

## Rehabilitation Protocol for Subscapularis Repair

This protocol is intended to guide clinicians through the post-operative course for subscapularis repair. This protocol is time based (dependent on tissue healing) as well as criterion based. Specific intervention should be based on the needs of the individual and should consider exam findings and clinical decision making. The timeframes for expected outcomes contained within this guideline may vary based on surgeon's preference, additional procedures performed, and/or complications. If a clinician requires assistance in the progression of a post-operative patient, they should consult with the referring surgeon.

The interventions included within this protocol are not intended to be an inclusive list of exercises. Therapeutic interventions should be included and modified based on the progress of the patient and under the discretion of the clinician.

### Considerations for the Post-operative Subscapularis repair

Many different factors influence the post-operative subscapularis repair rehabilitation outcomes, including quality of the repaired tissue, size of the repair, secondary injury or procedure, pre-operative shoulder range of motion, arm strength, and function. Other individual considerations include patient age and co-morbidities, such as: increased BMI, smoking, and diabetes. It is recommended that clinicians collaborate closely with the referring physician regarding specific range of motion and load restrictions/precautions.

### Post-operative considerations

If the patient develops a fever, unresolving numbness/tingling, excessive drainage from the incision, uncontrolled pain or any other symptoms you have concerns about you should contact the referring physician.

### **PHASE I: IMMEDIATE POST-OP: PROM/Protection Phase (0-4 WEEKS AFTER SURGERY)**

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Protect healing repair</li> <li>Minimize pain and inflammation</li> <li>Maintain elbow wrist and hand ROM</li> <li>Improve shoulder ROM within precautionary limits</li> </ul>
<b>Sling/precautions</b>	<ul style="list-style-type: none"> <li>Wear sling during the day and night for 4 weeks</li> <li>Shoulder ER limited to 30 degrees (no forceful motion)</li> <li>Shoulder IR limited to belt line</li> <li>Shoulder abduction limited to 90 degrees</li> <li>No active ROM of involved arm</li> <li>Avoid lifting/weightbearing with involved arm</li> </ul>
<b>Interventions</b>	<p><i>Pain/swelling management</i></p> <ul style="list-style-type: none"> <li>Cryotherapy and gentle compression</li> </ul> <p><i>Range of Motion/Mobility</i></p> <ul style="list-style-type: none"> <li>Shoulder PROM within precautionary limits. <a href="#">Pendulums</a>, <a href="#">table slides</a>.</li> <li>Elbow, wrist, and hand AROM</li> <li><a href="#">Scapular clock exercise</a> in side-lying (start at 2 weeks post op)</li> </ul>
<b>Criteria to Progress</b>	<ul style="list-style-type: none"> <li>&lt;3/10 pain at rest</li> <li>Able to perform waist level ADLs</li> <li>PROM: 120 degrees flexion, 90 degrees abduction</li> </ul>

## PHASE II: INTERMEDIATE POST-OP: AAROM/AROM phase (4-8 WEEKS AFTER SURGERY)

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Continue to protect repaired tissue</li> <li>Minimize pain and swelling</li> <li>Full PROM flexion, 45 degrees shoulder ER in neutral</li> <li>AROM: 120 degrees flexion/scaption</li> </ul>
<b>Sling/precautions</b>	<ul style="list-style-type: none"> <li>Discontinue sling</li> <li>No shoulder ER with arm at 90 degrees abduction</li> <li>Avoid forceful stretching of shoulder</li> <li>Avoid lifting or resisted exercises</li> </ul>
<b>Additional Interventions</b> <i>*Continue with Phase I interventions</i>	<p><i>Range of Motion/Mobility</i></p> <ul style="list-style-type: none"> <li>Shoulder PROM: continue previous motion. Shoulder ER and IR in neutral and with arm at 45 degrees abduction</li> <li>Shoulder AAROM: <a href="#">Lawn Chair progression</a>, <a href="#">Rail slides</a>, <a href="#">wall slides</a>, <a href="#">Supine shoulder abduction AAROM with arm supported</a>, <a href="#">Shoulder ER AAROM c dowel</a></li> <li>Shoulder AROM: <a href="#">Supine shoulder flexion</a>, <a href="#">prone shoulder flexion</a>, <a href="#">prone shoulder horizontal abduction</a>, <a href="#">side-lying shoulder ER</a>, <a href="#">side-lying shoulder abduction to 90 degrees</a>, <a href="#">standing shoulder flexion/scaption to 120 degrees</a></li> </ul> <p><i>Strengthening</i></p> <ul style="list-style-type: none"> <li>Scapula: <a href="#">Scapular retractions</a>, <a href="#">manual scapula isometrics/rhythmic stabilization</a></li> <li>Wrist and Hand: <a href="#">resisted wrist extension</a>, <a href="#">resisted wrist extension</a></li> </ul>
<b>Criteria to Progress</b>	<ul style="list-style-type: none"> <li>Pain &lt; 3/10 with shoulder AROM</li> <li>120 degrees shoulder flexion/scaption AROM</li> <li>45 degrees shoulder ER AAROM in neutral</li> <li>Minimal sleep disruption</li> </ul>

