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PHYSICAL THERAPY PROTOCOL
MENISCAL REPAIR +/- LIGAMENT RECONSTRUCTION +/- CARTILAGE RECON

Procedure	Date of Surgery: _____ Surgery Type (s): [ ] Meniscal repair (including root repair) [ ] ACL Reconstruction [ ] Osteochondral Allograft [ ] Osteochondral Autograft [ ] Cell Based Cartilage Repair (MACI, DeNovo, Cartiform, BioCartilage) Brace use: ___ weeks [ ] TTWB [ ] PWB x ___ weeks [ ] WBAT Notes:
Plan	Physical Therapy for R L B/L Lower Extremity 2-3x Per Week x 12 Weeks
General Guidelines	Please read and follow guidelines below. Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression. Phases and time frames are designed to give the clinician a general sense of progression. Concomitant injuries such as degenerative joint disease may alter the guidelines. Follow physician's modifications as prescribed
Phase I (0-1 Weeks)	General: ▪ Ice and modalities to reduce pain and inflammation ▪ Elevate the knee above the heart for the first 3 to 5 days ▪ Initiate patella mobility drills ▪ Quadriceps setting focusing on VMO restoration ▪ Multi-plane open kinetic chain straight leg raising ▪ Gait training with crutches Precautions: ▪ Passive range of motion 0-90

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	▪ Use crutches **toe touch-weight bearing for 2 weeks.** ▪ Brace locked to 0 degrees for ambulation until pt exhibits excellent quad control; brace can then be unlocked to 90 degrees when there is good quad control and worn through week 6.
Phase II **(Weeks 1-6)**	**General:** ▪ Maintain program as outlined in week 0 to 1 ▪ Continue with modalities to control inflammation ▪ Initiate global lower extremity stretching program ▪ Proprioception drill emphasizing neuromuscular control ▪ Multi-plane ankle strengthening **Goals:** ▪ Progressive Stretching and Early Strengthening ▪ Control post-operative pain / swelling ▪ Progress passive/active range of Motion 0 – 90° for first **four** weeks then advance to 120 ▪ Prevent Quadriceps inhibition ▪ Restore normal gait ▪ Normalize proximal musculature muscle strength ▪ Independence in home therapeutic exercise program **Precautions:** ▪ Ambulate TTWB in brace locked in extension for weeks 0-2. ▪ Progressive weight bearing with crutches after week 2 – o *In general, start patient with TTWB with 2 crutches for first week then progress to WBAT with 1 crutch* o *(in opposite arm) x 1 week and then discontinue crutches starting at end of week 4 if gait and quad function allow (nonantalgic gait)* ▪ Postoperative bracing for 6 weeks postoperatively. Discontinue once good quad control. ▪ Avoid neglect of range of motion exercises **Treatment Strategies:** ▪ Active – Assistive Range of Motion Exercises (Pain-free ROM) ▪ Towel extensions ▪ Patella mobilization all planes

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	▪ Progressive Weight Bearing as Tolerated with crutches starting after day 14 (D/C crutches when gait is non-antalgic) ▪ Begin stationary bike and pool exercise program (when incisions healed) ▪ Implement reintegration exercises emphasizing core stability ▪ If available, underwater treadmill system (gait training) if incision benign ▪ Quadriceps re-education (Quad Sets with EMS or EMG) ▪ Multiple Angle Quadriceps Isometrics (Bilaterally – Submaximal, Avoid lesion) ▪ Short Crank ergometry → Standard ergometry ▪ SLR's (all planes) in brace. ▪ Hip progressive resisted exercises ▪ Leg Press (60→0° arc) Bilaterally ▪ Pool exercises ▪ Cryotherapy ▪ Plantar Flexion Theraband ▪ Lower Extremity Flexibility exercises ▪ Upper extremity cardiovascular exercises as tolerated ▪ Home therapeutic exercise program: Evaluation based ▪ Emphasize patient compliance to home therapeutic exercise program and weight bearing progression **Criteria for Advancement:** ▪ Normalized gait pattern ▪ ROM 0 → 120° after week 4 ▪ Proximal Muscle strength 5/5 ▪ SLR (supine) without extension lag
Phase III **(Weeks 6-12)**	**General:** ▪ Normalize gait pattern ▪ Advance stationary bike program; begin treadmill walking and elliptical trainer; no running and impact activity ▪ Initiate closed kinetic chain exercises progressing bilateral to unilateral ▪ Initiate proprioception/balance training **Goals:** ▪ ROM 0° → WNL ▪ Normal patella mobility ▪ Ascend 8"stairs with good control without pain (may need to modify for patellar & trochlear lesions)

