



## Overhead Athlete Rehabilitation Guidelines

This document is designed to be used as a guideline in the rehabilitation of the athlete playing overhead sports, mainly baseball and softball, but also including swimming, tennis and volleyball players. It is not meant as a rigid course of rehabilitation and is meant to be fluid in nature with modifications made depending on the specific patient and the expertise of the clinician.

This guideline can be used as a **supplement** with any protocol for a patient post surgically (**based on healing guidelines and physician approval**) as well as with any patient being treated conservatively. Suggested interventions more specific to the unique needs of the overhead athlete are listed alongside the criteria to advance for each of the outlined phases.

<p><i>Phase 1 – Acute Phase</i></p> <p>Criteria to advance to next phase:</p> <ol style="list-style-type: none"><li>1. Diminished pain and inflammation</li><li>2. Improved flexibility/range of motion</li><li>3. Reestablished dynamic muscle control, balance, and proprioception</li><li>4. <b><u>Physician approval to progress per healing guidelines (if post-surgical)</u></b></li></ol>	<p><i>Suggested Interventions:</i></p> <ul style="list-style-type: none"><li>• Modalities as indicated</li><li>• Activity modification as needed</li><li>• Genie horizontal adduction stretch (scapula stabilized)</li><li>• Sleeper stretch (don't crank)</li><li>• Prayer stretch</li><li>• Elbow extension stretching</li><li>• Wall slide</li><li>• Rhythmic stabilizations in 110° of flexion</li><li>• IR/ER alternating isometrics in scapular plane</li><li>• Supine end range ER pain free isometrics</li><li>• Manually resisted scapular protraction</li><li>• Quadruped or triped closed chain perturbations</li></ul>
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*Phase 2 – Intermediate Phase*

Goals:

- Improve muscular strength and endurance
- Progress to full active and passive ROM
- Improve total body proprioception and control
- Prepare the entire body for return to throwing

Criteria to advance to next phase:

1. Full PROM
  - Total PROM (IR and ER) is equal to opposite side
    - Minimum of 100° of supine ER PROM
  - Normalized latissimus dorsi muscle length (within 5°)
  - Normalized supine horizontal adduction with scapula stabilized
2. Full AROM
  - Prone 90°/90° ER exercise – approx. 85% of supine passive ER without compensatory movements
  - Equal back to wall flexion test
3. Full strength and proprioception
  - 5/5 seated serratus anterior test
  - 5/5 middle and lower trapezius tests
  - ER/IR Ratio >75%
4. LE Y balance assessment
  - Within 5% side to side
5. Subjective measurement tool
  - Minimum FOTO score of 80
  - Alternate – Quick DASH

*Suggested interventions:*

- Thrower's ten
- Prone neuromuscular control exercises:
  - Horizontal Abduction
  - Scaption
  - ER in 15 degrees of scapular plane
- ER wall push in scapular plane
- Standing ER at 45° abduction
- Standing ER holds at 90°/90°
- Weight bearing: push ups, push up with a plus
- Plyometrics: trampoline plyos chest pass, side & overhead toss, 90°/90° toss, 90°/90° ball drop
- PNF patterns with bands, cable column, manual resistance
- Dynamic hug
- Manual resisted exercises with rhythmic stabilizations:
  - Sidelying ER
  - Sidelying scaption
  - Sidelying row
  - Supine ER at 45° of abduction
  - Supine diagonals
- End range rhythmic stabilizations in various phases of throwing motions
- Lower abdominal training
- Plank progressions
- Static overhead pressing
- Any agility, speed work, running programs
- Progressions to above exercises should include:
  - Add single leg stance to any standing exercises
  - Add sitting or prone on physioball
  - Add isometric split squat hold in throwing position

<p><i>Phase 3 (Advanced Strengthening Phase)</i></p> <p>Goals:</p> <ul style="list-style-type: none"> <li>• Return to strength training with appropriate modifications</li> <li>• Improve muscular power, speed and agility</li> <li>• Ensure proper throwing mechanics with pre-throwing drills to reduce risk for re-injury</li> <li>• Complete specific rotator cuff strengthening with no compensatory movements</li> </ul> <p>Criteria to advance to next phase:</p> <ol style="list-style-type: none"> <li>1. All above still met</li> <li>2. FOTO – minimum score of 90</li> </ol>	<p><i>Suggested Interventions:</i></p> <ul style="list-style-type: none"> <li>• Continue with overall strengthening program</li> <li>• Consider Return to Performance Program (if available)</li> <li>• Med ball tosses</li> <li>• High speed band exercises</li> <li>• Pre-throwing drills <ul style="list-style-type: none"> <li>○ Half kneeling throwbacks</li> <li>○ 90°/90° ball drop and catch in supine</li> </ul> </li> <li>• Introduction to weight training with modifications as indicated <ul style="list-style-type: none"> <li>○ Bench press to neutral, no barbell to begin</li> <li>○ No military pressing behind head</li> <li>○ No lat pull downs behind head</li> <li>○ Consider limiting or modifying back squat</li> <li>○ Consider limiting depth for triceps dips</li> </ul> </li> <li>• Begin Interval Throwing Program or appropriate Sport Specific Interval Program</li> </ul>
<p><i>Phase 4 (Return to Activity – Return to Performance Phase)</i></p> <p>Goals:</p> <ul style="list-style-type: none"> <li>• Progression of interval throwing program to prepare for return to competitive throwing with proper throwing mechanics</li> <li>• Development of individualized maintenance program in preparation for discontinuation of formal rehabilitation.</li> </ul> <p>Criteria to return to sport:</p> <ol style="list-style-type: none"> <li>1. Successful progression of interval throwing program to 180ft with no pain.</li> <li>2. Consider throwing mechanics assessment</li> <li>3. ER/IR Ratio &gt;80%</li> <li>4. Quick DASH or Kerlin Jobe score</li> <li>5. Successful completion of Return to Performance Program (if available).</li> </ol>	<p><i>Suggested Interventions:</i></p> <ul style="list-style-type: none"> <li>• Return to Performance Program (if available)</li> <li>• Progression of total body strength training program</li> <li>• Progression of Interval Throwing Program</li> <li>• Sport specific/position specific drills or appropriate Sport Specific Interval Program</li> </ul>
<p><i>Phase 5</i></p> <p>Return to Full Activity</p>	<p><i>Suggested Interventions:</i></p> <ul style="list-style-type: none"> <li>• Development of individualized maintenance program based on timing of season and needs of the patient</li> <li>• Recommendations on return to sport, including pitch limits, or innings limits consistent with the patient’s goals and progress.</li> <li>• Communication with ATC, coaches, and/or parents as needed.</li> </ul>

## References:

1. Reinold MM, Gill TJ, Wilk KE, Andrews JR. Current concepts in the evaluation and treatment of the shoulder in overhead throwing athletes, part 2: injury prevention and treatment. *Sports Health*. 2010;2(2):101-115.
2. Wilk, KE, Macrina LC. Nonoperative and postoperative rehabilitation for injuries of the throwing shoulder. *Sports Med Arthrosc Rev*. 2014;22(2):137-150.
3. Wilk, KE, Obama P, Simpson III, CD, Cain EL, Dugas J, Andrews JR. Shoulder injuries in the overhead athlete. *J Orthop Sports Phys Ther*. 2009;39(2):38-54.

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