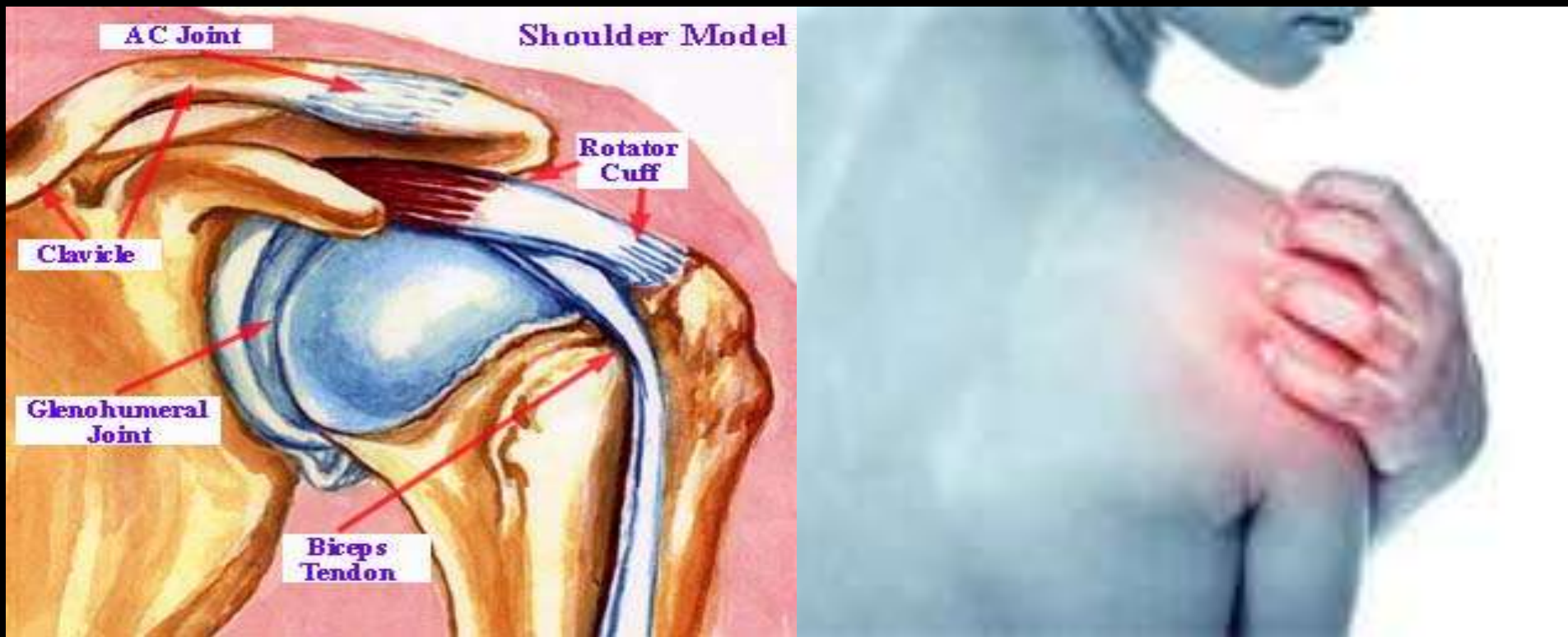


Rotator Cuff Injuries



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OBJECTIVES

Anatomy of shoulder joint

Anatomy & Physiology of rotator cuff

Types of rotator cuff injuries

Signs and Symptoms

Diagnosed by

Shoulder Anatomy

The **acromion** is the top part of your shoulder.

Rotator cuff muscles and tendons hold the shoulder in place.

The **clavicle** (collarbone) is the bony link that holds the shoulder to the body.

The **humeral head** is the rounded top (ball) of your arm bone.

The **glenoid** is a shallow socket.

