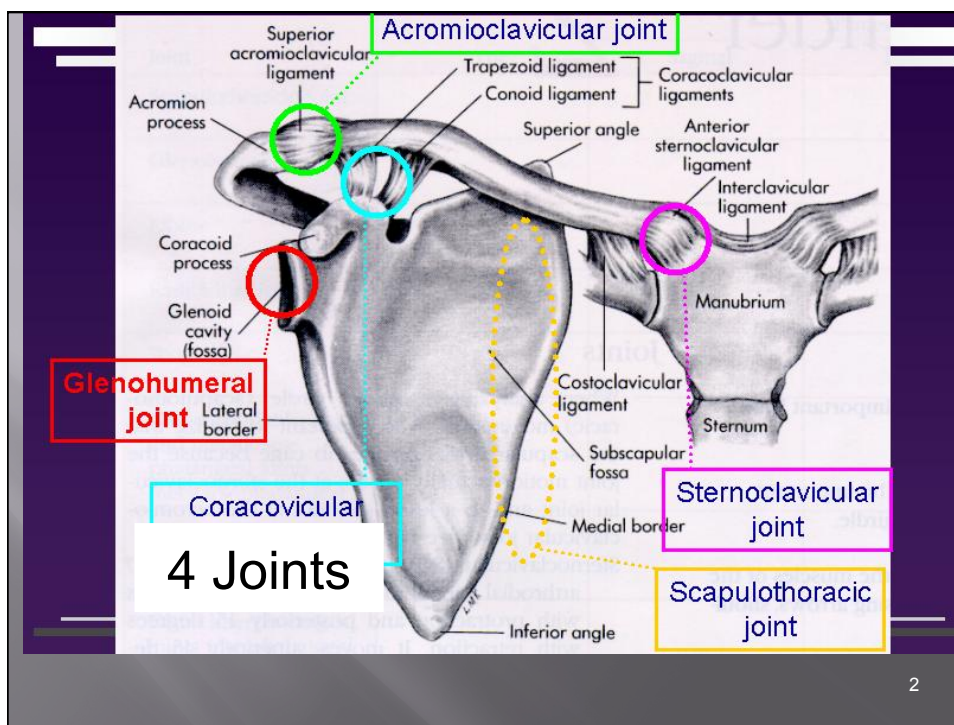


# Evaluation and Treatment of Common Shoulder Problems & Injuries

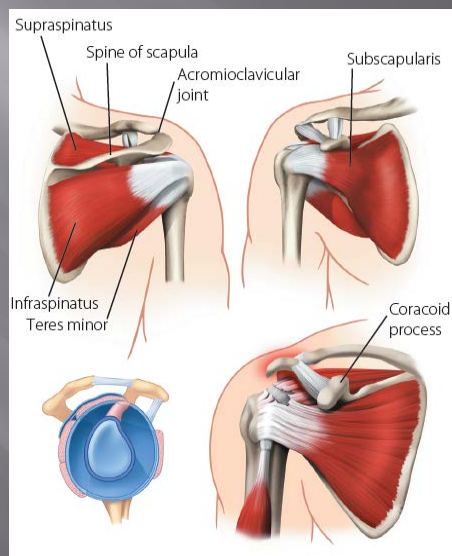
Joshua A. Tuck, D.O., M.S.  
LECOM Sports and Orthopedic Medicine  
LECOM Toronto 2016

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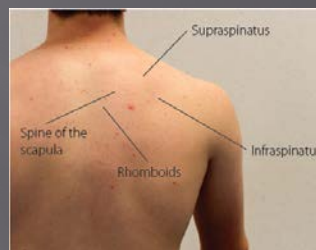
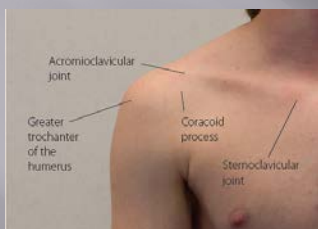
## Shoulder Anatomy



## Common Shoulder Disorders

- ▣ INSTABILITY
- ▣ SUBACROMIAL IMPINGMENT
- ▣ ROTATOR CUFF PATHOLOGY
- ▣ BICEPES TENDONITIS / RUPTURE
- ▣ ADHESIVE CAPSULITIS

## Shoulders - Inspection



- Properly expose patient's shoulders
- Inspect – anteriorly, laterally, posteriorly

## Shoulder

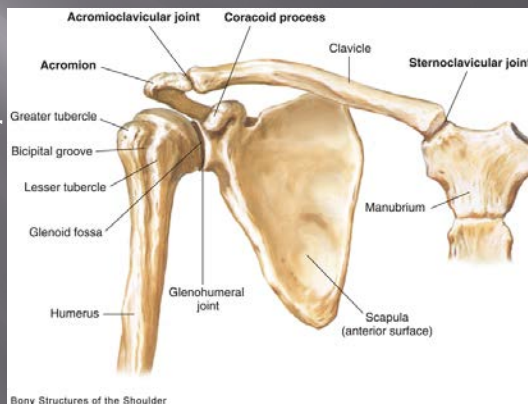
- Inspection
  - Symmetry, bony deformity, swelling, atrophy, hypertrophy, redness
- Examples:
  - Bulging of the biceps over the lower half of the humerus can be associated with rupture of the biceps tendon
  - Winged Scapula: muscular or long thoracic nerve dysfunction.



