DIAGNOSIS-DRIVEN PHYSICAL EXAMINATION OF THE SHOULDER

ACP Musculoskeletal Medicine Teaching Group
ACP National Conference 2024

ACP SHOULDER EXAM CLINICAL SKILLS WORKSHOP FACULTY

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OBJECTIVES

1. **Inspect/Observed** pertinent shoulder anatomy
2. **Palpate** key anatomical shoulder landmarks (ABC's)
3. Organize Rotator Cuff **Range of Motion/Strength** (SITS)
4. Organize Shoulder **Provocative Tests** (BIAS)
5. Practice shoulder exam and cases in small groups

PRIMARY CARE SHOULDER EXAM

- Inspection
- Palpation: **ABC’S**
- Range of motion/Strength: **SITS**
- Provocative tests: **BIAS**
SHOULDER: BONES & JOINTS

AC Joint

D Clavicle

Acromion

Coracoid Process

E Scapula

Glenoid Fossa

GH Joint

Humerus

PRIMARY CARE SHOULDER EXAM

• Inspection

• Palpation: ABC’S

• Range of motion/Strength: SITS

Provocative tests: BIAS
OBSERVATION: BONY DEFORMITIES
PRIOR FRACTURE

OBSERVATION: BONY DEFORMITIES
AC JOINT SEPARATION
OBSERVATION: MUSCLES
BICEPS RUPTURE

POSTERIOR
ROTATOR CUFF MUSCLES

Supraspinatus

Infraspinatus
OBSERVATION: MUSCLES ROTATOR CUFF ATROPHY

SHOULDER EXAM

- Inspection
- Palpation: ABC’S
- Range of motion/Strength: SITS
- Provocative tests: BIAS
PALPATION: **ABCS**

- AC joint
- Biceps Tendon
- Coracoid
- Subacromial Space

SHOULDER BONES: POSTERIOR BONES

- Clavicle
- Acromion
- Posterior Scapular Spine
- Subacromial Bursa
SUBACROMIAL SPACE: CONTENTS

- Subacromial Bursa
- Supraspinatus Tendon
- Long head of the Biceps

PALPATION: ABCS

- AC joint
- Biceps Tendon
- Coracoid
- Subacromial Space

- AC joint oa/separation
- LH Biceps Tendonitis
- Frozen Shoulder
- SA Impingement
**SHOULDER EXAM**

- Inspection
- Palpation: ABC’s
- Range of motion/Strength: SITS
- Provocative tests: BIAS

**SHOULDER QUIZ 2: ROTATOR CUFF**

Name 4 Rotator cuff muscles and their actions:

- S upraspinatus
- I infraspinatus
- Teres Minor
- S subscapularis
ROTATOR CUFF MUSCLES: SITS

Posterior

Supraspinatus
Infraaspinitus
Teres Minor

S
I
T

Anterior

Subscapularis

Abduction
Rom: 0-180

ROTATOR CUFF SITS:
SUPRASPINATUS
ROTATOR CUFF SITS: INFRASPINATUS/TERES MINOR

External Rotation
ROM: 0-90

ROTATOR CUFF SITS: SUBSCAPULARIS

Internal Rotation
ROM: spinous level
SHOULDER EXAM TIP: 
ROM/STRENGTH BY SITS

<table>
<thead>
<tr>
<th>SITS ROM</th>
<th>Full Tear Test</th>
<th>Strength Test:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITS: Abd</td>
<td>Drop Arm</td>
<td>Empty Can</td>
</tr>
<tr>
<td>SITS: ER</td>
<td>ER Lag</td>
<td>Resisted ER</td>
</tr>
<tr>
<td>SITS IR</td>
<td>IR Lag</td>
<td>Lift Off/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Belly Press</td>
</tr>
</tbody>
</table>

**Muscle:**
- Supraspinatus

**Motion:**
- Abduction

**Full tear test:**
- Drop Arm

**Strength test:**
- Empty Can
**SITS**

**Muscle:**
- Infraspinatus/TM

**Motion:**
- Ext Rotation

**Full tear test:**
- ER Lag

**Strength test:**
- Resisted ER

**IS/TM FULL TEAR TEST:**
**EXT ROTATION LAG**

Provider pulls pt to extent of passive ER ROM...
SHOULDER EXAM: ROM/STRENGTH

- **Supraspinatus**
  - ROM: Abduction Active/Passive (if limited)
  - Strength: Empty Can
  - Full tear test: Drop Arm

- **Infraspinatus/Teres Minor**
  - ROM: External Rotation Active/Passive (if limited)
  - Strength: ER Strength
  - Full tear test: ER Lag test

- **Subscapularis**
  - ROM: Internal Rotation Spinous process level Active/Passive (if limited)
  - Strength: Gerber lift off
  - Full tear test: IR Lag
SHOULDER: RANGE OF MOTION IS KEY

Active ROM

Normal

Decreased

Passive ROM

Normal

Decreased

Xray

Normal

Abnormal

GH joint arthritis

Rotator cuff disease
Labral tear
Biceps tendinitis
AC joint OA
Instability

Rotator cuff tear
Nerve Injury
Pain inhibition

Provocative tests:
Biceps tendinitis
Impingement
AC joint OA
Stability

Frozen shoulder

SHOULDER: RANGE OF MOTION IS KEY

Active ROM

Normal

Decreased

Passive ROM

Normal

Decreased

Xray

Normal

Abnormal

GH joint arthritis

SHOULDER EXAM

• Inspection
• Palpation:
• Range of motion/Strength: SITS

Provocative tests: BIAS

SHOULDER PROVOCATIVE SIGNS: BIAS

• Biceps Tests
• Impingement Tests
• Acromioclavicular Tests
• Stability Tests
SHOULDER EXAM: PROVOCATIVE SIGNS: BIAS

