

Rehabilitation Protocol: Medial Patellofemoral Ligament (MPFL) Reconstruction

Date of Surgery: _____

Procedure: ☐ MPFL Reconstruction ☐ Cartilage Procedure ☐ Lateral Lengthening

Concomitant Procedures: Cartilage restoration modifications are noted in each phase. MPFL + TTO and/or trochleoplasty follow the TTO/Trochleoplasty protocol.

Patients with chronic instability may present with quadriceps inhibition, apprehension, and compensatory patterns – progression is milestone-based, especially for stairs, running, plyometrics, and sport. Outcome measures: LEFS, IKDC, NPRS, MPFL-RSI. **Return-to-sport assessments (quantitative strength, hop, and movement quality testing) are recommended at 3, 6, 9, and 12 months.**

Please contact our office with any questions or concerns.

☐ **Phase I – Protection (Weeks 0–6)**

- **PT:** Begin at 1 week (1×/week; 2×/week if cartilage restoration)
- **Weightbearing:** WBAT with **brace locked in 0° extension** and crutches for **at least 2 weeks**; avoid excessive WB (duration, load, frequency). **Cartilage restoration:** additional WB restrictions possible based on lesion size/location
- **Hinged Knee Brace: Locked in extension for ambulation and sleep for 6 weeks**
- **Precautions:** No active open chain knee extension; avoid lateral patellar translation; no heat to the knee; no pillow under the knee (elevate entire leg); knee flexion within limits
- **Range of Motion** – Seated AAROM flexion and passive extension (towel under heel). **Goals: 0–60° by 2 weeks, 0–90° by 4 weeks, 0–≥120° by 6 weeks** – contact our office if not trending toward 90° by 4 weeks. Patellar mobilization as directed
- **Cartilage Restoration: ROM in CPM only for the first 2 weeks** – CPM 0–30°, 2 hours 3× daily starting POD 3, progressing to 60°
- **Therapeutic Exercises**
 - Quad sets with towel roll; **NMES (quad stim) 20 minutes 3× daily**, starting as soon as possible
 - SLR (in brace if lag present); hip PREs pain-free; ankle PREs; glute sets
 - Short crank bike once 80–90° flexion
 - **Leg press (bilateral)** once ≥90° flexion and active quad contraction with SLR
 - Consider BFR training; gastrocnemius flexibility; cryotherapy
- **Criteria to Progress:** 0/10 pain at rest; good quad contraction (10 seconds); SLR without lag; good medial patellar mobility; ROM 0–120°; independent ambulation with brace and assistive device, including stairs

☐ **Phase II – Gait Normalization (Weeks 7–11)**

- **Brace/Gait: At 6 weeks:** unlock brace to 90° or transition to functional brace once SLR without lag and adequate ROM. Discharge assistive device once there is no quadriceps avoidance during loading response
- **Precautions:** **No open chain knee extension until week 10**; avoid lateral patellar translation, painful arcs, and pivoting on a planted foot
- **Range of Motion** – Sitting to stair flexion stretches; heel slides once >120°; stationary bike (standard crank requires 115°) at 80 RPM with increasing resistance
- **Therapeutic Exercises**
 - Gait: low-incline treadmill, retro walking, weight shifts, TKEs with band; aquatic or anti-gravity treadmill once incision healed

- Closed chain quad strengthening in pain-free arcs; **week 10+:** open chain knee extension in a limited arc (90–40°)
- Leg press, bilateral to single leg; sit to stand from elevated seat; forward step-ups (2–4")
- Proximal and core (side planks, bridges); prone knee flexion; heel raises
- Balance: double limb on challenging surfaces, then single limb on level surface with good alignment
- Continue NMES/biofeedback and BFR as needed
- **Criteria to Progress:** ROM 0 to >125°; pain and effusion controlled; normal gait; good patellar mobility; single leg stance with good alignment; symmetric sit to stand; 0/10 pain with ADLs and exercise

☐ Phase III – Strengthening (Weeks 12–20)

- **Precautions:** Avoid pain, effusion, quad inhibition, gait deviations, and "too much, too soon"
- **Therapeutic Exercises**
 - ROM: wall slides, stair stretch, heel slides to full
 - Squats: chair to free squats, progressing load and depth
 - Forward step-ups (6" to 8"); eccentric quads – eccentric leg press, single-leg squat to chair, forward step-downs (4" to 8")
 - Open chain knee extension, progressing arc of motion as tolerated
 - Proximal: bridges, standing clamshells, clocks, windmills, lawnmowers, RDLs; core (front/side planks)
 - Balance: static to dynamic, multiplanar, challenging surfaces
 - Cross training: elliptical once good 6" step-up; bike at 80 RPM; swimming (no breaststroke)
- **Criteria to Progress:** Clearance to begin running and plyometrics; full ROM; no pain or effusion; adequate quadriceps strength on testing; 30-second single-leg bridge hold; controlled 6–8" step-up and step-down; good single-leg alignment and control

☐ Phase IV – Running and Plyometrics (Months 5–7)

- **Therapeutic Exercises**
 - Advance single-leg and eccentric quad strength, flexibility, dynamic stability, core
 - **Plyometrics** (add one exercise per week): box jump, jump in place/jump rope, drop jump, broad jump, side-to-side hops, hop to opposite – double leg before single leg, vertical before horizontal
 - **Running** on non-consecutive days (AlterG or aquatic if available): wk 1 – 30 s run/30 s walk ×3; wk 2 – 1 min/1 min ×3; wk 3 – 2 min/1 min ×2; wk 4 – 4 min/2 min ×1; wk 5 – 4 min/2 min ×2; wk 6 – 8 min continuous
- **Criteria to Progress:** Clearance for return-to-play progression; completed plyometric program; **return-to-sport assessment recommended** – quadriceps and hamstring strength approaching the contralateral limb, hop testing, and movement quality (squat, step-down, jumping, single-leg squat); no apprehension with sport movements

☐ Phase V – Return to Sport (Month 7+)

- **Therapeutic Exercises**
 - Gradually increase volume and load to match sport demands; continue strength, single-leg stability, and core
 - **Agility (advance weekly):** forward run, backpedal, shuffles, cariocas at 50%, then 75%; 45° cuts, figure-8s at 50–75%; four corners, T-drills, 90° cuts, accel/decel at 50–100%; reaction drills; sport-specific/dual-task drills
 - Non-contested to contested drills; non-contact scrimmage before contact and live play; collaborate with ATC/coach

- **Criteria for Return to Sport: Return-to-sport assessment recommended** – quadriceps strength equal to the contralateral limb, symmetric hop testing, and good movement quality and single-leg deceleration control; no pain or apprehension with sport movements; physician clearance