



# Sports & Orthopaedic Specialists

## Superior Capsular Reconstruction Protocol

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This protocol provides appropriate guidelines for the rehabilitation of patients after superior capsular reconstruction. The protocol draws evidence from the current literature and accounts for preferences of the providers at Sports & Orthopaedic Specialists. The program may be modified by the referring provider for an individual patient. If questions arise regarding the utilization of the protocol or the progress of the patient, contact Sports & Orthopaedic Specialists: (952) 946-9777

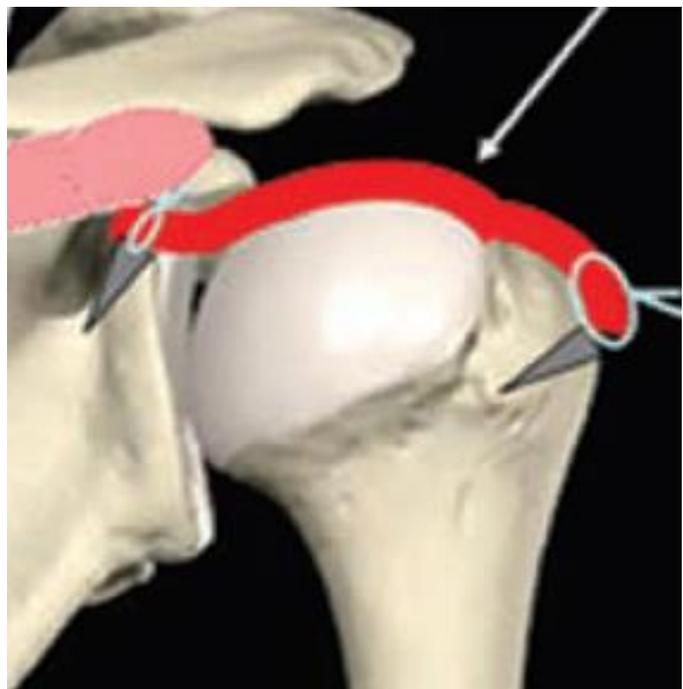
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### General Principles and Procedural Background

Please reach out directly to the surgeon if questions arise.

Superior Capsular Reconstruction (SCR) is a salvage procedure for patients who have a symptomatic, irreparable tear involving the supraspinatus and potentially infraspinatus tendons. As a salvage procedure, patient expectations for recovery should not be to regain “normal” shoulder motion and strength, but rather “functional” shoulder motion and strength, along with reduction in pain. Patient will have permanent weakness in the operative shoulder, particularly overhead, that no amount of compensatory strengthening will overcome. However, significant functional gains should be possible with an appropriately structured post-operative rehabilitation program. Finally, this is a long, slow rehabilitation and it is not, therefore, uncommon for patients to become frustrated along the way.

The procedure itself involves recreation of the glenohumeral joint’s superior capsule, a normal anatomic feature that in an uninjured shoulder that constitutes part of the deep (articular) surface of the supraspinatus. Either an acellular dermal allograft or an autograft fashioned from the patient’s own fascia lata is used to recreate the superior capsule. The graft is attached to both the superior glenoid and the greater tuberosity of the humerus, and therefore must heal in both locations for the procedure to be effective (see figure). The graft reproduces the containment function of the superior capsule, resisting the superior translation of the humeral head that occurs with deltoid activation in the rotator cuff deficient shoulder, thereby allowing rotation and elevation.



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During the procedure, the infraspinatus is advanced and sutured to the posterior border of the graft as well. The rotator interval is typically left unattached to the anterior border of the graft, and therefore restriction of external rotation is not typically an issue.

