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
Other:
- Hand dominance
- Discomfort or pain
- Task associated problem or limitation
- Associated signs or symptoms
## Most common high school sports

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

<table>
<thead>
<tr>
<th>2012–2013</th>
<th>Sex and sport</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female</strong></td>
<td>Track &amp; Field (outdoor)</td>
<td>472,939</td>
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<tr>
<td></td>
<td>Basketball</td>
<td>433,120</td>
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<tr>
<td></td>
<td>Volleyball</td>
<td>420,208</td>
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<tr>
<td></td>
<td>Soccer</td>
<td>371,532</td>
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<tr>
<td></td>
<td>Softball (fast pitch)</td>
<td>362,488</td>
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<tr>
<td></td>
<td>Cross Country</td>
<td>214,369</td>
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<tr>
<td></td>
<td>Tennis</td>
<td>181,116</td>
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<tr>
<td></td>
<td>Swimming &amp; Diving</td>
<td>163,992</td>
</tr>
<tr>
<td></td>
<td>Competitive Spirit Squads</td>
<td>116,508</td>
</tr>
<tr>
<td></td>
<td>Lacrosse</td>
<td>77,258</td>
</tr>
</tbody>
</table>
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
Neer
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

http://eikon.serveftp.net/
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
Medial and lateral epicondylitis
Ulnar nerve entrapment

http://eikon.serveftp.net/
Specialized testing

- Wrist and hand
  - Tinel sign
  - Phalen’s test
  - Finkelstein’s test
Tinel sign

Tinel's sign

http://www.geronguide.com/
Phalen’s test

http://www.geronguide.com/
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?