## Palpation

- Bone: for pain, crepitus, deformity

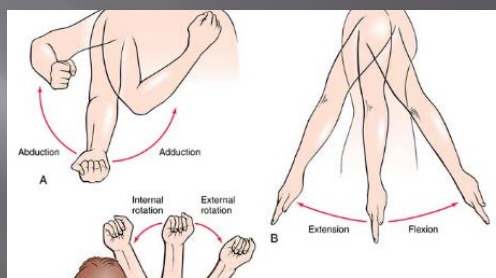
- Sternoclavicular joint, clavicle, acromioclavicular joint, greater tubercle of the humerus, bicipital groove, coracoid process, scapula
- Rotator cuff muscles



## ROM

- Active Range of Motion (AROM)

- Flexion (180)
- Extension (60)
- Abduction
  - Rotator cuff (SS) 0 to 90
  - Deltoid from 90 to 180
- Adduction (45)
- Rotation
  - External (80-90)
  - Internal (70-80)



- Passive Range of Motion (PROM)

- Perform if limited in AROM



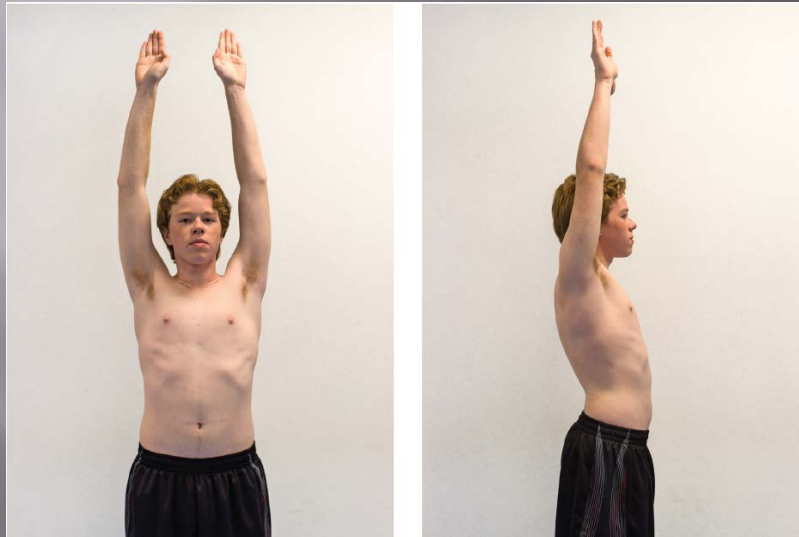
## Shoulder ABduction & ADduction



## Shoulder Flexion – 90 degrees Anterior and lateral views



## Shoulder Flexion – 180 degrees Anterior and lateral views



## Shoulder extension, internal & external rotation (standing or seated)



## SHOULDER INSTABILITY

- ▣ TYPICALLY TRAUMATIC
- ▣ PAIN
- ▣ PAINFUL ROM
- ▣ WEAKNESS
- ▣ GUARDING

13

## PHYSICAL FINDINGS

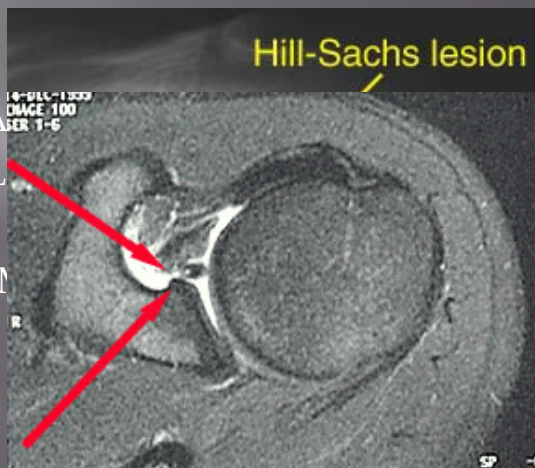
- ▣ ASYMETRY
- ▣ WEAKNESS
- ▣ DECREASED ROM
- ▣ PALPATORY TENDRILS
- ▣ TESTS:
  - ▣ APPREHENSION
  - ▣ RELOCATION



