



## Multiligamentous Reconstruction

### Phase I (1 – 5 days post-op)

- Wound care: Observe for signs of infection
- Gait: Non-weight-bearing
- Brace: Locked in extension 24 hr/day
- ROM:
  - AROM to hip and ankle
  - Maintain full passive knee extension
  - Gentle stretching of hamstrings and gastroc/soleus
- Strengthening: Quad sets
- Modalities: Cryotherapy for pain and edema control

### Phase II (5 days – 4 weeks)

- Wound: Continue to monitor for signs of infection and begin scar management techniques when incision is closed
- Gait: Non-weight-bearing
- Brace: Locked in extension 24 hr/day
- ROM: Continue Phase I
  - Begin patellar mobilization when incision is closed
- Strengthening: Continue Phase I
- Modalities: Continue Phase I
  - Enhance Quad sets with low intensity e-stim or biofeedback

### Phase III (4 weeks – 10 weeks)

**4 weeks to 6 weeks:** Continue Phase II

**6 weeks to 10 weeks:**

- Wound: Continue to monitor for signs of infection and continue scar mobilization
- Gait: Begin partial weight bearing gait of 25% and increase by 25% over next 4 weeks
- Brace: Open brace to full flexion (with PLC, continue to wear at night)
- ROM:
  - Passive flexion exercises (consider CPM if no involvement of PLC)
  - Prone hangs
  - Continue patella mobilization
  - Stationary bicycle for ROM assist
- Strengthening:
  - Hip strengthening (no adduction if PLC is involved)
- Proprioceptive and weight shifting activities
- Modalities:
  - High intensity e-stim at 60° of knee flexion



#### **Phase IV (10 weeks +)**

- Brace: D/C brace at end of post-op week 12
- Strengthening:
  - Initiate closed-chain strengthening once full weight bearing has been achieved and quadricep strength is 3+/5 or more
- Testing: Initial Functional Testing between post-op weeks 10-16

#### **4 months (16 weeks):**

- ROM: Aggressive flexion ROM (contact physician if ROM <90° by end of month 4)
- Strengthening:
  - Closed-chain PRE's: avoid flexion beyond 70°
  - Isolated quadricep and hamstring exercises: no resistance
  - Closed-chain conditioning exercises: stair climber, stationary bike, etc.
  - Hip PRE's
- Proprioception: Single-leg proprioception exercises (BAPS, mini-trampoline)
- Agility: Straight-line jogging at end of postoperative month 4

#### **5 months (20 weeks):**

- Strengthening:
  - Initiate resisted quadricep and hamstring exercises
  - Progress closed chain strengthening and conditioning exercises
- Agility:
  - Initiate low intensity plyometrics
  - Progress jogging and begin sprints
- Proprioception:
  - Advance proprioception training
- Brace: Contact physician regarding fitting for ACL/PCL functional brace

#### **6 months (24 weeks):**

- Progression of all strengthening exercises
- Begin agility drills and sport-specific drills with functional brace

#### **7 – 12 months:**

- Testing: Final functional tests less than 25% for non-athlete, less than 20% for athlete
- Return to sports if the following criteria are met:
  - Minimal or no pain and swelling
  - Functional tests within 10 – 15% of the uninvolved side
  - Successful completion of sport-specific drills
  - ACL/PCL functional brace

Adapted from:

- 1) Fanelli G. *The Multiple Ligament Injured Knee: A Practical Guide to Management*. New York: Springer; 2003.
- 2) Brotzman SB, Wilk KE. *Clinical Orthopedic Rehabilitation Second Edition*. Philadelphia: Mosby; 2003