

MPFL Reconstruction with TTO Protocol

	Phase I: Weeks 0-2	Phase II: Weeks 3-6	Phase III: Weeks 7-8
Weight-Bearing and Immobilization	<ul style="list-style-type: none"> • Heel-touch weight bearing with crutches and brace locked in full extension • Brace 0° - 45° at all times other than for hygiene 	<ul style="list-style-type: none"> • Heel-touch weight bearing with crutches and brace locked in full extension • Brace 0° - 90° during day but may be removed at night for sleeping 	<ul style="list-style-type: none"> • Wean crutches and advance weight bearing 25-50% per week to full weight by 8 weeks • Discontinue brace when excellent quadriceps strength and control, no extension lag, and normalized gait pattern
Aerobic	<ul style="list-style-type: none"> • None 		<ul style="list-style-type: none"> • Stationary bike (low resistance, elevated seat height initially, and normalize height as ROM allows)
Range of Motion (ROM) and Strengthening	<ul style="list-style-type: none"> • No active knee extension <ul style="list-style-type: none"> ▸ Passive extension only from 0° - 45° in brace ▸ May do active knee flexion • Heel slides • Patellar mobilization • Ankle pumps • Quadriceps sets 	<ul style="list-style-type: none"> • Continue Phase I exercises • No active knee extension <ul style="list-style-type: none"> ▸ Passive extension only from 0° - 90° in brace ▸ May do active knee flexion • Straight leg raise with brace locked in full extension • Focus on regaining full extension • Begin floor-based core, hip, pelvic, and gluteal exercises • Advanced quadriceps sets and patellar mobilization 	<ul style="list-style-type: none"> • Continue Phase II exercises • Advance PROM → AAROM → AROM with goal of full ROM by 8 weeks • Advance straight leg raises • Advance core, hip, pelvic, and gluteal exercises • Begin closed-chain quadriceps exercises • Begin balance and proprioception exercises
Other	<ul style="list-style-type: none"> • Modalities as needed to reduce pain and swelling and to improve muscle recruitment • Home Exercise Program (HEP) guided by Physical Therapist 		
Goals	<ul style="list-style-type: none"> • Pain control • Swelling control • Protect tissue healing • Minimize joint stiffness 	<ul style="list-style-type: none"> • Pain control • Swelling control • Protect tissue healing • Advance ROM 	<ul style="list-style-type: none"> • Full ROM • Normalize gait pattern • Begin balance and proprioception

	Phase IV: Weeks 9-16	Phase V: Months 4+
Weight-Bearing and Immobilization	<ul style="list-style-type: none"> • WBAT • No knee brace 	
Aerobic	<ul style="list-style-type: none"> • Advance stationary bike after week 12 • May begin swimming and elliptical machine at 14 weeks 	<ul style="list-style-type: none"> • Begin walk-jog-run progression • Progress impact activities (start) with pool or Alter-G if available)
Range of Motion (ROM) and Strengthening	<ul style="list-style-type: none"> • Continue Phase III exercises • Progress flexibility and strengthening • Progress closed chain exercises • Progress functional balance exercises • Progress core, hip, pelvic, and gluteal program 	<ul style="list-style-type: none"> • Continue Phase IV exercises • Progress flexibility and strengthening • Maximize single-leg dynamic and static balance exercises • Progress core, hip, pelvic, and gluteal program • Progress from closed chain to open chain exercises as tolerated if pain-free • Transition to home exercises program • Work toward passing leg press test and single leg hop test • Advance to agility, plyometric, and sport-specific programs after passing above tests
Other	<ul style="list-style-type: none"> • Modalities as needed to reduce pain and swelling and to improve muscle recruitment • Home Exercise Program (HEP) guided by Physical Therapist 	
Goals	<ul style="list-style-type: none"> • Progress flexibility, strengthening, closed chain exercises, balance, proprioception, and core/hip program 	<ul style="list-style-type: none"> • Progress strengthening and balance • Work toward passing leg press and single leg hop tests • Progress to home exercises program • Progress dynamic/sport-related activity as noted above