



7858 Shrader Rd
Richmond, Virginia 23294

Internal Impingement Guidelines for Throwing Athletes

The following internal impingement guidelines are categorized into five phases with the goal of returning the overhead throwing athlete to full competition. Classification and progression are both criteria-based and time based for an individualized rehabilitation experience.

The first phase is focused on the acute recovery period and healing. Phases two and three are focused on building foundational strength and stability which will allow the athlete to progress to phase four which includes plyometric exercises. With the completion of phase four the athlete will be able to start the final phase which includes interval sports programs.

The clinician should use their skilled judgement and decision making as the athlete advances as all progression may not be linear and may take longer than timeframes indicated.



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PHASE I: Recovery (Weeks 1-2)

PRECAUTIONS

- Avoid pain provoking activities
- Avoid any painful exercises

TREATMENT RECOMMENDATIONS

- Modalities: cryotherapy, laser, electric stimulation, compression therapy
- Modified sleeper stretch
- Cross body stretch
- Rotator cuff (RC) exercise below 90°
 - Concentric and eccentric
 - Sidelying external rotation (ER)
 - Row with scapular protraction and retraction
- Scapular stabilization
 - Prone row
 - Prone extension
 - Prone horizontal abduction
 - Closed kinetic chain (CKC) quadruped protraction



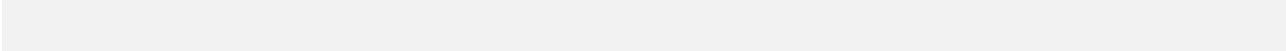
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- CKC wall scapula press for endurance

EMPHASIZE

- Reduction of pain and inflammation
- Restoration of full ROM
- Restoration of posterior flexibility

MINIMUM CRITERIA
FOR ADVANCEMENT
TO NEXT PHASE

- No pain at rest
 - Full ROM
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PHASE II: Intermediate (Weeks 3-4)

PRECAUTIONS

- Maintain pain-free ROM
- Avoid any painful exercises
- Continue as above
- Sleeper and cross body stretch
 - Caution not to progress beyond normal total arc of motion

TREATMENT

RECOMMENDATIONS

- Advance RC to 90/90
- PNF diagonals
- ER in side plank
- Scapular stabilization
 - CKC quad single arm protraction
 - Wall slide with low trap lift off
 - Dynamic hug CKC
 - Prone T, W, Y, I
- End range stabilization using exercise blade/perturbations
- Core strength/kinetic linking
- Double arm plyometric



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EMPHASIZE	<ul style="list-style-type: none">▪ LE strengthening▪ Progression of rotator cuff and scapular strength▪ Restoration of shoulder endurance in 90/90 position▪ Improved neuromuscular control
MINIMUM CRITERIA FOR ADVANCEMENT TO NEXT PHASE	<ul style="list-style-type: none">▪ Tolerance of Phase 2 exercises without posterior discomfort▪ Tolerance of double arm plyometrics without discomfort



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PHASE III: Advanced (Weeks 5-6)

PRECAUTIONS

- Follow functional progression

TREATMENT

RECOMMENDATIONS

- Continue stretching as above
- Foam roller/trigger point ball as needed
- Continue all shoulder exercises above
- Progress neuromuscular stabilization
 - Perturbations at end range ER 90/90
 - Wall ball stabilization with perturbations
- Plyometric progression
 - Double arm plyometrics
 - single arm plyometrics
 - 90/90 plyometrics
 - 90/90 wall dribble
 - Eccentric catches
- Progress scapular/serratus activation
 - Push up plus into ball against wall
 - Yoga push-up



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	<ul style="list-style-type: none">○ Landmine press○ "Plus" in plank position
EMPHASIZE	<ul style="list-style-type: none">▪ Advancement to plyometric and sports specific movements▪ Progression of RC and scapular strength and endurance
MINIMUM CRITERIA FOR ADVANCEMENT TO NEXT PHASE	<ul style="list-style-type: none">▪ Single arm plyometrics without discomfort▪ Towel drill without discomfort



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PHASE IV: Return to Performance Progression (Weeks 7-12)

PRECAUTIONS

- All progressions should be pain-free
- Monitor for loss of strength and flexibility

TREATMENT RECOMMENDATIONS

- Initiate interval sports program
 - Monitor mechanics
 - Monitor workload
- Initiate hitting program if appropriate
- Continue with all upper and lower extremity mobility/flexibility exercises
- Continue with advanced shoulder and scapular strengthening exercises

EMPHASIZE

- Initiation of interval sports programs
- Return to sport participation

MINIMUM CRITERIA FOR ADVANCEMENT TO NEXT PHASE

- Pain-free progression through interval sports program
- Independent with all arm care exercises