

## PCL Avulsion Fracture Repair/Reconstruction REHAB protocol

### IMMEDIATE POST-OP (Weeks 1-4)

**Goals:** control swelling  
obtain full passive extension  
gradually increase flexion up to 90 degrees: voluntary quadriceps control  
patellar mobility

*Important fact: prevention of posterior sag and hamstring activity is paramount in avoiding residual laxity*

1. Brace locked at zero degrees extension, sleep in brace.
2. Weight bearing: no weight on leg for 4 weeks
3. Pillow under proximal posterior tibia at rest to prevent posterior sag
4. Motion: out of brace  
CPM instructions: gradual, slow speed, zero to 40 degrees, increase 5 – 10 degrees daily. Goal to 90 degrees. Use for 2 hour sessions three time per day.
5. Exercises:
  - patellar mobilization
  - stretch hamstring and calf
  - ankle pumps
  - quad sets
  - straight leg raises (3 way) hip flexion, abduction, adductions. knee extension 60-0
  - knee ROM 0-90 degrees – maintain anterior pressure on proximal tibia as knee is flexed
  - from weeks 1-4, need to prevent posterior sagging at all times*Extension: knee extension on a bolster, avoid prone hangs secondary to hamstring guarding flexion: use gravity or assistance to minimize hamstring activity, such as supine wall slides or seated knee flexion*
6. Muscle stimulation: to quads and biofeedback

### PROTECTION PHASE (Weeks 4-6)

- Goals:**
- control external forces/protect graft
  - restore motion
  - nourish articular cartilage
  - decrease swelling
  - decrease fibrosis
  - prevent quad atrophy
1. Brace: locked at zero degrees
  2. Weight Bearing: PWB
  3. Increase range of motion to 110 flexion as tolerated
  4. Exercises:
    - multi angle isometrics 60, 40, 20 degrees
    - quad sets
    - knee extension 60-0 (4-5 x daily)
    - well leg bicycle
    - electric stimulation
    - continue ice
    - no hamstring exercises*

### III. PROGRESSIVE PHASE (Weeks 6-8)

1. Brace removed (convert to custom brace once has quad control)
2. Custom brace for ambulation
3. Motion to 120 as tolerated- max
4. Weight Bear progress to WBAT
5. Exercises
  - wall slides (0-45 degrees)
  - mini squats (0-45)
  - leg press (0-60)
  - knee extension 60-0 degrees proprioception drills (cup walking) biodex stability system weight shifts
  - pool walking
  - initiate bike for ROM
  - normalize gait pattern
  - hip exercises: flexion, abduction, adduction, extension (knee extended)

### IV. INCREASE PROGRESSIVE PHASE (Weeks 8-12)

1. WBAT
2. Full motion
3. Full quad strength
4. Exercises:
  - knee extension
  - multi-directions hip
  - leg press 0-6/75
  - vertical squats 0-45
  - wall squats 0-60
  - later step ups
  - front lunges
  - proprioception drills
  - single leg balance
  - cup walking
  - heel toe raises
  - stretch hamstrings and calf
  - progress pool exercises
  - gradual Stair-master, elliptical
  - continue balance and proprioception activities
  - seated calf raises

*no hamstring strengthening exercises*

### V. LIGHT ACTIVITY PHASE (3-5 months)

**Goals:** Development of strength, power and endurance. Begin to prepare for return to functional activities.

1. Brace for protected activities
2. Exercises:
  - continue all previous exercises
  - initiate pool running (forward only)
  - initiate hamstring curls (0-60) low wgt at 4 month
  - bicycle for endurance (30min)
  - begin walking program
  - continue eccentrics
  - continue min-squats/lat step ups/wall squats,
  - front step downs/knee extension
  - closed kinetic rehab
  - continue endurance exercises
  - progress all strengthening exercises, emphasis on quad strength

### VI. RETURN TO ACTIVITY (6-8 months)

**Advance rehabilitation to competitive sports**

1. Exercises
  - closed kinetic rehabilitation
  - high speed isokinetics
  - running program
  - agility drills
  - balance and proprioception training
  - plyometrics training