

Rehabilitation Protocol: Trochleoplasty ± MPFL Reconstruction

Date of Surgery: _____

Procedure: ☐ Trochleoplasty ☐ MPFL Reconstruction ☐ Lateral Lengthening

Combined with TTO: Follow the TTO protocol for weightbearing.

Early Motion: Full, unrestricted ROM from day 0 – early motion helps remodel the trochlea. Crepitus/grinding is expected for up to 12 weeks. Progression is milestone-based. Outcome measures: LEFS, IKDC, NPRS, MPFL-RSI. Return-to-sport assessments (quantitative strength, hop, and movement quality testing) are recommended.

Please contact our office with any questions or concerns.

☐ **Phase I – Early Motion and Protection (Weeks 0–6)**

- **PT:** Begin at 1 week, 2×/week
- **Weightbearing:** **WBAT with crutches, progressing to full weightbearing by 2 weeks;** wean crutches once gait is normal without limp
- **Hinged Knee Brace:** Locked in extension for ambulation and sleep until SLR without lag; unlock for ambulation as quad control improves; discontinue by 6 weeks
- **Range of Motion – Full, unrestricted ROM from day 0** – AAROM/PROM and AROM as tolerated; stationary bike without resistance as soon as tolerated; passive extension with towel under heel
- **Precautions:** **No loaded knee flexion past 30° (weeks 0–2) or 60° (weeks 2–4); no heavy weighted bent-knee exercises until 3 months.** No open chain knee extension until week 10; avoid lateral patellar translation (if MPFL); no heat to the knee
- **Therapeutic Exercises**
 - Quad sets with **NMES (quad stim) 20 minutes 3× daily**, starting as soon as possible; ankle pumps; glute sets
 - SLR in all planes (in brace if lag present); hip PREs
 - **Weeks 2–4:** Bridges; leg press 0–60°; mini squats 0–40°
 - **Weeks 4–6:** Progress leg press and squat depth within limits; heel raises; balance double to single limb
 - Consider BFR training; cryotherapy
- **Criteria to Progress:** Full weightbearing with normal gait; SLR without lag; full or near-full ROM; minimal effusion

☐ **Phase II – Strengthening (Weeks 6–12)**

- **Brace:** Discontinued
- **Precautions:** No heavy weighted bent-knee exercises until 3 months; **open chain knee extension from week 10** in a limited arc (90–40°); avoid pivoting on a planted foot
- **Therapeutic Exercises**
 - Leg press bilateral to single leg; sit to stand; forward step-ups (2–4", progressing)
 - Hamstring curls; proximal and core strengthening (side planks, bridges)
 - Balance and proprioception: single leg with good alignment, progressing surfaces
 - Stationary bike with resistance; elliptical once good 6" step-up
- **Criteria to Progress:** Full ROM; normal gait; no effusion; good single-leg alignment and control; symmetric sit to stand

☐ **Phase III – Advanced Strengthening (Weeks 12–20)**

- **Therapeutic Exercises**

- Weighted bent-knee exercises may begin – squats (chair to free, progressing load and depth), lunges
- Forward step-ups (6" to 8"); eccentric quads – eccentric leg press, single-leg squat to chair, step-downs (4" to 8")
- Progress open chain knee extension arc
- Proximal: clamshells, clocks, windmills, lawnmowers, RDLs; core progression
- Dynamic balance; cross training

- **Criteria to Progress:** Clearance to begin running and plyometrics; full ROM; no pain or effusion; adequate quadriceps strength on testing; controlled 6–8" step-up and step-down

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

- **Therapeutic Exercises**

- Plyometrics (one new exercise per week; double before single leg, vertical before horizontal)
- Interval running on non-consecutive days (AlterG or aquatic if available)
- Advance single-leg and eccentric strength, dynamic stability, core

- **Criteria to Progress:** Completed plyometric program; return-to-sport assessment – quad and hamstring strength approaching the contralateral limb, hop testing, movement quality; no apprehension

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

- **Therapeutic Exercises**

- Agility progression: linear, then lateral, then cutting; non-contested before contested drills
- Gradually increase volume and load to sport demands

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