MPFL Reconstruction Protocol

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Time Frame	Treatment	Goals

Phase I (Surgery to 6 weeks following surgery)	• Begin the day after surgery and continue 1-2 times per week
	• Instruction in signs and symptoms of infection
	• Instruction in cryotherapy
	• Ambulate with crutches. Begin with 2 crutches, progress to 1 crutch then no crutches once the patient demonstrates sufficient quad control and gait mechanics are normalized.
	• WBAT (Weight bear as tolerated) with knee locked in extension. Brace must be worn at all times.
	• Avoid rotational movements through the knee
	• Instruction in HEP: isometric quad sets, hamstring sets, glute sets, prone knee flexion, SLR and medial patellar mobilizations.
	• Additional suggested exercises:
	  ○ Gait drills with emphasis on symmetric loading and appropriate quad activation
	  ○ Heel slides
	  ○ Knee extension with foot supported
	  ○ Passive knee flexion over table edge
	  ○ Four-way leg lifts (standing or lying)
	  ○ Bridging
	  ○ Ankle isotonic exercise with resistance bands
	  ○ Heel raises
	  ○ Balance: begin with double leg transitioning to single leg
	  ○ Supine core activation with upper and lower extremity movement
	• If available, use of neuromuscular electrical stimulation (NMES) is recommended.
		• Protect the repair
		• Independent in HEP
		• Restore normal knee range of motion
		• Full passive knee extension
		• Goal of 90 degrees knee flexion by 6 weeks
		• Normalize gait
		• Eliminate effusion
		• Restore leg control and quadriceps activation
		• Progression Criteria:
		  ○ Non-painful knee flexion AROM to 90 degrees
		  ○ Full weight bearing with normalized gait mechanics without the use of assistive device
		  ○ Single leg balance for 15 seconds with good control

Phase II (6 weeks after surgery)	• 1-2 times per week
	• Precautions:
	  ○ Use of lateral buttress knee sleeve
	  ○ Avoid over-stressing graft. Caution with rotational movement
	  ○ For patients with patellar or trochlear cartilage defect or chondroplasty, avoid excessive patellofemoral joint stresses during strengthening
		• Fully restore normal knee range of motion
		• Increase functional activity
		• Functional limb control and no pain with movement

	○ Avoid post activity swelling ○ No impact activities • Suggested Exercise: ○ ROM work as needed ○ Continue NMES ○ Continued functional closed kinetic chain strengthening ○ Avoid dynamic valgus or medial knee displacement ○ Progressions of double leg squats, weight on leg press and progression to single leg press ○ Split stance work progressing into lunge variations ○ Controlled single leg bridging and single leg squats ○ Multidirectional band walks ○ Continued hamstring, gluteal and core strengthening ○ Cardiovascular: stationary bike, and UE circuit training	• First progressive testing should occur at 12 weeks after surgery • LSI >90% on single leg press and Y-balance • Quadriceps strength deficit of <30% on Biodex • Progression Criteria: ○ Normal gait on level surfaces ○ LSI >90% on single leg press and Y-Balance ○ Quadriceps strength deficit of <30% on Biodex ○ At least 12 weeks after surgery
Phase III (12-16 weeks after surgery)	• Appointments once every 1-2 weeks • Continue closed chain strengthening beginning with single plane and progressing to multi-planar • Progression of speed during strengthening drills to increase rate of force development and for impact preparation • Initiate low amplitude agility drills in the sagittal and frontal plane • Impact control exercises in sagittal and frontal plane beginning two feet to two feet progressing toward one foot to the other foot (bounding) • Initiate return to running progression once patient shows good single leg control and tolerance to bounding • Stretching for patient specific muscle imbalances • Avoid post-activity swelling • Cardiovascular: ○ Stationary bike ○ Treadmill walking ○ Swimming (flutter kick only) ○ Stair master ○ Elliptical	• No effusion • Return to full functional activities • Improve quadriceps strength • Improve hip and trunk strength • Improve balance and proprioception • Improve patient confidence and readiness to return to higher level movement patterns • Progression Criteria: ○ No effusion ○ No patellar apprehension ○ Good control and no pain with squats, lunges and impact drills ○ Quadriceps strength deficit <15% on Biodex

Phase IV (begin after meeting Phase III criteria, usually 20 weeks after surgery)	• Sessions once every 1-2 weeks
	• Suggested Exercises:
	  ○ Progression of impact control exercises to one foot to same foot (hopping)
	  ○ Movement control exercises beginning with low velocity, single plane activities and progressing to higher velocity, multi-planar activities
	  ○ Progression to multi-planar agility drills with progressively increasing velocity and amplitude
	  ○ Sport specific balance and proprioception drills
	  ○ Continue lower extremity and trunk strengthening
	  ○ Stretching for patient specific muscle imbalances
	• Avoid post-activity swelling
	• Replicate sport energy demands
		• Good eccentric and concentric multi-planar dynamic neuromuscular control (including impact) to allow for return to sport
		• Return to sport criteria:
		  ○ Quadriceps strength <10% on Biodex
		  ○ LSI of >90% on jump testing and all four functional hop tests
		  ○ Dynamic neuromuscular control with multi-planar activities without pain, instability or swelling
		  ○ Patient confidence to return to sport
		  ○ Approval from physician and therapist