



REHABILITATION PROTOCOL

Multiligament Knee Reconstruction (MLKR)

Instructions for Physiotherapist:

EQUAL ICING AND REST/WORK RATIO IS IMPORTANT. SIGNIFICANT PAIN SHOULD NOT OCCUR WITH ANY ACTIVITY DURING REHAB WORK OR LAST LONGER AFTER REHAB. IF THIS OCCURS, MODIFICATION OR RE-EVALUATION NEEDS TO BE UNDERTAKEN.

Dressings and sutures:

- The dressings on your leg should be left in place and kept dry when showering for 3 days.
- After 3 days you can remove your dressings and shower normally but do NOT scrub the incisions.
- Apply Band-Aids over the incisions to keep them clean once the initial dressing has been removed.
- If sutures/staples were used, they will be removed at your first post-op visit (approx. 2 weeks post-op).
- Do NOT soak the leg (i.e. hot tub / bath, etc) until 2-4 weeks after your sutures are removed and the incisions are well healed.

Pain and swelling:

- Local anesthetic has been placed into your knee – this will wear off in 6-8 hours after surgery.
- You have been provided with a prescription for pain medications that when used together will provide the most effective pain relief after your surgery.
- Use an ice pack or cold therapy delivery system for 20 mins every hour while awake to help with pain and swelling.
- It is common to have some spotting through the dressings following surgery. Place an additional dressing over the area if this occurs.
- The incisions may continue to “leak” fluid after removal of the initial dressing – this is common and should not raise concern. Place an additional bandage or Band-Aids over the incisions to help them heal. Keep the incisions clean and dry.
- DO NOT apply any ointments or topical creams to the incisions until they are completely healed – this will risk the incisions becoming infected.
- When sitting or lying, keep your leg elevated with several pillows placed under the ankle (not the knee) to help decrease swelling and relieve pain.

Red flags:

- Complications after arthroscopic surgery are very rare but can occur. If you develop any of the following symptoms go to your nearest emergency department for assessment:
 - Increasing calf pain / swelling that does not improve with elevation and ice
 - Shortness of breath
 - Chest pain



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Phase 1 (0-6 weeks)

Goals:

- Protect grafts and graft fixation and minimize effects of immobilization.
- Obtain minimum **0-90 degrees motion by 2 weeks** and full range of motion by 6 weeks
- Control inflammation/swelling
- Restore normal heel-to-toe gait on level surfaces

Weight Bearing:

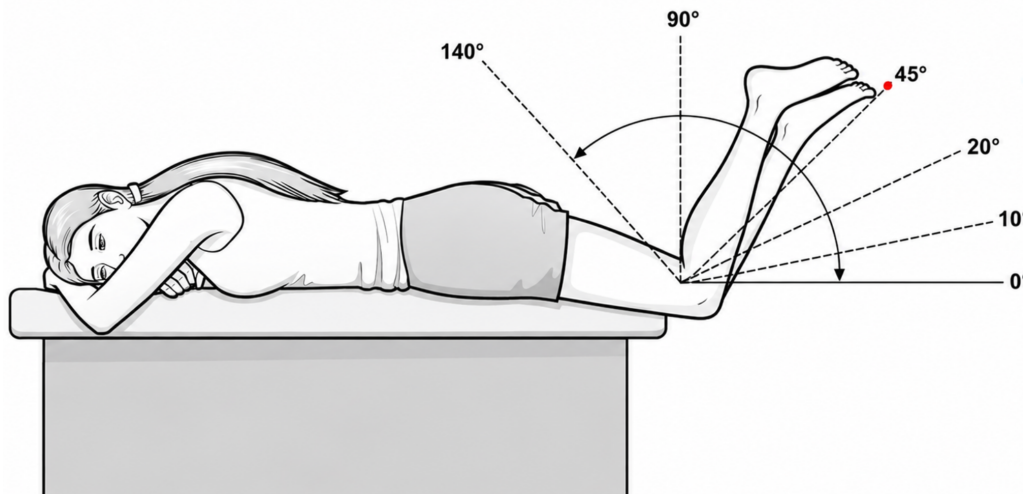
- **Foot flat feather weight bearing** with crutches
- Always wear your knee brace when moving around
- You were prescribed either a **hinged knee brace** (if the PCL was not reconstructed) or a **PCL rebound brace** (if the PCL was reconstructed); **please make an appointment with your orthotician of choice as soon as possible and transition into this brace when you receive it**

Range of Motion:

- No knee ROM for the first week (week 0-1)
- Initiate graft-protective knee ROM (week 1-6)
 - Maintain full extension, progress toward range of motion 0-90°
- Increase hip, quadriceps, *hamstring and calf strength and proprioception
 - *If the **PCL was reconstructed**, AVOID active hamstring contraction at all times
 - *If the **PCL is reconstructed**, ONLY passive prone ROM is permitted (see image below) to avoid active hamstring contraction/gravity effect (PCL-protective ROM).

