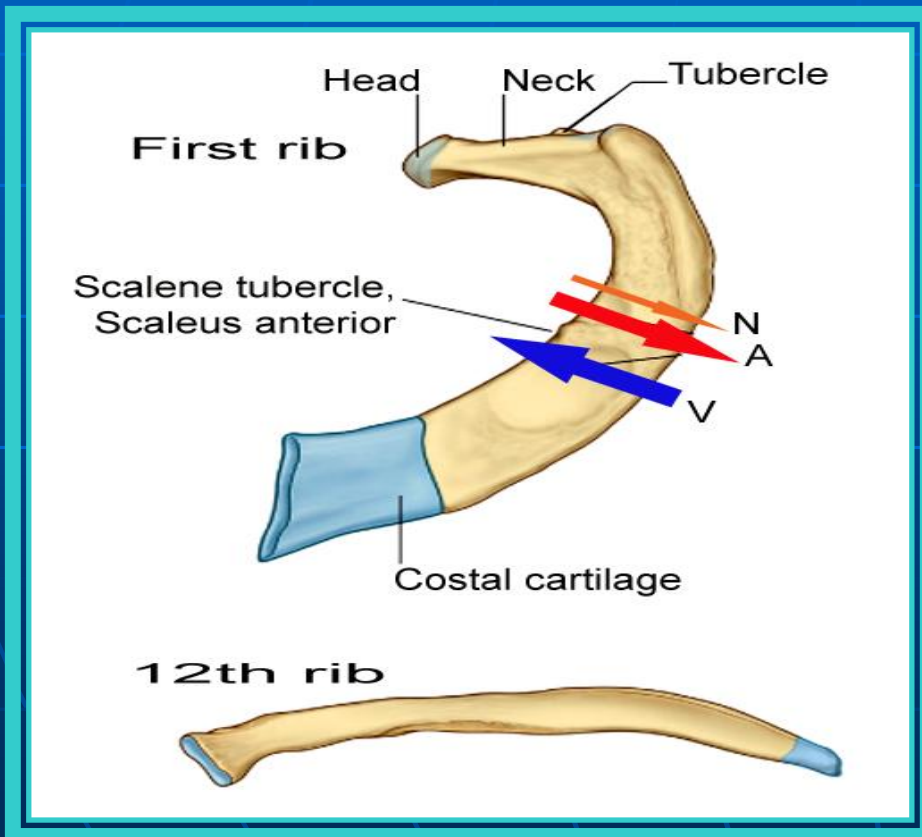
1. Head with 2 facets.
2. Neck with 2 tubercles.
3. Angle.
4. Body, has:
  - 2 borders.
  - 2 surfaces.
  - Costal groove.