14

## OBJECTIVE TESTING

- X-RAYS (AP, AXIAL)
- CT SCAN (HIL)
- MRI (LABRAL)
- ARTHROGRAM
- EMG



## TREATMENT

- ACUTE DISLOCATIONS
- SUBLUXATIONS
- CHRONIC RECURRENT DISLOCATIONS





## Stimson Technique



## Traction-Countertraction



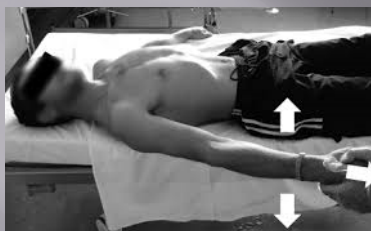
19

## Hippocratic Method



20

## FARES Technique



21

## Sling and Swathe

□ -



22

## Natural History of Anterior Dislocation

- Up to 100% re-dislocation rate in adolescents with an open growth plate at time of initial dislocation
- 55-95% re-dislocation in 18-30 year olds
- >40 yr olds re-dislocation <10%
- Increased risk of RCT in those over 40.

23

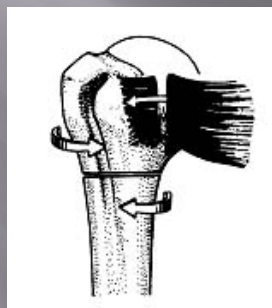
## Complications of Gleno-humeral Dislocations

- Recurrent dislocations
- Torn glenoid labrum
- Hill-sachs lesions
- Axillary nerve injury

24

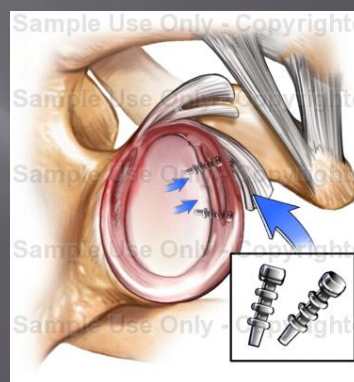


## Surgical Repairs



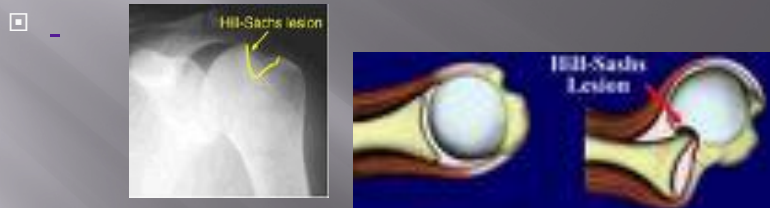
25

## Glenoid Labrum Tear



26

# Hill-Sachs lesion



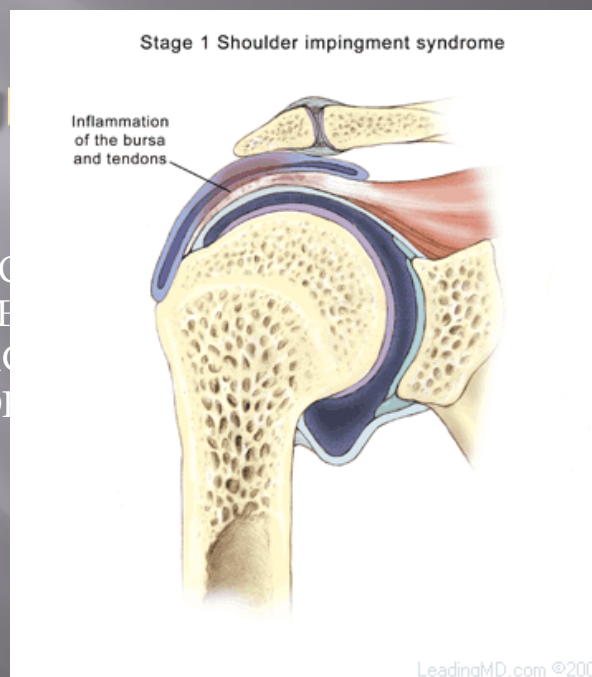
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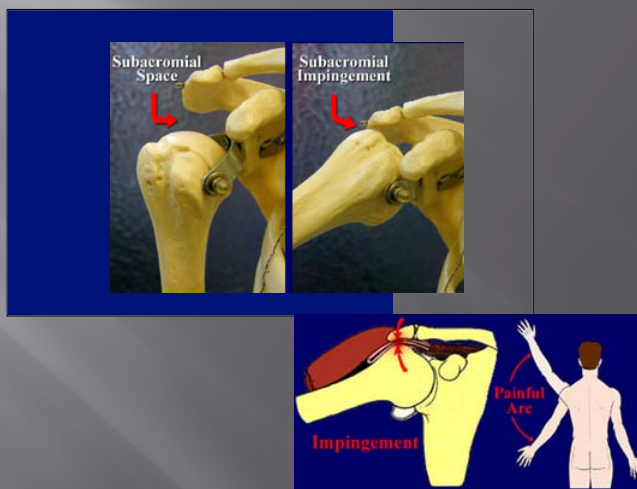
28

