Rehabilitation Protocol for Arthroscopic Meniscal Repair

These guidelines are intended to assist clinicians in managing the post-operative course for meniscal repair. The protocol is both time-based, dependent on tissue healing, and criterion-based. Treatment should be individualized based on the patient's needs, exam findings, and clinical judgment. The expected timelines for recovery milestones outlined in this guideline may vary depending on the surgeon's preferences, any additional procedures performed, and the presence of complications. Clinicians seeking guidance on patient progression should consult with the referring surgeon.

The interventions listed are not exhaustive and should be adapted based on the patient's progress and at the discretion of the clinician.

Considerations for Post-operative Meniscal Repair Various factors, including the type and location of the meniscal tear and repair, can influence the outcomes of post-operative meniscal repair rehabilitation. A more conservative approach to range of motion, weight-bearing, and rehabilitation progression may be necessary for complex tears or all-inside meniscal repairs. This protocol does not apply to meniscus root repairs or meniscus transplants. It is recommended that clinicians collaborate closely with the referring physician regarding intra-operative findings and satisfaction with the strength of the repair.

Post-operative Care Considerations If the patient experiences a fever, intense calf pain, excessive drainage from the incision, uncontrolled pain, or any other concerning symptoms, they should contact their doctor promptly.

PHASE I: IMMEDIATE POST-OP
(WEEKS 0-3 AFTER SURGERY)

Rehabilitation Goals	• 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
	  • Keep your knee straight and elevated when sitting or lying down. Do not rest with a towel
	  placed under the knee.
	  • Do not actively bend your knee; support your surgical side when performing transfers (i.e.
	  sitting to laying down)
	  • Do not pivot on your surgical side.

Weight Bearing	*Walking* • Brace locked, crutches • Partial weight bearing • When going up the stairs, make sure you are leading with the non-surgical side, when going down the stairs, make sure you are leading with the crutches and surgical side.
Interventions	*Swelling Management* • Ice, compression, elevation (check with MD re: cold therapy) • Retrograde massage • Ankle pumps

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PHASE I: IMMEDIATE POST-OP CONTINUED
(WEEKS 0-3 AFTER SURGERY)

Interventions	*Range of motion/Mobility* • Patellar mobilizations: superior/inferior and medial/lateral • Seated assisted knee flexion extension and heel slides with towel o ***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 *Strengthening* • Quad sets • NMES high intensity (2500 Hz, 75 bursts) supine knee extended 10 sec/50 sec, 10 contractions, 2x/week during sessions—use of clinical stimulator during session, consider home units distributed immediate post op • Straight leg raise o **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	• 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
(WEEKS 3-6 AFTER SURGERY)

Rehabilitation Goals	• Continue to protect repair • Reduce pain, minimize swelling • Maintain full extension • **Flexion < 90 degrees unless further direction from MD**
Weight Bearing	*Walking* • Continue partial weight bearing unless directed otherwise by MD • Consult with referring MD regarding unlocking brace
Additional Interventions *Continue with Phase I interventions	*Range of motion/Mobility* • Stationary bicycle: gentle range of motion only (see Phase III for conditioning) Cardio • Upper body ergometer *Strengthening* • Calf raises • Lumbopelvic strengthening: Sidelying hip external rotation clamshell in neutral, plank, bridge with feet elevated *Balance/proprioception* • Double limb standing balance utilizing uneven surface (wobble board) • Joint position re-training
Criteria to Progress	• No swelling (Modified Stroke Test) • Flexion ROM 120 degrees • Extension ROM equal to contra lateral side

PHASE III: LATE POST-OP
(WEEKS 6-8 AFTER SURGERY)

Rehabilitation Goals	• Continue to protect repair • Maintain full extension
Weight Bearing	• May discontinue use of brace/crutches after 6 weeks per MD and once adequate quad control is achieved and gait in normalized.
Additional Interventions *Continue with Phase I-II Interventions	*Range of motion/Mobility* • 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 Cardio • Stationary bicycle, flutter kick swimming, pool jogging *Strengthening* • 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 *Balance/proprioception* • Single limb balance progress to uneven surface including perturbation training
Criteria to Progress	• No swelling/pain after exercise • Normal gait • ROM equal to contra lateral side • Joint position sense symmetrical (<5 degree margin of error)

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

Rehabilitation Goals	• Maintain full ROM. • Safely progress strengthening. • Promote proper movement patterns. • Avoid post exercise pain/swelling.
Additional Interventions *Continue with Phase I-III Interventions as indicated	*Cardio* • Elliptical, stair climber *Strengthening* o **The following exercises to focus on proper control with emphasis on good proximal stability • 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 • Knee Exercises for additional exercises and descriptions • Gym equipment: seated hamstring curl machine and hamstring curl machine • Romanian deadlift
Criteria to Progress	• No episodes of instability • 10 repetitions single leg squat proper form through at least 60 deg knee flexion • KOOS-sports questionnaire >70% • Functional Assessment o Quadriceps index ≥80%; HHD mean preferred (isokinetic testing if available) o Hamstring, glut med, glut max index ≥80%; HHD mean preferred (isokinetic testing for HS if available)

PHASE V: EARLY RETURN TO SPORT
(MONTHS 3-5 AFTER SURGERY)

Rehabilitation Goals	• Safely progress strengthening. • Safely initiate sport specific training program. • Promote proper movement patterns. • Avoid post exercise pain/swelling.
Additional Interventions *Continue with Phase II-IV interventions	• Interval running program o Return to Running Program • Progress to plyometric and agility program (with functional brace if prescribed) o Agility and Plyometric Program
Criteria to Progress	• Clearance from MD and ALL milestone criteria below have been met • Completion of jog/run program without pain/swelling • Functional Assessment o Quad/HS/glut index ≥90%; HHD mean preferred (isokinetic testing if available) o Hamstring/Quad ratio ≥ 70% with isokinetic testing if available) o Hop Testing ≥90% compared to contra lateral side • KOOS-sports questionnaire >90% • International Knee Committee Subjective Knee Evaluation >93 • Psych Readiness to Return to Sport (PRRS)

PHASE VI: UNRESTRICTED RETURN TO SPORT
(MONTHS 6+ AFTER SURGERY)

Rehabilitation Goals	• Continue strengthening and proprioceptive exercises. • Symmetrical performance with sport specific drills. • Safely progress to full sport.
Additional Intervention *Continue with Phase II-V interventions	• Multi-plane sport specific plyometrics program • Multi-plane sport specific agility program • Include hard cutting and pivoting depending on the individuals' goals • Non-contact practice > Full practice > Full play
Criteria to Progress	• Quad/HS/glut index ≥90%; HHD mean preferred (isokinetic testing if available) • Hop Testing ≥90% compared to contra lateral side

For further assistance or to schedule an appointment, please contact **iOrtho - The Orthopedic Institute** at **833-464-6784** or visit our website at **iorthomd.com** to text/email us. Our team is dedicated to providing personalized care and guidance throughout your rehabilitation journey.