During the strengthening phase of rehabilitation, particular focus should be given to balanced activation and strengthening of the subscapularis and teres minor, which will help provide a balanced force couple to resist the superior pull of the deltoid. *Hypertrophy of the teres minor is a key determinant of the patient's ultimate overhead strength and function. Isolated strengthening of the supraspinatus will be AVOIDED.*

- The addition of other procedures, such as lower trapezius transfer or latissimus dorsi transfer, might mandate alterations to this protocol
- Note that when specified, ROM exercises can be performed daily. Strengthening exercises should be performed only 3 – 4 times weekly to avoid irritation of musculature addressed.
- For tensor fascia lata autograft, the graft is harvested from the ipsilateral, proximal, lateral thigh. Patient can expect some tightness and achiness in this area that can last for several weeks. There might be a slightly palpable muscular herniation in this area as well. Scar massage may be required.

## **Phase I : 0 – 6 weeks (2 – 4 visits)**

### General Concepts

- Protection of graft
- Use of sling / brace at all times
- Activation of rhomboids, lower trap and serratus anterior
- Reduction of shoulder edema and inflammation
- No AROM or strengthening

### Specific Elements

- Use modalities including cryocompression (e.g. Game Ready), dry needling, and therapeutic ultrasound as needed for edema/inflammation reduction. Avoid heat therapy during Phase I.
- Initiate pendulum exercises at week 5, performing 20 – 30 repetitions 2 – 3 times daily in the following directions: clockwise, counterclockwise, north-south, east-west.
- AROM of elbow, wrist and hand may begin as soon as patient is comfortable
- Use of grip strengthening ball or putty recommended and is permitted as soon as patient is comfortable
- Scapular protraction / retraction may begin after 10 days
- Non – impact, aerobic exercise such as stationary bike and elliptical without upper extremity use permitted may begin after 10 days



## **Phase II: 7 – 20 weeks (10 - 12 visits)**

### General Concepts

- Protection of graft
- Wean out of sling / brace
- Address muscular and capsular tightness present
- Progress AAROM and ultimately, AROM
- Initiate deltoid, subscapularis, and teres minor isometrics (end of Phase II)
- Educate patient about reasonable goals regarding motion and function
- Avoid stress in any position that would isolate supraspinatus
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### Specific Elements

- Wean out of sling / brace starting week 9; this process may take 1 – 2 weeks, as the deltoid will not be accustomed to supporting the operative extremity; it is not uncommon for the patient to experience some lateral shoulder discomfort during this time
- Supine rotator cuff program (should initiate in active assisted fashion, progressing to active)
  - Supine ceiling punches
  - Supine reverse Codman
  - Supine forward elevation to 90 degrees (may progress beyond 90 degrees after 12 weeks)
- Strengthening of periscapular musculature
- Deltoid, subscapularis, and teres minor isometrics
  - Begin after 12 weeks
  - Initiate with only enough force to activate with a 5 – 10 second hold
  - Slowly progress to increased effort and longer holds (up to 30 seconds)
- Additional aerobic exercise including light jogging and stationary cycling can begin at 14 – 16 weeks
- Gentle shoulder girdle mobilizations permitted starting week 10

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## **Phase III: 21 – 32 weeks (10 – 12 visits)**

### General Concepts

- Work end range AROM
- Initiate and progress generalized shoulder strengthening
- Avoid stress in positions that would isolate supraspinatus
- Educate patient about reasonable goals regarding motion and function

### Specific Elements

- Four corner stretch for end range of motion
- Gentle shoulder girdle mobilizations
- Progress from isometrics begun during previous phase to strengthening of rotator cuff and periscapular musculature
  - Avoid isolated supraspinatus (Remember, this is not present)
  - Focus on teres minor and gentle progression of infraspinatus strengthening
  - Include subscapularis strengthening, but keep in mind the tendency of internal rotators around the shoulder to overpower external rotators
  - Target activation and strengthening of lower trapezius and serratus anterior
- May begin simple sports that do not involve significant impact or overhead use, such as golf, at 5 months post - operatively

## **Phase IV: 33+ weeks (visits as needed)**

### General Concepts

- Progress strengthening as tolerated, avoiding isolated supraspinatus
- Return to accepted recreational sports