

Sub-acromial Decompression

1. Defined
 - a. The inferior aspect of the acromion is shaved to increase joint space
 - b. May be done in conjunction with resection of the distal third of the clavicle (Mumford procedure)
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. 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 days
 - b. 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 III and 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 III and IV mobilization and sustained stretching is appropriate
 - c. Eliminate inflammation as the cause of pain and neuromuscular inhibition
 - d. Ensure return of appropriate joint arthrokinematics
 - e. Apply techniques in loose packed unidirectional and progress to close packed and multidirectional based on tissue healing and patient response

- f. 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
 - g. Encourage life-long activity modification with education on ergonomics, working within the shoulder safe zone with reduced reaches and overhead work where applicable.
 - h. 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
 - i. 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 irritate healing tissues. Consider a progression of the following:
 - i. Isometrics
 - ii. AAROM with eccentric lowering and isometric holds
 - iii. Isotonics $<90^\circ$ (“downstairs or gravity eliminated)
 - iv. Isotonics $>90^\circ$ (upstairs”)
 - v. Rhythmic stabilization
 - 1. Flexion (prone and supine)
 - 2. Internal/External rotation
 - j. Maintain scapular stabilization and mobility; proximal stability for distal mobility
4. Post op functional guidelines
- a. Require input from physicians
 - i. May reference physician preferences
 - b. Dependant on functional range, strength, and neuromuscular control
 - c. Drive 1-2 weeks
 - i. No research to support recommendations for returning to driving
 - ii. Refer patient to drug precautions
 - iii. Refer patient to auto insurance coverage
 - d. Work
 - i. Sedentary 1-2 weeks
 - ii. Medium to high physical demand level no earlier than 4-6 weeks
 - e. Sport
 - i. Golf
 - 1. No earlier than week 6
 - 2. Encourage backward golfing
 - a. Begin putting at week 3
 - b. Utilize driving range for all practice

- c. Begin with short irons and partial swings progressing to long irons and full swings
 - d. Return to full swing /drivers and hybrids at week 6
 - ii. Swimming
 - 1. Kick board with arm at side no earlier than week 3
 - 2. Progress position of board as flexion allows
 - 3. Return to freestyle stroke no earlier than week 6 as flexion range allows
 - iii. Weight lifting
 - 1. No earlier than week 6
 - 2. Reinforce safe zone principles
 - 3. Emphasize scapular stabilizers
 - 4. Begin with individual, single joint movements, and light weights. Progress to large muscle groups, multi-joint movements, and heavy weights
 - 5. Begin incline bench and military press at week 10-12 following safe zone principles
 - iv. Throwing
 - 1. Emphasize proper biomechanics and proprioception with a functional progression
 - 2. Initiate interval throwing program no earlier than week 6
 - 3. Throwing from the mound no earlier than week 12
 - 4. Throwing from the mound, full velocity no earlier week 16
 - v. Contact sports
 - 1. No earlier than week 12
- 5. Post op equipment guidelines
 - a. Sling as needed for pain control
 - b. Polar Care as needed for pain control
- 6. Rehabilitation
 - a. **Week 1-2: Protective ROM Phase**
 - i. Precautions/Limits
 - 1. Based on rehab principles of tissue reactivity
 - 2. No resisted elevation
 - ii. Clinical Expectations
 - 1. Passive flexion 120°-150°
 - 2. Passive abduction 90°-120°
 - 3. Passive external rotation 45°-60°
 - iii. Treatment
 - 1. PROM for the shoulder elevation such as pulleys, pendulums, or manual passive range
 - 2. Mobilization and modalities as indicated for pain and swelling
 - 3. Isometric scapular setting and scapular AROM such as scapular clocks, shoulder shrugs, or shoulder squeezes
 - 4. Sub-maximum pain free isometric contraction of the rotator cuff with gradual increase in force production

5. Initiate elbow, hand, and finger AROM and PREs for total arm strength

b. Week 2-4: AAROM

- i. Precaution/Limits
 1. Based on rehab principles of tissue reactivity
 2. Follow safe zone principles
- ii. Clinical Expectations
 1. Passive flexion and abduction to 160°
 2. Passive ER to 90°
 3. Passive IR to 70°
- iii. Treatment
 1. PROM for the shoulder elevation such as pulleys, pendulums, or manual passive range
 2. Mobilization and modalities as indicated for pain and swelling
 3. AAROM for shoulder elevation such as wand, wall walks, or manual assisted range
 4. Isometric scapular setting and scapular AROM such as scapular clocks, shoulder shrugs, or shoulder squeezes
 5. Begin scapular stabilization exercises such as rows, extension, or prone scapular work
 6. Sub-maximum pain free isometric contraction of the rotator cuff with gradual increase in force production
 7. Continue elbow, hand, and finger AROM and PREs for total arm strength

c. Week 4-6; AROM Phase

- i. Precautions/Limits
 1. No lifting
 2. Follow safe zone principles
- ii. Clinical Expectations
 1. Passive flexion and scaption to 170°
 2. Passive abduction to 140°
 3. Passive ER to 90° at 90° abduction
 4. AAROM in the plane of the scapula to 90°
- iii. Treatment
 1. Continue PROM if not meeting goals
 2. Mobilization and modalities as indicated for pain and swelling
 3. Progress AAROM to AROM
 4. Initiate gravity reduced elevation and progress to gravity resisted elevation
 5. Functional IR stretch with scapular stabilization such as reaching behind the back
 6. Initiate ER/IR with resistance with respect to tissue reactivity

7. Gravity reduced rhythmic stabilization at 90° of flexion in scapular protraction beginning gradually with light resistance and progressing from proximal to distal
8. Initiate partial weight bearing exercises such as wall push ups
9. Initiate 2 handed plyometrics at week 6

d. Week 6-12: Strengthening Phase

- i. Precautions/limits
 1. Lifting in plane of abduction
 2. Progress symptomatically
- ii. Clinical Expectations
 1. Full PROM
 2. Full active elevation without shrug sign
 3. Active functional ER to C7
 4. Active functional IR to L5
 5. Strength 4+/5 in most shoulder muscle
- iii. Treatment
 1. Mobilization, PROM and modalities as needed
 2. Progress resistance and reps with isotonic throughout phase concentrating on form and 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
 7. Initiate and progress sports and job specific training as reactivity and strength indicate

7. References

- a. Blackburn, Turner A, et al. Rehabilitation after Ligamentous and Labral Surgery of the Shoulder: Guiding Concepts. *Journal of Athletic Training* 2000;35(3):373-381
- b. Reed BV. Wound healing and the use of thermal agents. In: *Thermal Agents in Rehabilitation* 3rd ed. 1996:3-29