



Multiligament Knee Reconstruction Rehabilitation Protocol

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Diagnosis: Right/Left ACL/PCL or PLC/PMC or LCL/MCL reconstruction

Date of Surgery: _____

Frequency 2-3 times per week.

- No open chain or isokinetic exercises
- Provide patient with home exercise program per protocol

Weeks 0-2 (Phase I) Period of protection:

- **Weight Bearing:** Toe Touch Weightbearing (TTWB) immediately postop, advance to WBAT with brace locked in extension by post-op day 10-14 unless otherwise instructed by physician
- **Brace:** HKB locked in extension for ambulation 0-3 wks, after 3 wks ROM 0-30° for ambulation and advance 10°/wk. Brace may be unlocked for CPM use/exercises/therapy w/ROM goal of 0-90° by 4 wks, 0-110° by 6 wks
- **Exercise/Rehab:** Quad sets w/electrical stim, straight leg raises 3-4 times/day with brace locked in extension, unlock brace for gentle ROM exercises. Stretch hamstrings, gastrocs, hip flexors.
- Frequent patellar mobilization, minimum 5-10 times daily

-Goals:

- Stretch collagen
- Provide controlled stress/prevent abnormal collagen cross-link realignment/scar tissue formation
- Protect graft fixation
- Critical: 0° extension by week 2, 90° flexion by week 4.
- Protect graft fixation
 - PCL = no posterior tibial sag for 10 wks
 - PLC = no varus or hyperextension for 5 months
 - LCL alone = no varus stress for 5 months
 - MCL/PMC = no valgus stress for 5 months
- Minimize effects of increased immobilization
- Control inflammation (ice, compression, elevation, modalities, etc)
- Control pain
- CPM to aid gentle ROM
- Achieve full extension, gentle flexion increases (AROM goal= 0-70° two wks, 0-90° four wks, 0-110° six wks)
- Educate patient about prolonged rehabilitation process/progress

Weeks 2-6 (Phase II) Repair/proliferation phase:

- Weight bearing as tolerated without assist by post-op day 10-14 in knee brace.
- **Exercise:** Continue quad sets w/electrical stim, straight leg raises 3-4 times/day with brace locked in extension, unlock brace for gentle ROM exercises. Stretch hamstrings, gastrocs, hip flexors. Add short arc quads (60° to 30°), add wall sits/squeezes (progress knee flexion gently as tolerated up to 70°), standing glut sets.
- Modalities prn (ie electrical stimulation, ultrasound, etc) per discretion of therapist.
- Heat before therapy sessions.
- Ice after therapy sessions.

-Goals:

Multilig Knee Reconstruction

- Stretch collagen
- Provide controlled stress/prevent abnormal collagen cross-link realignment/scar tissue formation
- Protect graft fixation
- Critical: 0° extension by week 2, 90° flexion by week 4.

Week 6-12 months (Phase III):

- ROM – Continue with daily ROM exercises
**Goal – increase ROM as tolerated to full
- Strengthening – Increase closed chain activities slowly as tolerated. Initiate progressive squat program. **Monitor for anterior knee pain symptoms and adjust/slow down accordingly.** Add lunges, side lunges, leg press and/or slideboard. Initiate Step Up, followed by Step Down program. Isotonic Knee extension (90 to 40 degrees, closed chain preferred). Begin with stationary bike, then progress to Stairmaster, Versaclimber/Nordic Track, retrograde treadmill ambulation. Add core strengthening exercises. Progress balance/proprioception.
- Aggressive balance re-training at 3 months.
- Running at 5-6 months, cutting/jumping/aggressive plyometrics at 8 months.
- Continue modalities prn as indicated above.
- Heat before therapy sessions.
- Ice after therapy sessions.
- Return to full activity at 12 months (**if cleared by MD**)

-Goals:

- Aggressive stretching and mobilization, followed by progress strengthening program
- Improve stability of the knee
- Progress strength, power and proprioception

Multilig Knee Reconstruction

Weeks 6-12 (Phase III):

- ROM – Continue with daily ROM exercises
**Goal – increase ROM as tolerated to full
- Strengthening – Increase closed chain activities as tolerated. Progressive squat program. *Monitor for anterior knee pain symptoms and adjust/slow down accordingly.* Add lunges, side lunges, leg press and/or slideboard. Initiate Step Down program. Isotonic Knee extension (90 to 40 degrees, closed chain preferred). Versaclimber/Nordic Track, retrograde treadmill ambulation, Stairmaster. Add core strengthening exercises. Progress balance/proprioception.
- Continue stationary bike for ROM, strengthening and cardio.
- Continue modalities prn as indicated above.
- Heat before therapy sessions.
- Ice after therapy sessions.

Weeks 12-18 (Phase IV):

- Advance strengthening as tolerated, continue closed chain exercises. Increase resistance on equipment.
- Begin forward treadmill running program when 8” step down is satisfactory (No sooner than 12 weeks).
- Initiate and slowly progress agility training, reciprocal running (figure 8s, smooth cutting drills, start/stop, etc.).
- Begin plyometrics and increase as tolerated.
- Begin to wean patient from formal supervised therapy encouraging independence with home exercise program.
- Continue modalities prn as indicated above.
- Heat before therapy sessions.
- Ice after therapy sessions.

Weeks 18+ (Phase V):

- Continue strengthening/flexibility
- Initiate sport-specific agility drills and functional testing
- Advance plyometric program starting at 22 weeks
- Advance agility program at 22 weeks (Z cuts, backward to forward running, footwork drills, double leg power jumps, alternate single leg jump rope)
- Return to sports approx. 22-30 weeks post-operatively (**MD CLEARANCE REQUIRED**)
- Continue modalities prn as indicated above.
- Heat before therapy sessions.
- Ice after therapy sessions.

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