



REHABILITATION GUIDELINES

KNEE MEDIAL COLLATERAL LIGAMENT REPAIR/RECONSTRUCTION

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The intent of this protocol is to provide the physical therapist with guidelines of the post-operative rehabilitation course after an MCL repair/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 physical therapist should consult the referring physician with any questions or concerns.

INDIVIDUAL CONSIDERATIONS:

GENERAL CONSIDERATIONS

Weight-bearing

- NWB for 0-3 weeks, then progression to FWB as tolerated over next 3 weeks

Brace

- Weeks 0-2: Brace locked in extension
- Weeks 3-6: Brace 0-90 flexion
- Week 6+: discontinue brace when ready

Exercises

- Immediate quadriceps rehab and closed chain exercise
- Avoid active hamstring rehab for 8-12 weeks (to decrease stress on the posteromedial corner

PHASE I (0-2 weeks)

Goals

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

Brace



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- Locked in extension
- Keep brace on even for NWB exercises in order to protect the knee from valgus stress

Weight-Bearing Status

- NWB x 3 weeks and then progression

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



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- Toe raises
- Gastroc stretches
- Ankle strengthening with sports tubing (Theraband)

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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



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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 program at 4 months (*see below*)

PHASE V (6-9 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



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- Agility and Plyometrics program
 - *See below*
- Proprioception
 - Mini-tramp bouncing
 - Lateral slide board
 - Ball throwing and catching on unstable surface

General Criteria for Return to Sports

- Usually occurs at 9-12 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



REHABILITATION GUIDELINES

RETURN TO RUNNING PROGRAM

PHASE I – Warm Up Walk 15 Minutes, Cool Down Walk 10 Minutes

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Day	1	2	3	4	5	6	7
Week 1	W5/J1x5*		W5/J1x5		W4/J2x5		W4/J2x5
Week 2		W3/J3x5		W3/J3x5		W2/J4x5	
Week 3	W2/J4x5		W1/J5x5		W1/J5x5		Return to Run

Key: W=walk, J=jog

*W5/J1x5= Walk (5 minutes), Jog (1 minute); repeat 5 times

PHASE II – Warm Up Walk 15 Minutes, Cool Down Walk 10 Minutes

Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	20 min		20 min		20 min		25 min
2		25 min		25 min		30 min	
3	30 min		30 min		35 min		35 min
4		35 min		40 min		40 min	
5	40 min		45 min		45 min		45 min
6		50 min		50 min		50 min	
7	55 min		55 min		55 min		60 min
8		60 min		60 min			

- Recommendations:
 - Runs should occur on softer surfaces during Phase 1
 - Non-impact activity on off days
 - Goal is to increase mileage and then increase pace; avoid increasing two variables at once
 - 10% rule: no more than 10% increase in mileage per week

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AGILITY AND PLYOMETRICS PROGRAM

This program is designed as a guide for clinicians and patients through a progressive return-to-run program. Patients should demonstrate > 80% on a Functional Assessment and started a running program prior to initiating this program (after lower extremity surgery).

PHASE I: ANTERIOR PROGRESSION

Goals:

- Safely recondition the knee
- Provide a logical sequence of progressive drills for pre-sports conditioning

Agility:

- Forward run
- Backward run
- Forward lean in to a run
- Forward run with 3-step deceleration
- Figure 8 run
- Circle run
- Ladder

Plyometrics:

- Shuttle press: Double leg → alternating leg → single leg jumps
- Double leg:
 - Jumps on to a box → jump off of a box → jumps on/off box
 - Forward jumps, forward jump to broad jump
 - Tuck jumps
 - Backward/forward hops over line/cone
- Single leg (these exercises are challenging and should be considered for more advanced athletes):
 - Progressive single leg jump tasks
 - Bounding run
 - Scissor jumps
 - Backward/forward hops over line/cone

Criteria to Progress:

- No increase in pain or swelling
- Pain-free during loading activities
- Demonstrates proper movement patterns



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PHASE II: LATERAL PROGRESSION

Goals:

- Safely recondition the knee
- Provide a logical sequence of progressive drills for the Level 1 sport athlete

Agility (*Continue with Phase 1 interventions):

- Side shuffle
- Carioca
- Crossover steps
- Shuttle run
- Zig-zag run
- Ladder

Plyometrics:

- Double leg:
 - Lateral jumps over line/cone
 - Lateral tuck jumps over cone
- Single leg (these exercises are challenging and should be considered for the more advanced athletes):
 - Lateral jumps over line/cone
 - Lateral jumps with sport cord

Criteria to Progress:

- No increase in pain or swelling
- Pain-free during loading activities
- Demonstrates proper movement patterns

PHASE III: MULTI-PLANAR PROGRESSION

Goals:

- Challenge athlete in preparation for final clearance for return to sport

Agility:

- Box drill
- Star drill
- Side shuffle with hurdles

Plyometrics:

- Box jumps with quick change of direction
- 90 and 180 degree jumps

Criteria to Progress:

- Clearance from MD
- Functional Assessment
 - $\geq 90\%$ contralateral side
- Return to Sport Index