



# Sports Medicine *and* Performance Center *at* The Children's Hospital *of* Philadelphia

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## Medial Patellofemoral Ligament Reconstruction Protocol

The following protocol utilizes a blend of both criteria and timeframes as the determinants of advancement. It is recognized that many athletes will feel good relatively early in their rehabilitation and want to advance to higher level activities as a result. In spite of rapid functional progress it is important to respect the biological component of recovery and limit advancement if the timeframe for a given stage has not been completed. Overall, this protocol targets return to full unrestricted activity *at 6 months* if all other criteria are also met. If the criteria are met sooner, the patient must restrict his/her activity level until the end of the sixth post operative month.

Week 1: (Visit #1 scheduled to begin within 2 weeks of surgery date)

### Goals:

- 1) Crutch Use: PWB
- 2) Brace Use/Ambulation: Keep post-op brace locked in full extension for ambulation PWB  
Sleep with brace locked in full extension
- 3) Minimize Pain and Effusion – Compression wrap, elevation, ice
- 4) Maintain Full Knee Extension
- 5) Restore Quad Activation
- 6) Increase knee flexion – 10° per day

### Exercises:

- PROM/Flexibility
  - a. Wall Slides
  - b. Seated Active Assistive Knee Flexion
  - c. Prone Dangle
  - d. Passive resting extension with heel prop
  - e. Hamstring/Calf Stretches
- Manual Therapy
  - a. Patellar Mobilizations: medial, superior, inferior (avoid lateral glide)
  - b. Soft tissue mobilization of distal IT Band and lateral retinaculum
- Strength
  - a. Promote Muscle Activation (NMES w/ Quad setting and/or Biofeedback)
  - b. Isometrics
  - c. SLR x3 (Flexion, Adduction, Abduction)
  - d. Theraband Ankle Plantarflexion
- Home Exercise Program

Weeks 2 to 4:

### Goals:

1. Crutch use: Wean, discontinue crutches after 2 weeks
2. Brace Use/Ambulation: WBAT, Unlock post-op brace for ambulation (30° - progress to open @ 4 weeks) if following criteria are met:
  - a) SLR without quadriceps lag (10 repetitions)
  - b) Active knee flexion range to greater than angle of brace**\*\*\*Sleep with brace locked in full extension until end of week 2\*\*\***
3. Continue Muscle Activation if necessary (NMES with Quad Setting or FES)

4. Minimize Effusion and Pain
5. Promote Knee Flexion:
  - a) 90° by end of week 2
  - b) 130° by end of week 4
6. Good patellar mobility; medial patella mobilization (avoid lateral glide)

**Exercises:**

- As previous
- Stationary Bike for ROM
- ITB stretching
- Proprioceptive Neuromuscular Facilitation, Progressive Resistive Exercises
- Balance/Proprioception
- Manual/Machine resisted leg press
- Isometric Knee extension 30°
- Step Ups
- Mini-Squats progress up to 90°
- Retro Treadmill/Stairmaster
- Hip abduction/external rotation
- Calf Raises
- Core

**Weeks 4 to 12:**

**Goals:**

1. Wean, discontinue post-op brace **after 6 weeks** if following criteria are met:
  - a. ROM  $\geq$  100°
  - b. Single Leg Squat 30° with good knee control
2. Full ROM
3. Enhance Strength
4. Enhance Proprioception/Balance
5. Improve Local Muscular Endurance
6. Initiate Cardiovascular training

**Exercises:**

- As previous
- Scar Massage
- Functional Strengthening
  1. Single-leg squats
  2. Lunges
  3. Side lunges
  4. Hamstring bridging

**8 weeks:**

- Initiate open chain knee extension through full range
- May begin squatting and lunging past 90° knee flexion

### Weeks 12 to 16:

#### **Goals:**

1. May begin straight ahead running **at 12 weeks** if the following criteria are met:
  - a) Stable patella: asymptomatic with all activity
  - b) Isokinetic Test - Quad Peak Torque Deficit  $\leq 25\%$  at  $180^\circ/\text{sec}$  and  $300^\circ/\text{sec}$

#### **Exercises:**

- Continue strength, endurance, proprioception progression
- Begin bilateral low level plyometrics and progress as able
- Begin agility drills and sport specific activities as able

### Weeks 16 to 24:

#### **Goals:**

1. Gradual Return to unrestricted sports **at 24 weeks** if the following criteria are met:
  - a. Pain free running
  - b. Functional Tests ( $\geq 90\%$ ) and Pain free with good neuromuscular control
  - c. Isokinetic test
    - Quadriceps Peak Torque Deficit  $\leq 15\%$
  - d. Cardiovascular endurance to subjective pre-morbid level

#### **Exercises:**

- Single-leg plyometrics
- Cutting/pivoting drills with stutter step pattern
- High intensity aerobic/anaerobic sport specific training
- Advanced lower extremity strengthening

### RETURN TO SPORTS CRITERIA

1. 90% Functional tests
2.  $\geq 85\%$  Isokinetic Test at  $180^\circ/\text{sec}$ , and  $300^\circ/\text{sec}$
3. Full knee ROM
4. 6 months post-op

#### **Recommended Functional Hop Test**

- Triple Hop for distance
- Single Hop for distance
- Lateral Hop (12"x12" squares separated by 12"- # of hops IN BOX in 20 seconds)
- Unilateral Vertical Jump