## SUBACROMIAL IMPINGEMENT

- ❑ PAINFUL ABDUCTION OF SHOULDER
- ❑ PAINFUL LIFTING OR WORKING OVERHEAD
- ❑ DIFFICULTY THROWING
- ❑ CREPITANCE OR CATCHING

29

Abnormal contact between acromion and greater tuberosity in mid-abduction



30

## HISTORY

- OVERHEAD WORK
- EXERCISE WITH MUSCLE HYPERTROPHY
- TRAUMA TO A-C JOINT
- CONGENITAL DEFORMITY
- DEGENERATIVE JOINT DISEASE

31

## PHYSICAL FINDINGS



32



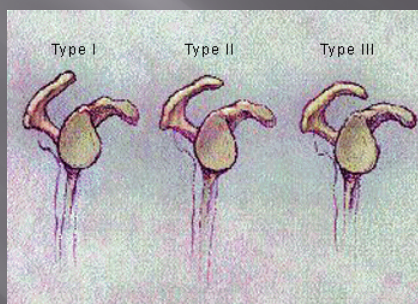
## OBJECTIVE TESTING

- X-RAY
  - DJD OF AC JOINT
  - CALCIFICATIONS OF TENDON
- ARTHROGRAM
  - MAY BE NORMAL
- MRI
  - HYPERTROPHY
  - CONGENITAL DOWNSLOPING OF ACROMION

33

## Bigliani Classification

- Type I flat acromion
- Type II curved acromion
- Type III hooked acromion



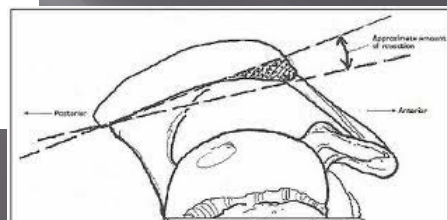
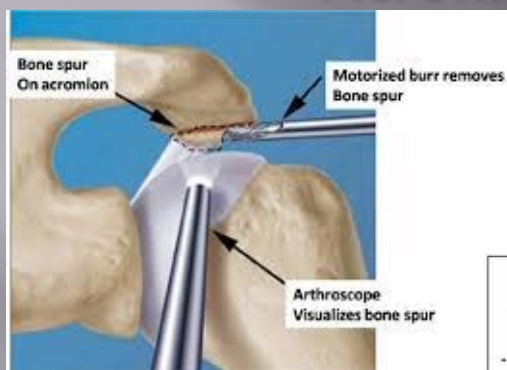
34

## TREATMENT

- Medication
  - Oral, subacromial steroid injection, iontophoresis
- Modification of activity
- Physical therapy
- OMM / Spencer Technique
- Surgery
  - Acromioplasty
  - Mumford
  - Arthroscopic decompression

