

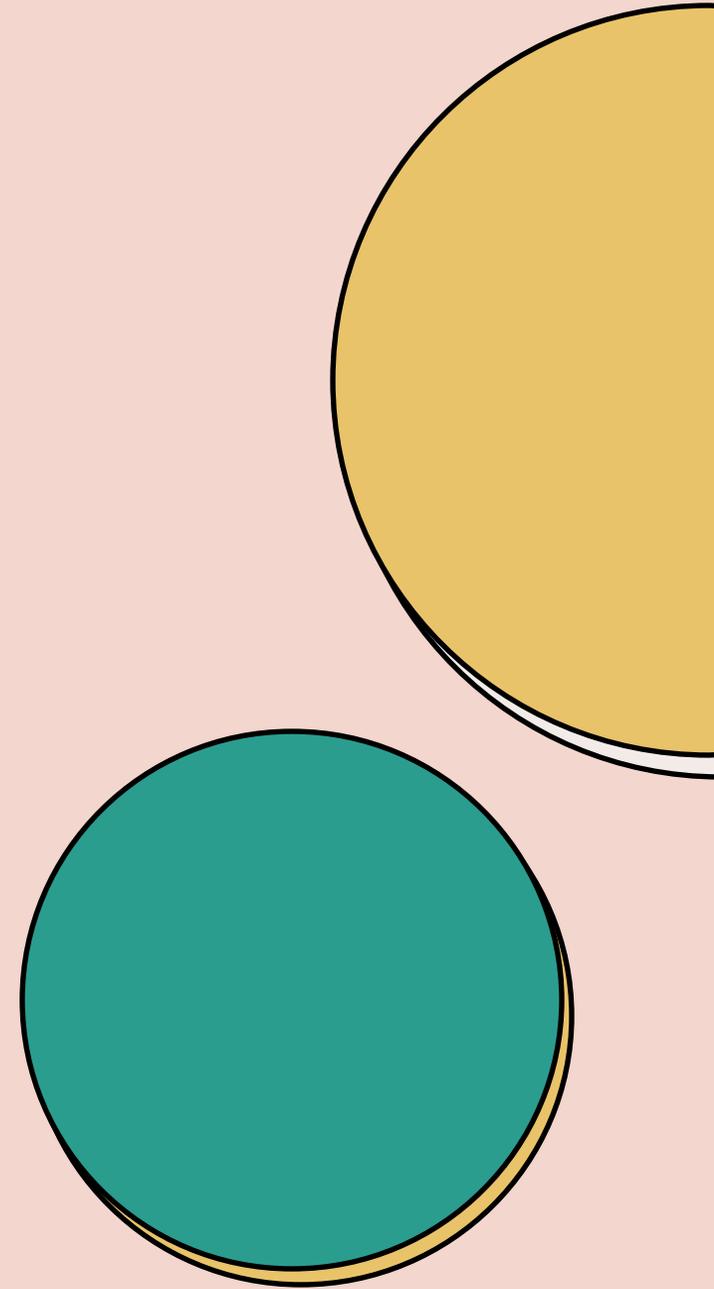
The Rotator Cuff

Presented by Katherine Iannuzzelli



Objectives

- Anatomy Review
- Risk factors/etiology
- History
- Physical exam pearls
- Imaging
- Common pathologies



Clinical Relevance



Shoulder pain is a very common complaint in family medicine



Shoulder pain represents 15% of MSK complaints in primary care



Rotator cuff injuries present in 9.7% of people under 20 and 62% in patients 80 or older

The Anatomy

"SITS"

Supraspinatus (most common tendon affected)

- Abduction (initial 10-15 degrees)

