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Rehabilitation Guidelines for Arthroscopic Capsular Shift

The anatomic configuration of the shoulder joint (glenohumeral joint) is often compared to a golf ball on a tee. This is because the articular surface of the round humeral head is approximately four times greater than that of the relatively flat shoulder blade face (glenoid fossa)¹ (Figure 1). The stability and movement of the shoulder is controlled by the rotator cuff muscles, as well as the shoulder ligaments, the capsule of the shoulder and the glenoid labrum. The labrum is a fibrocartilagenous ring which attaches to the bony rim of the glenoid fossa.¹ The labrum doubles the depth of the glenoid fossa to help provide stability.² An analogy would be a parked car on a hillside with a block under the tire — the round tire b

The anatomic configuration of the shoulder joint (glenohumeral joint) is often compared to a golf ball on a tee. This is because the articular surface of the round humeral head is approximately four times greater than that of the relatively flat shoulder blade face (glenoid fossa).¹ The stability and movement of the shoulder is controlled by the rotator cuff muscles, ligaments, and the capsulolabral complex of the shoulder (Figure 1). The labrum is a fibrocartilagenous ring, which attaches to the bony rim of the glenoid fossa. The labrum doubles the depth of the glenoid fossa to help provide stability. An analogy includes a parked car on a hillside with a chop block under the tire such that the round tire is the humeral head, the road is the glenoid fossa and the chop block is the labrum. The anatomy of the shoulder allows for great mobility, yet this anatomical structure also sacrifices stability. The shoulder is one of the most commonly dislocated joints in the body. Shoulder dislocations can occur from trauma, such as falling on an outstretched hand. When this happens it is common for the capsule and ligaments to be torn, which often includes a large tear of the glenoid labrum. The type of labral tears in which a large piece of the labrum loses its connection to the glenoid fossa are called Bankart lesions. Shoulder dislocations often lead to recurrent dislocation or subluxation, and posterior shoulder instability occurs when the humeral head subluxes or dislocates in relationship to the glenoid. Shoulder instability may involve the front of the shoulder, and then is referred to as anterior instability. When it occurs in the back of the shoulder it is referred to as posterior instability and when it occurs toward the bottom of the shoulder it is referred to as inferior instability. Complete shoulder dislocations or subluxations (also termed as a partial dislocation of the joint) can also be caused by “hyperlaxity” (genetic or acquired looseness of the shoulder capsule and ligaments). Hyperlaxity often affects the shoulder in more than one direction, which is referred to as multi-directional instability.

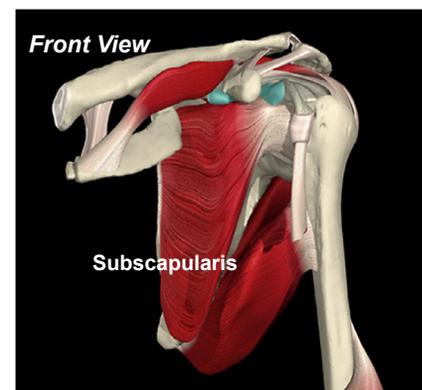
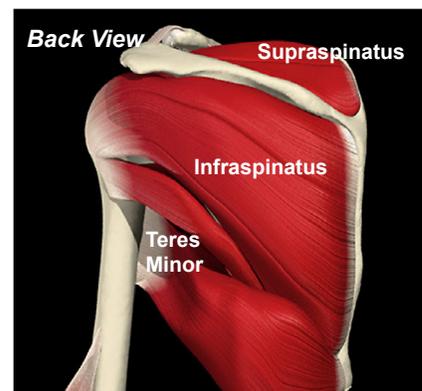


Figure 1 Rotator cuff anatomy

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This often occurs without a true Bankart lesion. For some athletes multi-directional instability can be treated nonoperatively with rehabilitation. This often involves strengthening the rotator cuff and scapular muscles, as well as improving the body's neuromuscular reaction to sudden changes of position or movement. When these approaches are unsuccessful and instability continues, the athlete may be left with the option of changing sports or having surgery. Surgical correction for multi-directional instability consists of tightening the capsule and ligamentous tissue by reducing the "looseness" or size of the capsule. This is usually done by taking "tucks" in the capsule with suture material. After surgery, rehabilitation plays a crucial role in maximizing the patient's functional outcome. In the early phases after surgery it is necessary to protect the surgical repair to allow healing. This is done by only allowing the patient to move the shoulder through certain ranges of motion and wear a sling most of the time that they are not doing rehabilitation exercises. The range of motion restrictions can be seen in Phase I below. The rehabilitation guidelines are presented in a criterion based progression. General time frames are given for reference to the average, but individual patients will progress at different rates depending on their age, associated injuries, pre-injury health status, rehab compliance and injury severity. Specific time frames, restrictions and precautions may also be given to protect healing tissues and the surgical repair/reconstruction.

