

JOINTS OF SHOULDER GIRDLE

Shoulder girdle joints mainly include:

- Sternoclavicular joint (SC joint)
- Acromioclavicular joint (AC joint)

These allow movement of the upper limb by transmitting forces between the axial skeleton and scapula.

STERNOCLAVICULAR JOINT (SC JOINT)

◆ Articulation

Between:

- Medial end of clavicle
- Clavicular notch of manubrium sterni
- Upper surface of 1st costal cartilage

It is the only true bony articulation between upper limb and axial skeleton.

- ◆ Type of Joint

Synovial saddle type

(Functionally behaves like ball-and-socket)

- ◆ Articular Surfaces

Clavicular Surface

→ Covered by fibrocartilage

→ Convex

Manubrial Surface

→ Concavoconvex

→ Smaller than clavicular surface

- ◆ Articular Disc (Very Important)

SC joint

- Contains fibrocartilaginous articular disc
- Divides joint into two compartments

Disc attachments:

Articular disc

- Superiorly → Medial end of clavicle
- Inferiorly → Junction of manubrium & 1st costal cartilage
- Fused with capsule anteriorly & posteriorly

Functions:

- Shock absorber
- Increases joint stability
- Prevents medial displacement of clavicle

- ◆ Capsule

Capsule

- Attached laterally to margins of clavicular articular

surface

→ Attached medially to margins of sternum & 1st costal cartilage

◆ Ligaments

SC Joint Stability depends mainly on ligaments.

Sternoclavicular joint

→ Interclavicular ligament

→ Anterior sternoclavicular ligament

→ Posterior sternoclavicular ligament

→ Costoclavicular ligament (strongest stabilizer)

Costoclavicular Ligament

→ Between inferior clavicle & 1st rib

→ Limits elevation

◆ Blood Supply

- Internal thoracic artery
 - Suprascapular artery
-

- ◆ Nerve Supply

- Medial supraclavicular nerve
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- ◆ Movements of SC Joint

SC joint allows clavicle movements in 3 planes:

Clavicle

- Elevation & Depression
 - Protraction (Forward) & Retraction (Backward)
 - Axial rotation
-

- ◆ Protraction (Forward Movement)

Clavicle moves anteriorly

Muscles:

- Serratus anterior
 - Pectoralis minor
-

◆ Retraction (Backward Movement)

Muscles:

- Trapezius
 - Rhomboids
-

◆ Elevation

Muscles:

- Sternocleidomastoid
 - Upper trapezius
 - Rhomboids
 - Levator scapulae
-

◆ Depression

Muscles:

→ Pectoralis minor

→ Subclavius

ACROMIOCLAVICULAR JOINT (AC JOINT)

- ◆ Articulation

Between:

Lateral end of clavicle and medial margin of acromion process of scapula

- ◆ Type

Synovial plane (gliding) joint

Articular surfaces covered by fibrocartilage.

- ◆ Articular Disc

- May partially or completely divide cavity
 - Often perforated
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- ◆ Capsule & Ligaments

AC Joint

- Capsule (weak inferiorly)
 - Acromioclavicular ligament (horizontal stability)
 - Coracoclavicular ligament (main stabilizer)
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- ◆ Coracoclavicular Ligament

Between coracoid process & clavicle

Coracoid process → Coracoclavicular ligament (two parts)

- i) Conoid ligament (posteromedial)
- ii) Trapezoid ligament (anterolateral)

Prevents vertical displacement of clavicle.

- ◆ Blood Supply

Suprascapular artery

Thoracoacromial artery

- ◆ Nerve Supply

Lateral supraclavicular nerve

- ◆ Movements

AC joint allows:

Scapula movement

→ Small gliding movements

→ Rotation of scapula during arm elevation

Occurs when:

→ Scapula rotates

→ Clavicle elevates/depresses

ABDUCTION OF SHOULDER (Scapulohumeral Rhythm)

Abduction

First 0-15° → Supraspinatus

15-90° → Deltoid (main)

Beyond 90-180° → Scapular rotation

Nerves involved:

- Suprascapular nerve
- Axillary nerve
- Spinal accessory nerve
- Long thoracic nerve

APPLIED ANATOMY

SC Joint Dislocation (Rare)

- Rare due to strong ligaments

- Posterior dislocation dangerous → May compress:
 - Trachea
 - Esophagus
 - Great vessels
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② AC Joint Dislocation (Common)

AC ligament torn → Coracoclavicular ligament torn →
Clavicle displaced upward → "Step deformity"

③ Injury to Long Thoracic Nerve

Serratus anterior paralysis → Winged scapula →
Inability to abduct above 90°

VIVA POINTS

- SC joint = only bony connection to axial skeleton
- SC joint has articular disc

- AC joint = plane joint
 - Coracoclavicular ligament = main stabilizer of AC joint
 - Abduction above 90° requires scapular rotation
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Resources:

i) Snell's Clinical Anatomy by Regions (Book by Lawrence E. Wineski)

ii) BD Chaurasia's Human Anatomy: Regional and Applied Dissection and Clinical

-> The End <-