

SHOULDER BICEPS TENDONITIS NON-OPERATIVE GUIDELINES

The following biceps tendonitis guidelines were developed by HSS Rehabilitation and are categorized into four phases, dependent on patient presentation and symptom irritability. Biceps-related shoulder injuries can occur due to a number of causes such as traumatic events or chronic overuse such as repetitive overhead throwing. Therefore, classification and progression are both criteria-based and patient specific. The clinician should balance appropriate interventions for the optimization of functional activities and achievement of patient goals, while considering symptom irritability and resolution of impairments. Advancement through the phases may vary on the concomitant injuries, which should be addressed during the rehabilitation process.

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Phase 1: Acute/High-Moderate Irritability

PRECAUTIONS

- Avoid overloading biceps tendon
- Avoid exercises and activities that increase pain and/or swelling
- Avoid resisted elbow flexion and supination
- Avoid humeral anterior translation and active shoulder internal rotation

CONSIDERATIONS

- Level of irritability and concomitant injuries

ASSESSMENT

- Quick Disability of the Arm, Shoulder and Hand Score (DASH)
 - Sports/performing arts module, as needed
 - Work module, as needed
- American Shoulder and Elbow Surgeon (ASES) shoulder score
- Numeric Pain Rating Scale (NPRS)
- Posture
- Cervicothoracic (CT) screen
- Neurovascular assessment
- Upper Extremity (UE) AROM and PROM
- UE flexibility/soft tissue quality, where appropriate
- UE strength, where appropriate
- Scapulohumeral rhythm
- Palpation of pain generators
- Special tests for differential diagnosis of intra-articular, extra-articular or rotator cuff pathology (see Biederwolf reference for testing algorithm)
- Joint mobility
 - Glenohumeral joint
 - Acromioclavicular and sternoclavicular joints
 - Cervical and thoracic spine
 - Scapulothoracic
- Prior/current level of function

TREATMENT RECOMMENDATIONS

- Patient education
 - Nature of the condition
 - Activity modification
 - Postural awareness
 - Understanding the importance of compliance with the home exercise program (HEP)
- Manual therapy
 - Soft tissue massage (STM)
 - Myofascial release (MFR) to adjacent tissues, as needed
 - Joint mobilizations
 - Grades I and II
 - Taping, as needed
- ROM/flexibility
 - Passive range of motion (PROM)/Active range of motion (AROM)
 - Stretching to adjacent tissues, as needed
 - Posterior capsule
 - Cross body stretching
 - Sleeper stretch
 - Latissimus stretch
 - Self MFR
 - Foam rolling
 - Lacrosse ball
 - Thoracic spine mobility
- Neuromuscular re-education
 - Postural training
 - Scapulohumeral rhythm training
 - Bilateral
 - Proprioception
 - Rhythmic stabilization
 - Bilateral
 - Closed chain
- Strength
 - Peri-scapular
 - Focus on mid and lower trapezius facilitation
 - Rotator cuff
 - Isometrics, as tolerated
 - Lower extremity (LE)/core strengthening
 - No limits on LE or core workouts that do not affect the injured shoulder
- Functional training
 - Scapular plane
 - < 90° shoulder elevation, unloaded

- Modalities
 - Cryotherapy
 - Laser

CRITERIA FOR ADVANCEMENT

- Minimal to no irritability present
- Restore ROM to within functional limits (WFL)
 - Shoulder flexion, passive internal rotation, passive external rotation
 - Forearm pronation and supination
- Scapulohumeral rhythm to WFL with $< 90^\circ$ shoulder elevation

EMPHASIZE

- Pain-free exercises
- Limit activities that stress healing tissues
 - Avoid humeral anterior translation and active shoulder internal rotation
- Importance of adherence to HEP

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Phase 2: Sub-acute/ Moderate-Low Irritability

PRECAUTIONS

- Avoid pain provoking activities
- Avoid premature return to activity
- Avoid premature overloading of the tendon with exercise

ASSESSMENT

- Quick DASH
 - Sports/performing arts module, as needed
 - Work module, as needed
- ASES
- NPRS
- Posture
- UE AROM and PROM
- UE flexibility/soft tissue quality
- UE strength, where appropriate
- Scapulohumeral rhythm
- Palpation of pain generators
- Special tests for differential diagnosis of intra-articular, extra-articular or rotator cuff pathology (see Biederwolf reference for testing algorithm)
- Current level of function

TREATMENT RECOMMENDATIONS

- Patient education
 - Activity modification
- Manual therapy
 - STM
 - MFR to adjacent tissues, as needed
 - Cross-friction over biceps tendon
 - Joint mobilizations
 - Grades III and IV
 - Taping, as needed
- ROM/flexibility
 - Passive range of motion (PROM)/Active range of motion (AROM)
 - Stretching to adjacent tissues, as needed
 - Posterior capsule