Infraspinatus

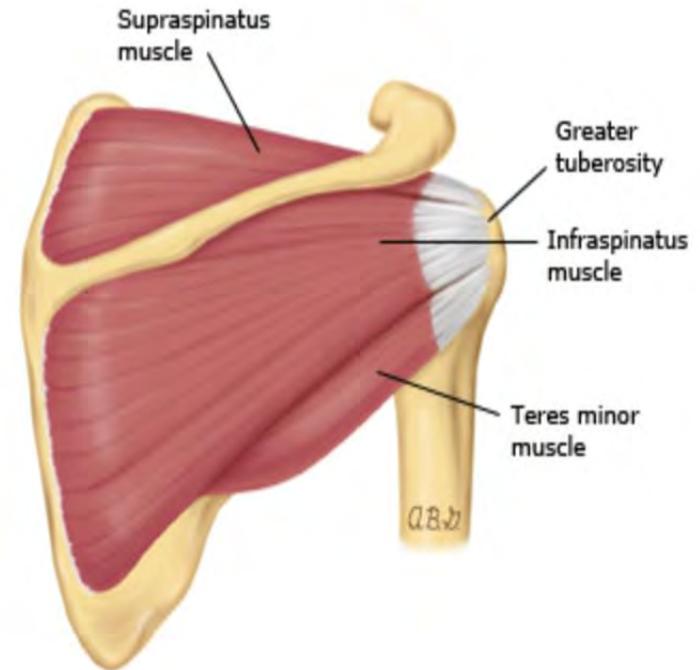
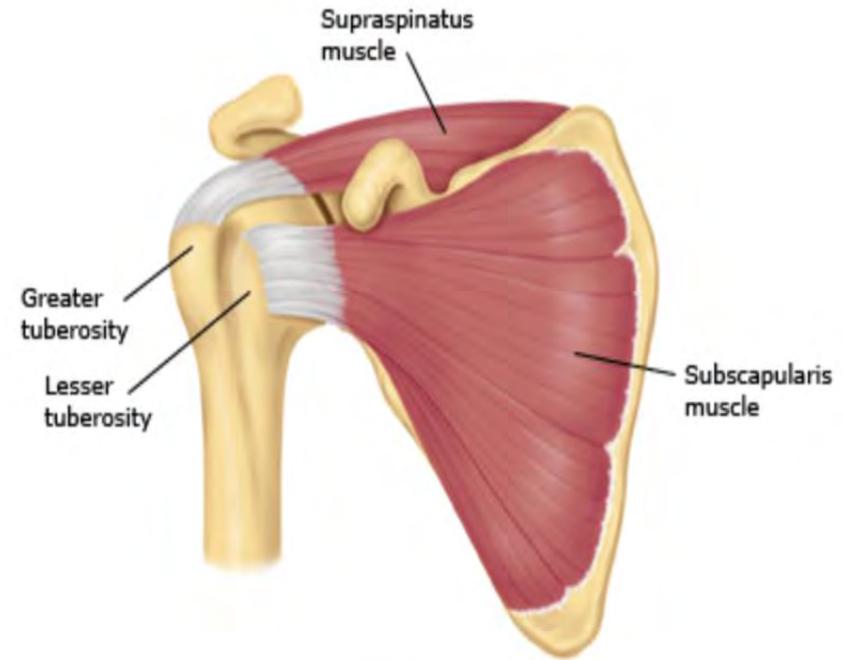
- External rotation