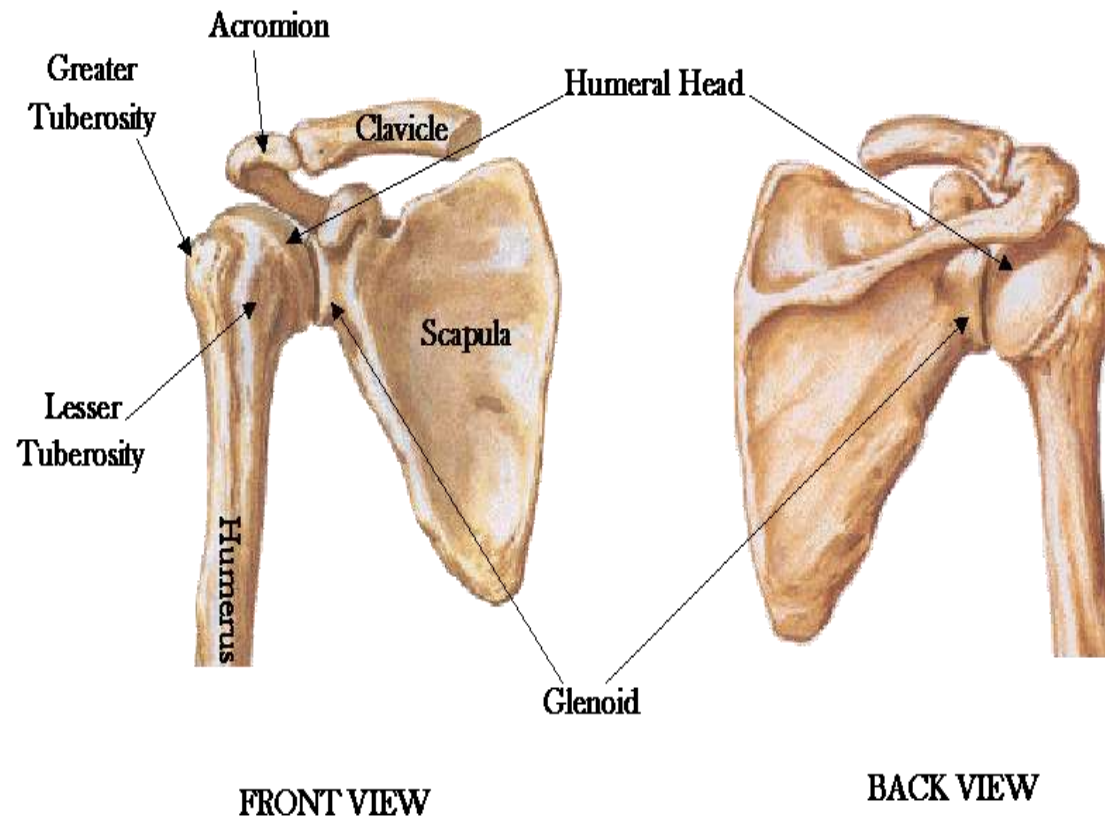
The **capsule** is a pocket that provides stability.

The **labrum** is a rim of cartilage to which the capsule attaches.

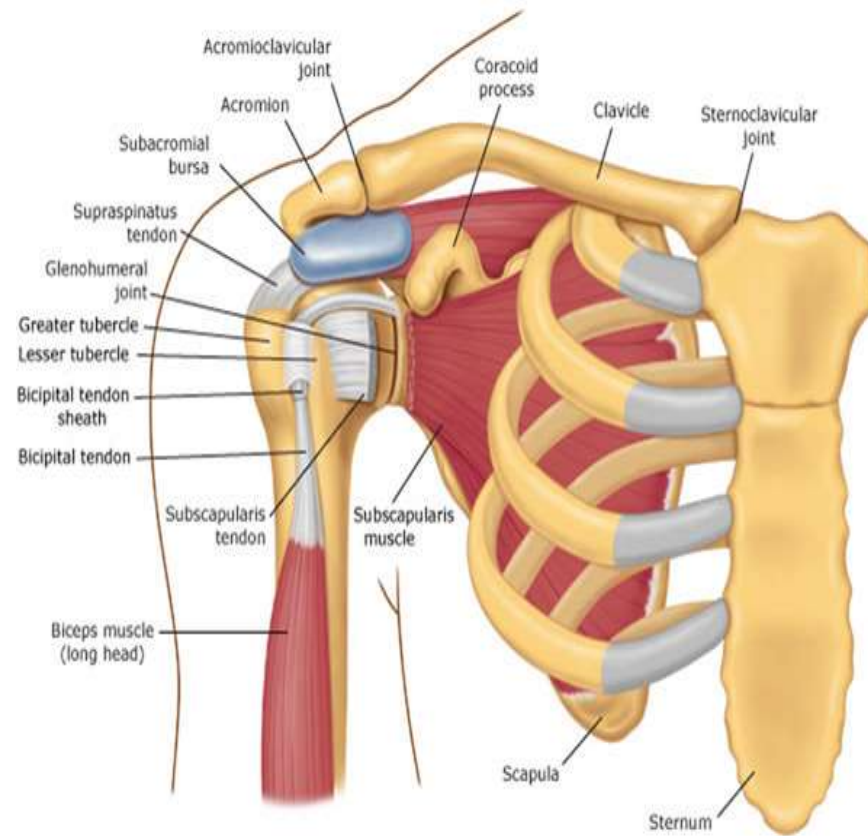
The **bursa** is a lubricating sac.