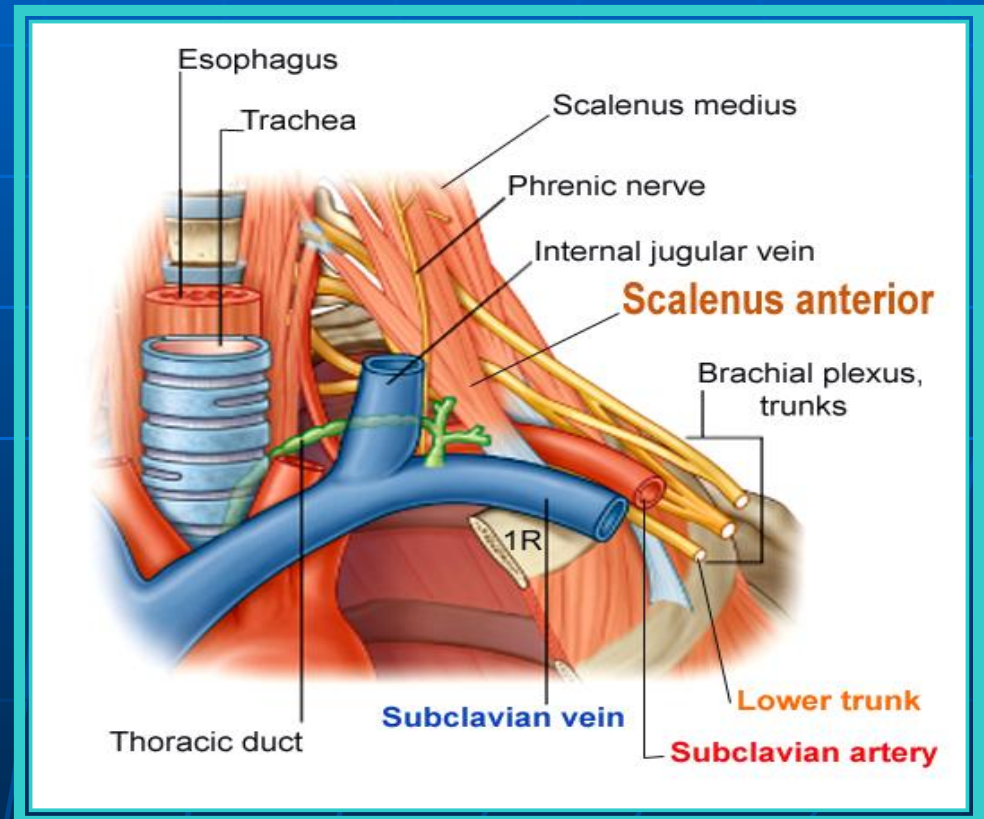


# Atypical ribs 1,2,11,12.

## First rib

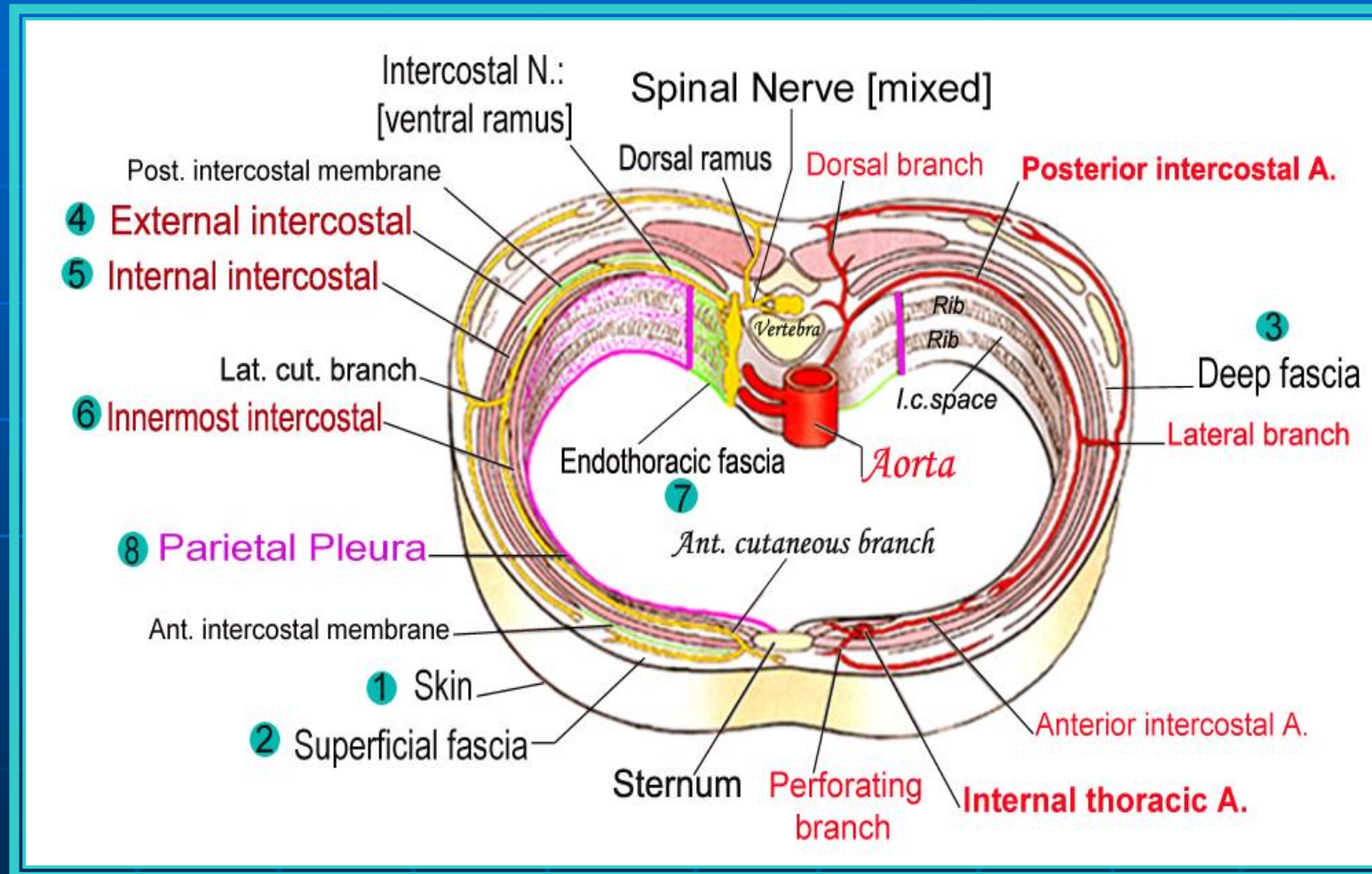


## Relations of the 1<sup>st</sup> rib.



# Thoracic wall

## Form of 8 circular layers



## Intercostal spaces:

Spaces between sequential ribs, 11 in number.  
Important for respiration.