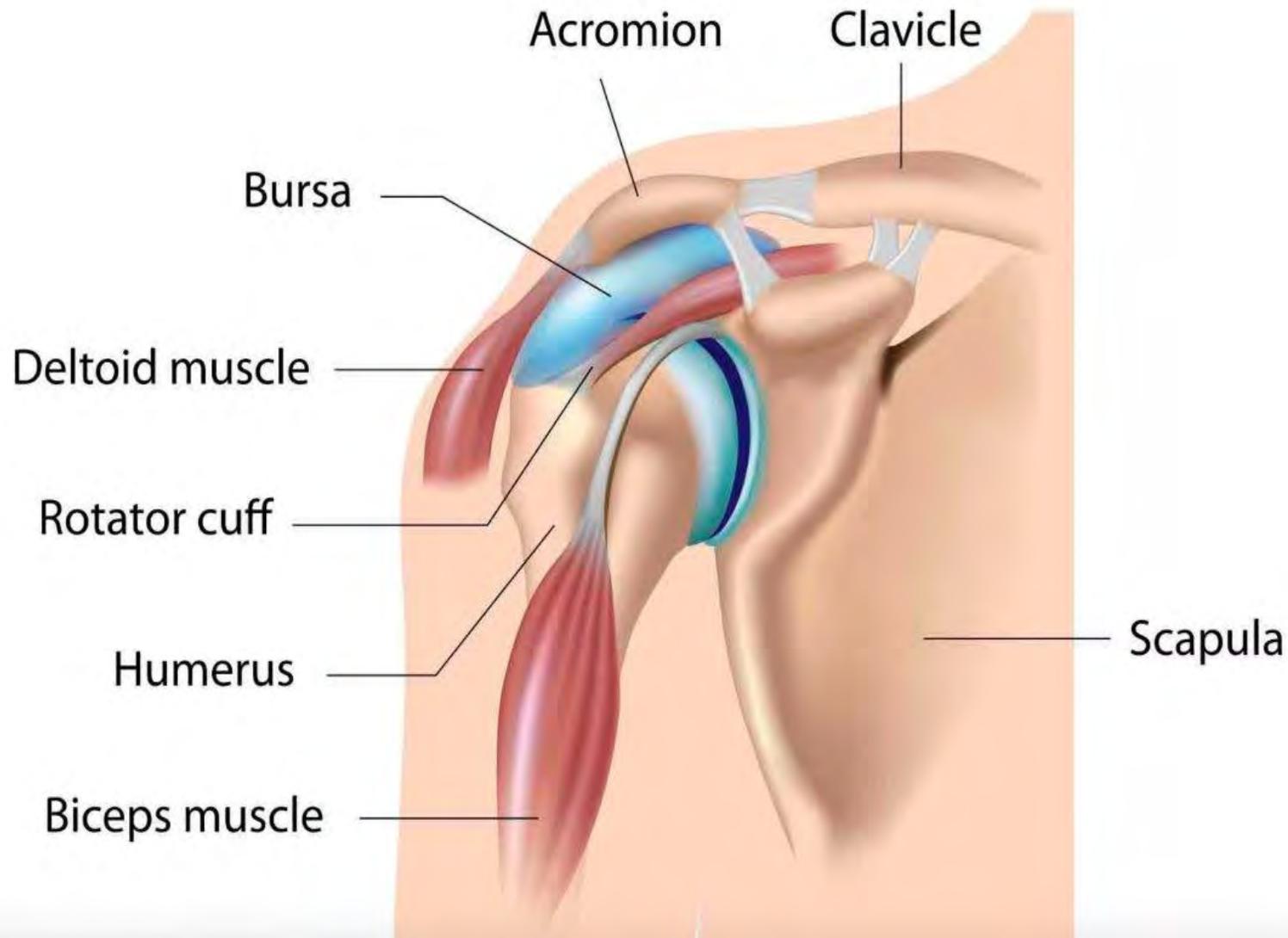
Teres minor

- External rotation

Subscapularis

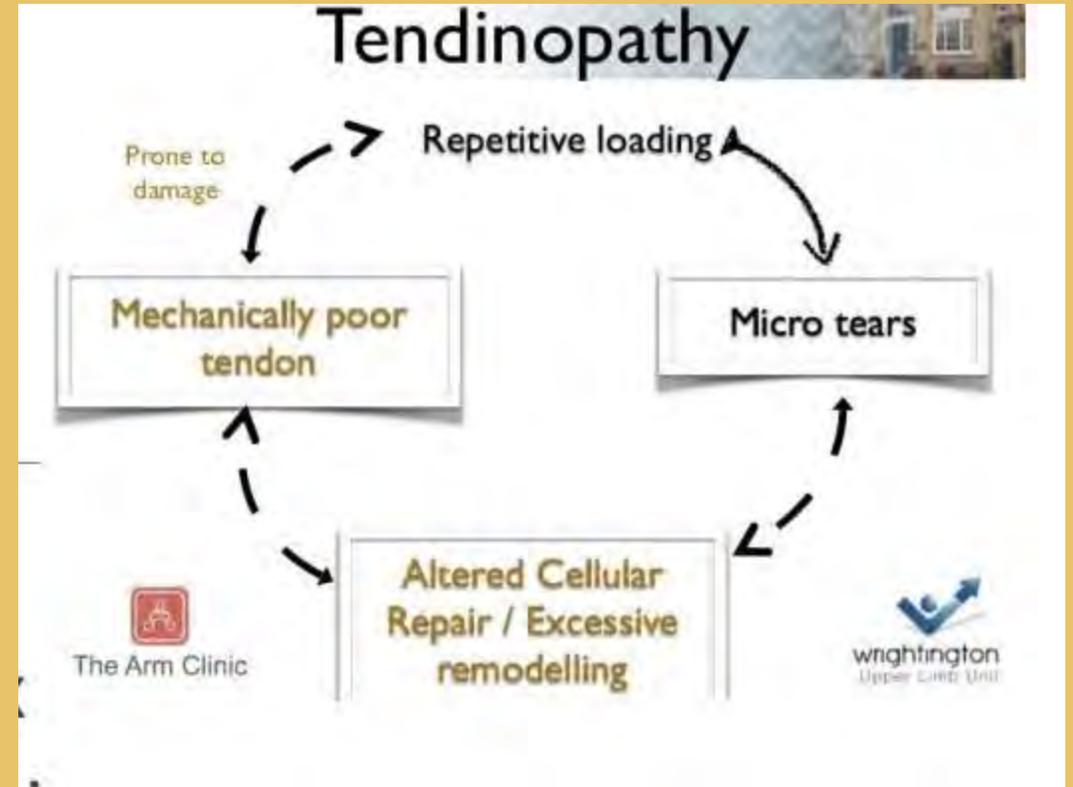
- Internal rotation





Etiology and Risk Factors

- Progressive degenerative process
 - Acute: macro-trauma
 - Chronic: micro-trauma
- Risk factors:
 - Age
 - Smoking
 - Family history
 - Poor posture
 - Trauma, hypercholesterolemia, occupation/activity with overhead activity



