

Exam Upper Extremity

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Learning Objectives



1. Obtain a focused history relevant to upper extremity
2. Apply principles of the quick orthopedic screen to the preparticipation examination of athletes
3. Understand common abnormalities identified in the upper extremities of athletes
4. Identify the appropriate specialized testing of the upper extremity

History

- ▶ Most athletes have experienced a muscle, bone or joint injury
 - ▶ Usually do not lead to chronic conditions or long-term adverse effects
- ▶ Questions on the PPE are designed to identify musculoskeletal (MS) problems that may have long term adverse effects
 - ▶ Positive responses should be followed up with thorough examination of the area for physical limitations

History



- ▶ Missed practice or game due to MS injury
- ▶ Fractures or dislocations
- ▶ Stress fracture
- ▶ Injury that required: X-rays, MRI, CT, surgery, injection, rehabilitation, physical therapy, brace, cast or crutches
- ▶ Do you regularly use a brace or assistive device

History

- ▶ Other:
 - ▶ Hand dominance
 - ▶ Discomfort or pain
 - ▶ Task associated problem or limitation
 - ▶ Associated signs or symptoms

Most common high school sports

2012–2013	
Sex and sport	Participants
Male	
Football (11-player)	1,086,627
Track & Field (outdoor)	580,672
Basketball	538,676
Baseball	474,791
Soccer	410,982
Wrestling	270,163
Cross Country	249,200
Tennis	157,247
Golf	152,584
Swimming & Diving	138,177

2012–2013	
Sex and sport	Participants
Female	
Track & Field (outdoor)	472,939
Basketball	433,120
Volleyball	420,208
Soccer	371,532
Softball (fast pitch)	362,488
Cross Country	214,369
Tennis	181,116
Swimming & Diving	163,992
Competitive Spirit Squads	116,508
Lacrosse	77,258

Common upper extremity injuries

- ▶ Football – Glenohumeral instability, wrist and hand ligament damage
- ▶ Track and field – Shoulder and elbow (javelin), wrist (shot put)
- ▶ Basketball – Rotator cuff impingement, finger injuries
- ▶ Soccer – AC joint sprain
- ▶ Baseball – Medial elbow (Ulnar collateral ligament)
- ▶ Golf – Medial epicondylitis
- ▶ Tennis – Lateral epicondylitis
- ▶ Swimming – Rotator cuff impingement
- ▶ Lacrosse – Shoulder injuries
- ▶ Gymnastics – Glenohumeral instability, wrist and hand ligament damage

Visual Examination



Palpation

- ▶ Don't forget you are osteopathic! Think TART
 - ▶ Muscle tension or flaccidity
 - ▶ Fascial strain patterning
 - ▶ Muscle development
 - ▶ Tenderness at key areas
 - ▶ Peri-scapular tenderpoints
 - ▶ Rotator cuff impingement
 - ▶ Biceps tendon
 - ▶ Medial and lateral elbow

Range of Motion Screening



- ▶ Cervical motion
 - ▶ Flexion/extension, rotation and sidebending
- ▶ Shoulder shrug
- ▶ Glenohumeral joint
 - ▶ Internal/external rotation
 - ▶ Abduction/adduction
 - ▶ Flexion/extension

Range of Motion Screening

- ▶ Elbow joint
 - ▶ Flexion/extension
 - ▶ Pronation/supination
- ▶ Wrist/Hand
 - ▶ Open and close fist
 - ▶ Circumduction hand
- ▶ **With all ROM look at quality of motion in addition to quantity**
- ▶ **Any deficiencies need assessed with passive ROM evaluation and specialized testing**

