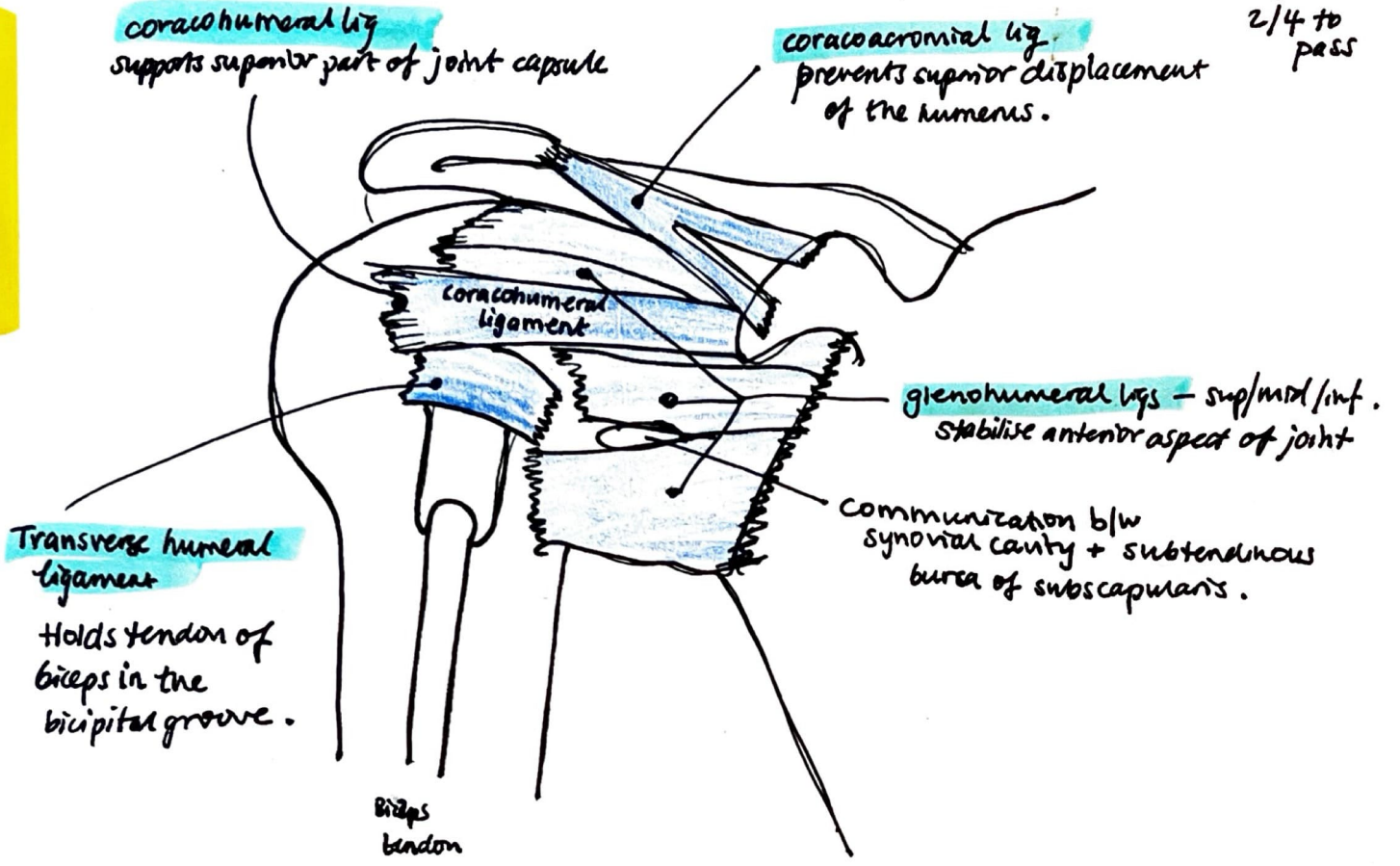


VIVA Q: Name the ligaments that stabilise the shoulder joint & describe HOW they do it.