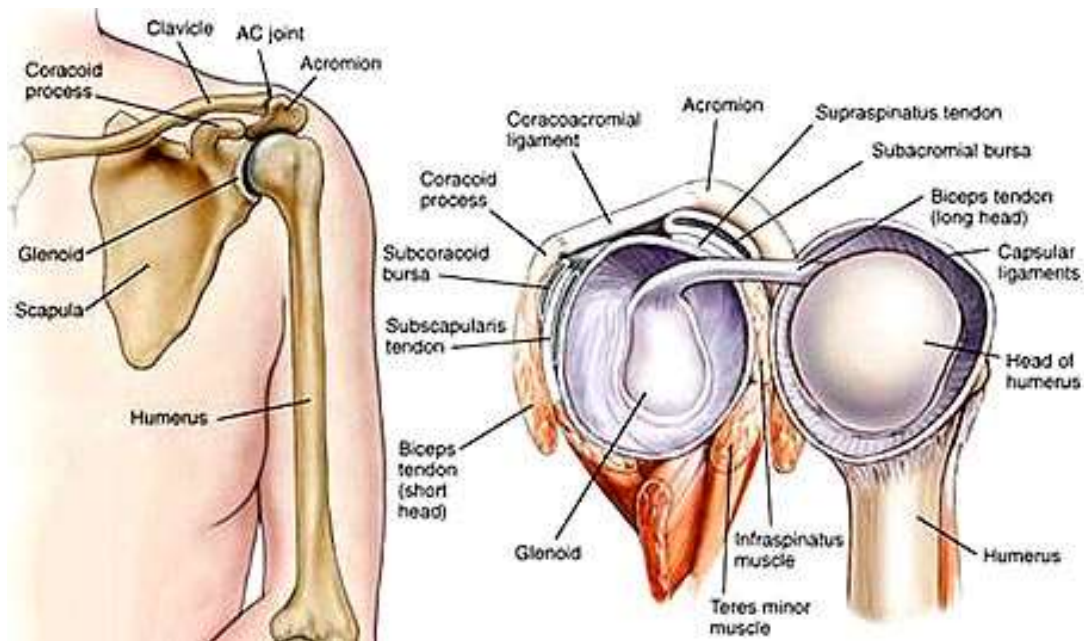
Shoulder Anatomy



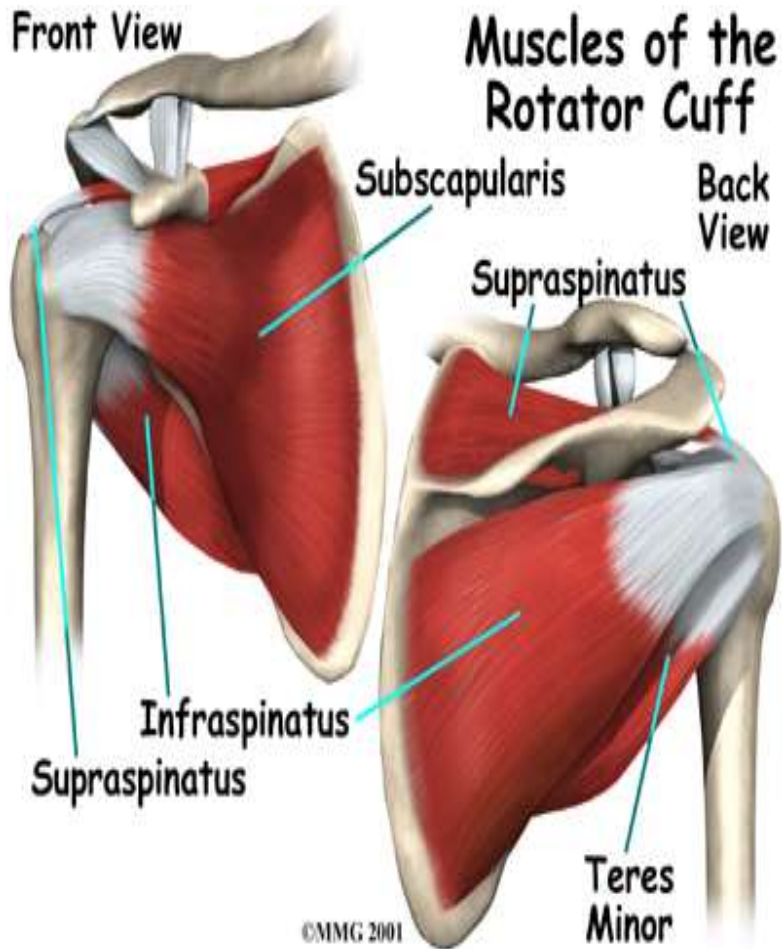
Shoulder Anatomy



Shoulder Anatomy



ROTATOR CUFF ANATOMY & PHYSIOLOGY



An anatomical term given to the group of muscles & their tendons.