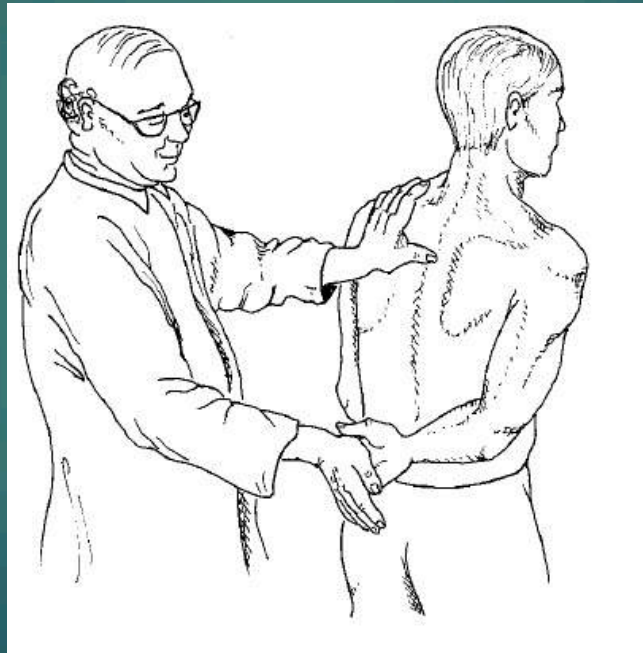
Specialized testing

- ▶ Rotator Cuff strength/tear
 - ▶ Empty can test/Full can test
 - ▶ Lift off test
 - ▶ Resisted external rotation
- ▶ Impingement
 - ▶ Hawkins
 - ▶ Neer
 - ▶ Palpation of subacromial bursa and RTC insertion

Empty can/full can test



Lift off test



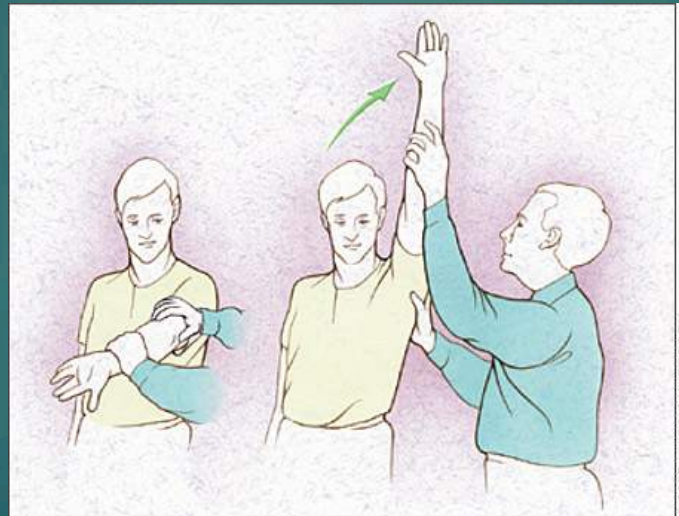
Resisted external rotation



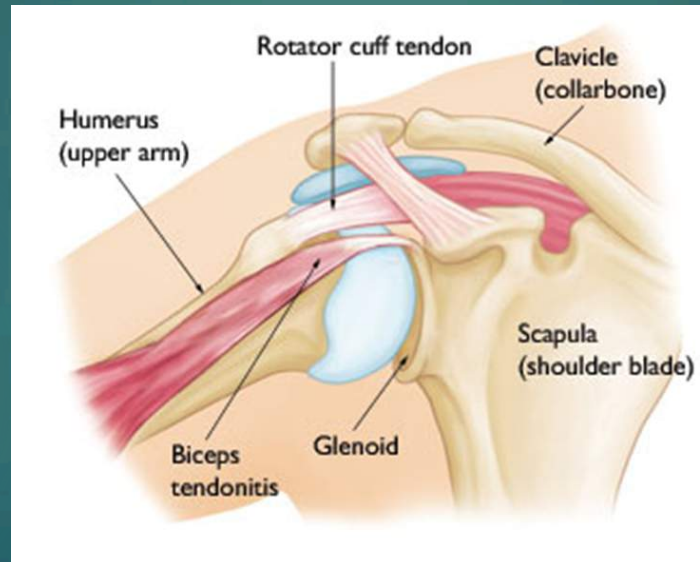
Hawkins



Neer



Subacromial bursa/RTC tendon



Specialized testing

- ▶ Glenohumeral Instability
 - ▶ Load and shift test
 - ▶ Sulcus sign
 - ▶ Apprehension test
 - ▶ Relocation test