Suggested Exercises:

- Patella mobilization and scar mobilization.
- Non-weight bearing stretching of the Gastroc/Soleus and Hamstrings
- Straight-Leg Raise with brace in full extension until quad strength prevents extension lag





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Phase 2 (6-12 weeks)

Criteria for advancement to Phase 2:

- Full extension and minimum of 90 degrees flexion
- Good quad set, SLR without extension lag
- Minimal swelling/inflammation

Goals:

- Restore normal gait with stair climbing
- Maintain full extension, progress toward full flexion range of motion
- Protect graft and graft fixation
- Increase hip, quadriceps, hamstring and calf strength and proprioception

Weight-Bearing:

- As tolerated – discontinue crutch use completely by 8 weeks
- Continue to wear the brace unlocked for ambulation
- Begin to wean from brace use week 12 unless otherwise specified

Range of Motion:

- Full, painless ROM (*can be performed out of the brace)
 - ***If the PCL is reconstructed**, standard AROM → AAROM is permitted BUT in the PCL brace

Suggested Exercises:

- Continue and progress all exercises from Phase I
- Initiate closed kinetic chain strengthening of abductors, quadriceps, *hamstrings, gastroc/soleus
 - ***If the PCL is reconstructed**, avoid closed chain kinetic chain strengthening of the hamstrings until 12 weeks post-operatively
- Progress to two-leg squats, progressive leg press, partial lunges, wall sits
- Stationary bike – start low and progress time and resistance; progress to single leg bicycling
- Stairmaster (begin with short steps, avoid hyperextension) and elliptical machine
- If available, begin pool running (waist deep)
- Single leg balance, proprioception work



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Phase 3 (3-4 months)

Criteria for advancement to Phase 3:

- No patellofemoral pain and minimal swelling/inflammation
- Minimum of 120 degrees of flexion
- Sufficient strength and proprioception to initiate running

Goals:

- Full range of motion
- Improve strength, endurance and proprioception to prepare for sport
- Avoid oversteering the graft and protect the patellofemoral joint
- Normal running mechanics
- Strength approximately 70% of the uninvolved lower extremity
- Thigh circumference should be approaching that of the non-operative side (measure with a measuring tape) – a good indication of quad strength

Wearing Brace:

- **If the PCL is reconstructed**, continue wearing the PCL rebound brace until 6 months post-op
- If returning to sport, consider custom brace fitting by 5 months (return to play brace)

Suggested Exercises:

- Continue flexibility and ROM exercises as appropriate for patient
- Knee extensions 90°- 30°, progress to eccentrics.
- Full weight-bearing running in a straight line; no pivoting until 4 months post-op and equal quadriceps circumference and strength
- Begin swimming if desired
- Progressive hip, quadriceps, hamstring, and calf strengthening
- Cardiovascular/endurance training with Stairmaster, elliptical, and stationary bike
- Advance proprioceptive activities

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ORTHOPEDIC SPORTS MEDICINE

THE OTTAWA HOSPITAL – UNIVERSITY OF OTTAWA



University of Ottawa - Orthopaedic Surgery
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Phase 4 (4-6 months)

Criteria for advancement to Phase 4:

- No significant swelling/inflammation with full, pain-free ROM
- No evidence of patellofemoral joint irritation
- Strength at least 70% of uninvolved lower extremity by 4 months
- Sufficient strength and proprioception to initiate agility activities
- Normal running gait

Goals:

- Symmetric performance of basic and sport specific agility drills
- Single hop and 3 hop tests 85% of uninvolved lower extremity
- Quad and hamstring strength at least 85% of uninvolved LE Exercises.
- Continue and progress flexibility and strengthening program

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Phase 5 (6-12 months)

Criteria for advancement to Phase 5:

- No patellofemoral or soft tissue complaint
- Necessary ROM, strength, endurance, and proprioception to return
- Physician clearance to resume partial or full activity

Goals:

- Safe return to athletics/work
- Maintenance of strength, endurance, proprioception
- Patient education with regards to any possible limitations

Exercise:

- Sport-specific training program
- Gradual return to sports participation after 9 months
- Our ultimate goal is to have you back to your pre-injury level by 9-12 months
- Maintenance program for strength and endurance