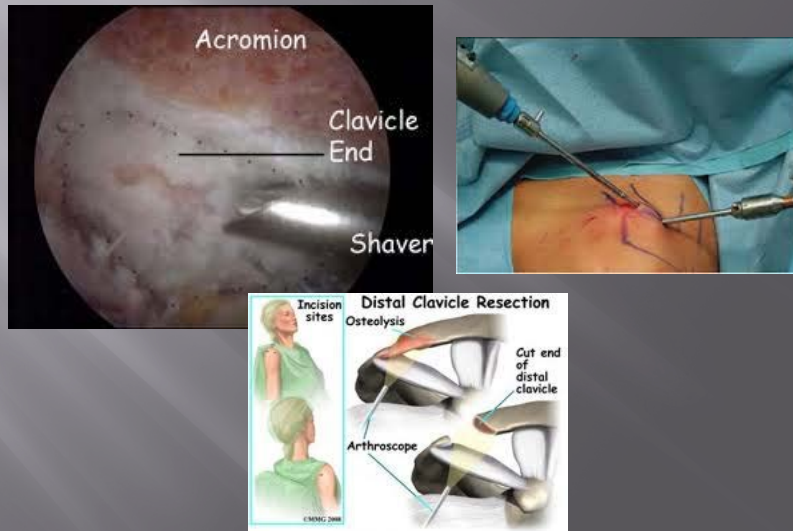
35

## Acromioplasty



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# Mumford Procedure

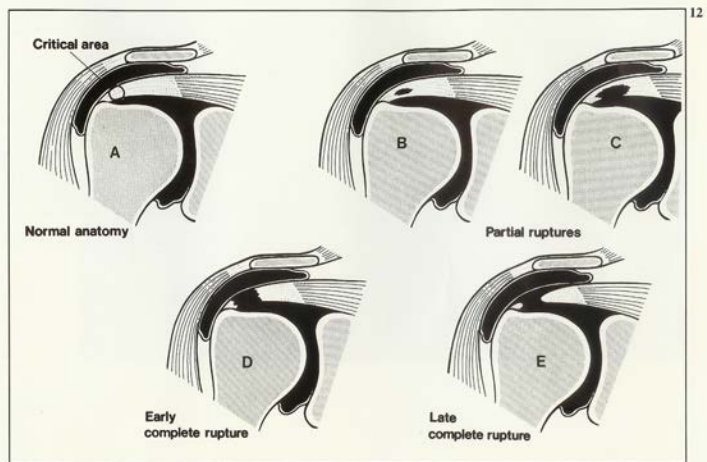


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# ROTATOR CUFF TEAR

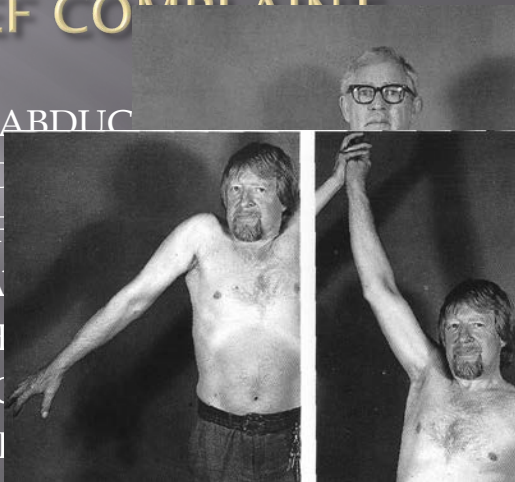
12 Patterns of rupture of the rotator cuff.

The incomplete rupture shown in 'C' is detailed in 13, 14 and 15.



## CHIEF COMPLAINT

- ▣ WEAKNESS (ABDUCTIO
- ▣ PAINFUL ABDU
- ▣ CAN NOT LIE
- ▣ CAN NOT LA
- ▣ CAN NOT TH
- ▣ CAN NOT WO
- ▣ PAIN AT REST



39

## HISTORY

- ▣ MICRO TRAUMA (OVERUSE)
  - ▣ OVERHEAD WORK
  - ▣ REPEATED LIFTING
- ▣ CHRONIC IMPINGMENT
  - ▣ DOWNSLOPING OF ACROMION
- ▣ TRAUMA
  - ▣ FALL
  - ▣ PULLING EXCEEDS TENDON STRENGTH
  - ▣ LIFTING EXCEEDS TENDON STRENGTH