History

Sports,
occupation,
and hand
dominance

+/- traumatic
event or hx of
trauma

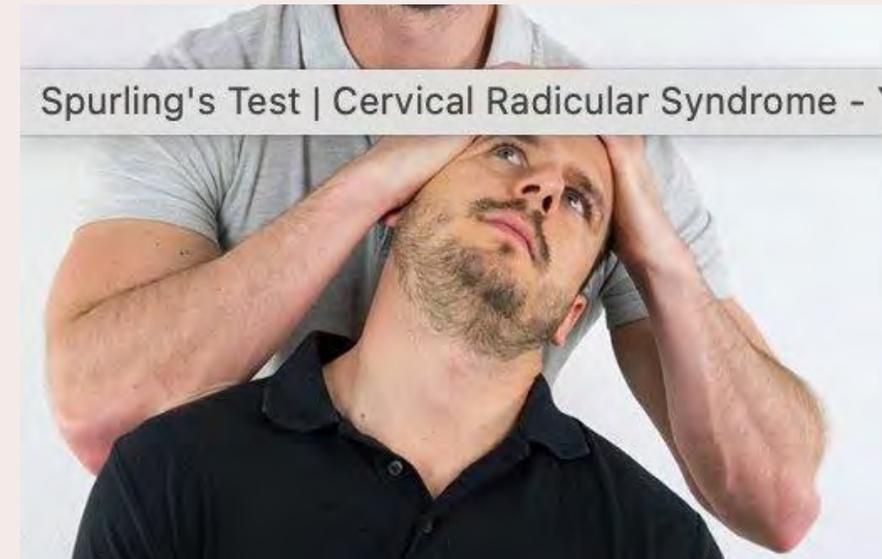
Pain impacting
their activity

Worse with
overhead
activities

Pain with sleep
or lying on side
to sleep

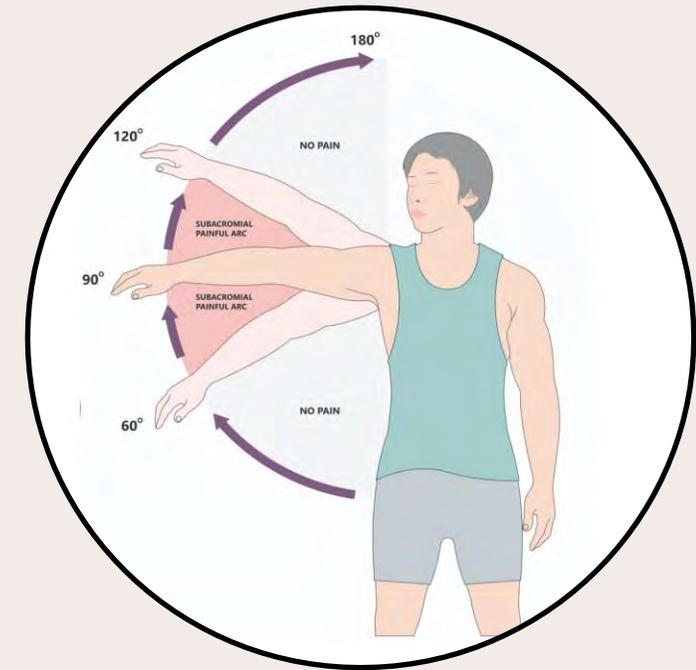
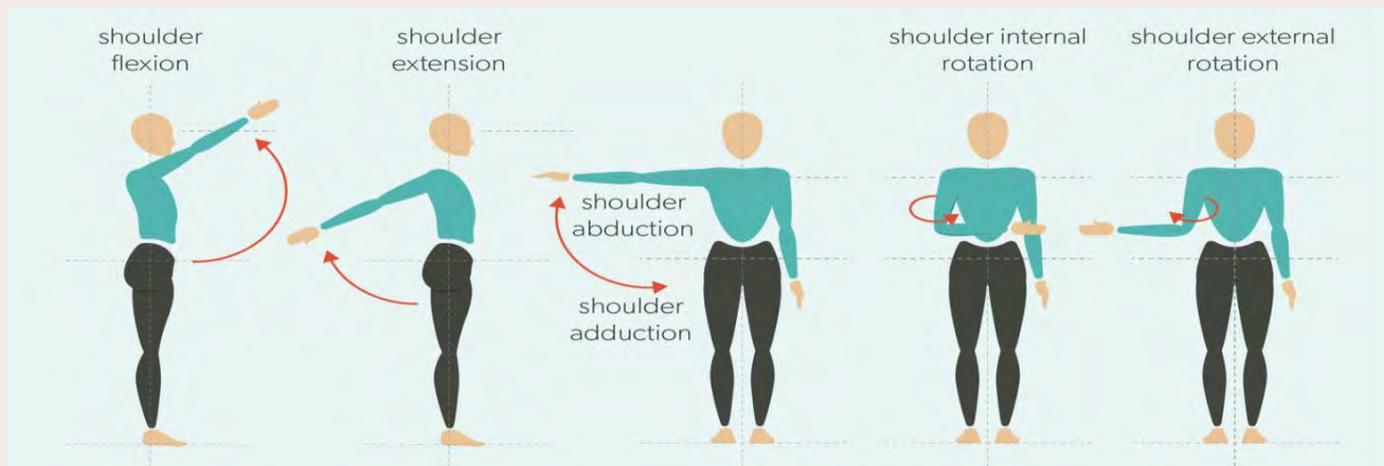
Physical Exam Pearls

