



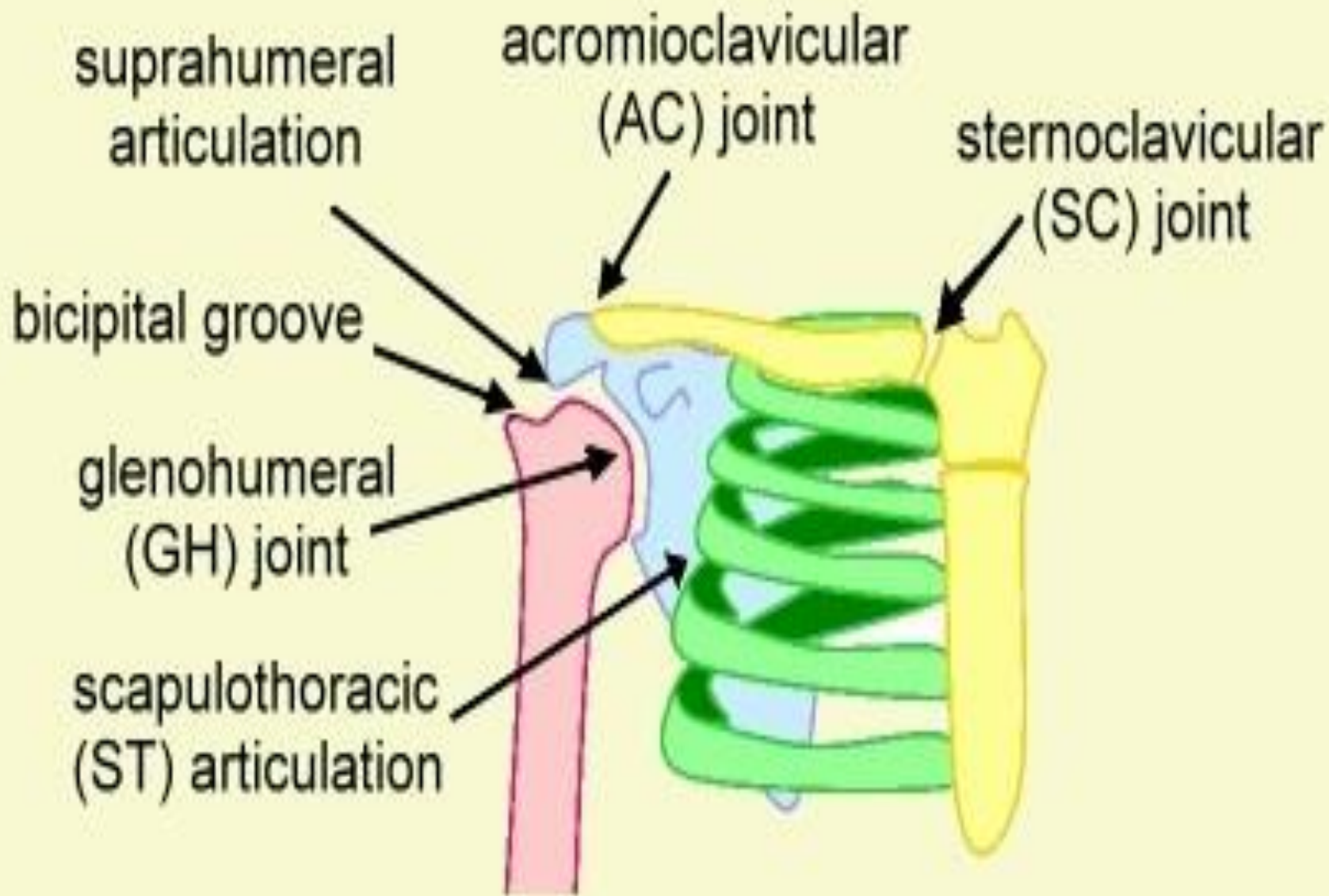
Shoulder complex

STERNOCLAVICULAR JOINT

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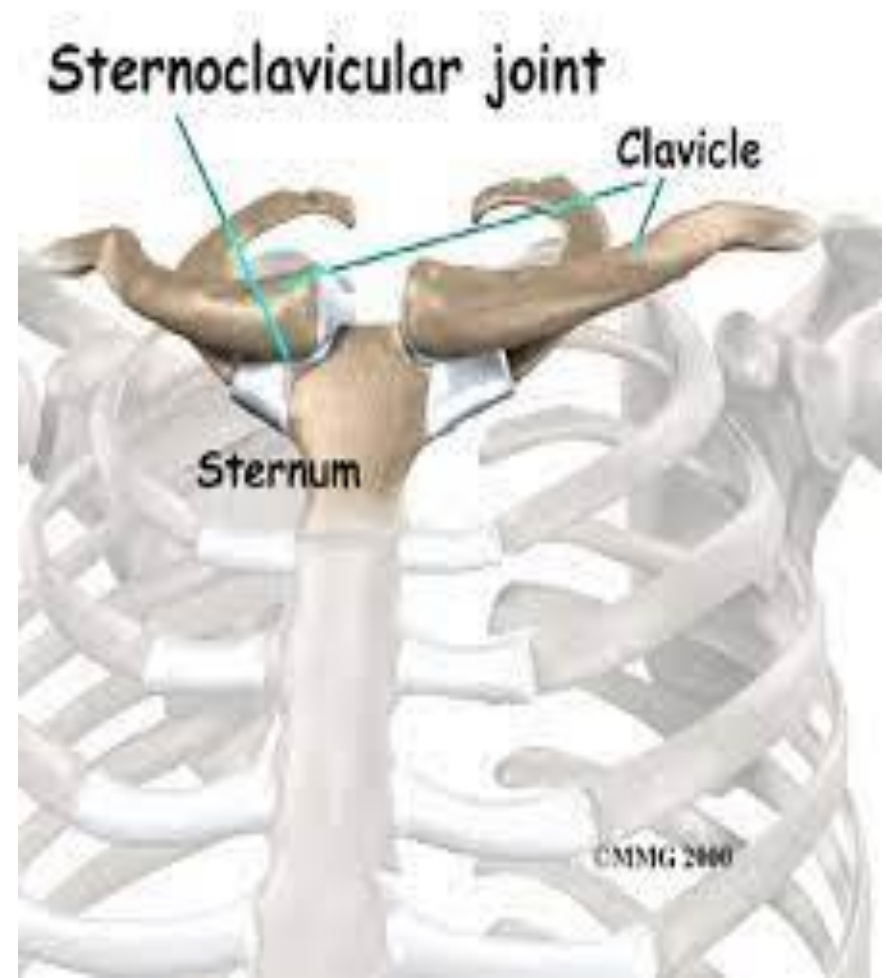
Shoulder Complex



- The shoulder complex involves 3 physiological joints and one floating joint:
- **Glenohumeral (GH) joint,**
- **Acromioclavicular (AC) joint**
- **Sternoclavicular (SC) joint**
- **Scapulothoracic (ST) joint - known as a "functional joint". is not a true joint**

Sternoclavicular joint

- Only joint that connects upperlimb to the axial skeleton.
- **SC joint : synovial joint**



