Shoulder Instability in the In-Season Athlete

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Disclosures

- Nothing to disclose

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In-Season Shoulder Instability

- In the unstable throwing shoulder, outcomes with conservative care have been found to be comparable to surgical intervention, more so in pitchers *(Fedoriw 2014)*
  - 40% of pitchers RTP with conservative care versus 48% with surgical intervention.
    - 22% RPP with conservative care versus 7% with surgical intervention
  - 38% of position players RTP with conservative care versus 85% with surgical intervention
    - 26% RPP with conservative care versus 54% with surgical intervention

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Conservative Treatment of Shoulder Instability

- Three areas of emphasis:
  - Focus on pain modulation and active rest
  - Achieve full, functional, non-painful ROM in all planes of the upper quarter
  - Re-establish strength, endurance, and power of the shoulder complex

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Pain Modulation and Active Rest

- Continue strength and conditioning of the lower quarter and core with a temporary hold on throwing
  - Poor lower body control can significantly contribute to excessive upper extremity strain *(Garrison 2013, Laudner 2009, Oliver 2015, Beckett 2014)*
- Use modalities as needed for pain relief

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Achieve Full, Functional Upper Quarter ROM

- It is vital to achieve full shoulder and thoracic mobility needed to perform demands of sport
  - >5° deficit in shoulder flexion and/or TRM significantly increases risk of upper quarter injury *(Wilk 2014, Wilk 2011, Shanley 2011, Dines 2009)*
  - When throwing, the shoulder achieves maximum external rotation (MER) of 160-180°
    - MER = GH ER + scapular posterior tilt + T-Spine extension
      - GH ER = 105.5° ± 15.5°
      - Scapular posterior tilt = 23.5° ± 13.9°
      - T-Spine extension = 8.9° ± 7.3°

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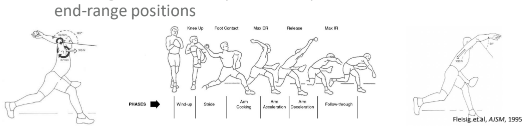
Shoulder Musculature Must Meet All Demands

- To meet the high demands of throwing, rehab must emphasize strength, power, and endurance of the upper quarter
  - It is vital to establish a robust cuff to meet extreme forces placed on the shoulder complex
    - ER:IR strength ratio should be at least 67-75% *(Wilk 2009)*
  - Challenge shoulder complex with rhythmic stabilization in end-range positions



Fleisig et al, *AJSM*, 1995

RTP Considerations

- Return-to-Play (RTP) decision-making with the overhead population is very challenging
  - We must consider:
    - Physical readiness
    - Psychological readiness
    - Outside pressures (parents, coaches, scholarships)
    - Stubborn athletes
- The best course of action is to use a battery of tests to assess a patient's ROM, strength, and control from multiple angles

RTP Considerations

- Begin with the basics
  - Full, pain-free ROM (sport-specific)
  - No pain with special testing
    - Apprehension test, Biceps Load I/II, Jerk Test
  - Adequate strength of UQ and LQ
    - 75% ER:IR strength ratio
  - No pain with one-arm plyometric tosses
- Once these boxes are checked, go into more objective measures

RTP Considerations

- Objective RTP testing battery
  - Passing scores on YBT for upper and lower quarter
  - Single Arm Shot Put Test *(Chmielewski 2014)*
    - Dominant arm 5-10% better distance
  - Prone plyoball drops
    - Assessing the number of successful drops/catches in 30 seconds
    - Compare throwing to non-throwing arm
    - Goal: >90%   Expectation: >110%

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RTP Considerations

Interval Sport Programs:
Guidelines for Baseball, Tennis, and Golf

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[Athletic Training]

CEU

Data-Based Interval Throwing Programs for Baseball Players

Michael Axe, MD,* Wendy Hurd, PT, PhD,†‡ and Lynn Snyder-Mackler, PT, ScD*

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