The rotator cuff is made up of four muscles.

- 1) SUPRASPINATUS
- 2) INFRASPINATUS
- 3) TERES MINOR
- 4) SUBSCAPULARIS

They help move and stabilize the shoulder joint

ROTATOR CUFF INJURIES

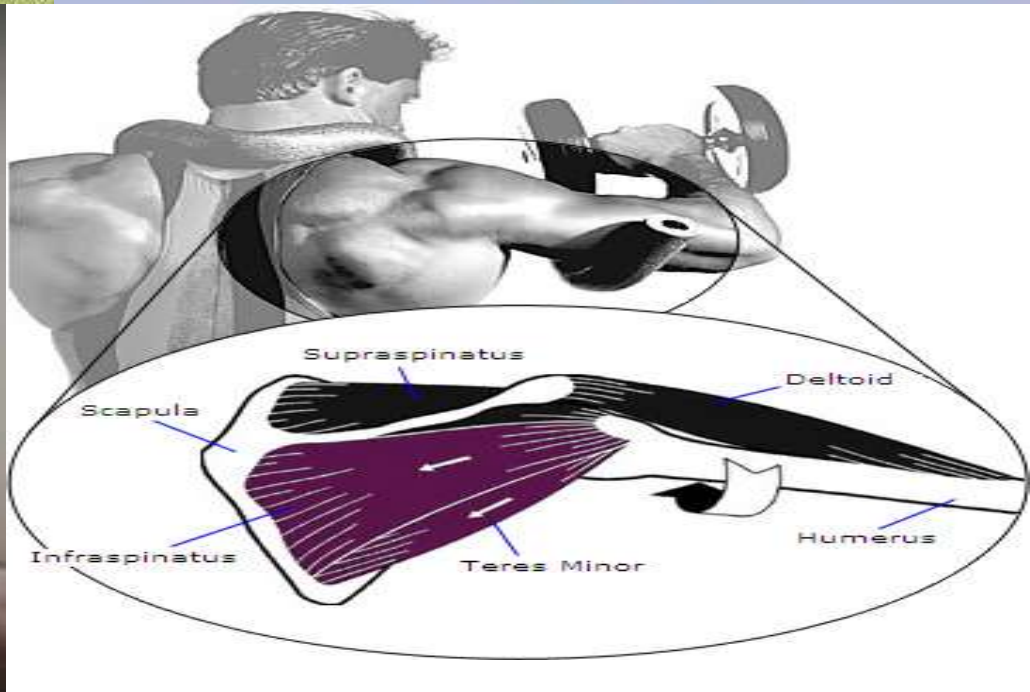
1)STRAINS

2)TEARS

3)TENDINITIS

**WHAT ARE THE
CAUSES**

?????



CAUSES

- Acute injuries
- Chronic overuse
- Gradual aging
- Incorrect shoulder moving techniques
- Calcium deposition
- Abnormalities in shoulder structure
- Bursitis

TEARS

- Injuries to muscle-tendon units called as tears.
- Can classified by the amount of damage to the muscle or tendon fibers.

1) Grade I

Strains involve stretching of the fibers without any tears.

