 THE UNIVERSITY OF KANSAS HEALTH SYSTEM

# Optimizing Performance & Longevity in the Mature Throwing Athlete

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Sports Medicine & Performance Center

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## Objectives

2026 Symposium

### Thrower's Shoulder

- Findings
- Adaptations
- Assessment

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**Objectives**  
2026 Symposium

**Thrower's Shoulder**

- Findings
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**Injury Reduction**

- Primary
- Secondary
- Components
- Expert recs

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**Objectives**  
2026 Symposium

**Thrower's Shoulder**

- Findings
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**Case Study**

- Presentation
- Volume
- Maintenance

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**01**

**The Thrower's Shoulder**  
Adaptations, findings, assessment

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### The Thrower's Shoulder

History in the literature

1947	1985	1990
<ul style="list-style-type: none"><li>• Dr. Bennett</li><li>• Shoulder &amp; Elbow Lesions Distinctive of Baseball Players</li></ul>	<ul style="list-style-type: none"><li>• Drs. Andrews &amp; Pappas et al.</li><li>• Superior labral tears in throwers</li></ul>	<ul style="list-style-type: none"><li>• Synder et al.</li><li>• "SLAP" lesions of the shoulder</li></ul>

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“Thickening and contracture of the posteroinferior capsule is known as the essential lesion”

*Medina G, et al. JBJS 2022*

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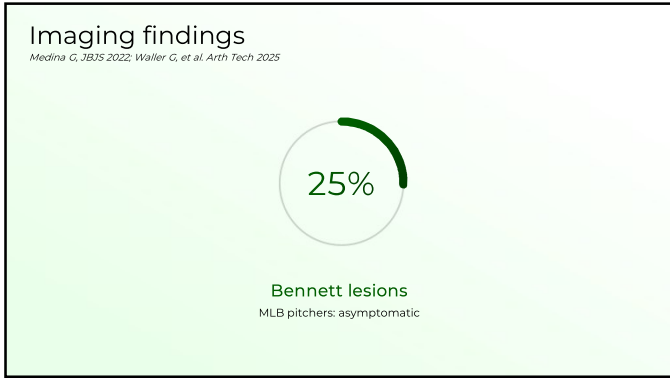
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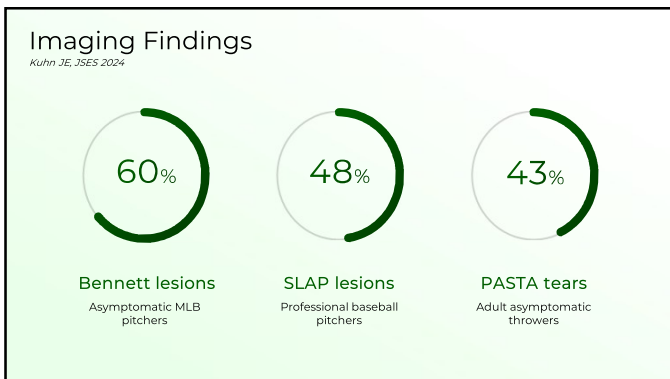
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“ Adaptive pathology as the result of throwing  
*Kuhn JE, JSES 2024*

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**Hyper ER**  
90/90 layback  
Necessary & multistructural  
Bony, capsular, soft tissue



**+MPH**  
Increase throwing velo  
Improving outcomes = success  
Success = keep playing

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**Clinically Relevant GIRD**

