

Non-Operative PCL Tear Rehabilitation Protocol

Philosophy

This protocol is to be utilized as a guideline. There will always be individual differences amongst patients regarding progression and tolerance of specific activities. Progression through the protocol will depend on successful accomplishments of set milestones as assessed by the physician and the physical therapist/athletic trainer.

The patient's home exercise program is of utmost importance and should be monitored and emphasized. Initially, patients should be performing their exercises several times a day to regain motion. Due to the importance of regaining early motion, patients are to be seen 3x/week for the first month.

Rehabilitation should create the optimal environment for the natural process of healing to occur. Initially, there should be a strong emphasis on minimizing swelling and pain as well as motion restoration. If a patient's progress is significantly delayed, please contact the physician office to keep them informed.

If you have any questions regarding this protocol, please contact our office at (859) 236-8730.

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 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
- 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 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

- PCL brace for sports only

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.
 - 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

Phase IV: 19+ weeks after injury

- Continue exercises and protocol from weeks 13–18
- Set and reps structure to emphasize muscular power development (3 sets of 4–8 reps)
- Sport-specific agility exercises

*Non-contact return to play following clearance by the physician

**Full contact return to play when specific return to sports criterion met:

- Full active ROM
- Greater than 85–90 % normal quadriceps strength
- No evidence of instability or giving way
- Greater than 90 % function on return to sports testing
- Athlete is mentally ready to return to sport and not timid or fearful of re-injury

Protocol adopted from: Pierce CM, O'Brien L, Griffin LW, Laprade RF. Posterior cruciate ligament tears: functional and postoperative rehabilitation. *Knee Surg Sports Traumatol Arthrosc.* 2013;21(5):1071-1084. doi:10.1007/s00167-012-1970-1.