TROPICAL MEDICAL GROUP

Dx: ☐ Right ☐ Left

Patient Name: _____

Date of Surgery: _____

PT/OT: Evaluate and treat. Follow the following protocol.

Signature/Date: _____

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PCL Reconstruction Protocol

Phase I
0–6 weeks after injury

Precautions
- PRICE (Protect, Rest, Ice, Compress, Elevate) protocol
- Avoid hyperextension (12 weeks)
- Prevent posterior tibial translation (12 weeks)
- *Isolated hamstring exercises should be avoided for 4 months*
- Weight bearing
  - Non-weight bearing with crutches (6 weeks)
- Range of motion (ROM)
  - Prone passive ROM from 0° to 90° (Fig. 1) for the first 2 weeks, then progress to full ROM as tolerated
- Brace
  - Immobilizer brace (3 days) in extension until patient can transition into Jack PCL brace
  - PCL Jack brace to be worn at all times, including rehabilitation and sleep (minimum of 24 weeks)

Goals
- PCL ligament graft protection
- Oedema reduction to improve passive ROM and quadriceps activation
- Address gait mechanics
- Patient education

Therapeutic exercise
- Patellar mobilizations
- Prone passive ROM (Fig. 1)
- 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
- Upper body and core strength as appropriate

Phase II
6–12 weeks after injury

Precautions
- Continued avoidance of hyperextension and isolated hamstring activation
- Prevent posterior tibial translation
- Weight bearing
  - Progress to weight bearing as tolerated (WBAT)
- Range of motion
  - Full ROM, supine and prone ROM after 6 weeks
  - *Caution to not be over-aggressive with flexion creating stress on the repair*
- Brace
  - PCL Jack brace to be worn at all times

Goals
- PCL ligament protection
- Continued ROM as tolerated
- 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
		Weight shifts to prepare for crutch weaning
		Pool walking to assist with crutch weaning
		Squat progression (squat → squat with calf raise → squat with weight shift)
		Double leg press (0–70° knee flexion)
		Hamstring bridges on ball with the knees extended (Fig. 4)
		Stationary bike with zero resistance when ROM > 115°
		Light kicking in pool
Phase III	Precautions	
13–18 weeks after injury		Patient to remain in Jack PCL brace for all activities
		Full weight bearing in Jack PCL brace
		Full passive ROM
		Avoid isolated hamstring exercise until week 16
	Goals	
		Joint protection
		Address gait mechanics
		Progressive weight-bearing strength, *including progressive hamstring strengthening*
		Can progress leg press and knee bends past 70° knee flexion after 16 weeks
	Therapeutic exercise	
		Continue as in previous stages
		Double leg press 0–70° with progression to single leg (Fig. 2)
		Balance squats (Fig. 6)
		Squat progression
		Single leg bridges starting during week 16 (Fig. 7)
		Proprioceptive and balance exercises
		Progress stationary bike resistance and duration
Phase IV	Precautions	
19–24 weeks after injury		Patient to remain in Jack PCL brace for all activities
	Goals	
		Continue to build strength, and single leg endurance for all lower extremity musculature with increasing emphasis to developing power
	Therapeutic exercise	
		Continue OKC and CKC strength and endurance work with progressive weight
		Initiate initial sport-specific drills near end of this phase
	Clinical examination and/or PCL stress radiographs to objectively verify healing of PCL after week 24	
Phase V	Goals	
25–36 weeks after injury		Patient education and return to activity progressions
		Patients can be weaned out of the Jack brace starting at 24 weeks if they are ready
	Therapeutic exercise	
		Initiate absorption activities
		Continue strength and endurance exercises, and OKC for quadriceps and hamstrings
		Straight line jogging progression:
		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
		Sport-specific drills