## PHASE III: Initial strengthening phase (8-12 WEEKS AFTER SURGERY)

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>90% shoulder flexion and abduction AROM compared to contralateral side</li> <li>90% shoulder ER with arm in neutral</li> <li>45 degrees shoulder ER with arm at 45 degrees abduction</li> <li>Initiate shoulder strengthening</li> <li>No limitations with bathing, dressing, and light house-hold chores</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>No lifting &gt;5lbs</li> </ul>
<b>Additional Interventions</b> <i>*Continue with Phase I-II Interventions</i>	<p><i>Range of Motion/Mobility</i></p> <ul style="list-style-type: none"> <li>Shoulder PROM: all directions to tolerance. No forceful stretching for ER</li> <li>Shoulder AROM/AAROM to tolerance. Progress repetition and motion against gravity</li> </ul> <p><i>Strengthening</i></p> <ul style="list-style-type: none"> <li>Shoulder: <a href="#">Manual shoulder isometric</a> (IR, ER, Flex Ext), <a href="#">Isometric walkouts</a> (ER, IR, Flex, Ext)</li> <li>Scapula: <a href="#">Resisted W</a>, <a href="#">Supine punch</a></li> <li>Elbow: <a href="#">Biceps curls</a>, <a href="#">triceps extension</a></li> </ul> <p><i>Motor control</i></p> <ul style="list-style-type: none"> <li><a href="#">Supine shoulder rhythmic stabilization</a>, <a href="#">Supine PNF diagonals</a></li> </ul>
<b>Criteria to Progress</b>	<ul style="list-style-type: none"> <li>&gt;90% ROM of involved shoulder compared to contralateral side</li> <li>Appropriate muscle activation with isometric exercise</li> <li>Able to tolerate light house-hold activities</li> </ul>

## PHASE IV: Progressive strengthening (12-16 WEEKS AFTER SURGERY)

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Normalize shoulder ROM</li> <li>Progress muscle strength of shoulder and scapular</li> <li>Improve neuromuscular control</li> <li>Improve tolerance to daily activities</li> </ul>
<b>Additional Interventions</b>	<p><i>Range of Motion/Mobility</i></p> <ul style="list-style-type: none"> <li>Stretching: <a href="#">Posterior capsule stretch</a>, <a href="#">doorway stretch</a>, <a href="#">pec/biceps stretch</a>, <a href="#">latissimus stretch</a></li> </ul> <p><i>Strengthening</i></p>

*Continue with Phase I-III interventions	<ul style="list-style-type: none"> <li>Shoulder: <a href="#">Resisted shoulder ER in neutral</a>, <a href="#">resisted shoulder IR in neutral</a>, <a href="#">scaption raises</a>, <a href="#">resisted shoulder ER at 45 degrees</a>, <a href="#">resisted shoulder IR at 45 degrees</a></li> <li>Scapula: <a href="#">Wall push-ups</a>, <a href="#">serratus roll ups</a>, <a href="#">rows</a>, <a href="#">resisted shoulder extension</a>, <a href="#">dynamic hug</a>, <a href="#">chest pulls</a></li> </ul> <p>Motor control</p> <ul style="list-style-type: none"> <li><a href="#">Standing PNF D1/D2</a> (no resistance), <a href="#">ball on wall rhythmic stabilization</a></li> </ul>
<b>Criteria to Progress</b>	<ul style="list-style-type: none"> <li>Pain &lt; 3/10 with resisted exercises</li> <li>Can lift 5lbs overhead</li> <li>Can perform all household chores</li> <li>&gt;4/5 MMT for involved shoulder</li> <li>70% ER@90/IR@90 strength ratio</li> <li>DASH score &lt;20%</li> </ul>

### **PHASE V: Advanced Strengthening (16-20 WEEKS AFTER SURGERY)**

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>No pain with higher intensity exercise/activity</li> <li>&gt;90% shoulder strength compared to contralateral side</li> <li>Appropriate muscle activation with compound movements</li> </ul>
<b>Additional Interventions</b> *Continue with Phase II-IV interventions	<p><i>Strengthening</i></p> <ul style="list-style-type: none"> <li><a href="#">Resisted PNF diagonals</a>, <a href="#">over-head dumbbell press</a>, <a href="#">resisted W to over head press</a>, <a href="#">resisted wall walks</a>, <a href="#">counter push-ups</a>, <a href="#">push-ups</a>, <a href="#">Lat pull downs</a></li> </ul> <p><i>Plyometrics (start at 18 weeks post-op or later)</i></p> <ul style="list-style-type: none"> <li><a href="#">90/90 ball dribbles</a>, <a href="#">over-head soccer throws</a>, <a href="#">medicine ball chest pass</a>, <a href="#">prone ball drops</a>, <a href="#">standing ball drops</a>, <a href="#">90/90 over the shoulder eccentric catch and throw</a>, <a href="#">body blade</a></li> </ul>
<b>Criteria to Progress</b>	<ul style="list-style-type: none"> <li>&gt;90% shoulder strength with dynamometry testing compared to contralateral side</li> <li>&gt; 70% ER @90/IR@90 strength ratio</li> <li>Single arm shot put test. &gt;90% contralateral side</li> <li>CKCUEST: &gt;21 touches in 15 sec</li> </ul>

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<b>Contact</b>	Please email <a href="mailto:MGHSportsPhysicalTherapy@partners.org">MGHSportsPhysicalTherapy@partners.org</a> with questions specific to this protocol
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References:

- Altintas B, Bradley H, Logan C, Delvecchio B, Anderson N, Millett PJ. REHABILITATION FOLLOWING SUBSCAPULARIS TENDON REPAIR. Int J Sports Phys Ther. 2019 Apr;14(2):318-332. PMID: 30997283; PMCID: PMC6452570.
- Hamilton Orthopedics (n.d.). *Subscapularis repair* protocol. <https://hamiltonorthopedic.com/physical-therapy-protocols/dr-zahn-pt-protocols/subscapularis-repair-protocol/>.