

## Post-Operative PCL Protocol

### Rick Hammesfahr, MD

#### Phase One (Weeks 1):

**Goals** = Minimize posterior shear to knee

- Protect Graft
- Create optimal wound healing environment
- Control edema
- Achieve full knee active passive extension
- 1.  Brace - locked at 0 degrees without hyperextension
- 2.  Gait - WBAT with crutches
- 3.  Resting position - in extension with towel / pillow support under calf to prevent posterior subluxation of tibia
- 4.  Quad sets
- 5.  SLR without external resistance for hip flexion, extension, abduction, adduction
- 6.  Knee flexion AROM to 60 degrees via eccentric knee flexion off edge of table without external resistance
- 7.  Ankle pumps
- 8.  Seated heel / toe raises
- 9.  Ice with elevation 15 minutes tid

#### Phase Two (week 2-6):

**Goals** = Minimize posterior shear to knee and hamstrings activity

- Promote optimal graft healing and collagen remodeling
- Increase knee flexion ROM to 90 degrees
- FWB with brace
- Increase quadriceps strength / minimize atrophy
- 1.  Brace - locked at 0 degrees ext
- 2.  Gait - progress to FWB without crutches, with brace
- 3.  Continue SLR for flex/ext/abd/add - add external resistance (cuff weight) distally / long level arm
- 4.  NMES for quad set prn
- 5.  Continue eccentric knee flexion in open chain 0-90 degrees with cuff weight distally
- 6.  Progress to standing heel raise with brace and knee locked in full extension
- 7.  Begin biking at 0-90 degrees ROM with no resistance
- 8.  Begin CKC quadriceps strengthening:
  - TKE with theraband
  - Leg press with narrow stance 0-50 degrees
- 9.  Begin OKC concentric quadriceps strengthening
  - Leg extension off table with cuff weight distally 90-45 degrees
- 10.  Continue ice/elevation and modalities prn
- 11.  Patella Mobilization
- 12.  Monitor with arthrometer (KT-1000) at 20 to 30 pounds max force

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**Phase Three (Weeks 7-12):**

**Goals =** Knee flexion 125 degrees

- Increase quads strength
- Controlled ambulation
- 1.  Brace - open to 125 degrees
- 2.  Gait - FWB with functional brace
- 3.  Progress phase 2 exercises by increasing resistance
- 4.  D/C NMES
- 5.  Stretching program to increase knee flexion
- 6.  Wall squats with narrow stance 0-45 degrees
- 7.  BAPS / Proprioception
- 8.  Forward Step ups
- 9.  Lunges
- 10.  Balance exercises
  - progress single leg stance
  - eyes open to eyes closed
  - stable to unstable surface
- 11.  Begin hamstring curls AROM to cuff weight 1-2 pounds
- 12.  Swimming
- 13.  Monitor laxity with arthrometer

**Phase Four (3 months +):**

**Goals =** Progress to full function

- Increase hamstrings strength
- Develop LE strength, power and endurance
- Increase neuromuscular control / coordination
- Full knee ROM
- Return to sport
- 1.  Discontinue use of brace with ambulation
- 2.  Progress leg curl exercises
- 3.  Progress CKC exercises
- 4.  Isokinetics
- 5.  Begin Lateral Step ups
- 6.  Light running
- 7.  Progress balance / agility drills
- 8.  Initiate plyometrics at month 5
- 9.  Return to sport based on performance of sport-specific tasks
- 10.  Continue to monitor laxity with arthrometer