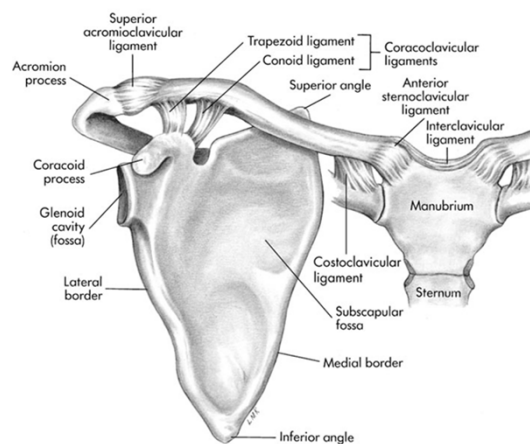


# Chapter 4 The Shoulder Girdle

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R.T. Floyd, EdD, ATC, CSCS

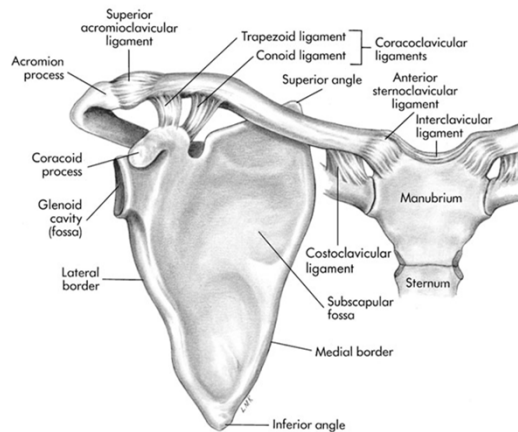
## Bones

- Scapula & clavicle
  - Move as a unit
  - Clavicle's articulation with sternum is only bony link to axial skeleton



## Bones

- Key bony landmarks
  - Manubrium
  - Clavicle
  - Coracoid process
  - Acromion process
  - Glenoid fossa
  - Lateral border
  - Inferior angle
  - Medial border



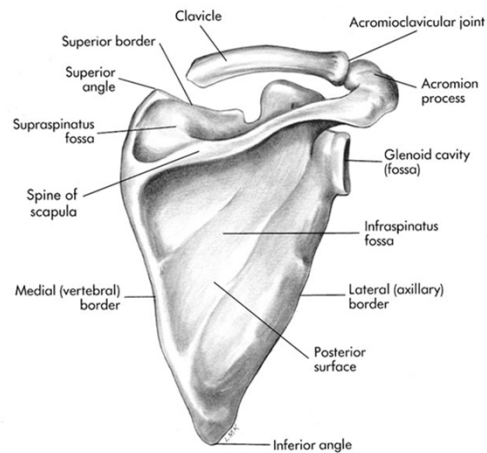
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## Bones

- Key bony landmarks
  - Acromion process
  - Glenoid fossa
  - Lateral border
  - Inferior angle
  - Medial border
  - Superior angle
  - Spine of the scapula



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## Joints

- Shoulder girdle
  - scapula moves on the rib cage
  - joint motion occurs at sternoclavicular joint & to a lesser amount at the acromioclavicular joint



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## Joints

- Sternoclavicular (SC)
  - Movements
    - anteriorly with protraction
    - posteriorly with retraction
    - superiorly with elevation
    - inferiorly with depression

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## Joints

- Sternoclavicular (SC)
  - Ligamentous support
    - anteriorly by the anterior SC ligament
    - posteriorly by the posterior SC ligament
    - costoclavicular & interclavicular ligaments provide stability against superior displacement

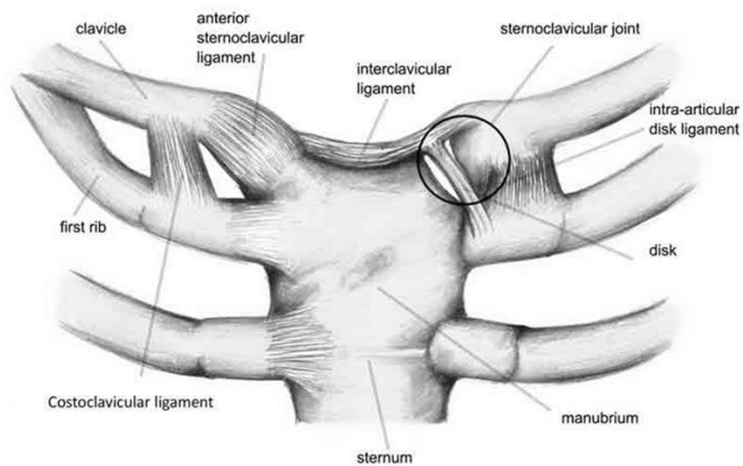
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## Joints

