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Rehabilitation Protocol for Meniscus Repair

Note:

This physical therapy protocol applies to standard meniscus repair surgery. It does NOT apply for repairs of meniscus root tears or complete radial tear patterns.

PHASE I: Immediate Post-Op (0-3 WEEKS AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> ● Protect repair ● Reduce swelling, minimize pain ● Restore patellar mobility ● Restore full extension ● Flexion <90 degrees ● Minimize arthrogenic muscle inhibition, re-establish quad control, regain full active extension ● Patient education <ul style="list-style-type: none"> ○ Keep your knee straight and elevated when sitting or laying down. Do not rest with a towel placed under the knee ○ Do not actively kick your knee out straight; support your surgical side when performing transfers (i.e. sitting to lying down) ○ Do not pivot on your surgical side
Weight Bearing	<p><i>Walking</i></p> <ul style="list-style-type: none"> ● Brace locked, crutches ● Partial weight-bearing ● When climbing stairs, lead with the non-surgical side when going up the stairs, and lead with the crutches and surgical side when going down the stairs
Interventions	<p><i>Swelling Management</i></p> <ul style="list-style-type: none"> ● Ice/cryotherapy ● Compression, elevation ● Retrograde massage ● Ankle pumps <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> ● Patellar mobilizations: superior/inferior and medial/lateral ● Seated assisted knee flexion extension and heel slides with towel <ul style="list-style-type: none"> ○ ***Avoid active knee flexion to prevent hamstring strain on the posteromedial joint ● Low intensity, long duration extension stretches: prone hang, heel prop ● Seated hamstring stretch <p><i>Strengthening</i></p> <ul style="list-style-type: none"> ● Quad sets

	<ul style="list-style-type: none"> • NMES high intensity (2500 Hz, 75 bursts) supine knee extended 10 sec/50 sec, 10 contractions, 2x/wk during sessions—use of clinical stimulator during session, consider home units distributed immediate post op • Straight leg raise <ul style="list-style-type: none"> ○ *Do not perform straight leg raise if you have a knee extension lag* • Hip abduction: side-lying or standing • Multi-angle isometrics 90 and 60 deg knee extension
Criteria to Progress	<ul style="list-style-type: none"> • Knee extension ROM 0 deg • Knee flexion ROM 90 degrees • Quad contraction with superior patella glide and full active extension • Able to perform straight leg raise without lag

PHASE II: *Intermediate Post-Op* (3-6 WEEKS AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Continue to protect repair • Reduce pain, minimize swelling • Maintain full extension • Flexion <90 degrees
Weight-bearing	<ul style="list-style-type: none"> • Continue partial weight bearing <ul style="list-style-type: none"> ○ May gradually begin progressing to weight-bearing as tolerated at 4 weeks if patient has full extension and sufficient quad activation • Continue brace locked in extension for ambulation <ul style="list-style-type: none"> ○ Can unlock brace after 4 weeks when able to place full weight on leg without pain and meets weight bearing goals above
Interventions -Continue with Phase I interventions	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Stationary bicycle: gentle ROM only <p><i>Cardio</i></p> <ul style="list-style-type: none"> • Upper body ergometer <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Calf raises • Lumbopelvic strengthening: side-lying hip external rotation clamshell in neutral, plank, bridge with feet elevated <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> • Joint position re-training • After 4 weeks: double limb standing balance utilizing uneven surface
Criteria to Progress	<ul style="list-style-type: none"> • No swelling • Flexion ROM 90 degrees • Extension ROM equal to contralateral side

