

Multi Ligament 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 post-op)

- Wound care: 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 1
 - Begin patellar mobilization when incision is closed
- Strengthening: Continue Phase 1
- Modalities: Continue Phase 1
 - Enhance Quad sets with low intensity e-stim or biofeedback

Phase III (4 – 10 weeks post-op)

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 degrees of knee flexion

MORE

Phase IV (10+ weeks post-op)

- 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 degree by end of month 4)
- Strengthening:
 - Closed Chain PRE's: avoid flexion beyond 70 degrees
 - 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
 - Hip abd/add isometrics
- 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-athletes, 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 sports-specific drills
 - ACL/PCL functional brace

Adapted from:

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