- Sternoclavicular (SC)



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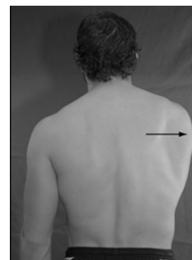
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## Joints

- Acromioclavicular (AC)
  - supported by
    - Coracoclavicular ligaments
    - Superior acromioclavicular ligament
    - Inferior acromioclavicular ligament
  - often injured

## Movements

- Abduction (protraction)
  - scapula moves laterally  
away from spinal column
- Adduction (retraction)
  - scapula moves medially  
toward spinal column



**Abduction**  
(protraction)



**Adduction**  
(retraction)

## Movements

- Downward rotation
  - returning inferior angle inferomedially toward spinal column & glenoid fossa to normal position
- Upward rotation
  - turning glenoid fossa upward & moving inferior angle superolaterally away from spinal column



Downward rotation



Upward rotation

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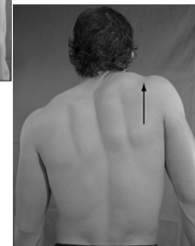
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## Movements

- Depression
  - downward or inferior movement, as in returning to normal position
- Elevation
  - upward or superior movement, as in shrugging shoulders



Depression



Elevation

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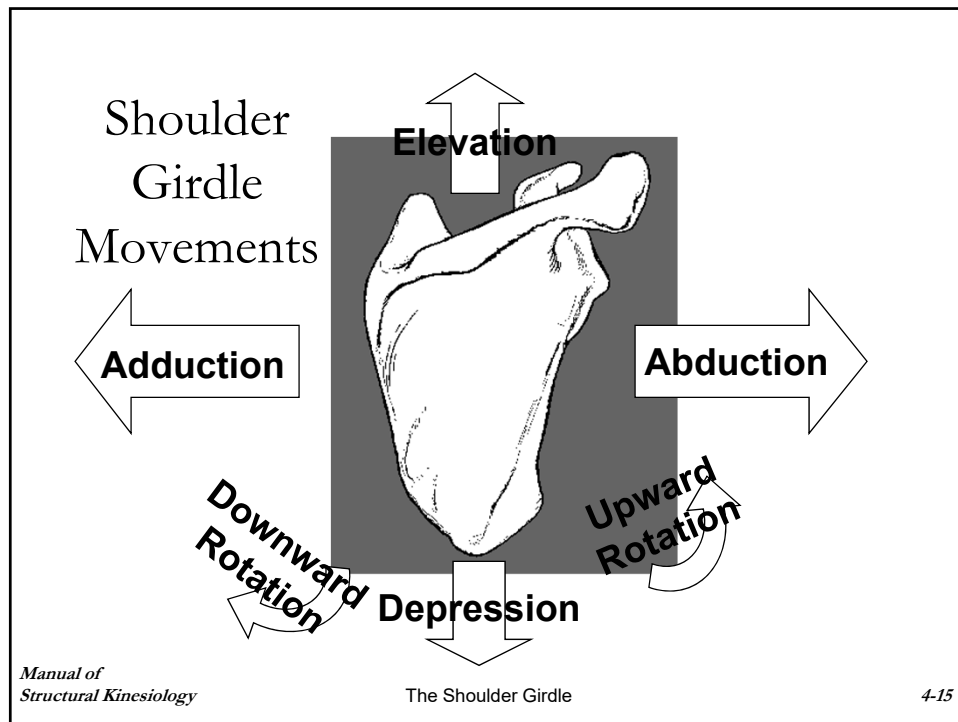
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## Movements

- Shoulder joint & shoulder girdle work together in carrying out upper extremity activities
- Shoulder girdle movement is not dependent upon the shoulder joint & its muscles

## Movements

- Shoulder girdle muscles
  - Stabilize scapula so the shoulder joint muscles will have a stable base from which to exert force for moving the humerus
  - Contract to maintain scapula in a relatively static position during shoulder joint actions
  - Contract to move shoulder girdle & to enhance movement of upper extremity when shoulder goes through extreme ranges of motion