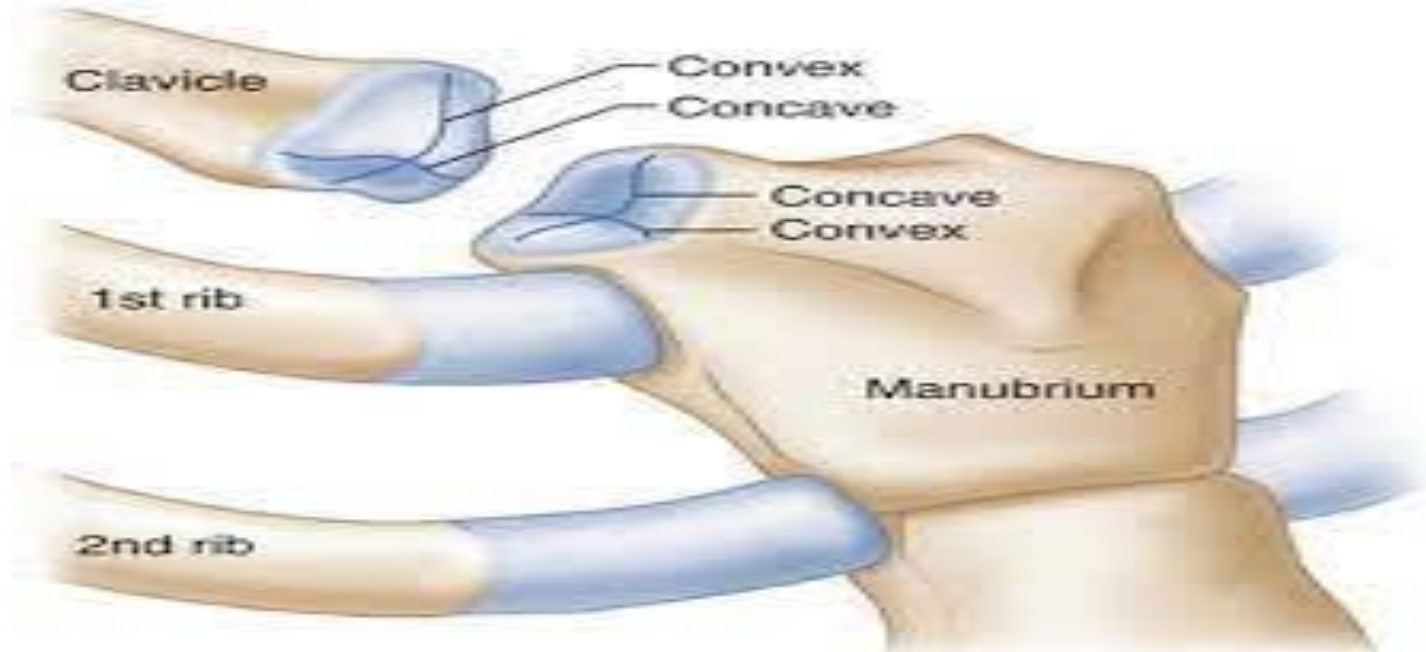


Articulating surface



- **Saddle shape**
- **Proximal articulating surface**: notch formed by the manubrium of the sternum and first costal cartilage.
- **Distal articulating surface**: medial end of the clavicle

- The articulating surfaces are **incongruent**.
- The **superior portion** of the clavicle does not make contact with the manubrium.

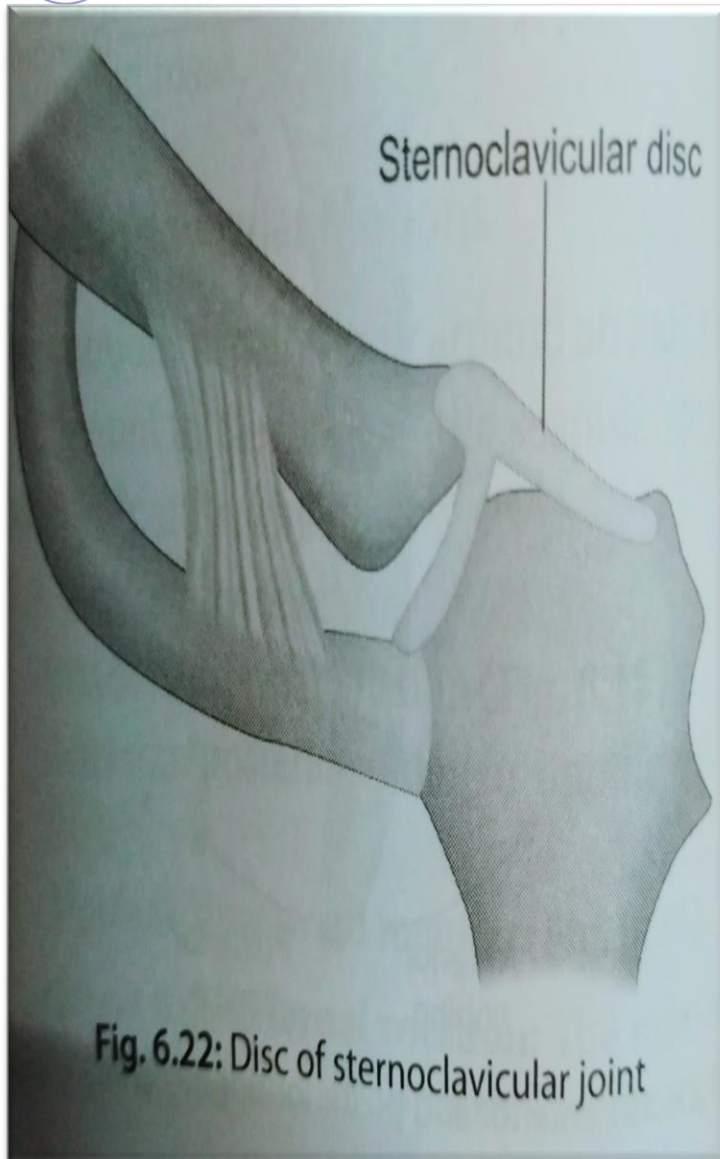




Sternoclavicular disc



- Fibrocartilaginous disc
- It increases the congruency b/w incongruent articular surfaces.
- Attachments:
 - upper portion is attached to the postero-superior surface of clavicle
 - lower portion is attached to the manubrium and first costal cartilage.
- The disc divides the joint space **diagonally** into 2 separate cavities.



