

Non-Operative PCL Tear Rehabilitation

● Phase I: 0-6 weeks

○ Precautions

- PRICE (Protect, Rest, Ice, Compress, Elevate) protocol Avoid hyperextension (12 weeks)
- Prevent posterior tibial translation (12 weeks)
- Isolated hamstring exercises should be avoided until week 12 Weight bearing
- Partial weight bearing with crutches (2 weeks) Range of motion (ROM)

- Prone passive ROM from 0° to 90° (Fig. 1) for the first 2 weeks, and then progress to full ROM Brace
- PCL Jack brace or Rebound brace to be worn at all times, including rehabilitation and sleep (minimum of 12 weeks)

○ Goals

- PCL Ligament protection
- Edema reduction to improve passive ROM and quadriceps activation
- Address gait mechanics
- Patient Education

○ Therapeutic exercise

- Patellar mobilizations
- Prone passive ROM Quadriceps activation
- Quadriceps sets
- Straight leg raises (SLR) once the quadriceps are able to lock joint in terminal extension and no lag is present
- Gastrocnemius stretching
- Hip abduction/adduction
- Stationary bike with zero resistance when ROM [115° Weight shifts to prepare for crutch weaning
- Pool walking to assist with crutch weaning
- Calf raises and single leg balance when weaned from crutches Upper body and core strength as appropriate

● Phase II: 6-12 weeks

○ Precautions

- Continued avoidance of hyperextension
- Prevent posterior tibial translation
- Limit double leg strengthening exercises to no more than 70° of knee flexion Weight bearing
- Weight bearing as tolerated (WBAT) Range of motion
- Full ROM, supine and prone ROM after 6 weeks Brace
- PCL Jack brace or Rebound Brace to be worn at all times

○ Goals

- PCL ligament protection
- Full ROM

- Address gait mechanics during crutch weaning
- Double leg strength through ROM (no greater than 70° knee flexion) and single leg static strength exercises
- Reps and set structure to emphasize muscular endurance development (3 sets of 20 reps)
- Therapeutic exercise
 - Continue PRICE protocol
 - Continue exercises as weeks 1–4
 - Gastrocnemius and light hamstring stretching
 - Leg press limited to 0–70° of knee flexion
 - Squat progression (squat ? squat with calf raise ? squat with weight shift) Static lunge
 - Hamstring bridges on ball with the knees extended
 - Progressive resistance stationary bike
 - Light kicking in pool
 - Incline treadmill walking (7–12% incline)
 - Single leg dead lift with the knee extended (Fig. 5)
 - Proprioceptive and balance exercises
- **Phase III: 12-18 weeks**
 - Precautions
 - Discontinue PCL Jack brace
 - Goals
 - Reps and set structure to emphasize muscular strength development
 - Progress ROM strength to beyond 70° knee flexion
 - Isolated hamstring exercises may begin after week 12
 - 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
 - Running is allowed once the patient has demonstrated sufficient strength and stability with functional exercise and quadriceps girth is greater than or equal to 90% compared to the contralateral normal side.
 - Outline: Week 1: 4 min walk; 1 min jog for 15–20 min Week 2: 3 min walk; 2 min jog for 20 min Week 3: 2 min walk; 3 min jog for 20 min Week 4: 1 min walk; 4 min jog for 20 min
 - Once running progression is completed, continue single plane agility with progression to multi-planar agility
 - Clinical examination and/or PCL stress radiographs to objectively verify healing of PCL after week 15
- *This protocol is adopted from Pierce, C. M., O'Brien, L., Griffin, L. W., & Laprade, R. F. (2013). Posterior cruciate ligament tears: functional and postoperative rehabilitation. Knee Surgery, Sports Traumatology, Arthroscopy, 21(5), 1071–1084. <http://doi.org/10.1007/s00167-012-1970-1>*