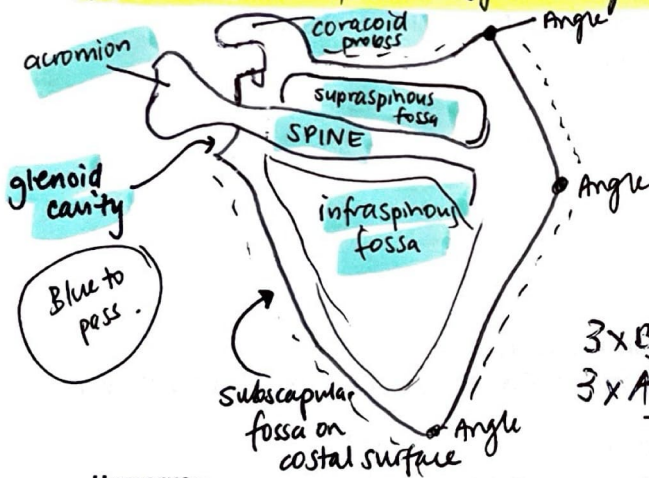
**Week 3 Anatomy – Upper Limb, Pectoral Girdle, Axilla**

1. **What is a girdle, how does it function?**  
 Encircling supportive structure  
 Highly mobile joint – enhanced movement of upper limb
2. **What factors stabilise the shoulder joint?** NB: coraco clavicular lig → NO ROLE
  - **Bones** – unstable, glenoid labrum helps. → glenoid cavity accepts just over  $\frac{1}{3}$  of humeral head
  - **Ligaments: Intrinsic.** glenohumeral lig – ant, weak. Coracohumeral ligament stronger, lies superiorly. Extrinsic support by coraco-acromial lig. superiorly
  - **MUSCLES:** rotator cuff, deltoid, long head of triceps/triceps in movement
3. **Osteology of clavicle, scapula and humerus**  
 Clavicle – medial/sternal end, lateral or acromial end

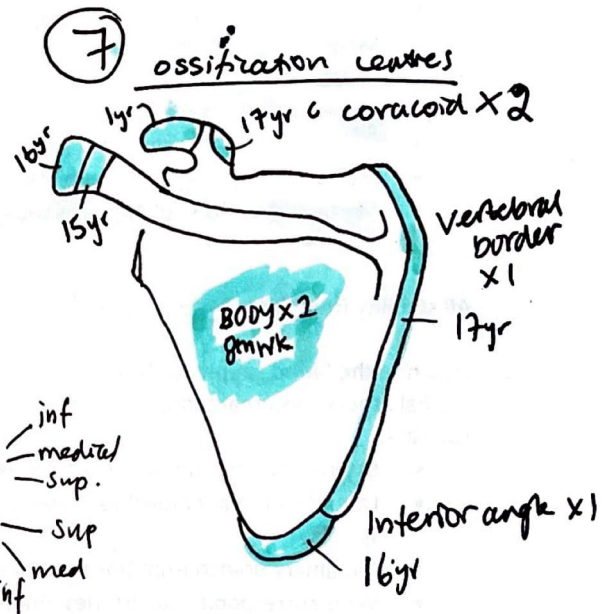
ossification (2)  
 lateral end 5wks in utero  
 medial end 15 yrs

Scapula- flat, triangular bone with prominent ridge

discuss the main features of the scapula.



Blue to pass.



3x BORDERS: inf, medial, sup.  
 3x ANGLES: sup, med, inf

**Humerus –**

- **Proximal:** Head, anatomical & surgical neck, greater and lesser tubercles, intertubercular groove, deltoid tuberosity, groove for radial nerve,
- **Distal:** condyles, epicondyles, trochlea, capitellum, coronoid and olecranon fossae

ossification (4)

Shaft: 8wks in utero  
 Head: 1 – 6 months  
 greater tubercle = 1 yr  
 lesser tubercle = 3-5 yrs.

