

MPFL Reconstruction with Tibial Tubercle Osteotomy (TTO) Rehabilitation Protocol

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Diagnosis: Patella Instability, MPFL Tear

PT Frequency: 2-4 times per week

Brace: Locked in extension x 2 weeks, then progressive increase as described below

Weightbearing: NWB x 6 weeks, then advance 25% PWB weekly until full WBAT by 8 weeks

PHASE I (Weeks 0 – 6):

- **Weightbearing:** No weightbearing (NWB) x 6 weeks with crutches and brace
- **Hinged Knee Brace:**
 - Worn at all times during day/night; ok to remove for hygiene
 - Week 0-2: Locked at 0°
 - Week 2-4: Locked at 0-30°
 - Week 4-6: Locked at 0-60°
- **Range of Motion:** 0-30° with emphasis on full extension for week 0-2 (PROM, AAROM) adding 30° every 2 weeks
 - Week 0-2: 0-30°
 - Week 2-4: 0-60°
 - Week 4-6: 0-90°
- **Home Exercises:** Heel slides, quad sets with brace locked at 0°, patellar mobilization, straight leg raise in brace locked at 0°, calf/ankle pumps, modalities

Phase II (Weeks 6 – 8)

- **Weightbearing:** Progress to partial weightbearing (25% then 50%) with goal of weightbearing as tolerated (WBAT) with crutches and brace by 8 weeks
 - Discontinue crutches when gait normalized and non-antalgic
 - Discontinue brace once fully WBAT without crutches
- **Hinged Knee Brace:** Unlocked; discontinue brace once fully WBAT without crutches
- **Range of Motion:** Full unlimited active/passive ROM
- **Therapeutic Exercises:**
 - Advance closed chain quads, progress balance
 - Core/pelvic stability work
 - Begin stationary bike at 6 weeks
 - Advance SLR, floor-based exercise; hip/core exercises

Phase III (Weeks 8 – 16)

- **Weightbearing:** Advance to full WBAT by 8 weeks
- **Hinged Knee Brace:** None
- **Range of Motion:** Full

- **Therapeutic Exercises:**
 - Progress flexibility/strengthening
 - Progression of functional balance core, glutes program
 - Advance bike, add elliptical at 12 weeks as tolerated
 - Swimming okay at 12 weeks

Phase IV (Weeks 16+)

- **Weightbearing:** Full WBAT
- **Brace:** None
- **Range of Motion:** Full range of motion
- **Therapeutic Exercises:**
 - Advance Phase IV activity
 - Progress to functional training
 - Forward/backward running, cutting, grapevine
 - Initiate plyometric program and sport-specific drills at 4 months
 - Impact activities okay after 20 weeks
 - Return to play as tolerated after 4 months post-op when cleared by MD

Exercise	Week													
	1	2	3	4	5	6	7	8	9	10	12	16	20	24
Initial Exercises:														
ROM Goals	0-30°		0-60°		0-90°		Progress to full							
Flexion/extension, heel slides/seated	█													
Patella/Tendon mobilization	█													
Quad Series	0° ISOs, SLR				60° ISO		70-30° arc-resisted			Full arc resisted				
Hamstring series	█													
Sit and reach for hamstrings	█													
Ankle Pumps	█													
Crutch weaning	NWB					Begin WBAT progress to full by 8 weeks								
Heel prop knee extension stretch	█													
SLR (w/ brace until quad control restored)	█													
Toe and heel raises											█			
Balance series											█			
Weight-bearing Strength Exercises:														
Double knee bends						NWB					█			
Leg Bridges (2 □ 1 leg)						NWB					█			
Begin cord exercises						NWB					█			
Leg press (ISO □reps, 2 □ 1 leg)						NWB					█			
Reverse lunge- static hold						NWB					█			
Dead Lift (2 □1 leg)						NWB					█			
Sports Test exercises						NWB					█			
Cardiovascular Exercises:														
Bike with both legs-no resistance						NWB					█			
Bike with both legs- resistance						NWB					█			
Aqua jogging						NWB					█			
Treadmill-walking (no limp)						NWB					█			
Swimming with fins-light flutter kick						NWB					█			
Elliptical Trainer						NWB					█			
Stair stepper						NWB					█			
*Cardio Exercises	Must tolerate daily walking with no limp & no significant increase in pain/swelling prior to initiating WB cardio (walk, elliptical, stepper)													
Agility Exercises:														
Running Progression						NWB					█			
Initial-Single Plane						NWB					█			
Advance-Multi Directional						NWB					█			
Functional Sports Test						NWB					█			
High Level Activities:														
Golf Progression						NWB					█			
Outdoor biking, hiking, running						NWB					█			
Return to Full Sport at 6-8 months post-op						NWB					█			

Adapted from post-operative protocol by Dr. Jorge Chahla created by Howard Head Physical Therapy, Jill Monson, PT, OCS and Jon Schoenecker, PT, OCS, CSCS