

Standard Meniscal Repair Guideline

This rehabilitation program is designed to return the individual to their activities as quickly and safely as possible. It is designed for rehabilitation following arthroscopic meniscal repair. Modifications to the protocol may be necessary dependent on location of repair, concomitant injuries or procedures performed. This evidence-based meniscal repair rehabilitation protocol is criterion-based and time frames in each phase will vary depending on many factors including patient demographics, goals, and individual progress. This protocol is designed to progress the individual through rehabilitation to full sport/ activity participation. The therapist must modify the program appropriately depending on the individual's goals for activity following meniscal repair.

This protocol is intended to provide the treating clinician with a guideline for rehabilitation. It is not intended to substitute for making sound clinical decisions regarding the patient's post-operative care based on exam/ treatment findings, individual progress, and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact the referring physician.

General Guidelines/Precautions:

- Patient will be placed in a hinged knee brace locked in full extension immediately post operatively.
 - » Patient will be allowed to weight bear in the locked brace (full extension) following surgery unless otherwise directed for the first 4 weeks.
 - » Weight bearing with brace opened to appropriate ROM (0-90 max) weeks 4+.
 - » Discharge of the brace at week 6 or as cleared by physician.
- Limited PROM 0-90 degrees for week 4, full motion near week 10.
- Brace to be worn at all times except when doing ROM exercises for the first 4 weeks and further as instructed by physician.
- No resisted hamstring resisted exercises for 6 weeks.
- Persistent effusion (>10 weeks) may require altered or slower progression through remainder of protocol.
- Light running is then permitted at 12-16 weeks postoperatively as cleared by physician.
- No squatting greater than 90 degrees is permitted until 16 weeks postoperative.
- Return to sport is allowed at 16-24 weeks postoperative if the patient is symptom free & has passed a functional evaluation (as determined by physician).

Postoperative Rehabilitation (4-6 months depending on patient goals and progress)

| PHASE | SUGGESTED INTERVENTIONS | GOALS/MILESTONES FOR PROGRESSION |
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| <p>Phase I <i>Maximum Protection Phase</i> (Weeks 0-2) Expected visits: 0-1</p> | <p>Edema controlling treatments</p> <ul style="list-style-type: none"> • Ice, compression therapy/garments, elevation <p>Weight bearing in locked brace (full extension)</p> <p>Passive and AAROM within protected ROM (0-90 degrees)</p> <ul style="list-style-type: none"> • No Active Knee Flexion, No Biking <p>Patella mobilizations</p> <p>Compression (donut) pad for edema control</p> <p>Quad sets with NMES as needed</p> <p>SLR in 4 directions</p> | <ol style="list-style-type: none"> 1. Provide environment of proper healing of repair site 2. Control of post-operative pain (0-1/10 with ADL's in brace) 3. Resolution of post-operative effusion (trace to 1+) 4. Prevention of post-operative complications 5. Restoration of full extension (compared to contralateral side) 6. PROM 0-90 degrees |
| <p>Phase II <i>Protected Motion Phase</i> (Weeks 3-6) Expected visits: 4-9</p> | <p>Continue with previous exercise program</p> <p>Progressive ROM program with progression >90 degrees at week 4</p> <p>Unlock brace at week 4 if patient can demonstrate excellent straight leg raise with no lag for 20 repetitions</p> <p>FWB with brace opened to appropriate range (0-90 degrees max) at week 4</p> <p>Multi-angle quad isometrics</p> <p>Open chain knee extensions (90-0 degrees) with no additional resistance</p> <p>Clamshells</p> <p>Fire Hydrants</p> <p>Weight shifts in knee brace</p> <p>Proprioception training (double leg at week 5) - No twisting, pivoting</p> <ul style="list-style-type: none"> • BOSU or rocker board balance training • Squats on rocker board <p>Mat based trunk stabilization program for core strength (no planks)</p> | <ol style="list-style-type: none"> 1. Prevention of complications through gentle protected motion (symmetrical hyper-extension to approximately 120 degrees flexion) 2. Reduction of post-operative swelling and inflammation (no to trace effusion) 3. Re-education and initiation of quad control with active SLR without extension lag 4. Level ground ambulation with minimal faults by week 6 |
| <p>Phase III <i>Motion and Muscle Activation Phase</i> Weeks 6-9 Expected visits</p> | <p>Continue previous hip and quad strengthening exercises</p> <p>Progression of ROM program - (Bike for ROM only)</p> <p>Light resisted open chain knee extension (SAQ 90-30 degrees)</p> <p>Static proprioception training (double to single leg) with perturbation and variable surfaces (rocker board, airex pads, air discs, etc.) with emphasis on proper hip/knee stability and hip strategy.</p> <p>Limited depth closed chain quad strengthening (0-60 degrees avoiding rotation and dynamic valgus stress at knee. Includes:</p> <ul style="list-style-type: none"> • Forward and lateral step ups • Mini squats (BW only) • Wall squats <p>Initiation of light resisted hamstring curls</p> <p>Aquatic program (if available) - including pool walking, and closed chain strengthening/balance consistent with restrictions above</p> <ul style="list-style-type: none"> • No running/jumping • Swimming allowed with straight knee only <p>Plank progression for core strength and stabilization</p> <p>Light cardiovascular conditioning program</p> <ul style="list-style-type: none"> • Stationary bike • Level ground walking <p style="text-align: right;"><i>(continued on next page)</i></p> | <ol style="list-style-type: none"> 1. Progression of ROM program to near full motion (full extension to 135 degrees flexion) 2. Improve muscular strength and endurance 3. Control of forces on extensor mechanism 4. Normalized level ground ambulation 5. Normalized single leg static balance with proper proximal control (no valgus and hip medial rotation) |