40

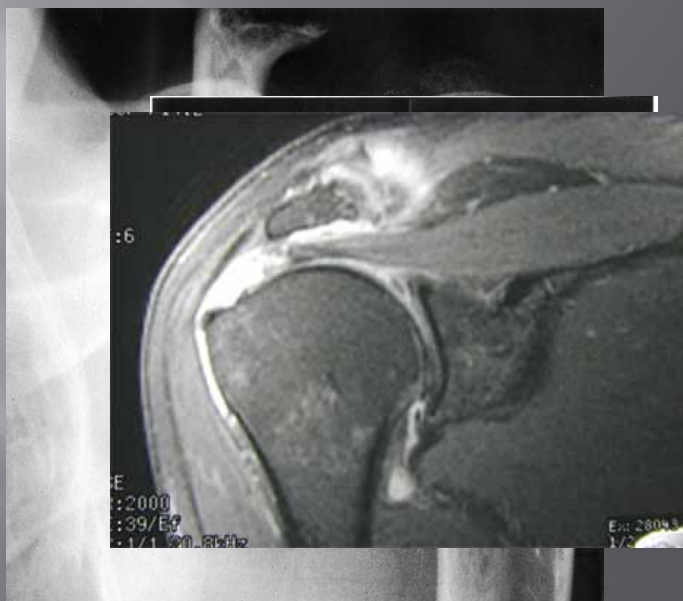


## PHYSICAL FINDINGS

- WEAKENED
- MUSCLE STRENGTH
- DROP TEST
- GERBER'S TEST
- EMPTY CAN TEST



41



42

## TREATMENT

- ▣ REST
- ▣ ABDUCT
- ▣ PHYSICA
- ▣ MODIFIC
- ▣ MEDS
- ▣ SURGER



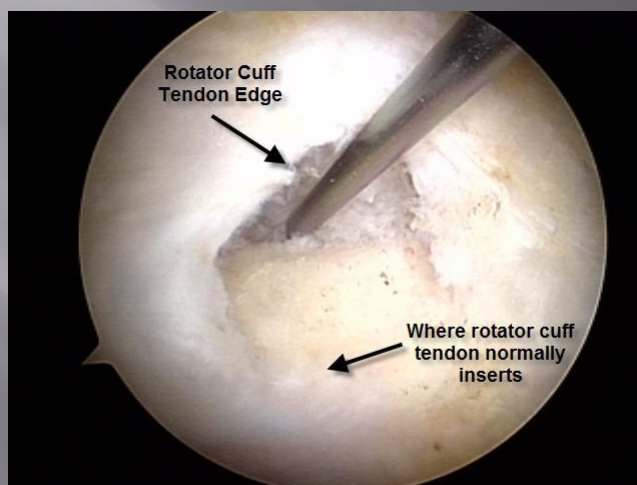
43

## Arthroscopic Rotator Cuff Repair



44

## Arthroscopic Rotator Cuff Repair



45

## Arthroscopic Rotator Cuff Repair



46

## Calcific Tendinitis

Very painful, often sudden onset shoulder pain, inflammation assoc. w/ calcific deposit in rotator cuff tendon.

Multifactorial / cause is controversial



47

## Calcific Tendinitis

Treatment options:

- NSAIDS,
- PT / modalities / iontophoresis
- Needling
- Cortisone injections
- Open or arthroscopic excision



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## BICEPS TENDON RUPTURE

- PROXIMAL



- DISTAL



49

## CHIEF COMPLAINT

- PAIN (RUBBER BAND)

- WEAKNESS (SUPINATION)

- DEFORMITY (POPEYE)

50

## HISTORY

- ▣ LIFTING AND SUPINATION
- ▣ IMPINGMENT
- ▣ OVERUSE
- ▣ IATROGENIC

51

## PHYSICAL FINDINGS

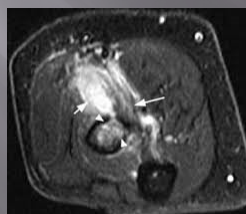
- ▣ TENDERN
- ▣ POPEYE M
- ▣ YERGUSC



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## OBJECTIVE TESTING

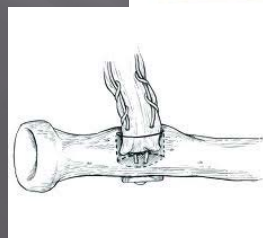
- MRI
- ULTRASOUND



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## TREATMENT

- SKILLFUL NEGLECT
- SURGERY (Repair)