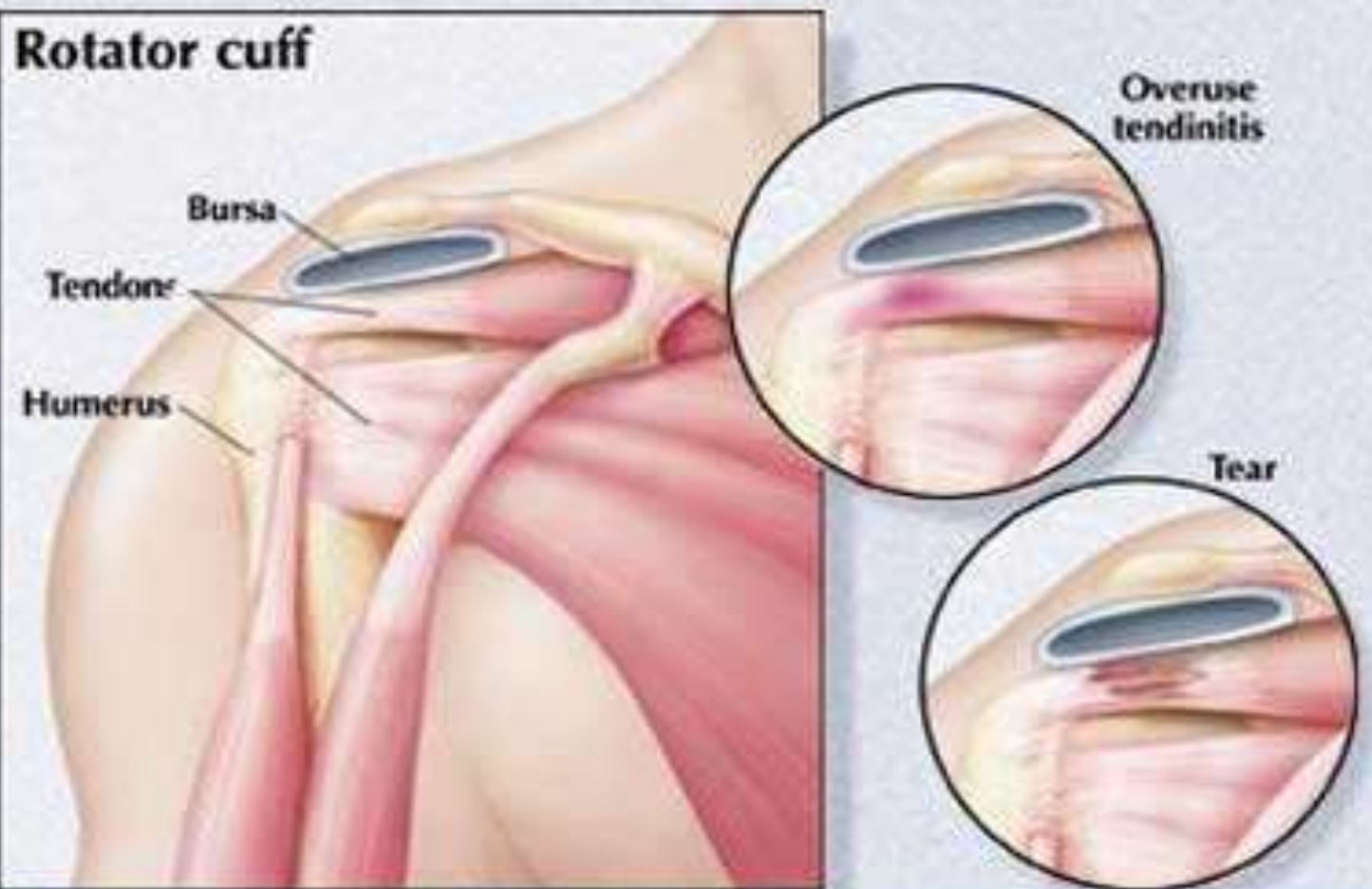
2) Grade II

Injuries involve partial muscle or tendon tearing

3) Grade III

Injuries are defined as a complete tear of a muscle or tendon.

Rotator cuff



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CHRONIC TEAR

- Found among people in **occupations** or **sports** requiring excessive overhead activity (examples: **painters**, **baseball** pitchers)
- **Variations in the shoulder structure** causing narrowing under the outer edge of the collarbone
 - Occur more often in a person's **dominant arm**
 - More commonly found among **men older than 40 years**
 - Pain usually worse at **night** and interferes with sleep
 - Worsening pain followed by **gradual weakness**
 - Decrease in **ability to move** the arm, especially out to the side
 - Able to use arm for most activities but unable to use the injured arm for activities that entail lifting the arm as high or higher than the shoulder to the front or side

