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Medial Patellofemoral Ligament (MPFL) Reconstruction +/- Tibial Tubercle Osteotomy (TTO)

☐ MPFL Reconstruction
☐ TTO
☐ Lateral Release
☐ Scope +/- Meniscus Surgery

Post-operative Rehabilitation Protocol

Phase 1 (0-6 weeks post op):

Goals	• Protect Repair • Control post-operative pain, inflammation, and swelling • Prevent muscle atrophy – regain active quadriceps contraction • Emphasis on compliance to HEP and WB precautions/restrictions

Brace/Precautions/ Crutch Use	• Weight bearing:
	  ○ 0-6 weeks: 50% WB – avoid full WB for first 6 weeks
	• Brace: 0-2 weeks: 0-70°, 2-4 weeks: 0-90°, unlock brace after week 4
	  ○ Brace may be removed for hygiene, therapy, sleeping, and while sitting
	  ○ Avoid ambulation without brace for first 6 weeks
	• Avoid lateralization of patella
	• Avoid AAROM knee extension with significant quad atrophy, and articular cartilage injury
	• Follow ROM guidelines per surgeon's suggestion

Range of Motion	• Active assisted and passive knee flexion and knee extension ROM ○ 0-90° with no forced flexion • 0-2 weeks: 0-70° in brace • 2-4 weeks: 0-90° in brace • 4-6 weeks: unlock brace
Strengthening	• Restore quadriceps recruitment through strengthening exercises • Hip progressive resistive exercises: pain-free SLR with brace if lag is present • Distal strengthening
Home Instructions	• Keep surgical dressings clean and dry • Change surgical bandages on the 2nd day after surgery (keep covered until first clinic visit) • Avoid getting sutures wet until at least 5 days after surgery (do not scrub, soak, or submerge the incisions) • Note DVT (blood clot) prophylaxis medications provided by your surgeon to take following surgery – follow those instructions carefully
Suggested Exercises	• Ankle pumps • Quad sets (consider NMES for poor quad sets) • Glute Sets • SLR – 4 way • Hamstring activation – Heel slides (out of brace, up to 15 degrees beyond the brace setting at each time point), hamstring sets, bridges

Phase 2 (7-10 weeks post op):

Goals	• Control pain and inflammation • Promote healing • Achieve normal knee ROM • Good patella mobility • Good quad contraction
	• Progress to achieve normal gait mechanics • Pain-free ADLs and pain-free arc of motion in therapy
Brace/Precautions/ Crutch Use	• Be aware of concomitant procedures and restrictions they pose to rehabilitation (tibial tubercle transfer or articular cartilage procedure) • Avoid lateralization of the patella • Normalize gait pattern with fully extended knee in an effort to fight quadriceps avoidance

Range of Motion	• Knee extension: full PROM and AAROM to full knee extension (if no cartilage injury)
	• Knee flexion: (achieve in seated position and with supine wall slides)
	  ○ Limit ROM 0°-110° (until 8 weeks)
	  ○ 0°-120° by 10 weeks
	  ○ 0°- full flexion 10+ weeks

Strengthening	• Progress quadriceps strengthening • Advance proximal strength and core training • Initiate balance and proprioceptive training
Home Instructions	• Restore normal activities of daily living

Suggested Exercises	• Continue Phase 1 exercises as appropriate • Gait training: heel toe gait pattern [with adequate quad control (SLR without a lag, ability to achieve terminal knee extension) and knee ROM] to ensure normal loading response • Underwater treadmill (adequate wound healing) or anti-gravity treadmill for gait: Low grade elevation or retro-walking • Progress pain-free arc of motion, close chain preferred • Leg press – monitor arc of motion (bilateral, eccentric) • Initiate forward step up (FSU) progression, 6" step with adequate strength • Stationary Bike – progress short crank to standard crank as ROM allows (115° flexion while sitting) • Hip extension with knee flexion, side planks, bridge • Initiate and proprioceptive training: double limb support on progressively challenging surfaces to single limb support on level surface only with demonstration of good alignment, stability and control

Phase 3 (11-18+ weeks):

Goals	• Pain-free with ADLs, therapeutic exercise • Maintain normal knee ROM • Maintain normal gate on level surfaces and stairs • Good single limb dynamic balance • Initiate running program, plyometrics (bilateral) • Achieve patellar tracking symmetry and alignment during movements such as squatting and jumping in place
Precautions	• Avoid symptom provocation • Correct any gait deviations in ROM or patellar tracking
Range of Motion	• Maintain full ROM by 12 weeks
Strengthening	• Advance proximal strength through functional activities • Balance progression with postural alignment and N-M control
Home Instructions	• Restore normal activities of daily living • Restore pre-operative activity level
Suggested Exercises	• Balance progression with postural alignment and N-M control (static to dynamic, introduce different planes of motion, challenging surfaces) • Gait training with emphasis on heel-toe gait pattern on loading response • Address muscle imbalances based on evaluation • Promote cross training: elliptical, stationary bike, swimming • Initiate running progression (late phase)

	• Initiate bilateral leg plyometric program with MD clearance and evidence of good eccentric quadriceps control

Phase IV: Advanced Strengthening and Function (19-24 weeks post-op)

Goals	• Lack of pain, apprehension with sport specific movements • Maximize strength and flexibility as to meet demands of individual's sport activity • Demonstrate patellar tracking symmetry and alignment through movement patterns such as jumping and single leg squats • If isokinetic testing available, aim for 85% limb symmetry index (LSI) at 180° / sec and 300°/ sec • Cardiovascular fitness to meet demands of sport
Precautions	• Pain with therapeutic exercise & functional activities • Inadequate strength, functional strength, ROM, flexibility, fitness when returning to sport
Range of Motion	• Maintain full ROM
Strengthening	• Continue to advance LE strengthening, flexibility, dynamic single limb stability & agility programs • Advance core stability and strength
Home Instructions	• Maintain normal activities of daily living
Suggested Exercises	• Continue to advance LE strengthening, flexibility, dynamic single limb stability & agility programs • Address muscle imbalances – evaluation-based • Advance core stability • Continue cross training • Advance plyometric program with MD clearance and evidence of good eccentric quadriceps control o Vertical jumping progression: Jump down o Horizontal jumping progression: Broad jump, single leg landings o Progress running program o Cutting, deceleration, change of direction with MD clearance and dynamic single limb stability

CRITERIA FOR DISCHARGE/ RETURN TO SPORT:

• If available - Isokinetic test at 180°/ sec and 300°/ sec: 85% limb symmetry index (LSI)
• Demonstrate symmetry, quality, and alignment during selected movement patterns
• Medical clearance by surgeon for return to play progression
• Lack of apprehension with sport specific movements
• Hop Test > 85% limb symmetry
• Demonstrate quality of movement with required sports specific activities

Physician's Signature: _____

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