Load and shift test

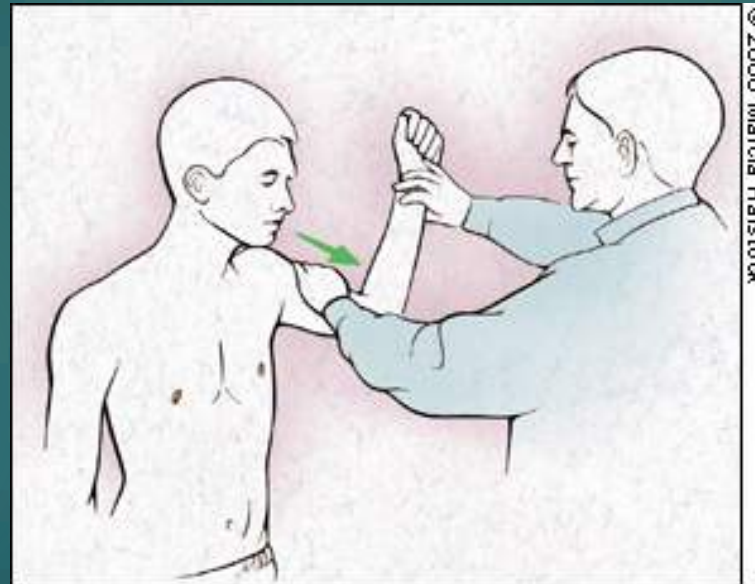
Load and Shift Test



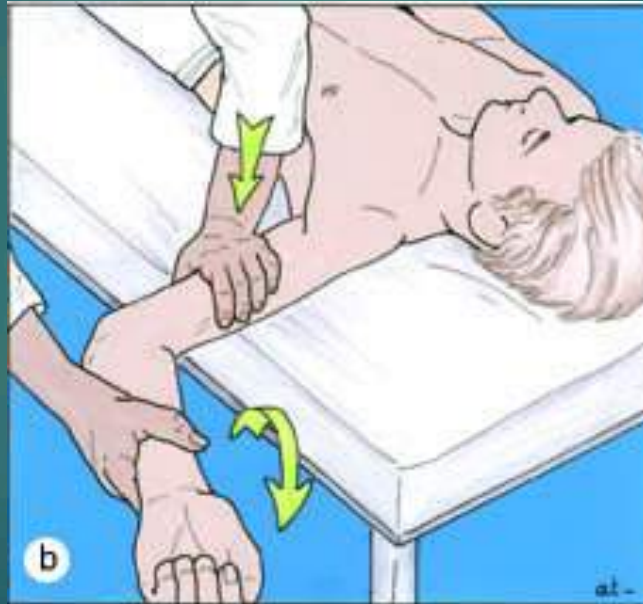
Sulcus sign



Apprehension test



Relocation test



Specialized testing

- ▶ AC joint
 - ▶ Cross arm test
- ▶ Glenoid labrum pathology
 - ▶ O'Brien's test
- ▶ Biceps tendinitis
 - ▶ Speed test
 - ▶ Yergason's test

