

REHABILITATION GUIDELINES AFTER MULTIPLE LIGAMENT KNEE RECONSTRUCTION



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The intent of this protocol is to provide the therapist with guidelines of the post-operative rehabilitation course after a multiple ligament knee reconstruction. It should not be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam findings, individual progress, and/or the presence of post-operative complications. The therapist should consult the referring physician with any questions or concerns.

FREQUENCY: Weeks 0-4: 3x/week. Weeks 4-24: 2x/week. Weeks 24-36: 1x/week. Weeks 36-52: 1x/2 weeks.

INDIVIDUAL CONSIDERATIONS:

GENERAL CONSIDERATIONS

- WBAT for PCL or ACL/PCL injuries
- NWB for combined MCL reconstruction for 3 weeks, then PWB for 3 weeks, then FWB at 6 weeks

- NWB for combined PLC reconstruction or repair for 6 weeks, then PWB for 6 weeks, then FWB at 12 weeks post-op
- No active hamstring activity for 8 weeks after PLC reconstruction
- No hamstring strengthening for 16 weeks after PLC reconstruction

PHASE I (0-2 weeks)

Goals

- Control inflammation and pain
- Full active extension
- Achieve quadriceps control

Brace

- Locked in extension for ambulation for 4 weeks for ACL/PCL and/or MCL reconstructions, then unlocked for ambulation for 2-4 weeks until normal gait is established
- Locked in extension for ambulation for 12 weeks for PLC reconstruction
- May remove for ROM exercises
- Keep brace locked in extension for SLRs for 6 weeks to prevent posterior sag, may remove when quad control is good enough to prevent extension lag

Weight-Bearing Status

- WBAT with crutches for ACL/PCL
- NWB for 3 weeks, PWB for 3 weeks, then FWB for MCL
- NWB for 6 weeks, PWB for 6 weeks, then FWB for PLC

Therapeutic Exercises

- SLR in all planes (with brace locked in extension)
- Calf pumps, quadriceps sets
- Electrical stimulation as needed
- Patellar mobilization
- Balancing activities on a stable platform with eyes open and closed

PHASE II (2- 6 weeks)

Criteria

- Good quad set and SLR with brace
- Full extension
- No active inflammation

Goals

- Achieve 90 degrees of flexion
- Protect graft fixation

Brace/Weight-bearing status

- As above in Phase I

Therapeutic Exercises

- Begin ROM
 - Prone passive knee flexion to 90 degrees with care to avoid posterior tibial sag
- Wall slides then progress to mini-squats (0-45 degrees) when quad control is good
 - AVOID if PLC reconstruction was performed for 8 weeks
- Pool walking to restore normal gait pattern
- Toe raises
- Gastroc stretches
- Ankle strengthening with sports tubing (Theraband)

PHASE III (6-12 weeks)

Criteria

- Knee flexion to 90 degrees
- No active inflammation
- Good quadriceps control

Goals

- Achieve full flexion
- Establish normal gait
- Progress with strengthening and endurance

Brace/Weight-Bearing Status

- FWB with brace unlocked, may discontinue brace when normal gait is established for ACL/PCL and/or MCL reconstructions
- PWB with brace locked in extension for PLC reconstruction

Therapeutic Exercise

- Begin active knee flexion at 6 weeks for ACL/PCL and/or MCL and at 8 weeks for PLC reconstruction
- Begin the following at 6 weeks for ACL/PCL and/or MCL and at 8 weeks for PLC reconstruction
 - Stationary bike (low resistance, high seat, with no toe clips---so as to prevent hamstring contraction)
 - Mini-squats to 45 degrees
 - Leg press to 60 degrees
 - Stairmaster
 - Elliptical trainer
 - *Proprioception*
 - Mini-tramp standing
 - Unstable platform (BAPS) with eyes open and closed
 - Standing ball throwing and catching

PHASE IV (3-6 months)

Criteria

- Full, pain-free range of motion
- No patellofemoral irritation
- Sufficient strength and proprioception to progress to functional activities
- Normal gait

Goals

- Improve strength and proprioception
- Maintain FROM

Therapeutic Exercises

- Progress with flexibility and closed-chain strengthening program
- Swimming (no breast stroke)
- Stationary bike (may increase resistance)

- Box steps (6 and 12 inches)
- Jogging, straight ahead, may be started around 4-5 months when quad strength is 90% of contralateral side

PHASE V (6-12 months)

Criteria

- Full, pain-free motion
- No effusion
- Sufficient hamstring and quadriceps strength to progress to agility exercises

Goals

- Return to all recreational and sporting activities by 9 months
- Maintain full, painless motion
- Progress with strengthening, agility, and endurance

Therapeutic Exercises

- Progress with closed chain quadriceps and hamstring strengthening
- *Plyometrics*
 - Stair jogging
 - Box jumps (6 to 12-inch heights)
- *Proprioception*
 - Mini-tramp bouncing
 - Lateral slide board
 - Ball throwing and catching on unstable surface
- *Functional Training*
 - Running
 - Figure-of-eight pattern
- *Agility*
 - Start at slow speed
 - Shuttle run, lateral slides, Carioca cross-overs
 - Plyometrics
 - Stair running
 - Box jumps (1-2 foot heights)
 - At 8 months, may start
 - Sports specific training (start at 25% speed and increase as tolerated)

- Incorporate cutting
- Increase heights for plyometric conditioning

Criteria for Return to Sports

- Usually occurs at 12 months post-op
- Full, painless range of motion
- No effusion
- Quadriceps and hamstring strength 90% of contralateral side
- No apprehension with all sports specific drills