Functions of disc

Stability:

- Improves congruency
- Diagonal attachment of disc prevents medial translation of clavicle.

Act as shock absorber:

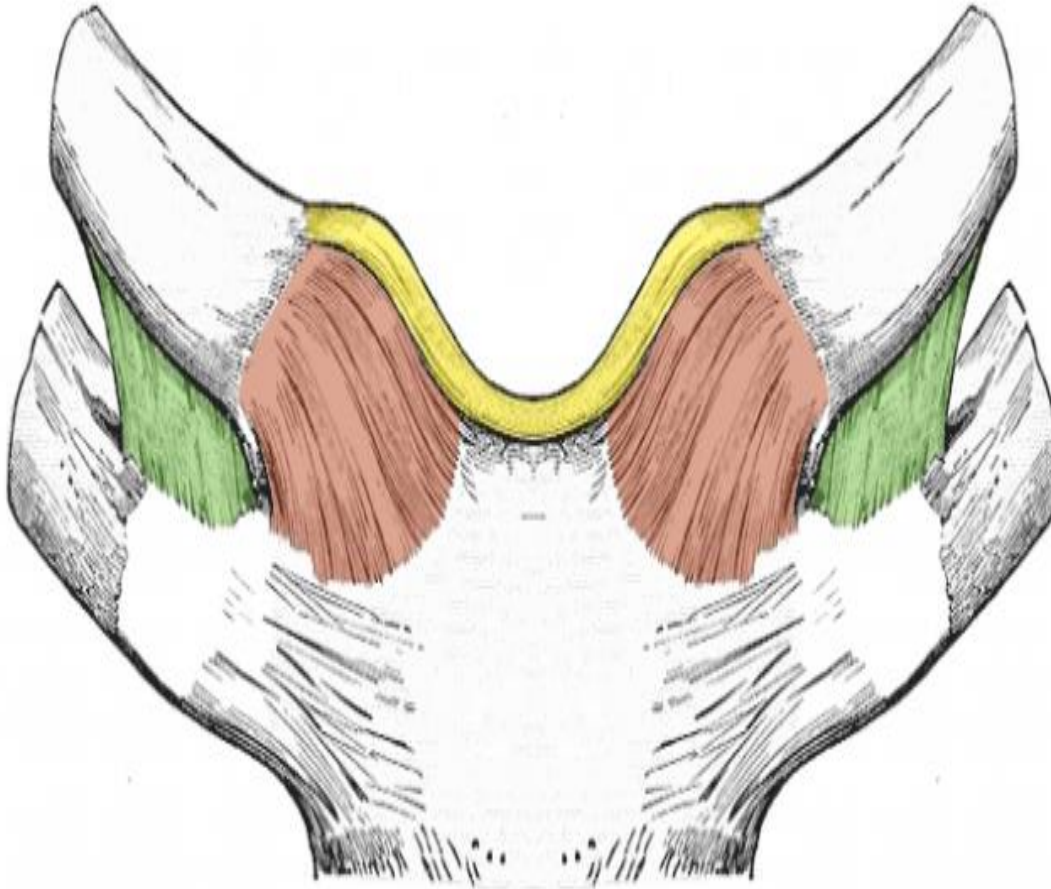
- Absorb and transmit forces from the lateral end of clavicle to sternoclavicular joint.

Capsule and ligaments

- Sc joint is supported by **fibrous capsule**
- **3 ligaments:**
- **Sternoclavicular ligament**
 - ANTERIOR
 - POSTERIOR
- **Costoclavicular ligament**
 - ANTERIOR LAMINA
 - POSTERIOR LAMINA
- **Interclavicular ligaments**



- Anterior sternoclavicular and posterior provide maximum stability
- Interclavicular lig- become lax when arm is elevated and become taught when arm are at side
- Tear of capsule of anterior and posterior SC ligament alone can cause droop of distal end of clavicle.