54

## AC JOINT SEPARATION

- ▣ PAIN AT REST AND WITH ROM
- ▣ CREPITANCE
- ▣ PALPABLE DEFORMITY



55

## HISTORY

TRAUMA...fall onto shoulder or fall onto elbow

INFECTION...rare



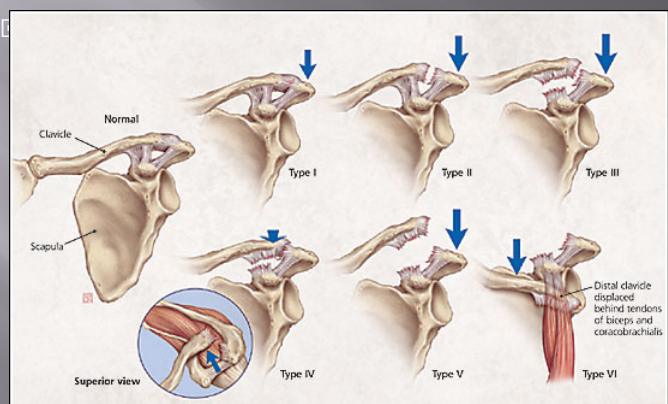


## AC Trauma



57

## AC Separation Rockwood Classification



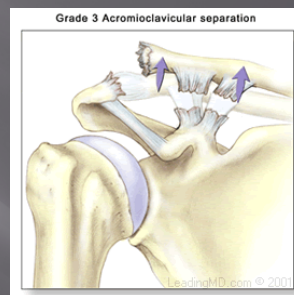
58

# PHYSICAL FINDINGS

- PAIN DE
- PALPAB
- PAINFU
- WARM



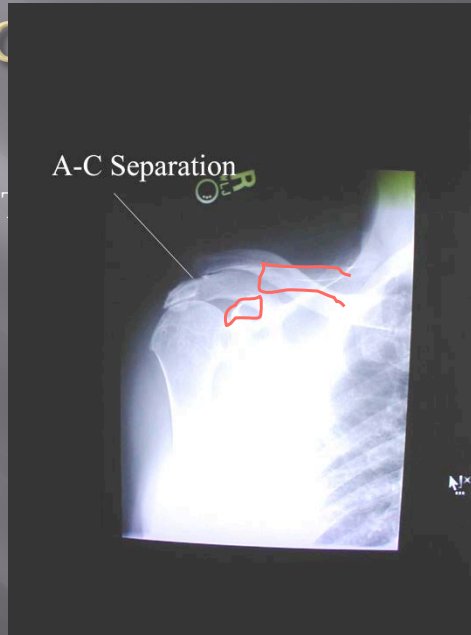
59



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## OBJECTIVES

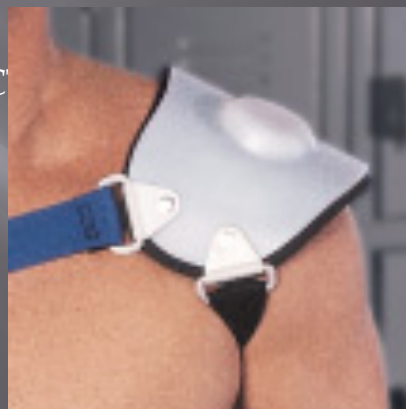
- X-RAY (WATERBURY TEST)
- CT SCAN
- MRI



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## METHODS OF TREATMENT

- SKILLFUL NEGLECT
- SLING
- AC STRAP
- SURGERY



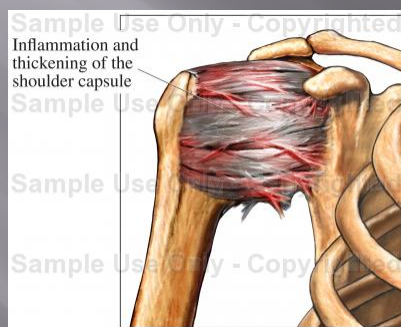
62

## ADHESIVE CAPSULITIS

- ▣ CHIEF COMPLAINT — CAN'T RAISE ARM
- ▣ HISTORY---SLOW PROGRESSIVE LOSS OF MOTION
- ▣ PHYSICAL---NO ACTIVE OR PASSIVE ROM
- ▣ TESTING---MRI
- ▣ TREATMENT---GRADUAL PHYSICAL THERAPY, MEDS  
AGGRESSIVE..MANIPULATION (UA)

63

## ADHESIVE CAPSULITIS



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## Review of Common Provocative Shoulder Tests

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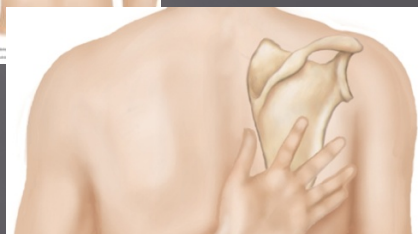
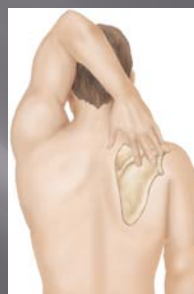
### Special Tests Apley scratch test

#### ■ Apley scratch test

- Over the head tests abduction and external rotation
- Behind the back tests internal adduction and internal rotation

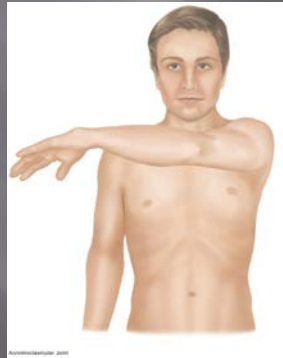
#### ■ Can't Perform?

- Rotator cuff tear
- Adhesive capsulitis
- Subacromial impingement



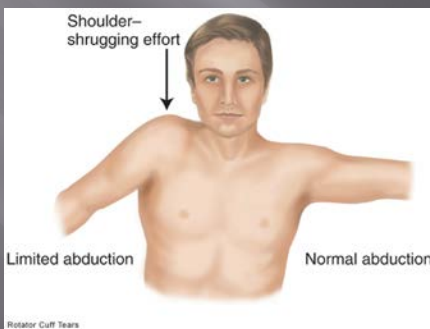
## Cross-body test

- Cross arm over the front of the chest
- Pain with adduction: inflammation or arthrosis of the acromioclavicular joint

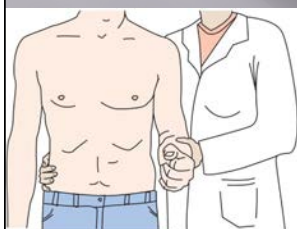


## Drop Arm Sign

- Patient arm abducted to 120 degrees and then instructed to slowly lower it through 90 degrees
  - Positive test if patient cannot hold the arm fully abducted: suspect rotator cuff tear



## Rotator Cuff Muscle Testing



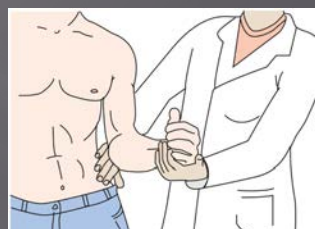
**Supraspinatus:** Patient abducts against resistance.