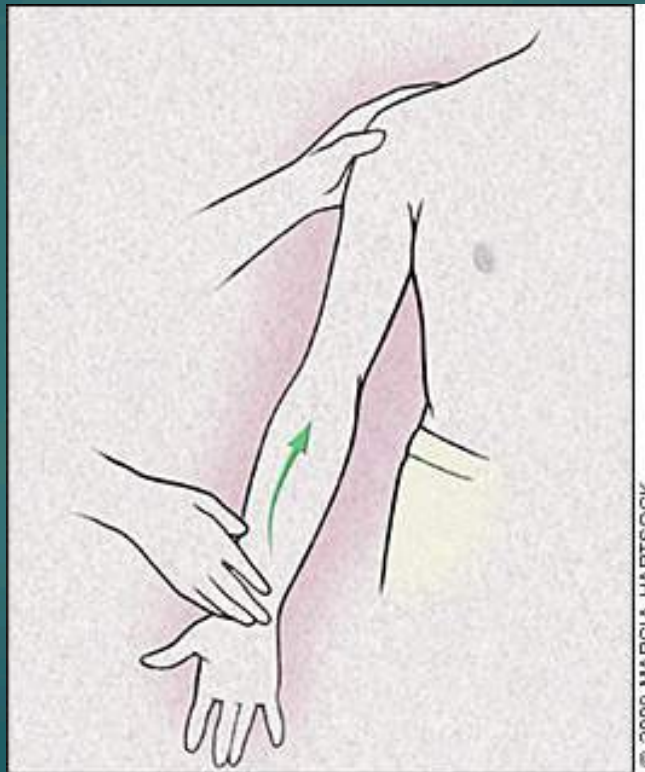
Cross arm test



O'Brien's test



Speed test



Yergason's test



Specialized testing

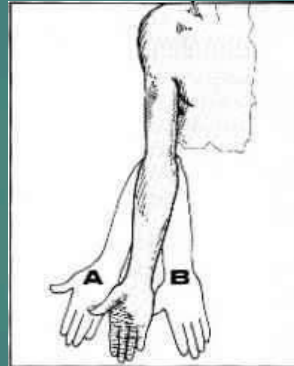
- ▶ Elbow Joint
 - ▶ Varus/valgus stress test
 - ▶ Medial and lateral epicondylitis
 - ▶ Ulnar nerve entrapment

Varus/valgus stress testing

VALGUS STRESS TEST



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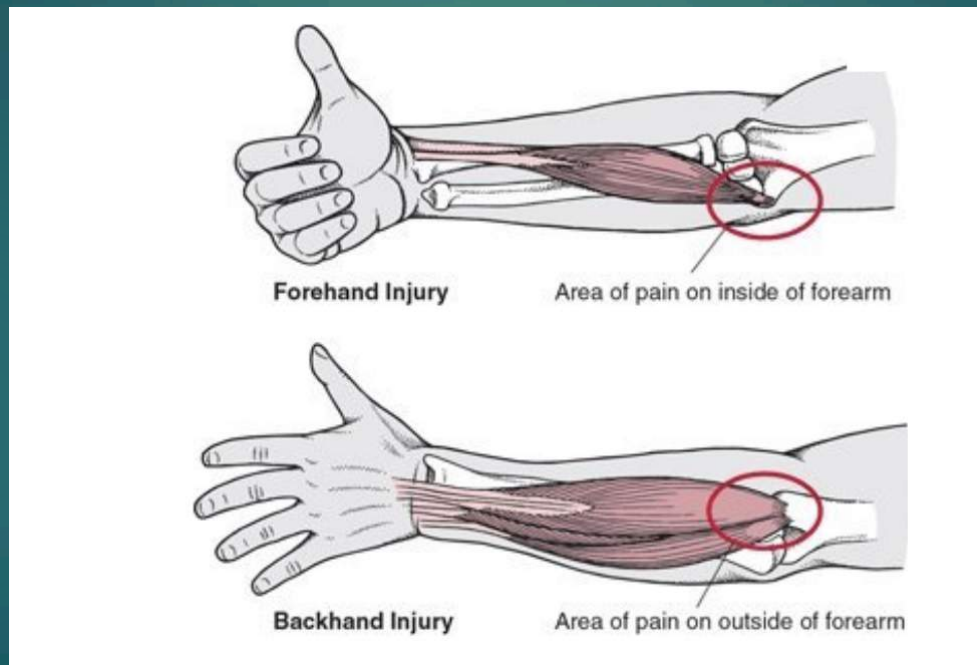


VARUS STRESS TEST



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Medial and lateral epicondylitis