Rehabilitation Guidelines for Arthroscopic Capsular Shift

Phase I (Surgery to 6 weeks after surgery)

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| Goals | <p>Allow healing of sutured capsule. Begin early protected and restricted range of motion. Retard muscular atrophy and enhance dynamic stability. Decrease pain/inflammation. Improve strength. Gradual increase in ROM. Normalize arthrokinematics.</p> |
| Precautions | <p>Brace: patients are in shoulder immobilizer for 4-6 weeks. Sleep in sling for 4 weeks. No overhead activities for 3 weeks. Compliance to rehab program is critical.</p> |
| Range of Motion Exercises | <p>L-bar active assisted exercises, gentle PROM exercises ER to 25-30 degrees in scapular plane IR to 30-35 degrees in scapular plane Shoulder flexion to 105-115 degrees Shoulder elevation in scapular plane to 115 degrees Rope and pulley flexion</p> <p>All exercises performed to tolerance and therapist/physician motion guidelines Take to point of pain and/or resistance and hold GENTLE self-capsular stretches</p> |
| Therapeutic Exercises | <p>Gentle Joint Mobilization to Re-establish Normal Arthrokinematics to: Scapulothoracic joint Glenohumeral joint Sternoclavicular joint</p> <p>Strengthening Exercises Isometrics Rhythmic stabilization exercises May initiate tubing for ER/IR at 0 degrees</p> <p>Conditioning Program for: Trunk Gripping exercises with putty Elbow and wrist flex/extension and pronation/supination Pendulum exercises (non-weighted) No shoulder abduction or extension AROM cervical spine Shoulder isometrics--Flexors, extensors, ER, ABD No active or active assisted IR x 6 weeks</p> |
| Other Suggestions | <p>Decrease Pain/Inflammation Ice, NSAID, modalities</p> |

Rehabilitation Guidelines for Arthroscopic Capsular Shift

Phase II (7 weeks to 12 weeks following surgery)

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| Goals | Full non-painful ROM at week 10-12 Normalize arthrokinematics Increase strength Improve neuromuscular control |
| Range of Motion Exercises | Progress ROM to full ROM as tolerated ER at 90 degrees ABD: 80-85 degrees IR at 90 degrees ABD: 70-75 degrees Flexion to 165-170 degrees L-Bar active assisted exercises at 60-90 degree ABD Continue all exercises listed above Gradually increase ROM to full ROM week 12 Continue self-capsular stretches Continue joint mobilization May initiate IR/ER ROM at 90 degrees of abduction |
| Therapeutic Exercises | Initiate Neuromuscular Control Exercises for Scapulothoracic Joint Initiate isotonic dumbbell program Side-lying ER/IR Shoulder abduction Supraspinatus Latissimus dorsi Rhomboids Biceps/triceps curls Shoulder shrugs Push-ups into chair (serratus anterior) Continue tubing at 0 degrees for ER/IR Continue stabilization exercises for the glenohumeral joint Continue all exercises listed above; emphasize neuromuscular control drills and scapular strengthening Initiate tubing exercises for rhomboids, latissimus dorsi, biceps and triceps |

Phase III (12 weeks to 20 weeks following surgery)

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| Goals | Improve strength/power/endurance Improve neuromuscular control Prepare athletic patient for gradual return to sports |
| Range of Motion Exercises | Fundamental shoulder exercises Emphasis: neuromuscular control drills, PNF rhythmic stabilization, rotator cuff strengthening and scapular strengthening Continue tubing exercises for ER/IR at 0 degrees ABD (arm at side) |
| Therapeutic Exercises | Continue isotonics for: Rhomboids Latissimus dorsi Biceps Dumbbell exercises for supraspinatus and deltoid Continue serratus anterior strengthening exercises push-ups floor Continue trunk/LE strengthening exercises Continue neuromuscular exercises Continue self-capsular stretches |

Rehabilitation Guidelines for Arthroscopic Capsular Shift

Phase IV (20 weeks to 28 weeks following surgery)

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| Goals | Progressively increase activities to prepare patient for full functional return Emphasis on gradual return to recreational activities |
| Precautions | Criteria to Progress to Phase IV: Full ROM No pain or tenderness Satisfactory clinical exam |
| Therapeutic Exercises | Initiate interval sports programs (if patient is a recreational athlete) Continue tubing exercises listed in Phase III Continue all strengthening exercises Continue ROM exercises |

References

1. Bell JE. Arthroscopic management of multidirectional instability. Orthop Clin North Am. 2010 Jul; 41(3):357-65.
2. Bigliani LU, Kurzweil PR, Schwartzbach CC, Wolfe IN, Flatow EL. Inferior capsular shift procedure for anterior-inferior shoulder instability in athletes. Am J Sports Med. 1994 Sep-Oct;22(5):578-84.
3. Duncan R, Savoie FH 3rd. Arthroscopic inferior capsular shift for multidirectional instability of the shoulder: a preliminary report. Arthroscopy. 1993;9(1):24-7.