 Interclavicular lig.

 Anterior sternoclavicular lig.

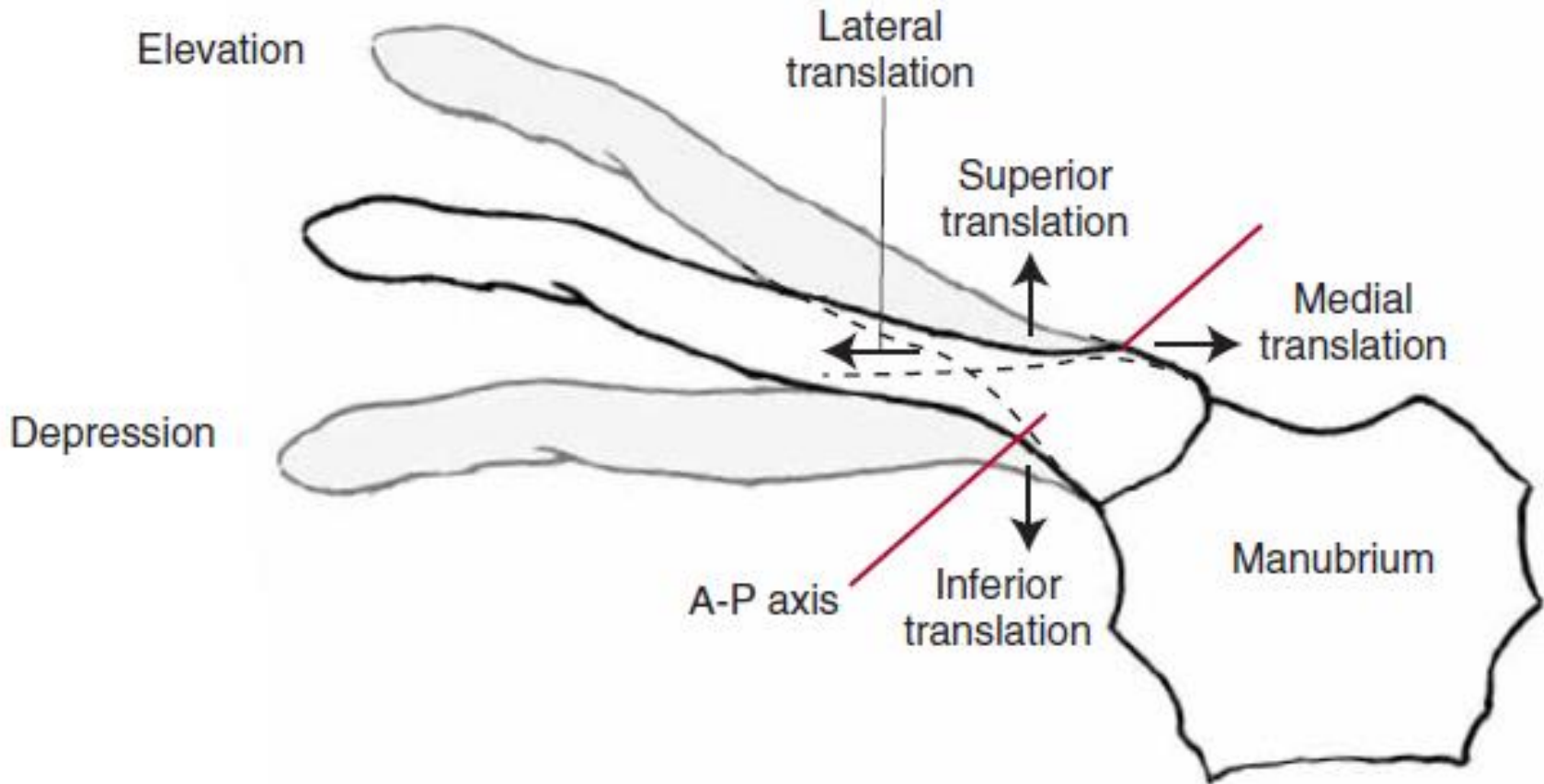
 Costoclavicular lig.