ACUTE TEAR

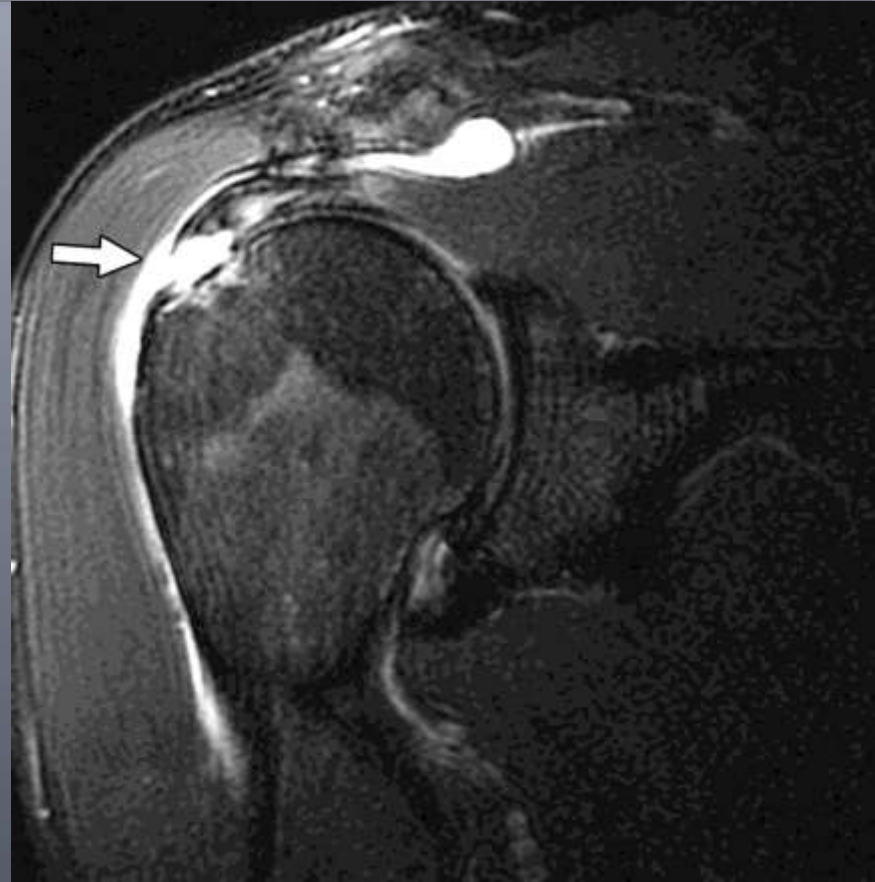
- Sudden tearing sensation followed by **severe pain** shooting through the arm
- Motion limited by **pain** and **muscle spasm**
- Acute pain from **bleeding** and muscle spasm (often goes away in a few days)
- **Point tenderness** over the site of rupture
- With large tears, **inability** to raise the arm out to the side, although this can be done with help

TENDINITIS

- **Inflammation** of tendons.
- **Degeneration** (wearing out) of the muscles with age .
- **Repetitive trauma** to the muscle by everyday movement of the shoulder.
 - More common in **women** aged **35-50** years
 - **Deep ache** in the shoulder also felt on the outside upper arm
 - **Point tenderness**
 - Pain comes on **gradually** and becomes worse with lifting the arm to the side or turning it inward
 - **May lead to a chronic tear**

DIAGNOSIS

- Physical examination
- X-ray
- MRI
- Arthrogram
- Ultra sound scanning



The Physical Exam

- Inspection
 - Asymmetry
 - Bony deformity or abnormal contour
 - Muscle atrophy or bulge
 - Scapular winging



The Physical Exam

- Range of Motion
 - Active
 - Passive
 - Apley's "scratch" test
 - Scapular movement
- Strength Testing