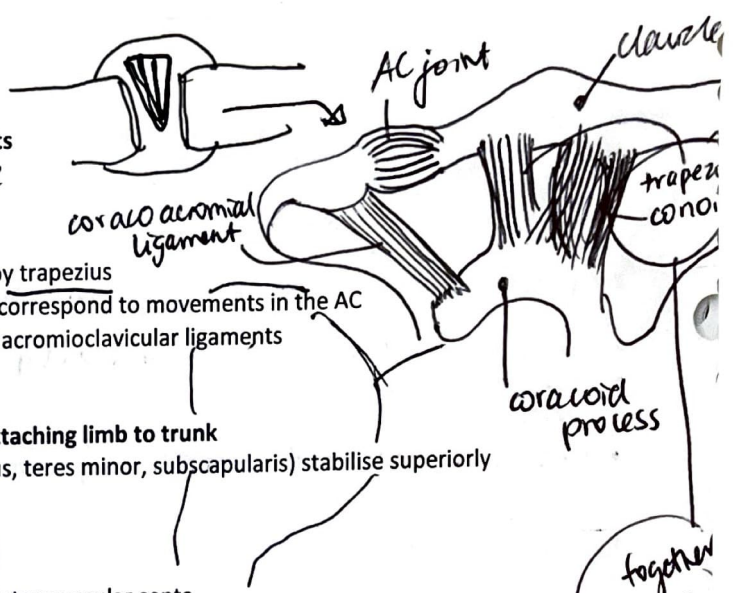


4. Describe the AC and sternoclavicular joint, + ligaments

AC joint **Lateral pectoral + axillary nerve**

- Joins the distal clavicle and acromion
- Articular surfaces are lined with hyaline cartilage
- Weak, synovium lined joint capsule is reinforced by trapezius
- No muscles act directly, but scapular movements correspond to movements in the AC
- Stability via coracoclavicular ligament and sup/inf acromioclavicular ligaments

NB: coracoacromial is not stabilising factor



5. Describe attachments and nerve supply of muscles attaching limb to trunk

Rotator cuff muscles (SITS- supraspinatus, infraspinatus, teres minor, subscapularis) stabilise superiorly

VIVA Q:

**Subscapularis**

- N = upper and lower subscapular nerves
- O = medial 2/3 costal surface of scapula and intermuscular septa
- I = tendon fuses with capsular shoulder joint into lesser tubercle of humerus
- M = medial rotation of humerus

**Teres minor**

- N = posterior branch axillary N
- O = elongated oval area dorsal surface axillary border scapula
- I = lower facet greater tubercle humerus
- M = lateral rotation of humerus

2 muscles by 1 nerve

1 muscle by 2 nerves

teres - axillary n.

together = coraco-clavicular  
MAIN STABILITY

**Supraspinatus**

- N = suprascapular n. C5,6
- O = medial 2/3 suprascapular fossa scapula
- I = smooth facet upper part greater tubercle humerus
- M = Initiates Abduction

**Infraspinatus**

- N = suprascapular N
- O = medial 2/3 infraspinous fossa (& deep surface infraspinous fascia which covers muscle)
- I = smooth area central facet greater tubercle humerus
- M = Lateral rotation of humerus with teres

AP stability from Teres Major, Lat Dorsi, Pec Major

6. Describe the blood supply to the breast

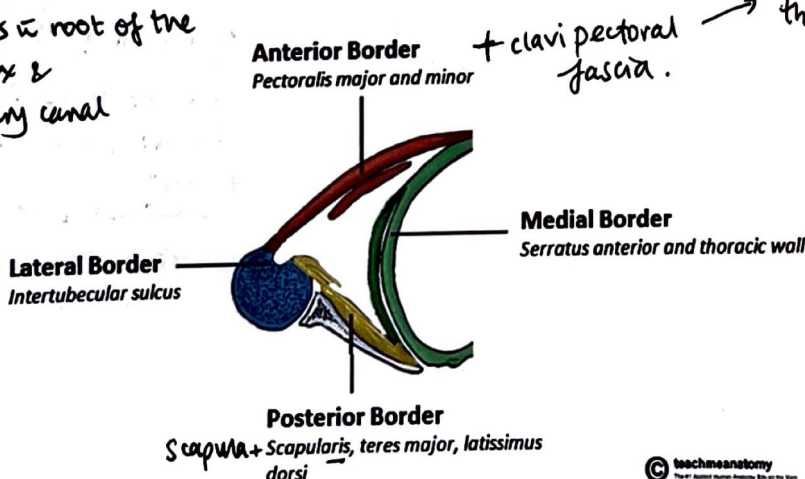
Medial aspect - internal thoracic artery

Lateral 4

- Lateral thoracic and thoracoacromial branches (from axillary artery)
- Lateral mammary branches - from posterior intercostal arteries and supply lateral breast in 2/3/4<sup>th</sup> intercostal spaces
- Mammary branch from the anterior intercostal artery
- Veins correspond with arteries, draining into the axillary and internal thoracic veins

7. Describe boundaries and contents of axilla

Communicates to root of the neck via apex & cervicoaxillary canal  
1st rib clavicle superior edge of scapula.