- General Tips
- Neck exam
 - Cervical spine/neck exam: rule out cervical radiculopathy
 - ROM
 - Spurling Test
 - Positive: reproduces the patient's symptoms, such as pain, tingling, or numbness, radiating down the arm on the same side as the head rotation



Physical Exam Pearls

- Shoulder Exam
 - Observation: muscle atrophy, previous incisions, lacerations, scars
 - Palpation: anterolateral shoulder (greater or lesser tuberosity), or along AC joint (bursitis)
 - ROM compromised active but full passive (excluding degenerative changes to glenohumeral joint)

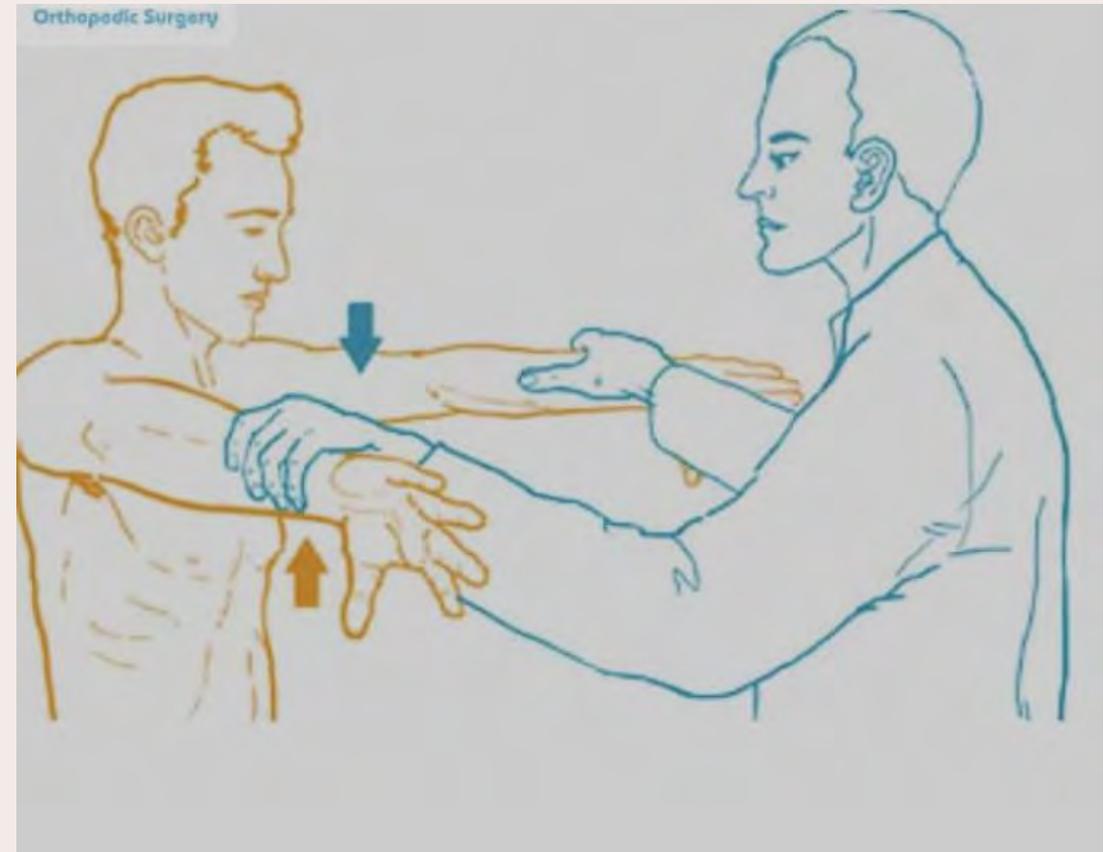


- Painful Arc: pain between 60 and 120 degrees of abduction (subacromial impingement)

Physical Exam Pearls

Supraspinatus

- Jobe's Test (empty can)
 - Positive: pain/weakness with resistance
 - **sensitivity of 88%** and a **specificity of 62%** for supraspinatus tears
 - Can also represent subacromial impingement
- Full can test
 - Positive: pain/weakness with resistance
 - **sensitivity of 70%** and a **specificity of 81%** for supraspinatus tears



Physical Exam

Infraspinatus

- Strength testing
 - Positive: weakness or inability to maintain
- External rotation lag sign
 - Positive: shoulder drifts to internal rotation



Teres Minor

- Strength testing
 - Positive: weakness or inability to maintain external rotation
- **Hornblower's sign**
 - Positive: shoulder drifts to internal rotation



Physical Exam

Subscapularis

- Lift off test
 - Positive: cannot lift their hand off their back
 - Need to be able to have maximum internal rotation