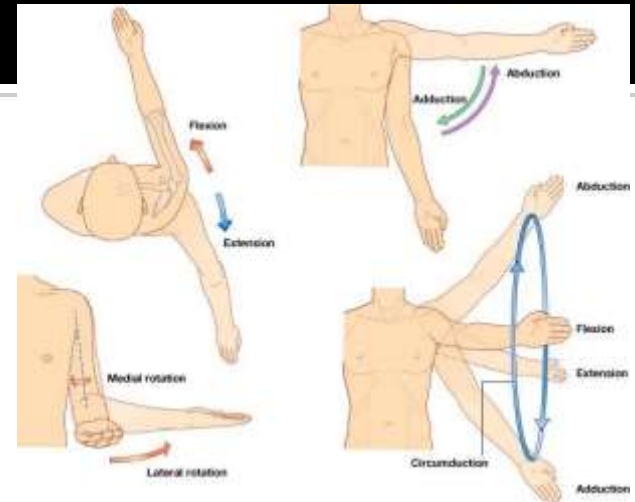
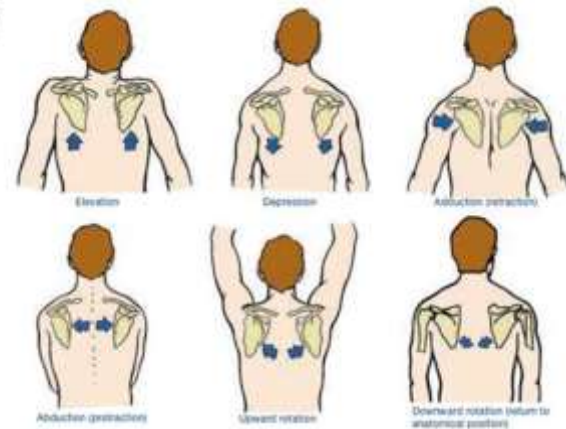
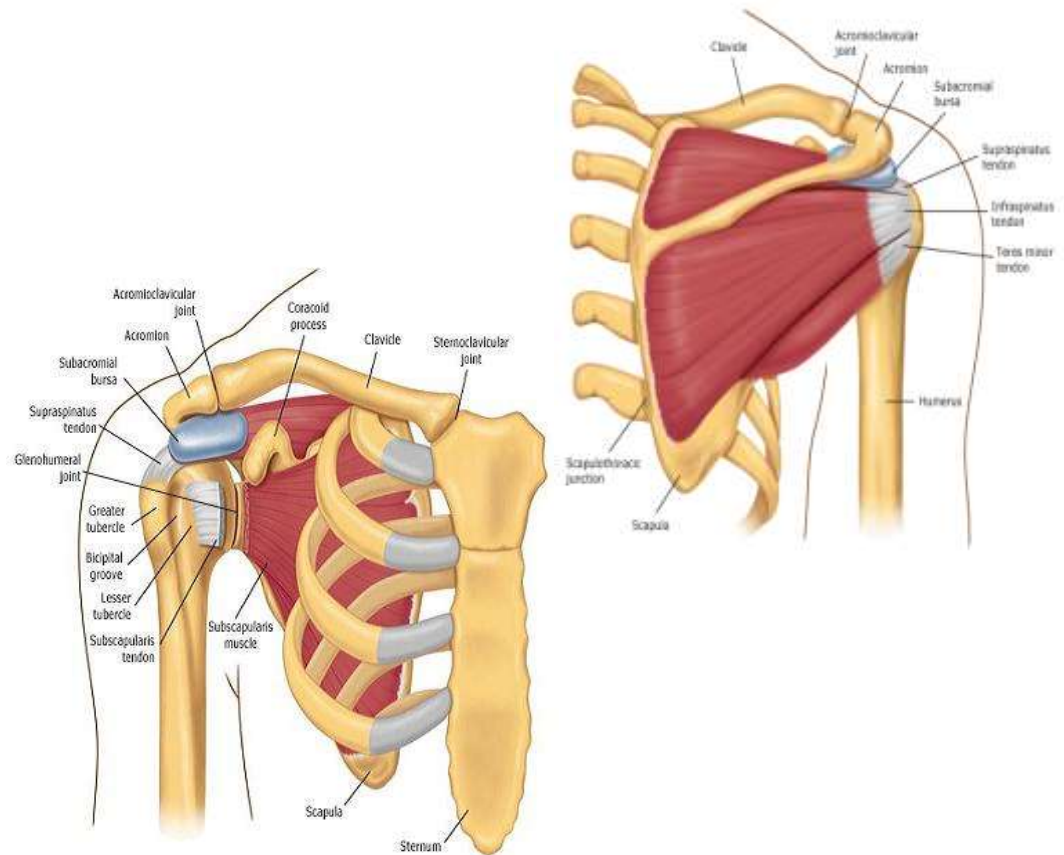


Figure 3-34
Scapular
movements



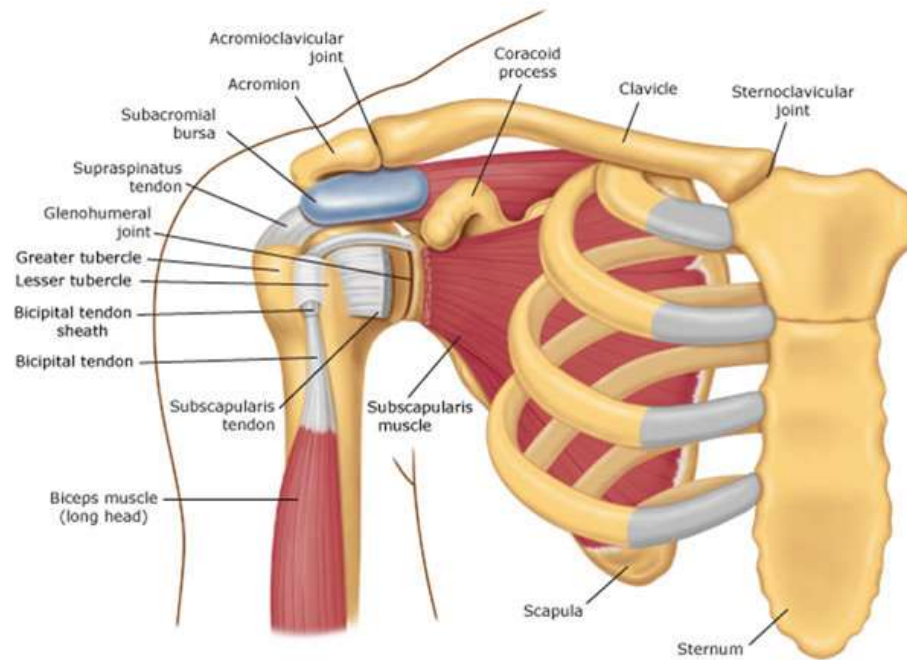
The Rotator Cuff Muscles

- Supraspinatus
 - Abduction
- Infraspinatus
 - External rotation
- Subscapularis
 - Internal rotation
- Teres minor
 - External rotation