- **3 rotatory degrees of freedom:**
 - Elevation/depression
 - Protraction/retraction
 - Anterior/posterior rotation of clavicle

- **3 degrees of translatory motion at the SC joint (very small in magnitude):**
 - Anterior/posterior
 - Medial/lateral
 - Superior/inferior

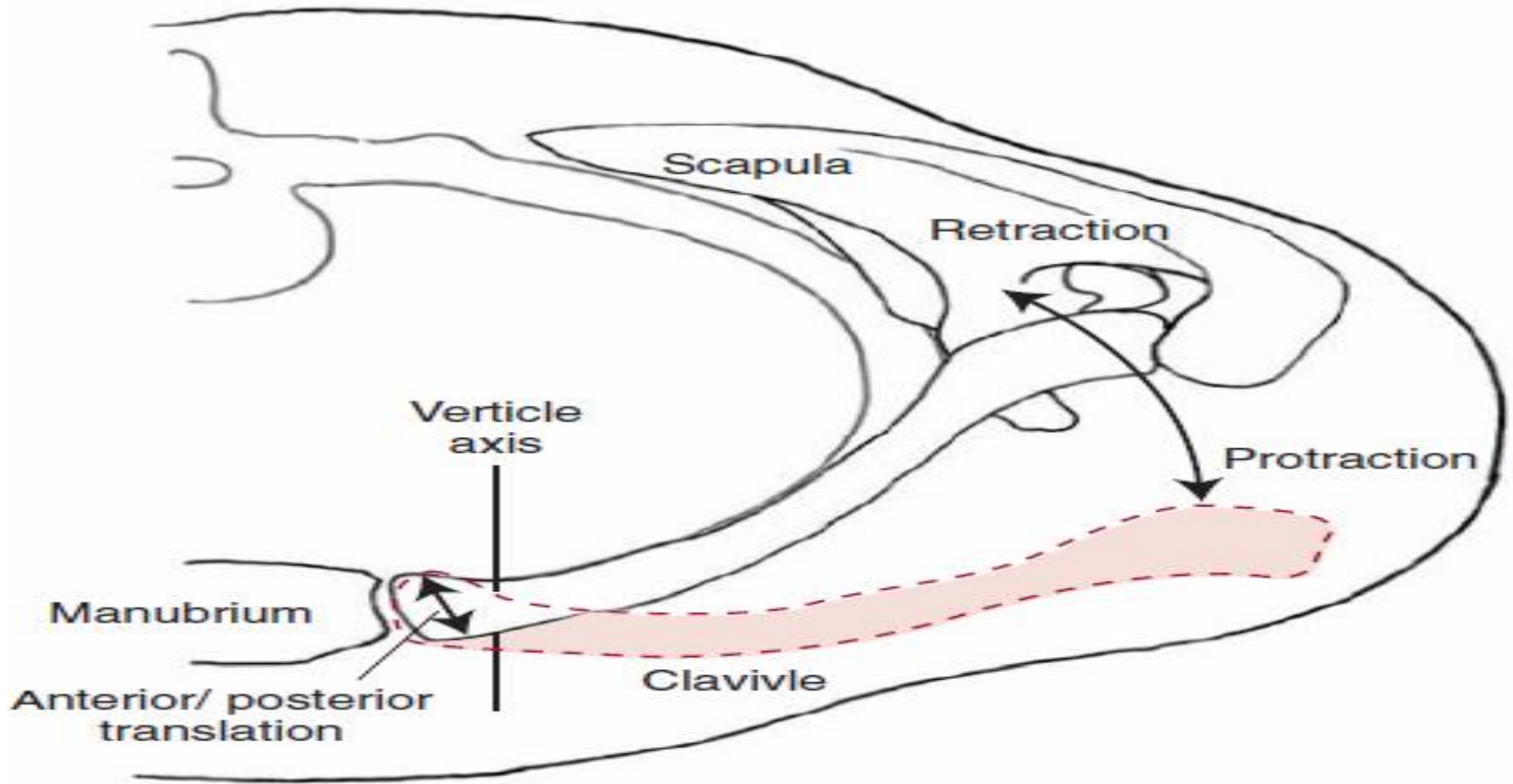
Elevation and depression





- Movement occur in frontal plane, AP axis
- During **elevation** lateral clavicle rotates upward
- During **depression** lateral clavicle rotates downwards.
- **Convex clavicle** rotates on concave surface formed by manibrium and first costal cartilage- **roll and glide opp direction**(convex surface slides inferiorly)
- Clavicular elevation= upto **48 degrees**
- clavicular depression= less than **15 degrees**

