

Small Rotator Cuff Repair

1. Defined
 - a. Surgical repair of the rotator cuff (most commonly supraspinatus muscle) utilizing sutures
 - b. May be done arthroscopically or open.
 - c. May be done in conjunction with subacromial decompression and debridement and/or biceps tenodesis.
 - i. Repair remains the limiting pathology
2. Goals
 - a. Protect healing tissue
 - b. Control post-operative pain and swelling
 - c. Improve post-operative range of motion
 - d. Improve functional strength, stability, and neuromuscular control
3. Rehabilitation Principles
 - a. Be aware of compromised and/or repaired tissue including
 - i. Size of tear. Small (<1cm), Medium (1-3cm), Large (3-5cm), Massive (>5cm, involving multiple rotator cuff muscles)
 - ii. Tissue quality-may be inferred from physician's therapy script, operation notes, or direct communication
 - iii. Anchor stability
 - b. Healing tissue should never be overstressed but appropriate levels of stress are beneficial
 - i. Inflammatory phase days 1-3
 - ii. Tissue repair with proliferation phase days 3-20
 - iii. Scar tissue most responsive to remodeling 21-60 days but occurs from 1 to 8 weeks
 - iv. Final maturation taking as long as 360 day
 - c. Tissue reactivity of the shoulder and tissue healing will dictate the rehabilitation process. Reactivity is determined by the clinical exam
 - i. Level I Reactivity
 1. Resting pain, pain before end range.
 2. Aggressive stretching is contraindicated.
 3. Grade I-II mobilization for neurophysiological effect
 - ii. Level II Reactivity
 1. Pain onset occurs with end range resistance
 2. Grade I- IV mobilization appropriate per patient tolerance
 - iii. Level III Reactivity
 1. Engagement of capsular end feel with little or no pain.

2. Pain occurs after resistance.
 3. Grade I- IV mobilization and sustained stretching is appropriate
 - d. Eliminate inflammation as the cause of pain and neuromuscular inhibition
 - e. Ensure return of appropriate joint arthrokinematics and scapulohumeral rhythm.
 - f. Apply techniques in loose packed unidirectional and progress to close packed and multidirectional based on tissue healing and patient response
 - g. Facilitate performance of complex skills with proprioceptive and kinesthetic techniques: Low to high, sagittal to frontal, bilateral to unilateral, stable to unstable, slow to fast, fixed to unfixed surface
 - h. Encourage life-long activity modification to reduce risk factors associated with re-injury. Work within the “safe zone” for upper extremity activity.
 - i. Factors that affect the rehab process
 - i. Surgical approach
 - ii. Tissue quality
 - iii. Presence of concomitant pathology
 - iv. Age of patient
 - v. Comorbidities
 - vi. Pre and intra-operative range of motion
 - vii. Pain and sensitivity levels
 - viii. Cognitive abilities
 - j. Re-establish voluntary and pain free control of the rotator cuff to prevent rotator cuff shutdown and decrease humeral head migration with AROM. Exercising through the shrug sign may damage the repair. Consider progress through the following:
 - i. Isometrics
 - ii. Active assisted elevation with eccentric lowering and isometric holds
 - iii. Isotonics <90 degrees (“downstairs” or gravity eliminated)
 - iv. Isotonics >90 degrees (“upstairs”)
 - v. Rhythmic stabilization
 1. Flexion (prone and supine)
 2. Internal/External rotation
 - k. Maintain scapular stabilization and mobility; proximal stability for distal mobility
 - l. Passive Motion Restoration Time Frames
 - i. Consider consulting experienced clinician or physician
 - ii. Small 4-6 weeks
 - iii. Medium 6-8 weeks
 - iv. Large 8-10 weeks
 - v. Massive 10-16 weeks
 - m. 2-2-2 and 3-3-3 protocol description
 - i. Describes passive ROM, active assisted ROM, and active ROM phase time frames in weeks
4. Post op functional guidelines

- a. Requires physician communication
 - i. May include progress notes, direct communication, or communication with administrative assistant
- b. Dependant on functional range, strength, and neuromuscular control
- c. Drive
 - i. No research to support recommendations for return to driving
 - ii. Refer patient to physician
 - iii. Refer patient to drug precautions
 - iv. Refer patient to auto insurance coverage
- d. Work
 - i. Sedentary up to 14 days
 - ii. Medium to high physical demand level will be job specific
 - 1. Dependant on functional demands of the job
 - 2. Typically no earlier than 12 weeks
- e. Sport
 - i. Golf no earlier than 12 weeks
 - 1. Encouraging backward golfing
 - a. Beginning putting at 6 weeks
 - b. Utilize the driving range for all practice
 - c. Begin with short irons and partial swings progressing to long irons and full swing
 - d. Progress to drivers and hybrid by 12 weeks
 - ii. Swimming
 - 1. Kick board with arms at side at 2 weeks
 - a. Can progress at 7 weeks as flexion allows
 - 2. Freestyle stroke no earlier than 14 weeks
 - iii. Weight lifting no earlier than 12 weeks
 - 1. Reinforce safe zone principles
 - 2. Emphasize scapular stabilizers
 - 3. Begin with individual muscles, single joint movement, and light weights progress to large muscle groups, multi-joint movements, and heavy weights
 - 4. Incline bench, bench press, and military press begin at 24 weeks.
 - a. Caution with hyper abduction/ extension with lowering below the plane of the body
 - iv. Throwing
 - 1. Emphasize proper biomechanics and proprioception with a functional progression through phases of throwing no earlier than week 6
 - 2. Initiate interval throwing program no earlier than 16 weeks
 - 3. Throwing from the mound no earlier than 20 weeks
 - 4. Throwing from the mound, full velocity no earlier 24 weeks
 - v. Contact sports
 - 1. No earlier than 24 weeks