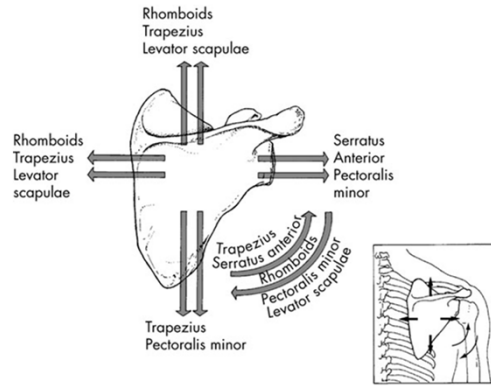
## Muscles

- 5 muscles primarily involved in shoulder girdle movements
  - All originate on axial skeleton & insert on scapula and/or clavicle
  - Do not attach to humerus & do not cause shoulder joint actions
  - Essential in providing dynamic stability of the scapula so it can serve as a relative base of support for shoulder joint activities such as throwing, batting, & blocking



## Shoulder Girdle Muscles

- 5 muscles primarily involved in shoulder girdle movements
  - Trapezius – upper, middle, lower
  - Rhomboid – deep
  - Levator scapulae
  - Serratus anterior
  - Pectoralis minor – deep



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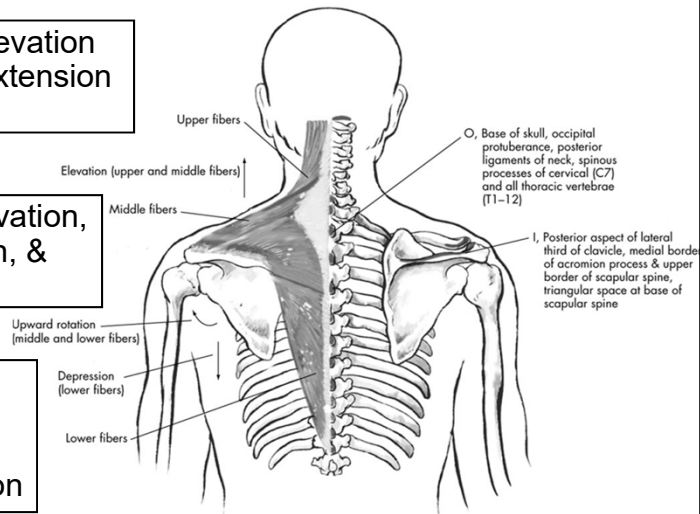
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## Trapezius muscle

Upper fibers: elevation of scapula, extension of head

Middle fibers: elevation, upward rotation, & adduction

Lower fibers: depression, adduction, & upward rotation



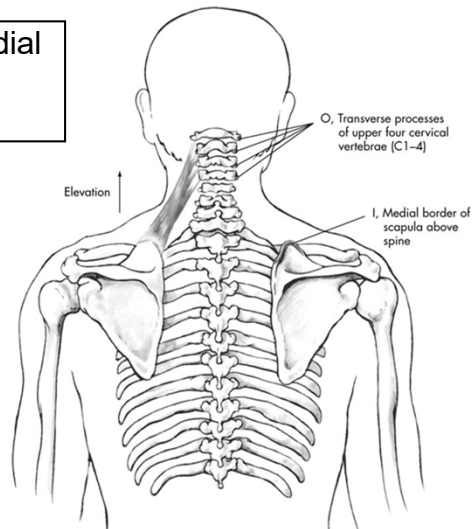
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## Levator scapulae muscle

Elevates the medial margin of the scapula



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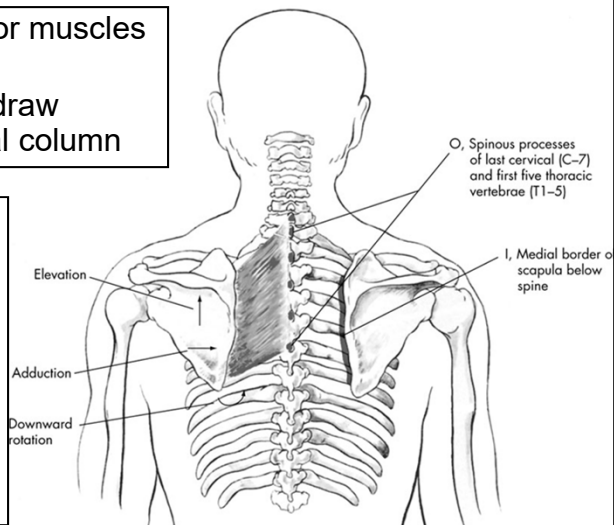
## Rhomboid muscles - major & minor

