Δρ. Χρήστος Κ. Γιαννακόπουλος
Ορθοπαιδικός Χειρουργός, Διδάκτωρ Πανεπιστημίου Αθήνας

Πύργος Αθηνών, Κτίριο Γ', 2ος όροφος, Λεωφ. Μεσογείων 2-4, Αθήνα 115 27
Τηλ.: 210 7712792 | Κινητό: 697 20 999 11 | E-mail: cky@orthosurgery.gr
Conservative Treatment of Chronic Rotator Cuff Tears

Rehabilitation Protocol

Phase 1: Weeks 0-4

Restrictions

• Avoid provocative maneuvers or exercises that cause discomfort
  - Includes both offending ROM exercises and strengthening exercises.
• Patients may have an underlying subacromial bursitis, therefore ROM exercises, and muscle strengthening exercises should begin with the arm in less than 90 degrees of abduction.
• Avoid abduction-rotation-re-creates impingement maneuver.
• Avoid "empty-can" exercises.

Immobilization

• Brief sling immobilization for comfort only.

Pain Control

• Reduction of pain and discomfort is essential for recovery.

• Medications
  - NSAIDs-for the older population with additional comorbidities, consider newer cyclooxygenase-2 (COX-2) inhibitors.
  - Subacromial injection of corticosteroid and local anesthetic; judicious use for patients with acute inflammatory symptoms of a concomitant bursitis;
    - limit of three injections.
• Therapeutic modalities
  - Ice, ultrasound, HVGS.
    - Moist heat before therapy, ice at end of session.
Shoulder Motion

Goals:

- Internal and external rotation equal to contralateral side, with the arm positioned in less than 90 degrees of abduction.

Exercises:

- Begin with Cadman pendulum exercises to gain early motion.
- Passive ROM exercises (see Fig. 3-35)
  - Shoulder flexion.
  - Shoulder extension.
  - Internal and external rotation.
  - Capsular stretching for anterior, posterior, and inferior capsule by using the opposite arm
- Avoid assisted motion exercises
  - Shoulder flexion.
  - Shoulder extension.
  - Internal and external rotation.
- Progress to active ROM exercises
  - "Wall-walking".

Elbow Motion

- Passive to active motion, progress as tolerated
  - 0-130 degrees.
  - Pronation to supination as tolerated.

Muscle Strengthening

- Grip strengthening (putty, Nerf ball, racquetball).
- Use of the arm for activities of daily living below shoulder level.
Phase 2: Weeks 4-8

Criteria for Progression to Phase 2

- Minimal pain and tenderness.
- Improvement of passive ROM.
- Return of functional ROM.

Goals

- Improve shoulder complex strength, power, and endurance.

Restrictions

- Avoid provocative maneuvers or exercises that cause discomfort for the patient.
- Includes both ROM exercises and strengthening exercises.

Immobilization

- None.

Pain Control

- Reduction of pain and discomfort is essential for recovery.
- Medications
  - NSAIDs: for older population with additional comorbidities, consider newer COX-2 inhibitor formulas.
  - Subacromial injection of corticosteroid and local anesthetic; judicious use for patients with acute inflammatory symptoms of a concomitant bursitis; limit of three injections.
- Therapeutic modalities
  - Ice, ultrasound, HVGS.
  - Moist heat before therapy, ice at end of session.
Motion

**Goal:**
- Equal to contralateral shoulder in all planes of motion.

**Exercises:**
- Passive ROM.
- Capsular stretching.
- Active-assisted motion exercises.
- Active ROM exercises.

**Muscle Strengthening**
- Three times per week, 8 to 12 repetitions, for three sets.
- Strengthening of the remaining muscles of the rotator cuff.
- Begin with closed-chain isometric strengthening
  - Internal rotation.
  - External rotation.
  - Abduction.
- Progress to open-chain strengthening with Therabands.
  - Exercises performed with the elbow flexed to 90 degrees.
  - Starting position is with the shoulder in the neutral position of 0 degrees of forward flexion, abduction, and external rotation.
  - Exercises are done through an arc of 45 degrees in each of the five clinical planes of motion.
  - Six color-coded bands are available, each provides increasing resistance from 1 to 6 pounds, at increments of 1 pound.
  - Progression to the next band occurs usually in 2- to 3-wk intervals. Patients are instructed not to progress to the next band if there is any discomfort at the present level.
  - Theraband exercises permit concentric and eccentric strengthening of the shoulder muscles and are a form of isotonic exercises (characterized by variable speed and fixed resistance)
- Internal rotation.
- External rotation.
- Abduction.
- Forward flexion.
- Extension.

• Progress to light isotonic dumbbell exercises
  - Internal rotation.
  - External rotation.
  - Abduction.
  - Forward flexion.
  - Extension.

• Strengthening of deltoid.

• Strengthening of scapular stabilizers
  - Closed-chain strengthening exercises
  - Scapular retraction (rhomboideus, middle trapezius).
  - Scapular protraction (serratus anterior).
  - Scapular depression (latissimus dorsi, trapezius, serratus anterior).
  - Shoulder shrugs (upper trapezius).

• Progress to open-chain scapular stabilizer strengthening.

**Phase 3: Weeks 8-12**

**Criteria for Progression to Phase 3**

• Full painless ROM.
• No pain or tenderness with strengthening exercises.

**Goals**

• Improve neuromuscular control and shoulder proprioception.
• Prepare for gradual return to functional activities. · Establish a home exercise maintenance program that is performed at least three times
per week for both stretching and strengthening.

**Functional Strengthening**
- Plyometric exercises

**Progressive, Systematic Interval Program for Returning to Sports**
- Throwing athletes
- Tennis players
- Golfers

Maximal improvement is expected by 4-6 mo.

**Warning Signals**
- Loss of motion-especially internal rotation.
- Lack of strength progression-especially abduction, forward elevation.
- Continued pain-especially at night.

**Treatment of Warning Signals**
- These patients may need to move back to earlier routines.
- May require increased utilization of pain control modalities as outlined above.
- May require surgical intervention.