- Belly Press Test
 - Positive: inability to maintain pressure, pain or compensatory movement (flexing wrist, adducting or extending shoulder)



Physical Exam

Subacromial impingement test

- Neers
 - Positive: pain with passive forward flexion
 - Can do before and after subacromial injection with reported improved symptoms



Subacromial impingement test

- Hawkins
 - Positive: pain with passive internal rotation of shoulder
 - Hawkins



Imaging Modalities

X-ray (4 view)

- AP
- Grashey view (True AP)
 - subtle subluxations, joint space narrowing, and glenoid rim fractures
- Scapular Y
 - Acromial spurs associated with tear
- Axillary view
 - Joint space narrowing

Ultrasound vs. MRI

- MRI remains gold standard
- Studies show similar sensitivity and accuracy between ultrasound and MRI for detecting full-thickness tears.
- MRI tends to be more sensitive and accurate in detecting partial-thickness tears compared to ultrasound.
- MRI more applicable for surgical planning

Common Rotator Cuff Pathologies

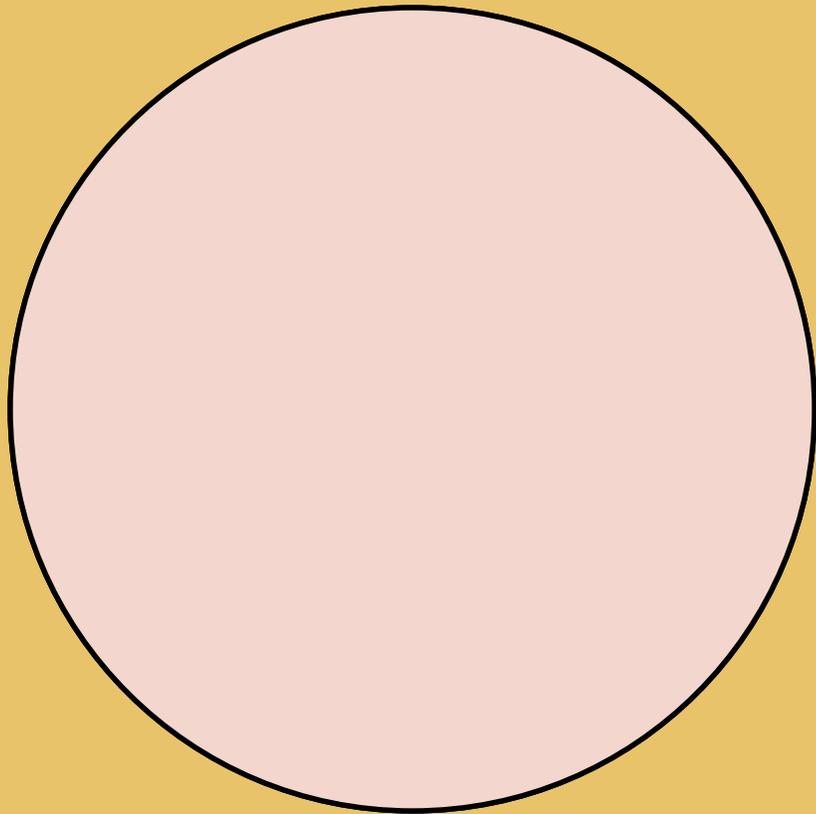
Tendinopathy

Tears: partial/full thickness

Subacromial impingement syndrome

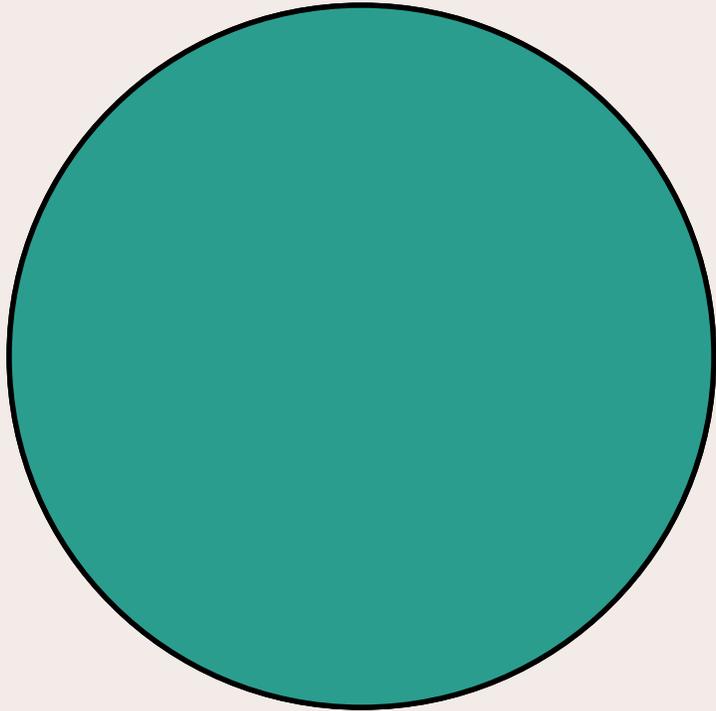
Subacromial bursitis

Tendinopathy



- Chronic progression of pain +/- weakness
- Exam:
 - Pain with AROM and resistance testing
 - TTP proximal humerus
- Imaging
 - Often negative on xrays
 - Ultrasound
- Treatment: Conservative Management
 - Rest/Activity modification/**Ergonomic adjustment**
 - PT (12 session)
 - Anti-inflammatory medications
 - Can consider subacromial injection if no improvement in PT