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	Precautions: ▪ Avoid descending stairs reciprocally until adequate quadriceps control & lower extremity alignment is demonstrated ▪ Avoid pain with therapeutic exercise & functional activities **Treatment Strategies:** ▪ Continue Progressive Weight Bearing as Tolerated /Gait Training with crutches (if needed) ▪ Brace / Patella sleeve per therapist and patient preference ▪ Underwater treadmill system (gait training) ▪ Gait unloader device ▪ AAROM exercises ▪ Patella mobilizations ▪ Leg Press (90→0° arc) Bilaterally → Eccentric ▪ Mini Squats ▪ Retrograde treadmill ambulation ▪ Proprioception/Balance training: o Proprioception board / Contralateral Theraband Exercises / Balance systems ▪ Initiate Forward Step Up program ▪ Stairmaster ▪ SLR's (progressive resistance) ▪ Lower extremity flexibility exercises ▪ OKC knee extension to 40° – (pain/crepitus free arc) ▪ Home therapeutic exercise program: Evaluation based **Minimum Criteria for Advancement:** ▪ ROM WNLs ▪ Demonstrate ability to descend 8" step ▪ Good patella mobility
Phase IV **(Weeks 12-24)**	**General:** ▪ **Weeks 12-16:** o Initiate gym strengthening-beginning bilateral progressing to unilateral ▪ Leg press, heel raises, hamstring curls, squats, lunges ▪ **Weeks 16 to 24:** o Continue with advanced strengthening o Begin functional cord program

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	Goals: ▪ Demonstrate ability to descend 8"stairs with good leg control without pain ▪ 85% limb symmetry on Isokinetic testing & Forward Step Down Test ▪ Return to normal ADL ▪ Improve lower extremity flexibility **Precautions:** ▪ Avoid pain with therapeutic exercise & functional activities ▪ Avoid running till adequate strength development and MD clearance. **Treatment Recommendations:** Progress Squat program Initiate Step Down program Leg Press (90 - 0° emphasizing eccentrics) OKC knee extensions 90 0° (pain/crepitus free arc) Advanced proprioception training (perturbations) Agility exercises (sport cord) Elliptical Trainer Retrograde treadmill ambulation / running Hamstring curls / Proximal strengthening Lower extremity stretching Forward Step Down Test (NeuroCom) Isokinetic Test Home therapeutic exercise program: Evaluation based **Criteria for Advancement:** ▪ Ability to descend 8"stairs with good leg control without pain ▪ 85% limb symmetry on Isokinetic testing & Forward Step Down Test
Phase V **(Weeks 24+)**	**General:** ▪ Follow-up examination with physician ▪ Implement sport specific multi-directional drills ▪ Continue with lower extremity strengthening, cardiovascular training, and flexibility

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Goals:

- Lack of apprehension with sport specific movements
- Maximize strength and flexibility as to meet demands of individual's sport activity
- Isokinetic & Hop Testing > 85% limb symmetry

Precautions:

- Avoid pain with therapeutic exercise & functional activities
- Avoid sport activity till adequate strength development and MD clearance
- Be conscious of Patellofemoral overload with increased activity level

Treatment Strategies:

- Continue to advance LE strengthening, flexibility & agility program
- Forward running
- Plyometric program
- Brace for sport activity (MD preference)
- Monitor patient's activity level throughout course of rehabilitation
- Reassess patient's complaint's (i.e. pain/swelling daily – adjust program accordingly)
- Encourage compliance to home therapeutic exercise program
- Home therapeutic exercise program: Evaluation based

Criteria for Discharge:

- Isokinetic & Hop Testing > 85% limb symmetry
- Lack of apprehension with sport specific movements
- Flexibility to accepted levels of sport performance
- Independence with gym program for maintenance and progression of therapeutic exercise program at discharge