- Self MFR
 - Foam rolling
 - Lacrosse ball
- Neuromuscular re-education
 - Postural endurance training
 - Scapulohumeral rhythm training
 - Bilateral → unilateral
 - Proprioception
 - Rhythmic stabilization
 - Open kinematic chain (OKC) < 90°
 - Bilateral → unilateral
- Strength
 - Progress peri-scapular
 - Rotator cuff
 - Isometrics → progressive resistive exercises (PRE)
 - Biceps
 - Isometrics → eccentric → concentric
 - Sagittal plane elevation
 - LE/core strengthening
 - No limits on LE or core workouts that do not affect the injured shoulder
- Functional training
 - Scapular → forward flexion and abduction
 - < 90° shoulder elevation, with load
 - > 90° shoulder elevation, unloaded
- Modalities
 - Cryotherapy
 - Laser

CRITERIA FOR ADVANCEMENT

- No pain or irritability as activity increases
- Full shoulder ROM
- Scapulohumeral rhythm to WFL with > 90° shoulder elevation
- 5/5 rotator cuff strength

EMPHASIZE

- No pain or irritability as activity increases
- Full shoulder ROM
- Scapulohumeral rhythm to WFL with > 90° shoulder elevation
- 5/5 rotator cuff strength

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Phase 3: Chronic/Low-No Irritability

PRECAUTIONS

- Avoid pain provoking activities
- Avoid premature return to activity
- Avoid premature overloading of the tendon with exercise

ASSESSMENT

- Quick DASH
 - Sports/performing arts module, as needed
 - Work module, as needed
- ASES
- NPRS
- UE flexibility/soft tissue quality
- UE strength, where appropriate
- Functional movement screen
- Current level of function and general fitness

TREATMENT RECOMMENDATIONS

- Patient education
 - Activity modification
- Manual therapy
 - Stretching to adjacent tissues, as needed
 - Self MFR, as needed
- Neuromuscular re-education
 - Scapulohumeral rhythm training
 - Unilateral, multiplanar
 - Proprioception
 - Rhythmic stabilization
 - OKC > 90°
 - Unilateral → multiplanar
 - Added resistance, perturbations
 - PNF patterns
 - Unloaded → loaded

- Strength
 - Progress PREs
 - Increasing load
 - > 90° shoulder elevation
 - Biceps
 - Concentric → functional movement patterns
 - Elbow flexion with supination, without upper arm support
 - Full kinetic chain exercises
- Functional training
 - Multiplanar
 - > 90° shoulder elevation, with load
- Cardiovascular conditioning
 - Upper body ergometer
 - Low → moderate resistance
 - Swimming

CRITERIA FOR DISCHARGE OR ADVANCEMENT TO PHASE 4 (IF RETURNING TO SPORT)

- No pain or irritability as activity increases
- Gross UE strength 5/5 in all planes
- Adequate neuromuscular control throughout full ROM

EMPHASIZE

- Pain-free exercise
- Importance of adherence to HEP

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Phase 4: Return to Play

PRECAUTIONS

- Avoid premature return to play
- Avoid inadequate rest and recovery to prevent fatigue related injuries

CONSIDERATIONS

- Sport, position
- Physician clearance for return to play

ASSESSMENT

- Quick DASH
 - Sports/performing arts module, as needed
 - Work module, as needed
- ASES
- NPRS
- Strength
 - Endurance
 - Isokinetic testing
- Sports-specific readiness
 - Cardiovascular endurance
- Current level of function and general fitness

TREATMENT RECOMMENDATIONS

- Patient education
 - Gradual return to play
- Neuromuscular re-education
 - Multiplanar → dynamic
- Strength
 - Biceps
 - Biceps contraction from an elongated position
 - High velocity, explosive exercises
 - CKC exercises
 - Progress PREs
 - Advanced exercises in pronation and supination

- Plyometrics
 - Bilateral → unilateral
 - Unloaded → loaded
- Sports specific exercises
 - Thrower's Ten Program, Advanced Thrower's Program
- Functional training
 - Full kinematic chain exercises
- Cardiovascular conditioning
 - Upper body ergometer, bicycle
 - Increased resistance
 - Swimming

CRITERIA FOR DISCHARGE

- Movement patterns, strength, flexibility, motion, power and accuracy to meet demands of sport
- Independent in appropriate return to sport program
 - Thrower's Ten Program, Advanced Thrower's Program

EMPHASIZE

- Pain-free training
- Self-monitoring volume and load progressions
- Speed, accuracy, power and quality in sport-specific activities
- Collaboration with performance trainer, as needed

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References

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