5. Post op equipment guidelines
 - a. Sling with abduction pillow at all times when not bathing or performing exercises
 - i. Begin weaning out of sling at 4-6 weeks.
 - b. Polar Care as needed for pain and inflammation
6. Rehabilitation for Small/Medium Tear (2-2-2)
 - a. **Week 1-2: Protective PROM Phase**
 - i. Precautions/Limits:
 1. No AROM
 2. No upper extremity lifting
 3. No functional IR stretching reaching behind the back
 4. Precaution with passive IR stretching
 - ii. Clinical Expectations by end of week 2
 1. Passive flexion to 100°
 2. Passive external rotation to 45° @ 45° of abduction
 - iii. Treatment
 1. PROM for shoulder elevation such as pulleys, pendulum, or manual passive range
 2. Appropriate mobilizations and modalities
 3. Isometric scapular setting and scapular AROM such as scapular clocks, shoulder shrugs, or shoulder squeezes
 4. Initiate elbow, hand, and finger AROM and PREs for total arm strength
 - b. **Week 3-4: AAROM Phase**
 - i. Precautions/Limits:
 1. No AROM
 2. No upper extremity lifting
 3. No functional IR stretching behind the back
 - ii. Clinical Expectations by end of week 4
 1. Passive flexion to 120°- 150°
 2. Passive external rotation to 70°- 90° @ 90° of abduction
 - iii. Treatment
 1. PROM for shoulder elevation such as pulleys, pendulum, or manual passive range
 2. Appropriate mobilizations and modalities
 3. AAROM for shoulder elevation such as pulleys, wand, wall walks, or manual assisted range
 4. Isometric scapular setting and scapular AROM such as scapular clocks, shoulder shrugs, or shoulder squeezes
 5. Sub-maximum pain free isometric contraction of the rotator cuff with gradual increase in force production
 6. Initiate elbow, hand, and finger AROM and PREs for total arm strength
 - c. **Week 5-6: AROM Phase**
 - i. AROM in the safe zone
 - ii. Precautions/ Limits:

1. No AROM above 90°
 - a. AROM in the safe zone
2. No lifting
- iii. Clinical Expectations by end of week 6
 1. Passive flexion and scaption to 150°- 170°
 2. Passive abduction to 120°- 140°
 3. Passive external rotation to 90° at 90° abduction
 4. Achieve AROM to 90° of scaption
 5. Achieve upper trap level for functional ER
 6. Achieve iliac crest level for functional IR
 7. Achieve 4-/5 strength for ER at 0° abduction
- iv. Treatment
 1. Appropriate mobilizations and modalities
 2. Initiate gravity reduced AROM
 3. AAROM progressed to AROM
 4. Passive posterior shoulder and IR stretching
 5. Initiate internal/external rotation with resistance with respect to tissue reactivity and within ROM limitations
 6. Gravity reduced rhythmic stabilization at 90° of flexion in scapular protraction beginning gradually with light resistance and progressing from proximal to distal.
 7. Functional IR stretch with scapular stabilization at week 6
 8. Appropriate closed chain exercises at week 6
 9. Initiate static 2 handed plyometrics at week 6
- d. Week 7-14: Strengthening Phase**
 - i. Precautions/limits
 1. Progress symptomatically
 2. No lifting >5 lbs into abduction
 - ii. Clinical expectations by end of week 14
 1. Flexion and scaption to 160°
 2. External rotation to 90° at 90° abduction
 3. Achieve 150° of active elevation without shrug sign
 4. Achieve C7 level for functional ER
 5. Achieve L5 level for functional IR
 6. 4/5 strength for ER at 0° abduction
 - iii. Treatment
 1. Appropriate mobilizations and modalities
 2. Progress resistance and reps with isotonic throughout phase concentrating on eccentric limb control
 3. Advance proprioception per rehabilitation principles
 4. Advance weight bearing exercises per rehabilitation principles
 5. Initiate 1 handed plyometrics at week 8
 6. Initiate overhead plyometrics at week 10
- e. Week 14+: Functional Training**
 - i. Precautions/Limits

1. Progress symptomatically
- ii. Clinical expectations by the end of week 16
 1. Achieve symmetrical AROM for elevation without shrug sign.
 2. Achieve symmetrical functional ER and IR.
 3. Achieve 4+/5 strength for ER at 0° abduction
 4. Achieve 4/5 strength for ER at 90° abduction
 5. Achieve symmetrical strength at 90° abduction
- iii. Treatment
 1. Appropriate mobilizations and modalities
 2. Initiate sports specific training
 3. Progress isotonic/isokinetic/rhythmic stabilization
 4. Continue PNF and plyometrics in open and closed kinetic chain
 5. Continue to progress rotator cuff and scapular strengthening and proprioception encouraging working shoulder safe zone principles
 6. Return athletes back to sports per physician