

SHOULDER INTERNAL IMPINGEMENT NON-OPERATIVE GUIDELINES

The following internal impingement guidelines were developed by HSS Rehabilitation and are categorized into five phases with the goal of returning the overhead athlete to full competition. Classification and progression are both criteria-based and time based due to the healing constraints of the human body. 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.

FOLLOW REFERRING PROVIDER'S MODIFICATIONS AS PRESCRIBED

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Phase 1: Recovery (Weeks 1-2)

PRECAUTIONS

- Avoid pain provoking activities
- Avoid any painful exercises

ASSESSMENT

- Quick Disabilities of Arm, Shoulder & Hand (Quick DASH)
- American Shoulder and Elbow Surgeons Shoulder Score (ASES)
- Numeric Pain Rating Scale (NPRS)
- Cervical mobility
- Thoracic mobility
- Shoulder range of motion (ROM): total arc of motion, glenohumeral internal rotation deficit (GIRD), horizontal adduction
- Scapula exam: static and dynamic (Kibler grading)
- Instability assessment (hypo/hypermobility): Beighton scale, load and shift test, sulcus sign
- Distal mobility
- Kinetic chain assessment
- Postural assessment

TREATMENT RECOMMENDATIONS

- Patient education
- Modalities: cryotherapy (e.g., cold therapy unit), laser, electric stimulation, compression therapy (e.g., pulsed compression unit)
- Modified sleeper stretch
- Cross body stretch
- Rotator cuff (RC) exercises below 90° of shoulder elevation
 - Concentric and eccentric
- Sidelying external rotation (ER)
- Row with scapular protraction and retraction
- Kibler exercises

- Scapular stabilization
 - Prone row
 - Prone extension
 - Prone horizontal abduction
 - Closed kinetic chain (CKC) quadruped protraction
 - CKC wall scapula press for endurance
 - Dynamic hug supine elastic band

CRITERIA FOR ADVANCEMENT

- No pain at rest
- Full ROM

EMPHASIZE

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

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Phase 2: Intermediate (Weeks 3-4)

PRECAUTIONS

- Maintain pain-free ROM
- Avoid any painful exercises

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Cervical mobility
- Thoracic mobility
- Distal mobility
- Shoulder ROM: total arc of motion, GIRD, horizontal adduction
- Scapula exam: static and dynamic (Kibler grading)
- Kinetic chain assessment
- Postural assessment

TREATMENT RECOMMENDATIONS

- Continue as above
- Sleeper and cross body stretches
 - Caution not to progress beyond normal total arc of motion
- Advance RC strengthening to 90/90 shoulder position
- Proprioceptive neuromuscular facilitation diagonals
- Sidelying ER in side plank
- Scapular stabilization
 - CKC quadruped single arm protraction → unstable surface → perturbations
 - 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 plyometrics
- Lower extremity strengthening/core/hips

CRITERIA FOR ADVANCEMENT

- Tolerance of Phase 2 exercises without posterior shoulder discomfort
- Tolerance of double arm plyometrics without discomfort

EMPHASIZE

- Progression of rotator cuff and scapular strength
- Restoration of shoulder endurance in 90/90 shoulder position
- Improved neuromuscular control

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Phase 3: Advanced (Weeks 5-6)

PRECAUTIONS

- Follow functional progression
- Core stability

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Posture
- Cervical mobility
- Thoracic mobility
- Distal mobility
- Shoulder ROM: total arc of motion, GIRD, horizontal adduction
- Scapula exam: static and dynamic (Kibler grading)
- Core stability
- Kinetic chain assessment
- Postural assessment

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 with 90/90 shoulder position
 - Wall ball stabilization with perturbations
- Plyometric progression
 - Double arm plyometrics → single arm plyometrics → at 90/90 shoulder position
 - Wall dribble with 90/90 shoulder position
 - Eccentric catches

- Progress scapular/serratus activation
 - Push up plus into ball against wall
 - Yoga push-up
 - Landmine press
 - “Plus” in plank position → unstable surface → perturbations
- Towel drill

CRITERIA FOR ADVANCEMENT

- Single arm plyometrics without discomfort
- Towel drill without discomfort

EMPHASIZE

- Advancement to plyometric and sports specific movements
- Progression of RC and scapular strength and endurance

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Phase 4: Return to Performance Progression (Weeks 7-12+)

PRECAUTIONS

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

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Distal mobility
- Shoulder ROM: total arc of motion, GIRD, horizontal adduction
- Scapula exam: static and dynamic (Kibler grading)
- Manual muscle testing or hand-held dynamometry, as appropriate
- Kinetic chain assessment
- Postural assessment

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

CRITERIA FOR ADVANCEMENT

- Pain-free progression through interval sports program
- Independent with all arm care exercises
- Assess need for HSS Video Throwing Analysis program

EMPHASIZE

- Initiation of interval sports programs
- Return to sport participation

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References

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Created: 1/2019
Reviewed: 3/2021