

MPFL Reconstruction

Physical Therapy Protocol · Patellar Stabilization, 4-6 Month Timeline

Modeled on the Ohio State University Wexner Medical Center MPFL Reconstruction Clinical Practice Guideline and the Mass General Brigham MPFL reconstruction rehabilitation protocol, with return-to-sport criteria per Manske and Prohaska.



AT A GLANCE

TIMELINE	16 weeks of structured rehab; return to sport typically 4-6 months, criterion-based
WEIGHT BEARING	WBAT with crutches from day 1, brace locked in extension until SLR without lag; wean crutches by ~2-4 weeks, discharge brace by ~6 weeks with normalized gait
KEY MILESTONES	Flexion $\geq 90^\circ$ by 2 weeks · full extension symmetrical early · full AROM by 6 weeks · jogging ~10-12 weeks at $\geq 80\%$ strength
RETURN TO ACTIVITY	Sport at 4-6 months: isokinetic deficit $\leq 10\%$, hop testing within 10-15% of uninvolved limb, no instability on exam

KEY PRECAUTIONS

- Patellar mobilizations superior/inferior and medial glide only - NO lateral patellar glides for the first 6 weeks (stresses the reconstruction).
- Do not perform SLR with an extensor lag; unlock/discharge the brace only once quad control is demonstrated.
- If a hamstring autograft was used, avoid isolated hamstring strengthening until 8 weeks post-op.
- No jogging or plyometric activity before strength and effusion criteria are met (effusion $\leq 1+$, involved limb $\geq 80\%$).

PHASED REHABILITATION

PHASE 1 — PROTECTION AND QUAD ACTIVATION		Weeks 0-4
GOALS	- Protect the graft; control pain and effusion ($\leq 2+$ early, trending down) - Full passive extension symmetrical to contralateral limb; flexion $\geq 90^\circ$ by week 2 - Restore volitional quadriceps contraction and SLR without extensor lag	
INTERVENTIONS	- WBAT with crutches; brace locked in extension for ambulation until SLR without lag, then unlock per quad control - PROM/AAROM/AROM as tolerated from day 1: heel slides, wall slides, stationary bike for ROM - Patellar mobilizations - superior and inferior glides; no lateral glides x 6 weeks - Quad sets, glute sets, 4-way SLR (no lag), NMES to quadriceps at $60-90^\circ$ flexion for activation deficits - Shuttle/leg press $90-0^\circ$ low load progressing toward single-leg; 2-inch step-ups late in phase - Bridging, planks, single-leg stance balance work	
CRITERIA TO ADVANCE	- SLR without extensor lag - Extension ROM equal to contralateral side; flexion $> 90^\circ$ - Effusion $\leq 1+$ and controlled - Independent ambulation on level surfaces without gait deviation	

PHASE 2 — PROGRESSIVE STRENGTHENING		Weeks 4-10
GOALS	- Full AROM symmetrical to uninvolved limb; discharge brace with normalized gait (~6 weeks) - Build quadriceps, gluteal, and core strength with controlled effusion	
INTERVENTIONS	- Stationary bike adding light resistance; leg press and ball squat progressions - Weeks 6-10: sub-maximal OKC leg extensions in the $90-45^\circ$ arc only - Isolated hamstring strengthening from week 8 (hamstring autograft) - Resisted gluteal work, lateral band walks, partial-range lunges, step-ups/step-downs - Bilateral shuttle jumping at ~50% body weight; double-leg landing mechanics drills - Single-leg balance on varied surfaces; single-leg RDL	
CRITERIA TO ADVANCE	- Full AROM equal to contralateral limb - Normal gait without brace; effusion $\leq 1+$ after exercise - Quad/hamstring/gluteal strength ~70% of uninvolved limb	

PHASE 3 — ADVANCED STRENGTHENING AND RUNNING		Weeks 10-12
GOALS	- Initiate walk-jog progression and bilateral plyometrics - Full-arc open-chain quadriceps loading	
INTERVENTIONS	- Full-range OKC knee extension with progressive resistance - Squat jumps and broad jumps beginning at 50% effort; landing symmetry emphasis - Walk-jog progression once strength criterion met - Single-leg squat and step-down progressions with mechanics coaching - Continue hip/core strengthening (RDLs, bridges, lateral band work)	
CRITERIA TO ADVANCE	- Involved-limb strength at least 80% of uninvolved limb - Full active knee extension with normal landing mechanics - No reactive effusion or patellar apprehension with plyometric loading	

PHASE 4 — RETURN TO SPORT		Weeks 12-16+
GOALS	- Sport-specific strength, agility, and confidence without instability - Meet objective discharge criteria	
INTERVENTIONS	- Agility drills at 50-75% effort progressing to full speed (shuffle, zigzag, carioca, figure-8) - Single-leg hop training with progressive heights; multi-planar plyometrics - Sport-specific drills without compensatory movement patterns - Maintenance quadriceps and hip strengthening program	
CRITERIA TO ADVANCE	- Isokinetic peak torque deficit $\leq 10\%$ at 60°/sec and 300°/sec - Single-leg and triple crossover hop within 10-15% of uninvolved limb - No patellar instability or apprehension on examination - Completes sport-specific drills without symptoms or reactive effusion - Physician clearance; typical timeline 4-6 months	

GUIDING PRINCIPLES

This protocol follows criterion-based progression over rigid time-based advancement; phased rehabilitation balancing tissue healing with controlled stress application; objective milestones (ROM, strength LSI, functional testing) to guide phase transitions; individualization based on surgical findings, tissue quality, and patient factors; and ongoing surgeon–therapist communication throughout recovery.

REFERENCES

- Ohio State University Wexner Medical Center Sports Medicine. Medial Patellofemoral Ligament (MPFL) Reconstruction Clinical Practice Guideline. <https://wexnermedical.osu.edu/-/media/files/wexnermedical/patient-care/healthcare-services/sports-medicine/education/medical-professionals/knee-ankle-and-foot/medialpatellofemoralligamentreconstruction.pdf>
- Massachusetts General Hospital Sports Physical Therapy. Rehabilitation Protocol for MPFL Reconstruction. <https://www.massgeneral.org/assets/MGH/pdf/orthopaedics/sports-medicine/physical-therapy/rehabilitation-protocol-for-MPFL.pdf>
- Manske RC, Prohaska D. Rehabilitation Following Medial Patellofemoral Ligament Reconstruction for Patellar Instability. *Int J Sports Phys Ther*. 2017;12(3):494-511.

For clinical use by licensed physical therapists treating patients of Robert Pettit, MD. This document is a rehabilitation guideline, not a substitute for clinical judgment. Progression must be individualized based on intraoperative findings, tissue quality, and patient response. Scan the QR code for the current version of this protocol.