Rhomboid major & minor muscles work together

Adduction (retraction): draw scapula toward spinal column

Downward rotation: from upward rotated position they draw scapula in downward rotation

Elevation: slight upward movement accompanying adduction



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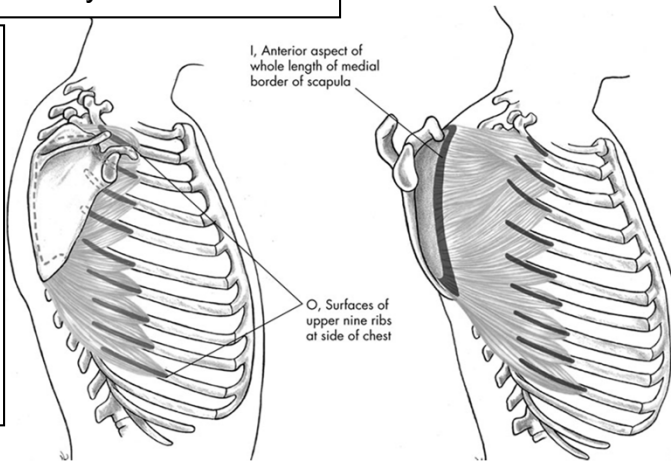
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## Serratus anterior muscle

Abduction (protraction): draws medial border of scapula away from vertebrae

Upward rotation: longer, lower fibers tend to draw inferior angle of scapula farther away from vertebrae, thus rotating scapula upward slightly



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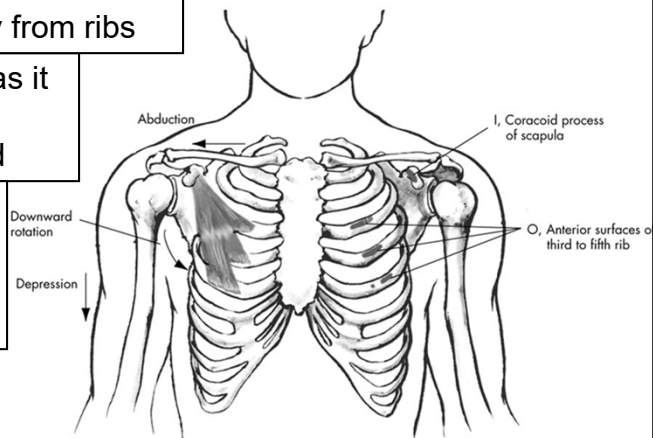
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## Pectoralis minor muscle

Abduction (protraction): draws scapula forward & tends to tilt lower border away from ribs

Downward rotation: as it abducts, it draws scapula downward

Depression: when scapula is rotated upward, it assists in depression



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## Subclavius muscle

Stabilization & protection of sternoclavicular joint

Depression

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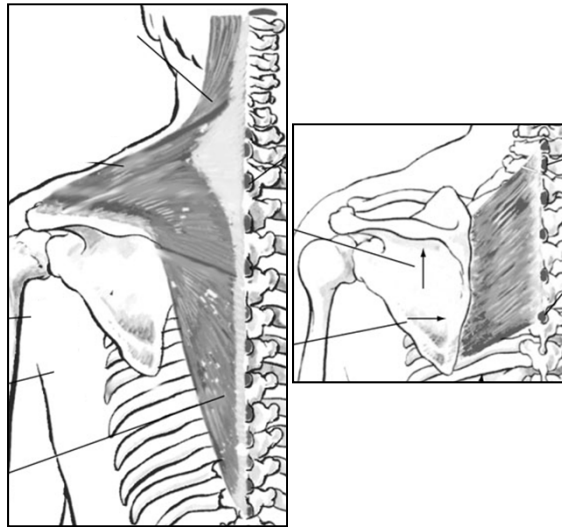
## Scapula Abduction

- Scapula move laterally away from spinous processes without rotation
- EX. Push-up & bench press
- Agonists
  - Pectoralis minor
  - Serratus anterior

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## Scapula Adduction

- Return from abduction
- Occurs with retractions
- Agonists
  - Middle Trapezius
  - Rhomboids