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**Infraspinatus, teres minor:** Patient rotates forearm laterally against resistance.

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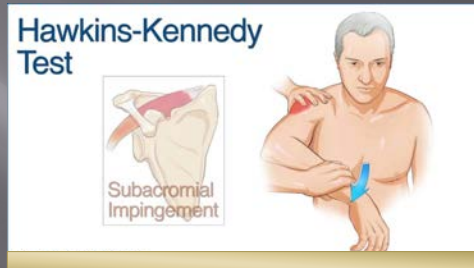


**Subscapularis:** Patient rotates forearm medially against resistance.

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## Hawkins – Kennedy Test

Patient seated  
– shoulder  
forward flexed  
to 90 deg,  
elbow flexed to  
90 deg, with  
examiner

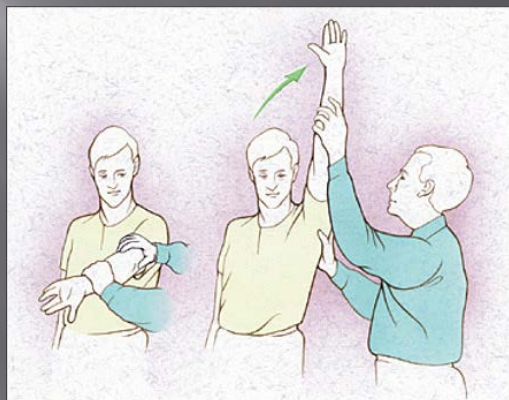


## Neer Test

Arm at patient's side, passively forward flexed by examiner while in maximal internal rotation with the elbow straight.

**Pain:**

- Subacromial impingement

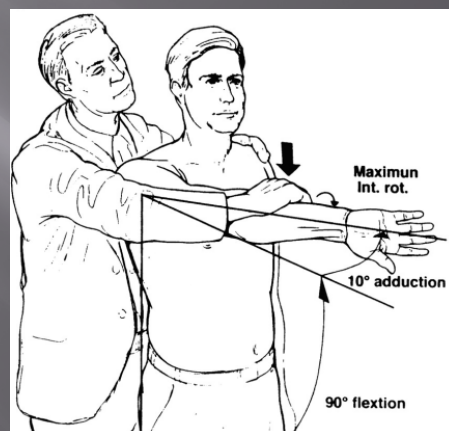


## O'Brien's Test

Shoulder actively forward flexed to 90 deg, arm straight at elbow and adducted across mid-line, (10 deg), internally rotated w/ thumb down. Physician actively pushes arm down into extension while patient resists. Repeated with thumb up. Pain with thumb down, relieved with thumb up =

**Positive for:**

SLAP Lesion  
(or AC joint arthrosis)





## Yergosan's Test

Patient seated, arm at side with elbow at 90 deg, (neutral rotation). Patient actively supinates against examiner's resistance, while examiner applies gentle ER through shoulder, while examiner palpates in bicipital groove.

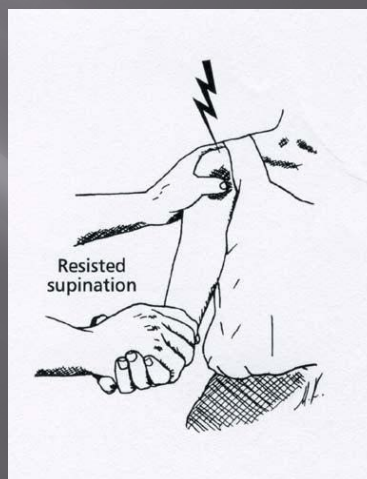
**Pain with tendon subluxation:**

-biceps instability / disruption

**Pain without subluxation:**

-biceps tendinosis  
-SLAP

**NOTE:** Many variations described



## Speed's Test

Patient holds arm supinated, 20 deg of elbow flexion, with shoulder forward flexed through 90 deg. – Examiner resists flexion, pushing arm down into extension. Pain at anterior shoulder / bicipital groove = positive.

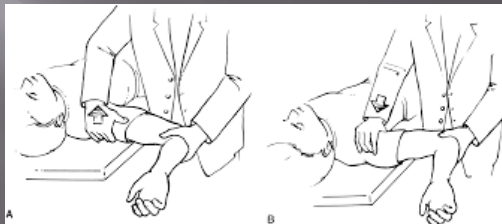
- Biceps tendinosis / partial tear
- SLAP



## Apprehension & Relocation Tests

Patient seated or supine, shoulder passively abducted to 90 deg, with passive ER through/ past 90 deg. Patient apprehension (“my shoulder is going to pop out”) = positive for anterior instability.

Next, test is repeated while examiner applies an anterior (stabilizing) force through proximal brachium. Apprehension is reduced = confirms anterior instability.



**Positive:**  
-Bankart / anterior instability



## Contact Information

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