Rehabilitation Protocol for MPFL Reconstruction

These guidelines are intended to assist clinicians in managing the post-operative course for Medial Patellofemoral Ligament (MPFL) reconstruction. 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 Concomitant Procedures Various factors, including additional procedures such as tibial tuberosity osteotomy (TTO), can influence the outcomes of post-operative MPFL reconstruction rehabilitation. It is recommended that clinicians collaborate closely with the referring physician regarding early range of motion, weight-bearing status, and the use of assistive devices.

Post-operative Care Considerations If the patient experiences a fever, excessive drainage from the incision, severe heat and/or redness along the incision, uncontrolled pain, or any other concerning symptoms, they should contact their doctor promptly.

PHASE I: IMMEDIATE POST-OP
(WEEKS 0-2 AFTER SURGERY)

Rehabilitation Goals	• Protect surgical site • Reduce swelling, minimize pain • Restore full extension, gradually improve flexion ≥90 deg • Minimize arthrogenic muscle inhibition, re-establish quad control, regain full active extension • Patient education • Keep your knee straight and elevated when sitting or laying down. Do not rest with a towel placed under the knee
Weight Bearing	*Walking* • Initially brace locked, PWB (0-1 week) WBAT with crutches (per MD recommendation) • May start walking without crutches as long as there is no increased pain, effusion, and proper gait • When climbing stairs, make sure you are leading with the non-surgical side when going up the stairs, make sure you are leading with the crutches and surgical side when going down the stairs
Interventions	*Swelling Management* • Ice, compression, elevation (check with MD re: cold therapy) • Retrograde massage • Ankle pumps *Range of motion/Mobility* • PROM • Heel slides with towel • Low intensity, long duration extension stretches: prone hang, heel prop • Seated hamstring/calf stretch *Strengthening* • Calf raises • Quad sets

PHASE I: IMMEDIATE POST-OP CONTINUED
(WEEKS 0-2 AFTER SURGERY)

Interventions	o 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 o **Do not perform straight leg raise if you have a knee extension lag • Hip abduction • Standing hamstring curl
Criteria to Progress	• Knee extension ROM 0 deg • 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 surgical site • Maintain full extension, restore full flexion (contralateral side) • Normalize gait • Patient education
Weight Bearing	*Walking* • WBAT: May unlock brace when able to perform straight leg raise without lag • Discontinue use of brace after 6 wks (or per surgeon) and when gait is normalized
Additional Interventions *Continue with Phase I interventions	*Range of motion/Mobility* • Stationary bicycle • Gentle patellar mobilizations: superior/inferior and medial/lateral *Not necessary unless stiffness present *Strengthening* • Adductor strengthening: hook lying ball squeezes, SLR adduction, bridging with ball squeeze • Ball squats, wall slides, mini squats from 0-60 *Balance/proprioception* • Single leg standing balance (knee slightly flexed) static progressed to dynamic and level progressed to unsteady surface
Criteria to Progress	• No swelling (Modified Stroke Test) • Flexion ROM > 90 deg • Extension ROM equal to contra lateral side

PHASE III: LATE POST-OP
(WEEKS 7-12 AFTER SURGERY)

Rehabilitation Goals	• Continue to protect surgical site • Maintain full ROM • Safely progress strengthening • Promote proper movement patterns • Avoid post exercise pain/swelling • Avoid activities that produce pain at repair site
Weight Bearing	• FWB without assistive device

CONTINUED ON NEXT PAGE

PHASE III: LATE POST-OP CONTINUED
(WEEKS 7-12 AFTER SURGERY)

Additional Interventions *Continue with Phase I-II Interventions	*Range of motion/Mobility* • Gentle stretching all muscle groups: prone quad stretch, standing quad stretch, standing hip flexor stretch *Cardio* • ~8 weeks: Elliptical, stair climber, flutter kick swimming, pool jogging *Strengthening* • Gym equipment: leg press machine, seated hamstring curl machine and hamstring curl machine, hip abductor and adductor machine, hip extension machine, roman chair, seated calf machine **The following exercises to focus on proper control with emphasis on good proximal stability • Proximal Strengthening: Double leg bridge, bridge with feet on physioball, single leg bridge, lateral band walk, standing clamshell/fire hydrant, hamstring walkout, TA brace with UE and LE progression • Squat to chair • Lateral lunges • Romanian deadlift (single and double leg) • Single leg progression: single leg press, slide board lunges: retro and lateral, split squats, step ups and step ups with march, lateral step-ups, step downs, single leg squats, single leg wall slides/sit • Lateral band walks *Balance/proprioception* • Progress single limb balance including perturbation training
Criteria to Progress	• No effusion/swelling/pain after exercise • Normal gait • ROM equal to contra lateral side • Quad/HS/glut index ≥70%; HHD mean or isokinetic testing @ 60d/s

PHASE IV: TRANSITIONAL
(WEEKS 13-16 AFTER SURGERY)

Rehabilitation Goals	• Maintain full ROM • Safely progress strengthening • Promote proper movement patterns • Avoid post exercise pain/swelling • Avoid activities that produce pain
Additional Interventions *Continue with Phase II-III interventions	*Strengthening* • Progress intensity (weight) and volume (repetitions) of exercises *Plyometric activities* • Bilateral FWB plyometrics progressed to single leg plyometrics *Balance/proprioception* • Progress single limb balance including perturbation training

Criteria for Discharge	• Clearance from MD and ALL milestone criteria below have been met
	• Functional Assessment
	  o Quad/HS/glut index ≥80%; HHD mean or isokinetic testing @ 60d/s
	  o Hamstring/Quad ratio ≥66%
	  o Hop Testing ≥80% compared to contra lateral side, demonstrating good landing mechanics

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 • Avoid activities that produce pain at graft donor site
Additional Interventions *Continue with Phase II-III interventions	*Strengthening* • Progress intensity (weight) and volume (repetitions) of exercises 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 for Discharge	• Clearance from MD and ALL milestone criteria below have been met • Completion jog/run program without pain/effusion / swelling • Functional Assessment o Quad/HS/glut index ≥95%; HHD mean or isokinetic testing @ 60d/s o Hamstring/Quad ratio ≥66% o Hop Testing ≥95% compared to contra lateral side, demonstrating good landing mechanics • Lysholm >90% • KOOS-sports questionnaire >90% • International Knee Committee Subjective Knee Evaluation >93 • Psych Readiness to Return to Sport (PRRS) • Kujala > 90

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 Interventions *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 (~6-7 mo)
Criteria for Discharge	• Last stage, no additional criteria

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.