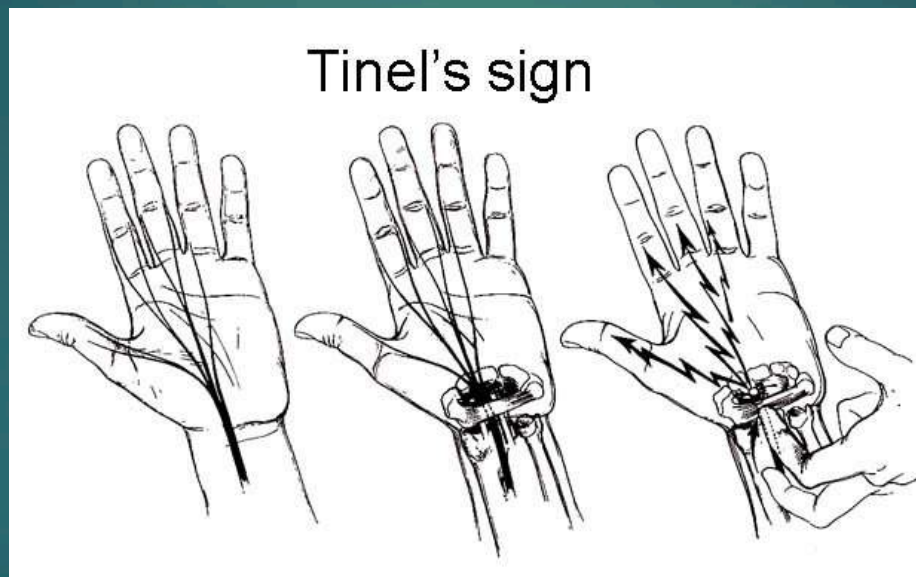
Ulnar nerve entrapment



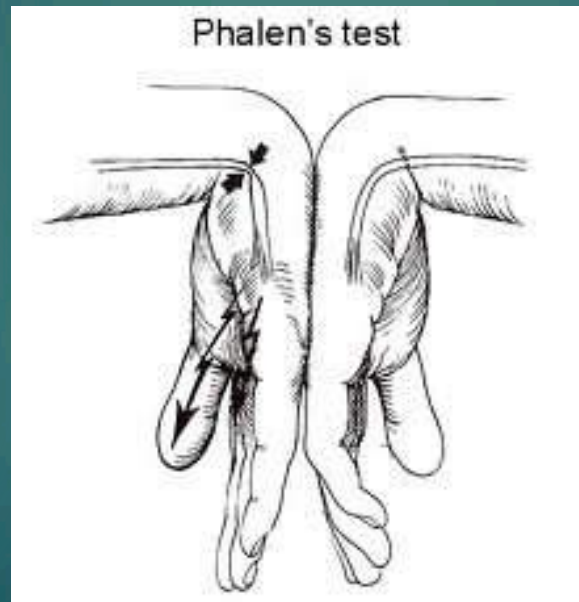
Specialized testing

- ▶ Wrist and hand
 - ▶ Tinel sign
 - ▶ Phalen's test
 - ▶ Finkelstein's test

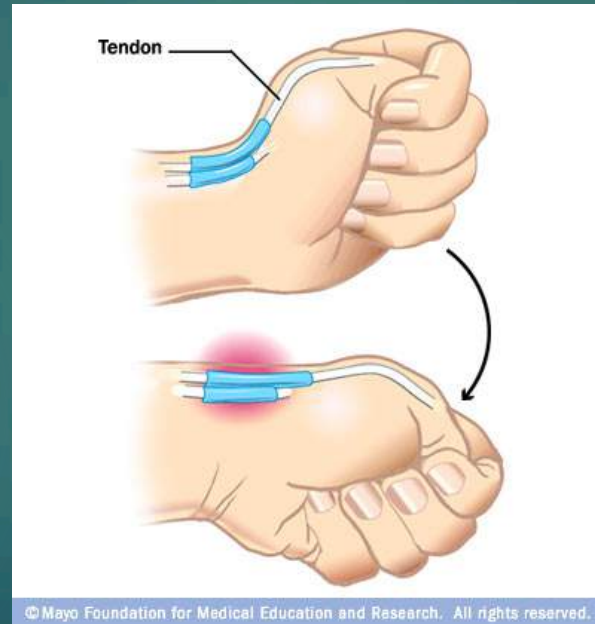
Tinel sign



Phalen's test



Finkelstein's test



Clearance decisions

- ▶ Simplified criteria for return to play or clearance
 - ▶ Normal kinematics
 - ▶ Symptom free
 - ▶ Strength >90% of opposite side
 - ▶ Completion of sport-specific exercises without symptoms



Thank You

Questions?