**20 degree**  
Loss of internal rotation  
Throwing shoulder

**10%**  
Deficit of total motion arc  
Compared to nonthrowing shoulder

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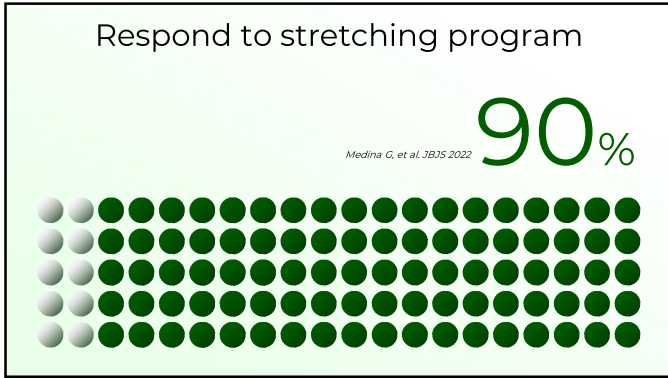
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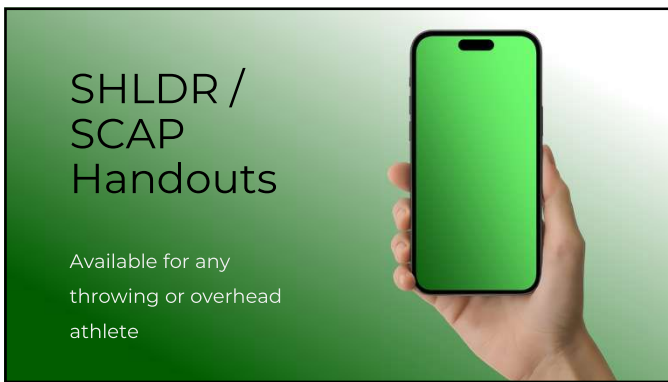
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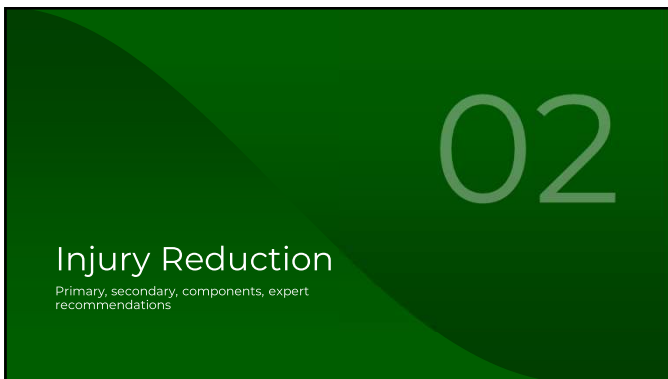
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### Injury Reduction Programs

*Schwank A, Blazey P, et al. JOSPT 2022*

<p><b>Primary</b> Youth → lifelong Maintain healthy shoulders</p>	<p><b>Secondary</b> After injury Progress towards RTP</p>	<p><b>Dosage</b> 2 times / week 10 – 15 minutes / session</p>
<p><b>Minimal Equipment</b> Time, resources, attention</p>	<p><b>Multi joint</b> Shoulder complex Trunk / spine, lower body Kinetic chain considerations</p>	<p><b>Education</b> Athlete Coaches, parents Barriers to adherence</p>

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### Injury Reduction Programs

*Cools AM, et al. APRM 2021*

<p><b>Beliefs</b> Medical staff Coaches Parents Players</p>	<p><b>Compliance</b> Adherence to program is primary condition for success</p>	<p><b>Clinical Perspective</b> Keep it simple Keep it short Keep it fun</p>
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### Injury Reduction Programs

*@kusportsmed*

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**Case study**  
Presentation, volume, maintenance

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**37 YOM**  
Former collegiate pitcher  
Minimal severity and irritability of symptoms

**Volume**  
1 – 5 throwing sets / week  
40 – 120 feet  
2 x 20 – 25 throws / session

**Maintenance**  
2 sessions / week  
Decrease stiffness & posterior shoulder & forearm soreness

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**Clinical  
Tips**

**Lower + middle trap activated**  
Adding an ER component to the exercise

**Pec minor inhibited**  
Performing ER, especially open kinetic chain

**Serratus anterior activated**  
Elevation exercises > isolated protraction exercises

**Subscapularis activated**  
Extension exercises in low elevation angles

*Cools AM, et al. APRM 2021*

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## Clinical Tips

**Active exercises**  
Strengthening & multimodal

**Decrease pain to increase strength**  
Improvement in neural mechanisms of contractions

**Eccentric exercises**  
Greatest within-group improvement in ER strength

**Tailor strengthening Rx**  
Secondary analysis of study

Zhang B, et al. JOSP 2026

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**The Thrower's Shoulder**  
Findings, adaptations, assessment

**Injury Reduction Programs**  
Primary, secondary, components, expert recs

**Case Study**  
Presentation, volume, maintenance

**Evidence Informed Care**  
Important role for nonoperative Tx in throwers with MRI-documented pathology

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