- Biceps tests
  - Yergason’s
  - Speed’s
- Impingement Tests:
  - Neer’s
  - Hawkine’s
- Acromioclavicular tests
  - Scarf test
  - Cross arm

- Stability Tests:
  - Apprehension
  - Relocation
  - Load & Shift
  - Sulcus
  - O’Briens

BIAS: BICEPS TESTS

Yergason’s Test
- Resisted SUPINATION

Speed’s Test
- Resisted Biceps FLEXION
BIAS: IMPINGEMENT

**Neer’s Test**
- Elbow extended
- Internally rotated
- Forward flexion,

**Hawkin’s Test**
90° forward flexion, elbow flexed,
- internal rotation

BIAS: AC JOINT TESTS

**Scarf test**
- Active adduction

**Cross arm test**
- Resisted adduction
BIAS: STABILITY

- Anterior
  - Apprehension/relocation
  - Load & Shift
- Posterior
  - Load & Shift
- Inferior
  - Sulcus sign
  - Labrum
  - O’Brien’s Test

SHOULDER GLENOHUMERAL STABILIZERS: LABRUM
SHOULDER GLENOHUMERAL STABILIZERS: CAPSULE

- Prevents anterior, inferior and posterior displacement

SHOULDER GLENOHUMERAL STABILIZERS: ROTATOR CUFF: DYNAMIC STABILIZERS

- Supraspinatus
- Infraspinatus
- Teres Minor
- Subscapularis
SHOULDER EXAM

• Inspection
• Palpation: ABCS
• Range of motion/Strength: SITS

Provocative tests: BIAS

THE ESSENTIAL SHOULDER EXAM FOR INTERNISTS

• Inspection – Bony abnormalities, muscle atrophy
• Palpation ABC’s: AC joint, Biceps tendon, Coracoid, Subacromial space

ROM/Strength: SITS

• Supraspinatus
  • Abduction
  • Drop Arm/Empty Can
• Infraspinatus/Teres Minor
  • External Rotation
  • ER Lag test/ Resisted ER
• Subscapularis
  • Internal Rotation Spinous process level
  • IR Lag/Gerber lift off

Provocative Tests: BIAS

Biceps
  • Yergason’s
  • Speeds

Impingement
  • Neer’s
  • Hawkins

AC Joint
  • Scarf
  • Cross Arm

Stability—Next layer
Key Features of Top Shoulder Problems

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>History</th>
<th>Exam</th>
<th>Workup</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenohumeral (GH) OA</td>
<td>Older patient Insidious onset, diffuse pain, limited ROM</td>
<td>Decreased AROM + PROM</td>
<td>Xray: loss of GH joint space, flat humeral head, osteophytes, sclerosis</td>
<td>Non-op including GH CSI Surgery referral when fails</td>
</tr>
<tr>
<td>Adhesive Capsulitis</td>
<td>Similar to GH OA, age 40-60, ♂ &gt; ♂</td>
<td>Same as GH OA</td>
<td>Normal xray</td>
<td>Good results w/ non-op including GH CSI but may take 1-2 years</td>
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<tr>
<td>RTC: suspected partial thickness tear/tendinopathy/subacromial bursitis</td>
<td>Pain w/ overhead reach, night pain, radiation to elbow (but not beyond)</td>
<td>Full ROM (active may be limited by pain), Neers and Hawkins, pain w/ cuff testing but strength intact</td>
<td>•Clinical dx •xray if trauma/concern for fx •MRI (xray prior) only if fails non-op measures</td>
<td>Non-operative rx: •activity mod •analgesics •PT •1-2 subacromial corticosteroid injections (CSI)</td>
</tr>
<tr>
<td>RTC: suspected full thickness tear</td>
<td>As above + weakness</td>
<td>AROM may be limited by pain/weakness. Full PROM. Cuff testing w/ pain + weakness</td>
<td>•Xray + MRI for acute suspected FTT, or acute on chronic in young patient</td>
<td>Urgent surgery for acute traumatic FTT; expedited for acute on chronic</td>
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<tr>
<td>Biceps Tendonitis</td>
<td>Ant/medial shoulder pain, worse w/ elbow flexion/supination (e.g. turning door knob)</td>
<td>Speeds, Yergasons</td>
<td>Clinical dx</td>
<td>• Non-op, biceps tendon CSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Surgery referral if fails</td>
</tr>
<tr>
<td>Labral Tear</td>
<td>Young, active patients clicking/catching</td>
<td>+ O’Brien’s</td>
<td>Xray for trauma or r/o other causes</td>
<td>Non-op trial for most</td>
</tr>
<tr>
<td></td>
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<td>• MRI vs MR arthrogram</td>
<td>• &lt; 35, acute injury: surgery referral for SLAP repair</td>
</tr>
<tr>
<td>AC Joint OA/Sprain</td>
<td>Hx shoulder injury; weight lifting (sprain). Anterior shoulder pain</td>
<td>TTP AC joint + Cross arm test</td>
<td>Xray shows AC OA or joint separation</td>
<td>Non-op AC joint CSI</td>
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<tr>
<td>GH Instability</td>
<td>Young, active patients, dislocation, subluxation, “dead/numb” feeling deltoid</td>
<td>Apprehension, relocation</td>
<td>Xray: Hill Sachs lesion</td>
<td>Non-op</td>
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