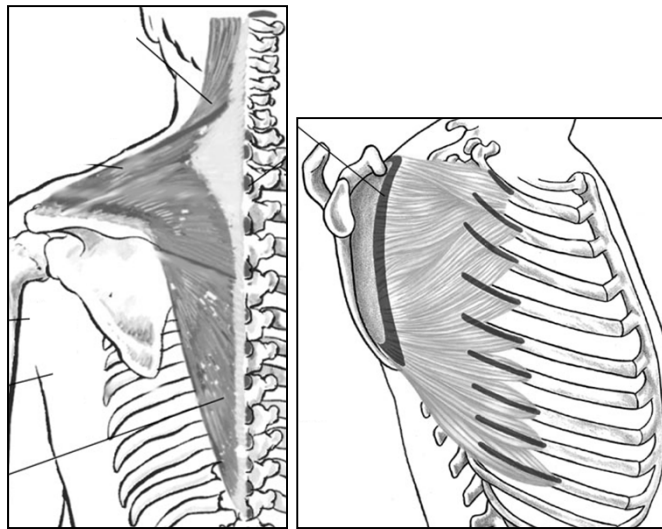
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## Scapula Upward Rotation

- Lateral & upward movement
- Agonists
  - Middle Trapezius
  - Lower Trapezius
  - Serratus anterior



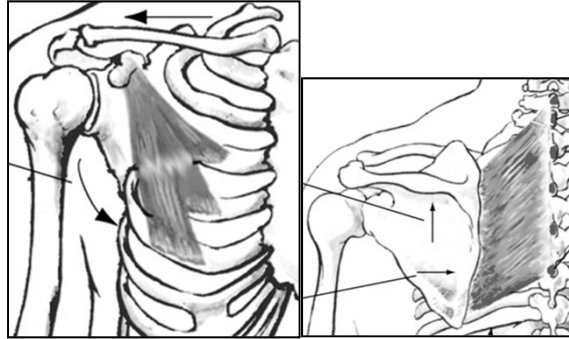
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## Scapula Downward Rotation

- Downward & Medial Movement
- Glenoid Fossa is rotated downward when downward movement of shoulder joint occurs
- EX. Lat Pulls - pulling wt. down
- Agonists
  - Pectoralis Minor
  - Rhomboid



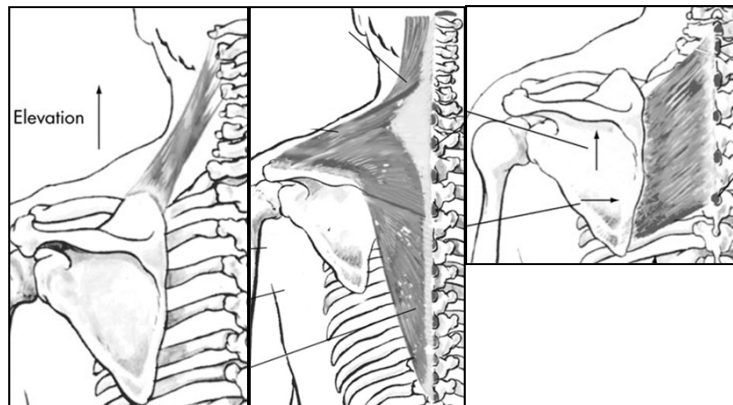
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## Scapula Elevation

- Lifting scapula without rotation in anatomic position
- Shoulder Shrug
- Agonists
  - Levator Scapula
  - Upper Trapezius
  - Rhomboid



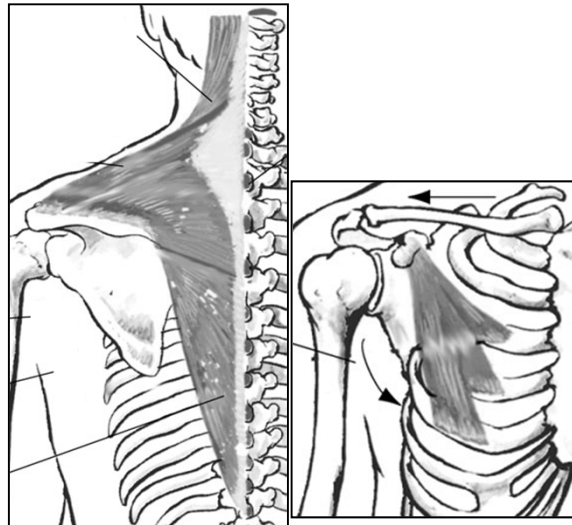
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## Scapula Depression

- EX. Dip
- Agonists
  - Lower Trapezius
  - Pectoralis Minor



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## Common problems of the Shoulder

- Arthritis, tendinitis,
- Dislocation- joint slips out of place ie, the bones move from their normal position. D/T: blow, fall, trauma
- Subluxation- incomplete or partial dislocation. D/T: same as above

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