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Knee Cartilage Preservation (Femur/Tibia) Rehabilitation Protocol

Phase / Goals	Immobilization	ROM	Therapeutic Exercises
Phase 1 (0-2 weeks) Goals: - Control joint pain & hemarthrosis - Regain 0 deg extension	- Hinged brace - TTWB x 6 weeks - CPM 0-30, progress as tolerated 4-6h/day	- PROM 0-90 deg - Patellar mobilization - Modalities PRN	- Ankle Pumps - Hamstring/gastroc stretching - SLR - Wall slides, heel slides - Quad series - Extension mobilization
Phase 2 (3-6 weeks) Goals: - Muscle control - Edema control	- Hinged brace - TTWB x 6 weeks - CPM - progress as tolerated 4-6h/day	- Full PROM/AAROM - Patellar mobilization - Modalities PRN	- Include all from phase 1 - Isometric training 0-60 deg - S/L clam shells - Can begin upper body weight training/conditioning - Stationary bike for ROM w/ no resistance starting wk. 5 - BFR – may initiate 15 days post op
Phase 3 (7-12 weeks) Goals: FWB by 8 weeks, full ROM	- Advance full WB as tolerated with normalized gait - D/C hinged brace at 8 weeks	- Full ROM - Continue hamstring and gastroc stretching - Patellar mobilization	- Closed kinetic chain- wall sits, mini-squats, light leg press (10-70 deg) - Upper body conditioning, stationary bike w/ resistance at 10 wks, water walking. - Aqua jogging at 10 week mark - Toe raises & balance series at 10 week mark
Phase 4 (13-16 weeks) Goals: Maintain Full A/PROM Normalize gait	- FWB - No brace	- Full A/PROM - Patellar mobilizations	- SLR's (with rubber tubing, CKC (closed chain)) - Mini-squats, Wall sits (0-30) - Hamstring curls (active, 0-90) - Leg press (70-10) - Upper body conditioning - Stationary bike with light resistance - Elliptical, stairmaster

Phase 5 (17-20 weeks) Goals: • Increase strength & endurance	• FWB • No brace	• Full A/PROM	• Continue Phase 4 exercises • Closed chain squats (0-40) • Lateral step-ups, uni-squats (0-40) • Hamstring curls (active 0-90) • Leg press (70-10 deg) • Start balance training, 2-legged balance board, single leg stance • Aerobic conditioning: bike, water walk, swimming (straight kick), walking, elliptical, stairmaster
Phase 6 (21-24 weeks) Goals: • Regain normal muscle strength – quads, hamstring, etc. • Regain normal proprioception, balance, and sports coordination	• FWB • No brace	• Full A/PROM	• Continue and advance all Phase 5 strengthening activities • Balance training: continue from Phase 5 • Aerobic conditioning: increase resistance as necessary below threshold of knee pain • Return to low impact activities (golf, hiking, biking)
Phase 7 (25+ weeks) Goals: • Slow advance of impact activities • Return to sport progression • No effusions	• FWB • No brace	• Full A/ROM	• Advance strengthening, proprioception, balance and sports coordination • Begin impact activities and walk to jog program • Clearance from Dr. Flikkema prior to return to sport

RETURN-TO-SPORT CRITERIA:

- No functional complaints
- No joint effusion after impact activity
- Confidence when running, cutting, jumping at full speed
- 90% isometric quadriceps strength
- 90% contralateral values on hop tests
 - Clearance to return to sport dependent upon progress with PT and discussion with Dr. Flikkema