

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). 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.

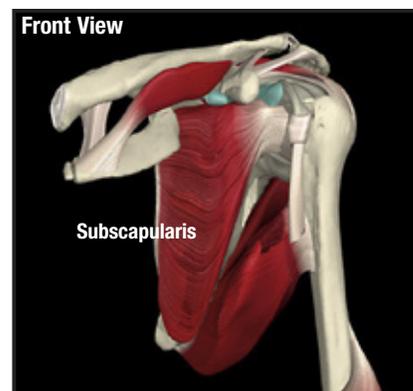
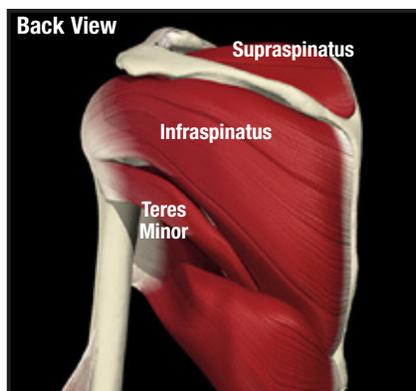


Figure 1 Rotator cuff anatomy

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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. This often occurs without a true Bankart lesion.

For some athlete’s 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

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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.

PHASE I (surgery to 6 weeks after surgery)

Appointments	<ul style="list-style-type: none"> Rehabilitation appointments begin 7-14 days after surgery and occur 1-2 times per week
Rehabilitation Goals	<ul style="list-style-type: none"> Protection of the post-surgical shoulder Activation of the stabilizing muscles of the gleno-humeral and scapulo-thoracic joints
Precautions	<ul style="list-style-type: none"> Sling immobilization required for soft tissue healing for 6 weeks post-operatively. Remove sling during post-operative week 6 in safe environments and wean totally during post-operative week 7 Hypersensitivity in axillary nerve distribution is a common occurrence <p>Range of Motion (ROM) guidelines</p> <ul style="list-style-type: none"> ROM should progress gradually to avoid stretching out the repaired tissues No shoulder internal rotation (IR) past neutral for post-operative weeks 1-6 and no shoulder internal rotation with abduction for post-operative weeks 1-8 to protect repaired tissues <u>Week 1</u>: No shoulder ROM; continuous use of sling except for elbow and wrist active ROM; neck active ROM and ball squeeze <u>Weeks 2 and 3</u>: Shoulder flexion and abduction to 90° with shoulder external rotation (ER) in neutral to 10° <u>Weeks 4 and 5</u>: Shoulder flexion and abduction to 140° with shoulder ER in neutral to 30° <u>Week 6</u>: Shoulder flexion and abduction to 180° with shoulder ER in neutral to 50° No shoulder ER with abduction for 6 weeks to protect repaired tissues
Suggested Therapeutic Exercise	<ul style="list-style-type: none"> Begin at 10 days post-operatively: sub-maximal, pain free shoulder isometrics at patient's side for shoulder IR and ER, flexion and extension and abduction and adduction Passive ROM and active assistive ROM for shoulder flexion and extension, as well as abduction and adduction with progression to active ROM at week 6 Hand gripping Elbow, forearm and wrist active ROM Cervical spine and scapular active ROM Desensitization techniques for axillary nerve distribution Postural exercises

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Cardiovascular Exercise	<ul style="list-style-type: none"> • Walking, stationary bike - sling on • Avoid running and jumping due to the distractive forces that can occur at landing • No treadmill
Progression Criteria	<ul style="list-style-type: none"> • Full active ROM for shoulder flexion and abduction • Normal (5/5) shoulder IR and ER strength at 0° abduction • Negative apprehension and impingement signs

PHASE II (begin after meeting Phase I criteria, usually 6 weeks after surgery)

Appointments	<ul style="list-style-type: none"> • Rehabilitation appointments occur once every 1-2 weeks
Rehabilitation Goals	<ul style="list-style-type: none"> • Full shoulder active ROM in all cardinal planes except ER in abducted positions – this should stay limited to ~60° of shoulder abduction • Progress shoulder external rotation ROM in abduction to 60° gradually to prevent oversteering the repaired anterior tissues of the shoulder • At 8 weeks post-operatively, begin normalizing shoulder IR to other side, gradually and with appropriate end feel; keep in mind that if the initial problem was posterior instability, regaining shoulder IR should be done gradually with an emphasis on active ROM and with appropriate joint position and stability • Strengthen shoulder and scapular stabilizers in protected position (0-45° abduction) • Begin proprioceptive and dynamic neuromuscular control retraining
Precautions	<ul style="list-style-type: none"> • Avoid passive and forceful movements into shoulder ER, extension and horizontal abduction
Suggested Therapeutic Exercise	<ul style="list-style-type: none"> • Active assistive and active ROM in all cardinal planes while assessing scapular rhythm • Rotator cuff strengthening in non-provocative positions with the shoulder in 0-45° abduction • Scapular strengthening and dynamic neuromuscular control • Cervical spine and scapular active ROM • Postural exercises • Core strengthening
Cardiovascular Exercise	<ul style="list-style-type: none"> • Walking, stationary bike, Stairmaster are ok • No swimming or treadmill • Avoid running and jumping until the athlete has full rotator cuff strength in a neutral position due to the distractive forces that can occur at landing
Progression Criteria	<ul style="list-style-type: none"> • Full active ROM in all cardinal planes except shoulder ER in abducted positions – this should stay limited to ~60° shoulder abduction • Negative shoulder apprehension and impingement signs • Normal (5/5) shoulder IR and ER strength at 45° shoulder abduction

