DR. KAISEN YAO, MD

ORTHOPEDIC SPORTS MEDICINE SURGEON

Post-Operative Physical Therapy Protocol

MPFL Reconstruction w/Tibial Tubercle Osteotomy

Northwell Health • Department of Orthopedic Surgery & Sports Medicine • Dr. Kaisen Yao, MD

Patient Name	Date of Surgery	Prescribing Surgeon
		Dr. Kaisen Yao, MD

General Guidelines & Precautions

- This protocol combines MPFL reconstruction rehabilitation with bony healing precautions for the tibial tubercle osteotomy (TTO) — weight bearing and strengthening progress more conservatively than an isolated MPFL reconstruction until osteotomy healing is confirmed.
- Wear the brace as prescribed, typically locked in extension for ambulation, until cleared by the surgeon.
- Prioritize swelling control with ice, compression, elevation, and ankle pumps.
- Contact the surgeon for fever, calf pain, excessive drainage, uncontrolled pain, or a sensation of the kneecap shifting or giving way.

PHASE I
Protected Weight Bearing / Bony Healing

TIMEFRAME
WEEKS 0–6

Goals:
Protect the osteotomy and MPFL graft, control pain and effusion, achieve full passive extension, and restore quadriceps activation.

Precautions:
Weight bearing typically limited to touch-down or partial as directed until early bony healing is confirmed (commonly around 6 weeks); brace locked in extension for ambulation; avoid active/resisted knee extension, pivoting, and twisting.

Interventions:
Cryotherapy, compression, elevation, ankle pumps, patellar mobilizations, gentle heel slides within allowed range, extension stretching, quad sets, straight-leg raises without lag, and hip/core strengthening.

Criteria to Progress:
Radiographic evidence of early healing per surgeon, full passive extension, minimal increase in swelling, and straight-leg raise without lag.

PHASE II

Progressive Weight Bearing & Motion

TIMEFRAME

WEEKS 6–12

Goals:
Progress to full weight bearing and range of motion as cleared, wean from the brace and assistive device, and normalize gait.

Interventions:
Progress closed-chain strengthening with mini-squats and leg press in a protected range, stationary bike, bridges, hamstring strengthening, and balance/proprioception drills.

Activity:
Gradually increase walking and daily activities; continue to avoid running, jumping, cutting, pivoting, and kneeling.

Criteria to Progress:
Confirmed bony healing, full weight bearing without an assistive device, minimal effusion, and improving single-leg control.

PHASE III

Strengthening & Dynamic Control

TIMEFRAME

MONTHS 3–5

Goals:
Restore full strength and range of motion, and build dynamic patellofemoral control for higher-level function.

Interventions:
Progress closed-chain strengthening, step-downs, split squats, single-leg strengthening, core and hip training, elliptical, cycling, and proprioceptive drills.

Functional Focus:
Emphasize symmetrical, well-controlled mechanics during squatting, stair negotiation, and single-leg activities, avoiding dynamic valgus.

Criteria to Progress:
No reactive swelling, full range of motion, adequate strength relative to the uninvolved side, and no apprehension or instability with functional movement.

PHASE IV

Return to Running, Agility & Sport

TIMEFRAME

6–10+ MONTHS

Goals:
Safely progress running, plyometrics, and pivoting activity while maintaining excellent patellar control.

Interventions:
Criterion-based walk-jog progression, double-leg then single-leg plyometrics, cutting and pivoting drills as tolerated, and sport-specific retraining.

Return to Sport/Work:
Pivoting and contact sports are typically restricted until bony and soft-tissue healing, strength, and control are adequate and should follow surgeon and therapist clearance.

Discharge Criteria:
Full range of motion, no apprehension with patellar translation, symmetrical strength and functional testing, and safe mechanics during advanced dynamic and pivoting tasks.

This protocol is a general guideline. Because it involves a bony osteotomy, weight-bearing and strengthening progression must be individualized by the treating physical therapist in coordination with Dr. Yao's office and confirmed against follow-up radiographs.