The Physical Exam

- Palpation
 - AC and GH joints
 - Biceps tendon
 - Coracoid process
 - Acromion
 - Scapula



Special Tests

- Rotator Cuff
 - "Drop-arm"
 - "Empty can," push-off, and resistance testing
- Impingement
 - Neer's
 - Hawkins



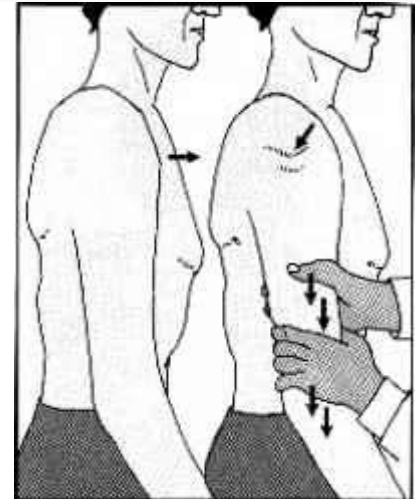
Special Tests

- Biceps
 - Speed's
 - Yergason's
- AC Joint
 - Cross-arm



Special Tests

- Shoulder Instability
 - Sulcus sign
 - Apprehension, relocation, release
 - Load and shift



Special Tests

- Labrum
 - O'Brien's
 - Crank test
 - SLAPprehension



Specific Examples

- **Rotator Cuff Pathology**
- **“Frozen Shoulder”**
- **Shoulder Instability**
- **AC Joint Separation**
- **Arthritis**
- **Labral Tear**
- **“SICK Scapula”**

Rotator Cuff Pathology

- Presentation & symptoms:
 - PAIN
 - +/- weakness
 - Age? → trauma vs chronic
- Physical exam findings:
 - Pain with ROM & resistance testing (+empty can, +push-off)
 - + drop arm if full-thickness tear
 - + Neer's and Hawkins if impingement

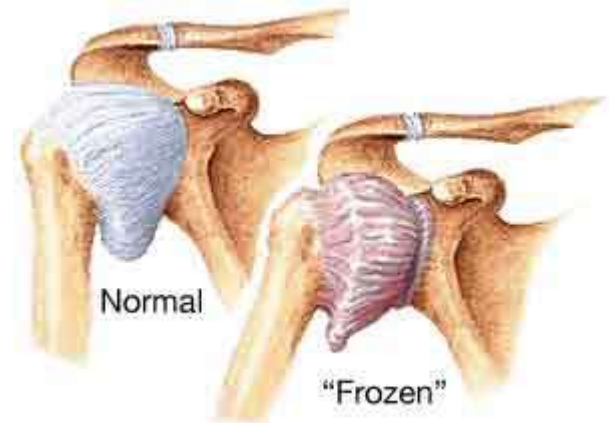
Rotator Cuff Pathology

- Diagnosis:
 - Xray – often negative
 - **Ultrasound**
 - Consider MRI if planning for surgery
- Management:
 - **Tendinopathy or impingement** – conservative treatment, PT, subacromial GC injection
 - **Partial-thickness tear** – PT (up to 12 weeks), possibly subacromial GC injection
 - **Full-thickness tear** – Ortho referral



“Frozen Shoulder” (Adhesive Capsulitis)

- Presentation & symptoms:
 - Pain, often >3 months
 - Progressive loss of ROM
 - Age >40yo
 - Risk factors: immobility, DM, hypothyroidism
- Physical exam findings:
 - Limited active ROM, external rotation often 50% normal
 - **Endpoint with passive ROM**



“Frozen Shoulder” (Adhesive Capsulitis)

- Diagnosis:
 - **CLINICAL!**
 - Xray if need to rule-out fracture or OA
 - US later if concerned for RC pathology
- Management:
 - Set expectations
 - Pain control, gentle ROM exercises/**PT**
 - If severe, intra-articular GC injection under fluoroscopy

Shoulder Arthritis

- Presentation & symptoms:
 - Age >50
 - Progressive pain with activity
 - Decreased ROM
 - Impingement symptoms
 - History of rotator cuff injury, previous trauma, or shoulder surgery
- Physical exam findings:
 - AC joint: tenderness over AC joint, pain at extreme internal rotation, + cross-arm test
 - GH joint: decreased ROM, pain and crepitus at extremes of motion



Shoulder Arthritis

- Diagnosis:
 - Clinical +
 - Xray
- Management:
 - AC joint:
 - Activity modification, NSAIDs, GC injection
 - GH joint:
 - Goal = maintain function with adequate pain control
 - PT, glucosamine & chondroitin, intra-articular GC injection
 - Referral to Ortho if conservative treatment fails



THANK YOU