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PHASE III (begin after meeting Phase II criteria, usually 12 weeks after surgery)

Appointments	<ul style="list-style-type: none"> Rehabilitation appointments occur once every 2-3 weeks
Rehabilitation Goals	<ul style="list-style-type: none"> Full active ROM in all cardinal planes with normal scapulo-humeral movement Normal (5/5) rotator cuff strength at 90° shoulder abduction in the scapular plane Normal (5/5) peri-scapular strength
Precautions	<ul style="list-style-type: none"> All exercises and activities to remain non-provocative with low to medium velocity Avoid activities where there is a higher risk for falling or outside forces to be applied to the arm No swimming, throwing or sports
Suggested Therapeutic Exercise	<p>Motion</p> <ul style="list-style-type: none"> Gradually progress shoulder ER ROM with shoulder abduction to 90°, focusing primarily on active motion <p>Strength and Stabilization</p> <ul style="list-style-type: none"> Shoulder flexion in prone; shoulder horizontal abduction in prone; full can exercise and D1 and D2 diagonals in standing Resistive tubing, cable column and dumbbell exercise with light resistance and high repetitions with shoulder IR and ER in 90° shoulder abduction; rowing is ok too Balance board in push-up position (with RS); prone Swiss ball walk-outs; rapid alternating movements in supine D2 diagonal and closed kinetic chain stabilization with narrow base of support
Cardiovascular Exercise	<ul style="list-style-type: none"> Walking, biking, StairMaster and running are ok if the patient has met Phase II criteria No swimming
Progression Criteria	<ul style="list-style-type: none"> Patient may progress to Phase IV if they have met the above stated goals and have no shoulder apprehension or impingement signs

PHASE IV (begin after meeting Phase III criteria, usually 15 weeks after surgery)

Appointments	<ul style="list-style-type: none"> Rehabilitation appointments occur once every 2-4 weeks
Rehabilitation Goals	<ul style="list-style-type: none"> Patient to demonstrate shoulder stability with higher velocity movements and change of direction movements Normal (5/5) rotator cuff strength with multiple repetition testing at 90° shoulder abduction in the scapular plane Full multi-plane active ROM
Precautions	<ul style="list-style-type: none"> Progress gradually into provocative exercises by beginning with low velocity and known movement patterns

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Suggested Therapeutic Exercise	<p>Motion</p> <ul style="list-style-type: none"> • Active ROM exercises to regain full functional shoulder ROM <p>Strength and Stabilization</p> <ul style="list-style-type: none"> • Dumbbell and medicine ball exercises that incorporate trunk rotation and control with rotator cuff strengthening at 90° shoulder abduction; begin working towards more functional activities by emphasizing core and hip strength and control with shoulder exercises • Resistive tubing, cable column, and dumbbell exercises with shoulder IR and ER in 90° shoulder abduction; rowing is ok too • Higher velocity strengthening and control, such as inertial, plyometrics and rapid resistive tubing drills; plyometrics should start with 2 hands below shoulder height and progress to overhead, then back to below shoulder with one hand, progressing again to overhead
Cardiovascular Exercise	<ul style="list-style-type: none"> • Walking, biking, StairMaster and running are ok if the patient has met Phase II criteria • No swimming
Progression Criteria	<ul style="list-style-type: none"> • Patient may progress to Phase V if they have met the above stated goals and have no shoulder apprehension or impingement signs

PHASE V (begin after meeting Phase IV criteria, usually 20 weeks after surgery)

Appointments	<ul style="list-style-type: none"> • Rehabilitation appointments occur once every 2-4 weeks
Rehabilitation Goals	<ul style="list-style-type: none"> • Patient to demonstrate shoulder stability with higher velocity movements and change of direction movements that replicate sport specific patterns, including swimming, throwing, etc. • No shoulder apprehension or instability with high velocity overhead movements • Improve core and hip strength and mobility to eliminate any compensatory stresses to the shoulder • Work capacity cardiovascular endurance for specific work/sport demands
Precautions	<ul style="list-style-type: none"> • Progress gradually into sport specific movement patterns
Suggested Therapeutic Exercise	<p>Motion</p> <ul style="list-style-type: none"> • Assess the whole upper quarter to assess for muscle imbalances that could lead to compensatory or abnormal motion at the shoulder <p>Strength and Stabilization</p> <ul style="list-style-type: none"> • Dumbbell and medicine ball exercises that incorporate trunk rotation and control with rotator cuff strengthening at 90° shoulder abduction and higher velocities; begin working towards more sport specific activities • Initiate throwing, swimming or overhead racquet program depending on the athlete's sport • High velocity strengthening and dynamic control, such as inertial, plyometrics and rapid resistive tubing drills

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Cardiovascular Exercise	<ul style="list-style-type: none">• Design to use sport specific energy systems
Progression Criteria	<ul style="list-style-type: none">• Patient may return to sport after receiving clearance from the Orthopedic Surgeon and Rehabilitation Therapist

These rehabilitation guidelines were developed collaboratively by UW Health Sports Rehabilitation and the UW Health Sports Medicine Physician group.

Updated 2/2018

REFERENCES

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