Contents: 1-7.

3 External intercostal M.

4 Internal intercostal M.

5 Innermost intercostal M.

1 **Skin**

2 **Suerficial fascia**

Parietal pleura 7

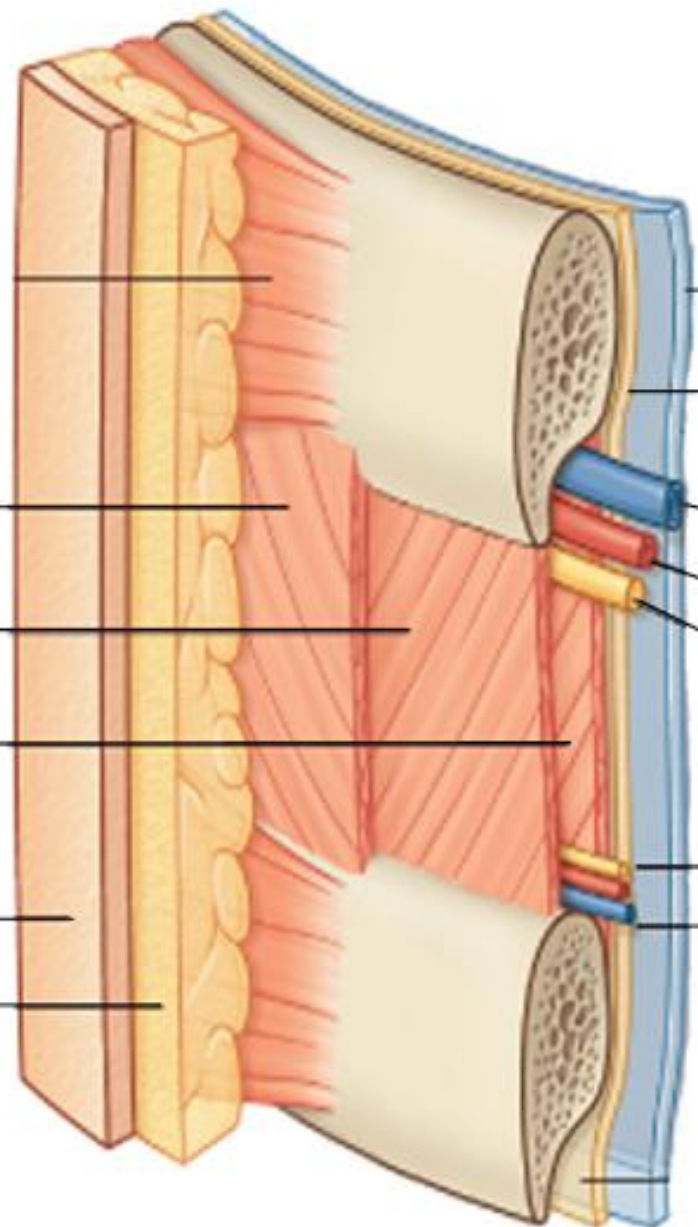
Endothoracic fascia 6

Intercostal V.

Intercostal A.

Intercostal N.

Collateral branches



(Intercostal space and related structures)



# Contents of Intercostal space

- **3 Intercostal muscles:**
  - Arrange in 3 circular layers around thoracic cavity.
  - Oriented in 3 different directions (3 ply sheet).
  - They reinforce intercostal spaces during inspiration.
  - NS: Supplied segmentally by the nerve of its own space.
- **Intercostal nerves:**
  - 11 in number, while the 12th called subcostal nerve.
  - Originates from ventral rami of thoracic spinal nerves.
  - **M**otor and **S**ensory to: **S**kin, **M**uscles, **P**leura.
- **Intercostal Arteries:**
  - 11 in number, while the 12th called subcostal artery.
  - 1st, 2nd from the subclavian artery.
  - 3rd -12th from thoracic Aorta.