

Non-Operative PCL Rehabilitation Protocol

PHASE I, (Weeks 1-6)

Precautions:

- PRICE, Pain and swelling control, compression, elevate, manage effusion
- Avoid hyperextension (12 weeks)
- Prevent posterior tibial translation and limit posterior sag (12 weeks)
- Isolated hamstring exercises should be avoided until week 12
- Weight bearing: WBAT with knee in full extension, may unlock brace when effusion is controlled and straight leg raise can be performed without quadriceps lag
- Range of motion: Prone passive ROM 0-90 degrees for first 2 weeks, then progress to full ROM
 - Prone to limit hamstring activation and minimize gravity forces
- PCL brace to be worn at all times if available for patient

Goals:

- PCL ligament protection
- Edema reduction to improve passive ROM and quadriceps activation
- Gait mechanics optimization
- Patient education

Therapeutic Exercise:

- Patellar mobilizations
- Prone passive ROM
- Hamstring & gastrocnemius stretching to reduce pull on the tibia
- Quadriceps activation and strengthening
- Straight leg raises (SLR) once quadriceps is able to lock joint in terminal extension and no lag is present
- Proper gait mechanics
- Stationary bike with zero resistance when ROM > 115 degrees
- Weight shifts to prepare for crutch weaning
- Pool walking to assist with crutch weaning
- Calf raises and single leg balance when weaning from crutches
- Upper body and core strength as appropriate

PHASE II, (Weeks 6-12)

Precautions:

- Continued avoidance of knee hyperextension
- Prevent posterior tibial translation
- Limit double leg strengthening exercises to no more than 70 degree knee flexion
- WBAT
- Full ROM, supine and prone ROM after 6 weeks
- Continue PCL brace at all times

Goals:

- PCL ligament protection
- Full ROM
- Address gait mechanics during crutch weaning
- Double leg strength through ROM (no greater than 70 degree knee flexion) and single leg static strength exercises
- Reps and set structure to emphasize muscular endurance development (3 sets of 20 reps)
- Enhance proprioception and strengthen lower extremities to perform light low-impact activities pain free and without effusion

Therapeutic Exercise

- Continue PRICE protocol
- Continue previous exercises
- Gastroc and light hamstring stretching
- Leg press limited to 0-70 degree knee flexion
- Squat progression (squat → squat with calf raise → squat with weight shift)
- Static lunge
- Hamstring bridges on ball with knees extended
- Progressive resistance on stationary bike
- Light kicking in pool
- Incline treadmill walking (5-15% incline)
- Single leg deadlift with knee extended
- Proprioceptive and balance exercises

PHASE III, (Weeks 12-16)

Continue to wear brace for activity. May remove at rest or otherwise.

Goals:

- Progress ROM strength to beyond 70 degree knee flexion
- Isolated hamstring exercises may begin after week 12
- Reps and set structure to emphasize muscular endurance and strength development
- Prepare athlete for sport-specific activity

Therapeutic Exercise

- Double leg press with progression to single leg
- Single leg knee bends
- Balance squats
- Single leg dead lift
- Single leg bridges starting during week 16
- Continue bike and treadmill walking
- Running: allowed once patient demonstrates sufficient strength and stability with functional exercise and quadriceps girth is greater than or equal to 90% contralateral normal side