Rotator Cuff Tears



Partial and Full Thickness Tears

- Degenerative tears versus acute traumatic tears
- Pain +/- weakness, difficulty sleeping

Exam:

- Decreased AROM and severe weakness with resistance testing

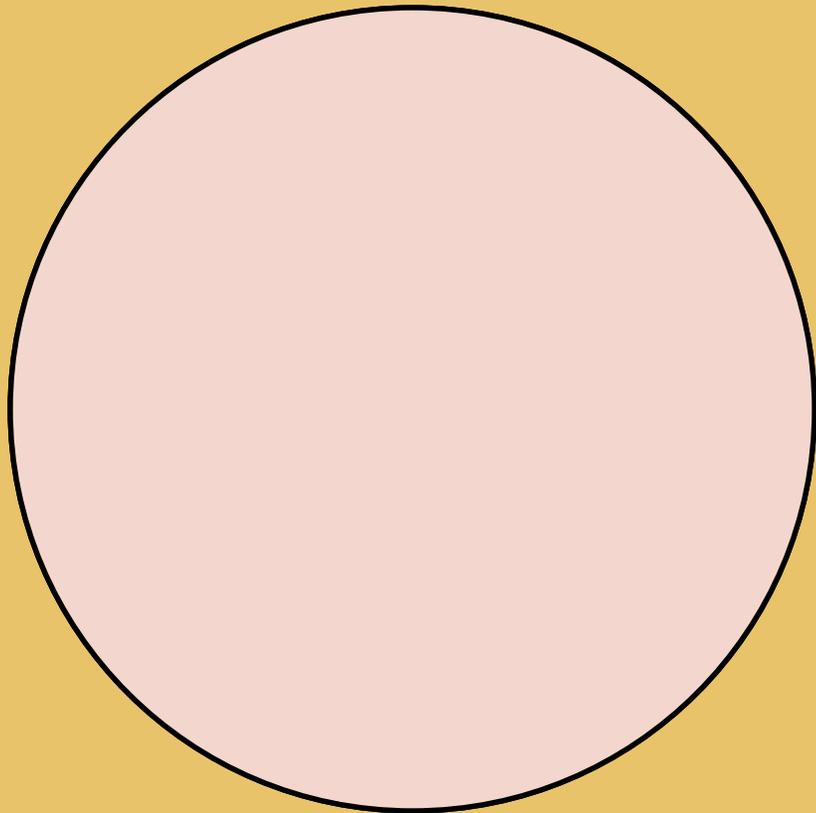
Imaging

- XRAY: OA, cortical irregularity, or humeral head migration
- US/MRI: diagnosis

Treatment:

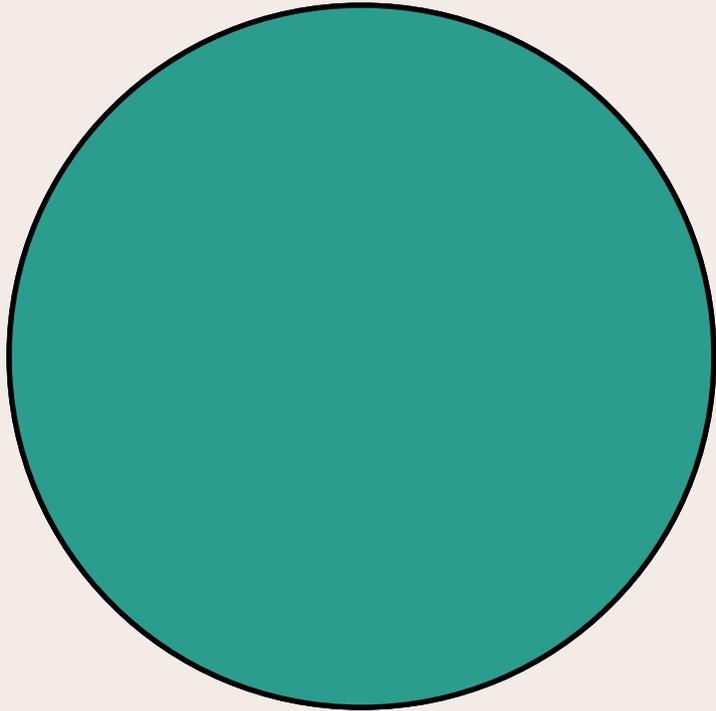
- Conservative management
- Surgical management
 - Failed or persistent/worsening symptoms despite 4-6 months of nonoperative treatment modalities
 - Risk of surgery for individual patient

