

Multiligamentous Knee Reconstruction
POST-OPERATIVE PHYSICAL THERAPY PROTOCOL

Phase I: 0-6 weeks

Goals:

- Maximum protection of the grafts
- Maintain patella mobility
- Regain quadriceps tone
- Maintain full passive extension
- Control pain & swelling
- Introduce early ROM

Program:

- TTWB ambulation with crutches
- Brace locked in Extension- 24 hours/day
- Cryotherapy
- Quad Sets - enhance with low intensity e-stim /biofeedback
- Patella mobilization
- Ankle pumps-ROM
- Stretching exercises – gastroc-soleus & gentle hamstrings
- Hip Abduction (If MCL or LCL reconstruction avoid valgus or varus stress respectively).
- At 2 weeks post-op, begin gentle passive ROM out of brace

Week 1: Knee in Immobilizer locked in full extension at all times
 Isometric quad exercises
 Avoid exercises that allow unopposed hamstring function
 Cryo-cuff as needed

Week 2: Gentle PROM 0-45 degrees in prone position to minimize hamstring
 Force
 Supplement quad sets with e-stim as tolerated
 Patellar mobilization

Week 3-6 Incorporate scar massage into program
Obtain 90 degrees of flexion by week 6

Phase II: 6-12 weeks

Goals:

- Initiate weight bearing for articular cartilage nourishment
- Increase knee flexion
- Maintain/Increase quadriceps tone
- Improve proprioception

Avoid isolated quadriceps & hamstring contraction

Program: 6-12 weeks

- Begin PWB gait of 25% BW, increase 50% over next 2 weeks
- Open brace to full flexion- with PLC continue to wear brace at night
- Prone hangs
- Passive flexion exercises
- Patella mobilization
- High-intensity e-stim at 60 degrees of knee flexion
- Initiate closed chain strengthening once FWB & quad strength is 3+/5 or >
- Stationary bike for ROM assist
- Proprioception & weight shift (KAT or BAPS board)
- Hip strengthening: no adduction id PCL is involved
- Discontinue brace at end of week 12

- Encouraged to achieve flexion to 120 degrees the end of post-op month 3
- Closed chain exercises in 0-60 degrees (Leg press, squats, lunges, etc)
- Pool walking if available
- Single leg stance exercises (patient may practice at home in front of a mirror)

Phase III: 4-6 months

Goals:

- Increase Knee flexion
- Maintain full passive extension
- Improve quadriceps & hamstring strength
- Improve proprioception
- Improve functional skills
- Increase cardiovascular endurance

4 months:

- Closed chain PRE's—avoid flexion beyond 70 degrees

Isolated quadriceps & hamstring exercises—no resistance
Single leg proprioception exercises (KAT, BAPS, mini-trampoline)
Closed chain conditioning exercises—stair climber, skiing machine, rower, etc
Aggressive flexion ROM—Consider manipulation if flexion <90 by the end of the 4th month
Hip PRE's
Straight line jogging at end of post-op month 4 if functional strength is 70% of uninvolvement side; start with fast walk & progress

5 Months:

Initiate resisted quadriceps & hamstring exercises
Progress closed chain strengthening & conditioning exercises
Initiate low-intensity plyometrics
Progress jogging & begin sprints
Advance proprioceptive training
Fit for ACL/PCL functional brace

6 months:

Progression of all strengthening exercises & plyometrics
Begin agility drills—carioca, figure 8's, zigzag, slalom running, etc in brace
Sport specific drills (prefer to have quad & hamstring deficits < 20% prior to beginning)
Isokinetic testing at end of post-op month 6
Patient may return to heavy labor if criteria met

Phase IV: 7-12 months

Program:

Assess functional strength—single-leg hop for distance, timed hop test, shuttle run etc.
Return to sports if following criteria are met:
Minimal or no pain & swelling
Isokinetic & functional tests within 10%-15% of the uninvolvement side
Successful completion of sport-specific drills
ACL/PCL functional brace