Postoperative Rehabilitation (4-6 months depending on patient goals and progress)

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| <p>Phase IV Advanced strengthening and eccentric control phase</p> <p>Weeks 9-12</p> <p>Expected visits</p> | <p><i>(continued from previous page)</i></p> <p>Continue previous exercises</p> <p>Progression of closed and open chain quad strengthening (0-90 degrees)</p> <ul style="list-style-type: none"> • Squat progressions (rocker board, BOSU) • Lateral dips • Forward step downs • Front lunges • Isotonic knee extension • Heel raises <p>Non-impact cardiovascular conditioning</p> <ul style="list-style-type: none"> • Walking program • Elliptical • Stairmaster <p>Aquatic running at 3 months</p> | <ol style="list-style-type: none"> 1. Restoration of full pain-free PROM/ AROM (equal to contralateral knee) and full resolution of post-operative effusion. 2. Normal pain-free ADL's 3. Improved quad strength (80% of contralateral limb) 4. Normalized gluteal strength 5. Proper biomechanics and control with front step down 6. Improved single leg proprioception |
| <p>Phase V Advanced Movement and Impact Phase</p> <p>Months 3-6</p> <p>Expected Visits</p> | <p>Progression to running program (with appropriate bracing) with training to improve/normalize form and shock absorption (as cleared by MD)</p> <p>Progression of open and closed chain strengthening for the entire LE chain with emphasis on single limb strengthening.</p> <p>Progression to higher level activities and sports specific activities as strength and control dictate (as cleared by MD)</p> <p>Suggested activity progression</p> <ul style="list-style-type: none"> • Initiating double limb jump training (around 4 months) • Initiate deceleration and single leg hopping (around 5 months) • Initiate cutting activities (around 5 months) • Initiate agility (floor ladder and cone drills) and sport specific activities (around 5 months) <p>NOTE: Progression of functional activities should be performed only as pain and proper biomechanics allow. Emphasis should be on proper shock absorption and control of dynamic valgus stress at knee (hip medial rotation with knee valgus) with each task performed. Progression to single limb-based tasks (deceleration, hopping, cutting) should not be performed until double limb activities have been mastered. Activities requiring dynamic control of rotational stress at the knee (cutting, multiple plane lunges/jumps/hops) should not be performed until sagittal and frontal plane control has been mastered (in that order). Return to sport may occur at any time during this stage as cleared by physician and as progress and goal achievement occurs.</p> | <ol style="list-style-type: none"> 1. <10% strength deficit in quads and gluteals 2. Limb symmetry index of 90% on functional testing. 3. 45/50 on Biomechanical functional assessment tests (if performed) 4. No pain or complaints of instability with functional progression of sport specific skills |