Subacromial Impingement



- inflammation, irritation, and degradation of the RC tendons within the subacromial space due to narrowing of subacromial space
 - Anatomical causes (bone spurs or hooked acromion)
 - Swelling of tendons or bursa-->chronic overuse
 - Shoulder instability
 - Previous injuries
 - Imbalance of muscle strength
- Exam
 - Painful arc, Hawkins, Neer sign, Jobe test
- Imaging
 - Xray: may show anatomical cause
 - US: bursal thickening (+/-)
- Treatment
 - CSI, PT, rest, activity modification

Bursitis



Causes: impingement, trauma, overuse, autoimmune disease (RA)

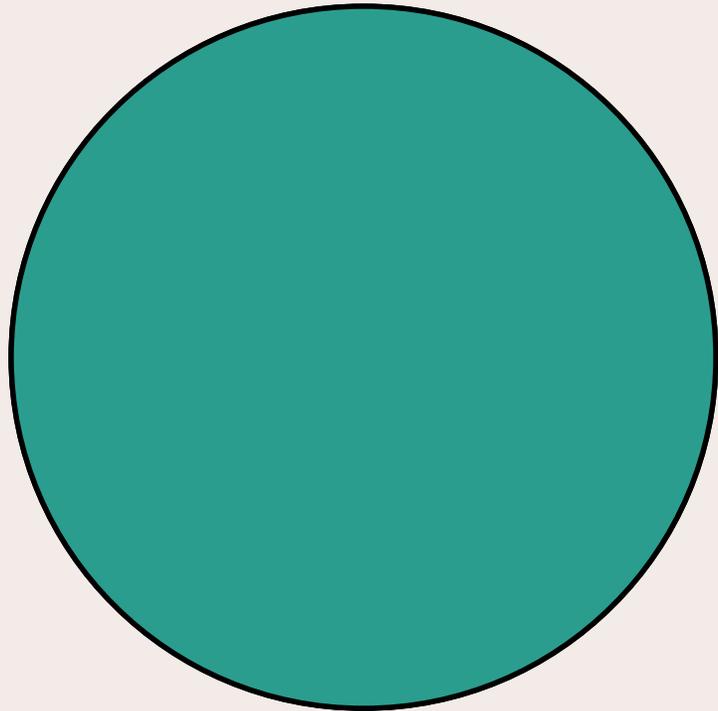
- Often seen in athletes or recent increase in physical activity
- Sudden onset of pain
- Exam
 - ROM limited by pain,
 - anterolateral aspect of the shoulder below the acromion.
 - weakness due to pain
- Imaging
 - Not necessary
- Treatment
 - Rest, activity modification, stretching, NSAIDS

Subacromial CSI

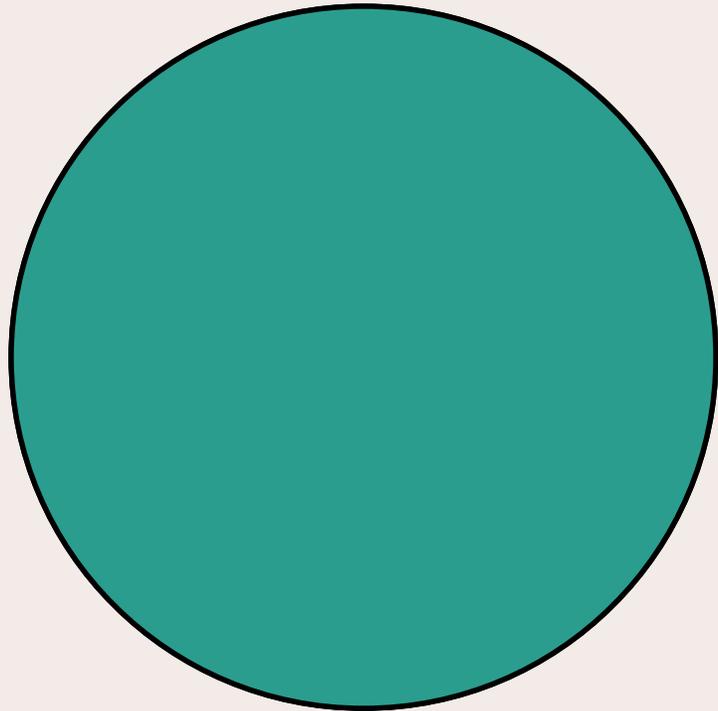
- Indications: subdeltoid bursitis, rotator cuff impingement, rotator cuff tendinosis, and adhesive capsulitis



- Approach: inferior to posterolateral edge of the acromion. Needle directed at opposite nipple



Resources



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