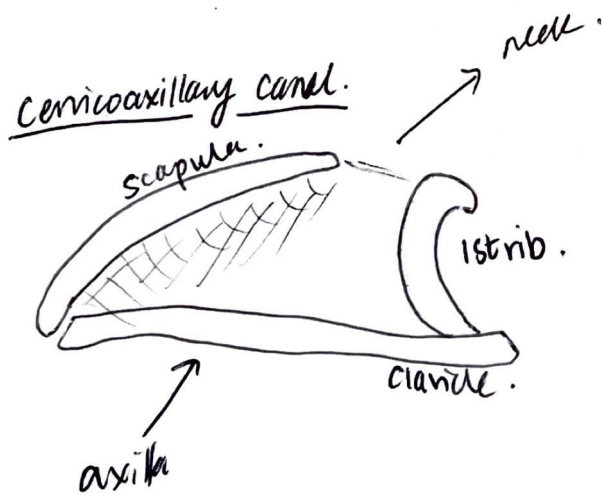
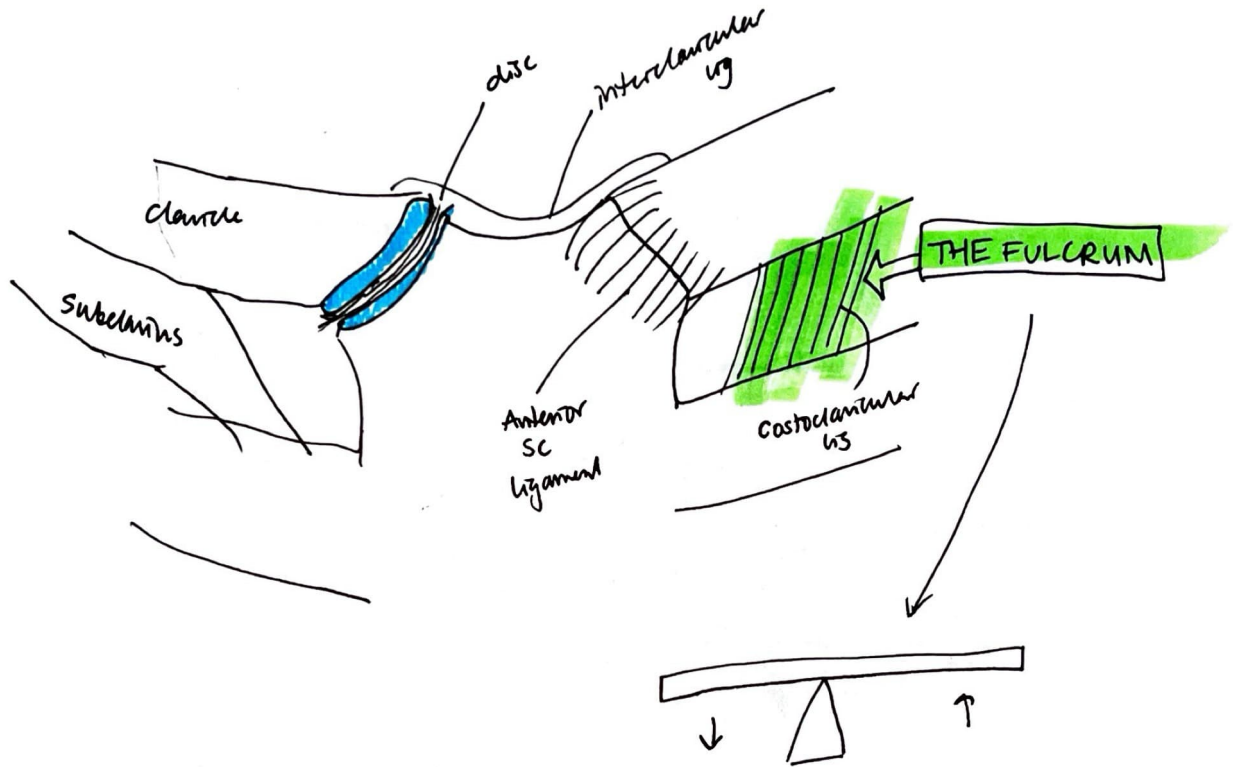