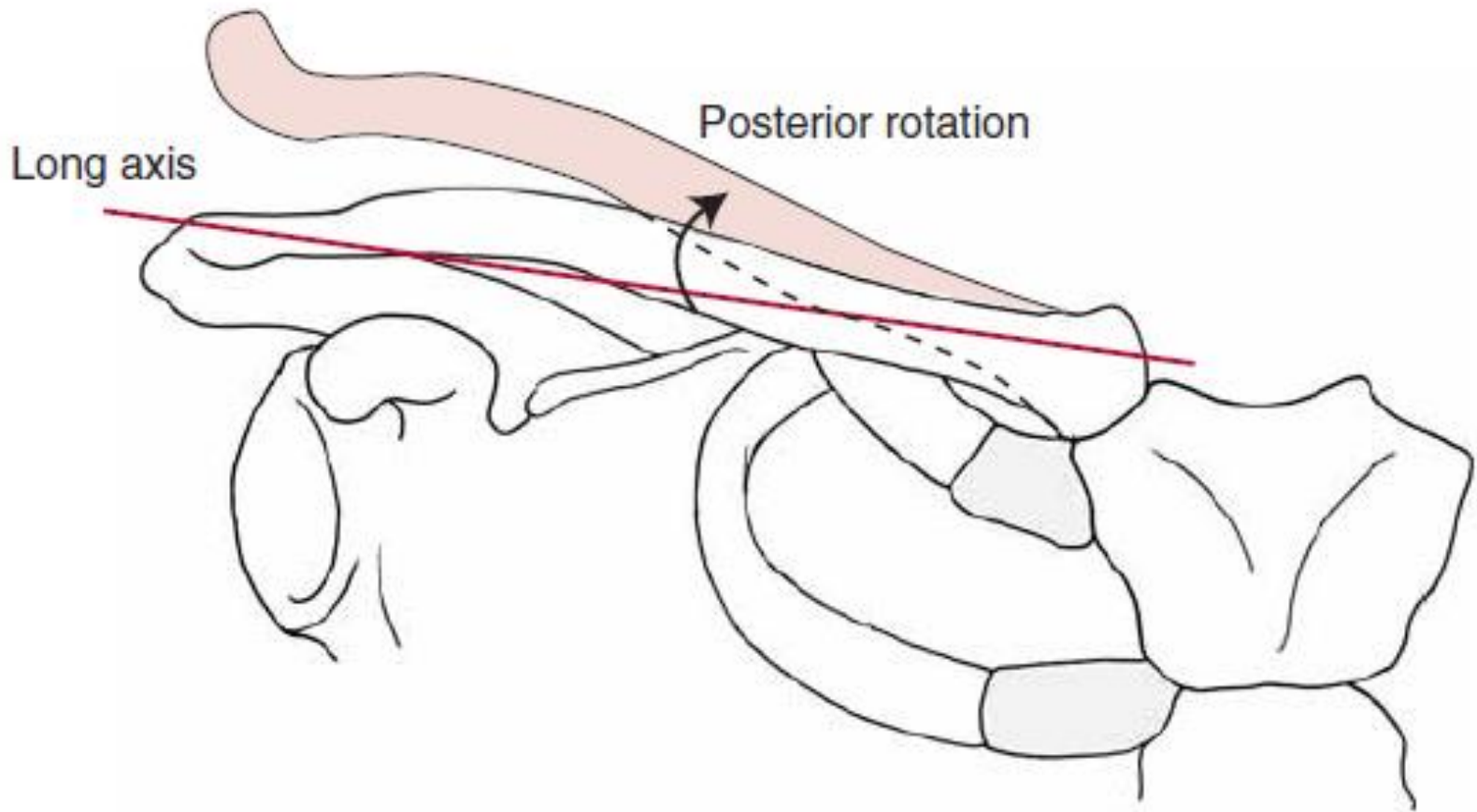
Protraction and retraction





- Movement Occurs in transverse plane
- Vertical axis
- concave clavicle and convex manibrium-Roll and glides in same direction
- Clavicular protraction= 15-20 degrees
- Clavicular retraction= 20-30 degrees

Anterior and posterior rotation





- Mediolateral axis
- Posterior rotation= **50 degrees**
- Anterior rotation= **less than 10 degrees**