PHASE III: Late Post-Op (6-9 WEEKS AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> ● Continue to protect repair ● Maintain full extension ● Normalize gait ● Flexion within 10 degrees of contralateral side ● Safely progress strengthening ● Promote proper movement patterns ● Avoid post exercise pain/swelling.
<p>Weight-bearing</p>	<ul style="list-style-type: none"> ● May discontinue use of brace/crutches after 6 weeks once adequate quad control is achieved and gait is normalized
<p>Interventions -Continue with Phase I-II interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> ● Supine active hamstring stretch ● Gentle stretching all muscle groups: prone quad stretch, standing quad stretch, kneeling hip flexor stretch, standing gastroc stretch and soleus stretch ● Rotational tibial mobilizations if limited ROM <p><i>Cardio</i></p> <ul style="list-style-type: none"> ● Stationary bicycle, flutter kick swimming, pool jogging <p><i>Strengthening</i></p> <ul style="list-style-type: none"> ● Partial squat exercise 0-60 degrees ● Ball squats, wall slides, mini squats from 0-60 deg ● Hamstring strengthening: prone hamstring curls, standing hamstring curls ● Lumbopelvic strengthening: bridges on physioball, bridge on physioball with roll-in, bridge on physioball alternating, hip hike ● Gym equipment: leg press machine, standing hip abductor and adductor machine, hip extension machine, roman chair, seated calf machine ● Progress intensity (strength) and duration (endurance) of exercises <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> ● Progress single limb balance including perturbation training
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> ● No effusion/swelling/pain after exercise ● Normal gait ● ROM equal to contralateral side ● Symmetrical joint position sense (<5 degree margin of error)

PHASE IV: Transitional (9-12 WEEKS AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> ● Maintain full ROM ● Safely progress strengthening ● Promote proper movement patterns ● Avoid post exercise pain/swelling
<p>Interventions</p>	<p><i>Cardio</i></p>

<p><i>-Continue with Phase I-III interventions as indicated</i></p>	<ul style="list-style-type: none"> ● Elliptical, stair climber <p><i>Strengthening</i></p> <p>**The following exercises to focus on proper control with emphasis on good proximal stability</p> <ul style="list-style-type: none"> ● Squat to chair ● Lateral lunges ● Single leg progression: partial weight bearing single leg press, slide board lunges: retro and lateral, step ups and step ups with march, lateral step-ups, step downs, single leg squats, single leg wall slides ● Gym equipment: seated hamstring curl machine and hamstring curl machine ● Romanian deadlift
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> ● No episodes of instability ● 10 repetitions single leg squat proper form through at least 60 deg knee flexion ● KOOS-sports questionnaire >70% ● Functional Assessment <ul style="list-style-type: none"> ○ Quadriceps index >80%; HHD or isokinetic testing 60d/s ○ Hamstrings ≥80%; HHD or isokinetic testing 60 d/s ○ Glut med, glut max index ≥80% HHD

PHASE V: Early Return to Sport (3-5 MONTHS AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> ● Safely progress strengthening ● Safely initiate sport specific training program ● Promote proper movement patterns ● Avoid post exercise pain/swelling
<p>Interventions <i>-Continue with Phase II-IV interventions</i></p>	<ul style="list-style-type: none"> ● Interval running program <ul style="list-style-type: none"> ○ Return to Running Program ● Progress to plyometric and agility program (with functional brace if prescribed)
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> ● Clearance from MD and ALL milestone criteria below have been met ● Completion jog/run program without pain/effusion / swelling ● Functional Assessment <ul style="list-style-type: none"> ○ Quad/HS/glut index ≥90%; HHD mean or isokinetic testing @ 60d/s o Hamstring/Quad ratio ≥70% ○ Hop Testing ≥90% compared to contralateral side, demonstrating good landing mechanics

PHASE VI: Unrestricted Return to Sport (6+ MONTHS AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> ● Continue strengthening and proprioceptive exercises ● Symmetrical performance with sport specific drills ● Safely progress to full sport
<p>Brace</p>	<ul style="list-style-type: none"> ● Functional brace for returning to pivoting/high intensity sport
<p>Interventions</p>	<ul style="list-style-type: none"> ● Multi-plane sport specific plyometrics program

<p>-Continue with Phase II-V interventions</p>	<ul style="list-style-type: none"> ● Multi-plane sport specific agility program ● Include hard cutting and pivoting depending on the individuals' goals ● Non-contact practice→ Full practice→ Full play
<p>Criteria to Discharge</p>	<ul style="list-style-type: none"> ● Quad/HS/glut index ≥90%; HHD mean preferred (isokinetic testing if available) ● Hop Testing ≥90% compared to contralateral side

Protocol adapted from Mass General Sports Medicine Physical Therapy Rehabilitation Protocols. See <https://www.massgeneral.org/orthopaedics/sports-medicine/physical-therapy/sports-rehab-protocols>