Communicates anteriorly through this fascia.

quadrangular space

## The sternoclavicular joint

- medial clavicle + manubrium of sternum
- plane joint / saddle type but functions like ball + socket.
- synovium w̄ fibrocartagenous disc.
- ONLY articulation b/w upper limb + axial skeleton



### Boundaries

- Looks like a pyramid in 3D shape
- Apex (axillary inlet) formed by the lateral border of the 1<sup>st</sup> rib + superior border of scapula and posterior border of the clavicle. Very small in full abduction
- Lateral wall – intertubercular groove of the humerus
- Medial wall – Serratus anterior and thoracic wall
- Posterior wall – subscapularis, teres major and latissimus dorsi

### Contents

- Axillary artery (& branches)
- Axillary vein and tributaries
- Brachial plexus and branches
- Axillary LNs
- Biceps brachii (short head) and coracobrachialis (attach to the coracoid process of the scapula)

*Radial nerve - passes along posterior wall of axilla - over the tendon of lat dorsi - through triangular interval*

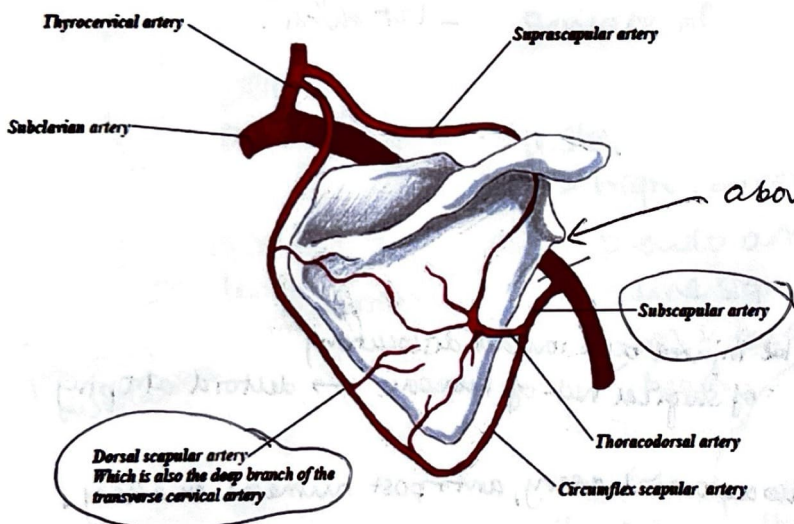
### 8. What is thoracic outlet syndrome?

When structures in the apex of the axilla become compressed between bones

Causes: trauma/repetitive lifting of arms, cervical rib.

Presents: as pain in the affected limb

### 9. Describe the scapular anastomosis



**This point is labored because:**

**If the axillary artery is cut or ligated, an adequate collateral blood supply will arrive to the arm via the dorsal scapular artery, and its anastomosis with the circumflex scapular artery.**

**However, if the axillary artery is ligated BELOW the third part of the axillary artery, there will not be any collaterals, and the arm will become ischaemic.**



Clavipectoral Fascia: \*Suspends the axilla\* floor protects axillary artery / vein / nerve?

Lies below clavicular head of pec major  
fills space between clavicle + pec minor

Also called: costacoroid membrane / coracoclavicular fascia.

Things that go through = cephalic vein, thoraco-acromial artery (pec branch), lat pec nerve, medial pectoral nerve, lymphatics.

PECTORAL GIRDLE

Muscle attachment to axial skeleton: all muscles that insert onto clavicle or scapula from the thorax

- DIRECT:
- pec minor
  - subclavius
  - trapezius
  - rhomboids
  - levator scapulae
  - serratus anterior.

- INDIRECT:
- pec major
  - lat dorsi.

The deltoid

Nerve = axillary (C5/C6) (can be injured by shoulder dislocation)  
↳ injured in # of surgical neck of humerus → deltoid atrophy

Arterial supply: Thoracoacromial artery, ant + post humeral cx artery.  
Doesn't

