

Protocol for Trochleoplasty with MPFL rekonstruktion.

Day	Goal	Exercise	Physical Therapy
0-1	Range of motion (ROM): CPM machine	Ankel pumps	
	RICE: Rest, Compression, Ice 2-3 x day: 30 min. Elevation		
2-3	ROM, Focus Extension	Heel slides, ankel pumps, seated heel slides	PROM, retrograde massage, Pain control
	Strength	isometric quadriceps, VMO.	Maybe NMES (neuromuscular stimulation 30-40 Hz)
	Gait	FWB (full weight bearing) with 2 crutches.	Gait training; heel-toe. AlterG Anti-Gravity: 40-50% WB, 0.5-1 km/hr, 4-5 incline. 5-10 min.
	RICE: Rest, Compression, Ice 2-3 x day: 30 min. Elevation		
	Electrotherapy		Vascularization 8 Hz and pain relief (Endorfin 5 Hz, or TENS)
4-7	ROM: Focus Extension	Heel slides, ankel pumps, seated heel slides	PROM
	Strength	Isometric quad sets, Assisted straight leg raises: FLX, ABD, EXT, Terminal knee extension (TKE), Bridge	NMES (neuromuscular stimulation 30-40 Hz)
	Stretching	Hamstring supine with strap Quad: prone with strap Calf: standing on step, push heel down	
	Gait	Weight bearing exercises,	Gait traingn using two crutches AlterG Anti-Gravity: 50% WB, 1-2 km/hr, 2-3 incline. 10- 15 min.
	Stationary bike	High seat, slowly back and forth for ROM, do not force the knee around	

	Manual therapy		Retrograde massage, Scar massage with vitamin-e, Patella mobes Superior-inferior. No Medial-lateral with MPFL reconstuction for 4 wks.
	Prioprioception	Standing on 1 leg on even surface, if able to stand without knee extension dysfunction then close eyes.	
	Electrotherapy		Vascularization 8 Hz and pain relief (Endorfin 5 Hz, or TENS)
1-4 wks	ROM: Focus Extension	Heel slides, ankel pumps, seated heel slides, prone FLX-EXT with strap. If problems with getting full knee extension, try low load long duration stretch prone with rubber band 5-10 min daily.	PROM
	Strength	Isometric quad sets, Assisted straight leg raises: FLX, ABD, EXT, Terminal knee extension (TKE), Bridge, mini squat, Heel glides on cloth supine.	NMES (neuromuscular stimulation 35-40 Hz) AlterG Anti-Gravity: 50% WB, 0 km/hr, 0 incline: bilateral heel lifts (progres to eccentric and unilateral), mini squat, single leg stance.
	Stretching	Hamstring supine with strap Quad: prone with strap Calf: standing on step, push heel down	Manual stretching.
	Gait	Heel –Toe with 1-2 crutches	Gait training using 1-2 crutches AlterG Anti-Gravity: 50% WB, 2-3 km/hr, 2 incline. 15-20 min.
	Stationary bike	High seat, slowly back and forth for ROM, try to cycle around back and forth with resistance: 10-15 min.	
	Manual therapy		Retrograde massage, Scar massage with vitamin-e, Patella mobes Superior-inferior. No Medial-lateral with MPFL reconstuction for 4 wks.

			Knee mobilisering: tibia A-P mobes, general mobes for FLX/EXT gr I-II
	Prioprioception	Standing on 1 leg on even surface, if able to stand without knee extension dysfunction then close eyes.	
	Electrotherapy		Vascularization 8 Hz and pain relief (Endorfin 5 Hz, or TENS)
4-6 wks	ROM: Full Extension. Fleksion 90-120.	Heel slides, seated heel slides, prone heel to buttocks with strap	PROM
	Strength	Isometric quad sets, straight leg raises (SLR): FLX, ABD, EXT, Terminal knee extension (TKE), Bridge, mini squat, Heel glides on cloth supine.	NMES (neuromuscular stimulation 50-70 Hz) AlterG Anti-Gravity: 50 -80% WB, 0 km/hr, 0 incline: bilateral heel lifts (progres to eccentric and unilateral), mini squat, single leg stance.
	Stretching	Hamstring supine with strap Quad: prone with strap Calf: standing on step, push heel down	Manual stretching
	Gait	Gait training without crutches	Gait training without crutches: heel-toe AlterG Anti-Gravity: 50% - 80% WB, 2-4 km/hr, 2-3 incline. 15-20 min.
	Stationary bike	High seat, slowly back and forth for ROM, do not force the knee around	
	Manual therapy		Retrograde massage, Scar massage with vitamin-e, Patella mobes Superior-inferior. No Medial-lateral with MPFL reconstuction for 4 wks.
	Prioprioception	Standing on 1 leg on even surface, if able to stand without knee extension dysfunction then close eyes.	Single leg stance in trampoline, ball catch.

	Electrotherapy	Vascularization 8 Hz and pain relief (Endorfin 5 Hz, or TENS)	
6-? Wks Progression as tolerated	ROM: Full Extension. Fleksion 135-140	Heel slides, seated heel slides, prone heel to buttocks with strap	PROM
	Strength	Isometric quad sets, SLR: FLX, ABD, EXT (should be able to hold knee in full extension, otherwise cont. Ass), SLR with rubberband, Terminal knee extension (TKE), Bridge with leg lifts, wall squat, Heel glides on cloth supine. Progression: standing slides on cloth, side step without and with rubberband, lunges, squats. Machines: Leg press, squat in smith rack, leg curls. Free weights when full AROM and able to hold knee in full extension with SLR	NMES (neuromuscular stimulation 50-70 Hz) AlterG Anti-Gravity: 50 -80% WB, 0 km/hr, 0 incline: bilateral heel lifts (progres to eccentric and unilateral), mini squat, single leg stance.
	Stretching	Hamstring supine with strap Quad: prone with strap Calf: standing on step, push heel down	Manual stretching
	Gait	Gait training without crutches	Gait training without crutches: heel-toe AlterG Anti-Gravity: 50% - 80% WB, 2-4 km/hr, 2-3 incline. 15-20 min.
	Stationary bike	Normal cykling on stationary bike, able to bike outside about 3 months after surgery if full AROM and Isometric strength normal compare to opposite leg	
	Manual therapy		Retrograde massage, Scar massage with vitamin-e, Patella mobes Superior-inferior. Medial-lateral gr I-II Knee mobilisering: tibia A-P mobes, general mobes for



			FLX/EXT gr I-II
	Prioprioception	Standing on 1 leg on even surface, if able to stand without knee extension dysfunction then close eyes.	Single leg stance in trampoline, ball catch. Mini jog on trampoline.
	Electrotherapy		Vascularization 8 Hz and pain relief (Endorfin 5 Hz, or TENS)
	Laser		Level IV laser for pain and swelling