Fig. 1 Prone passive knee range of motion with the PCL Jack brace in place

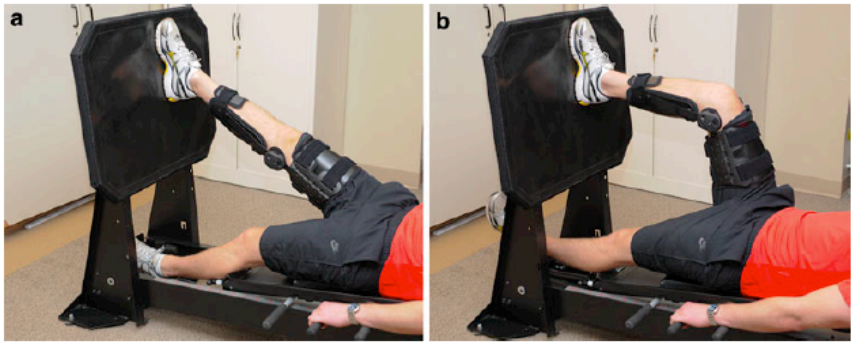


Fig. 2 Single leg presses at 70° demonstrating the starting position (**a**) and finishing position (**b**); align the feet, knees and hips and push through the foot to straighten the leg while avoiding hyperextension of the knee



Fig. 3 Static lunge demonstrating the finishing position; step into lunge position with the involved leg forward and bend the involved knee to approximately 45° and hold that position while allowing the toe of the uninvolved leg to touch the ground for assisted balance

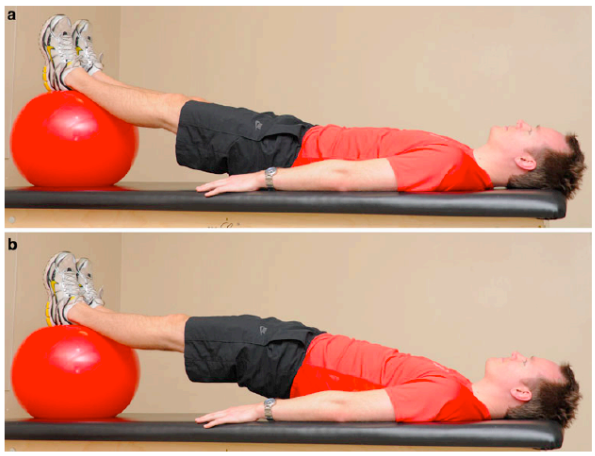


Fig. 4 Ball bridge demonstrating the starting position (**a**) and finishing position (**b**); lie supine with legs straight on the ball, press heels into ball while lifting the hips off table and hold for a count of 5 s

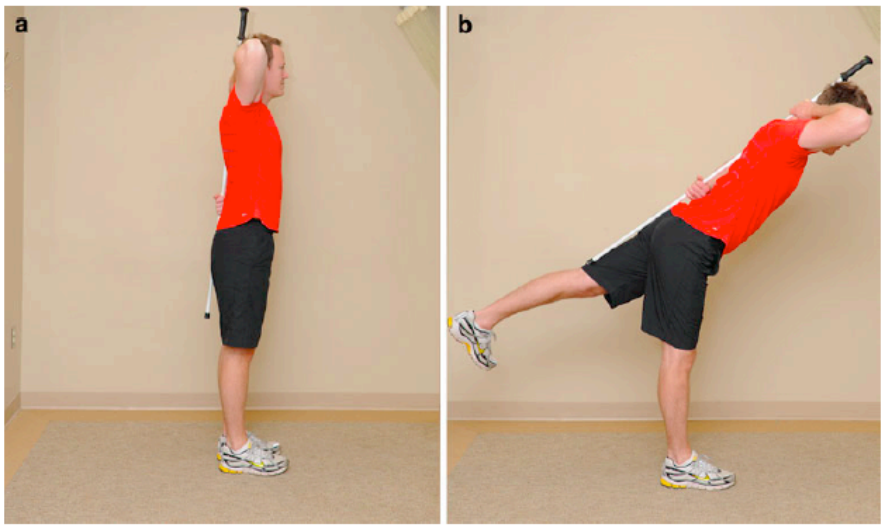


Fig. 5 Single leg deadlift demonstrating the starting position (**a**) and finishing position (**b**); stand on the involved leg keeping the back and uninvolved leg straight, hinge forward at the hip, pull through the gluteals and hamstrings to return to the start position

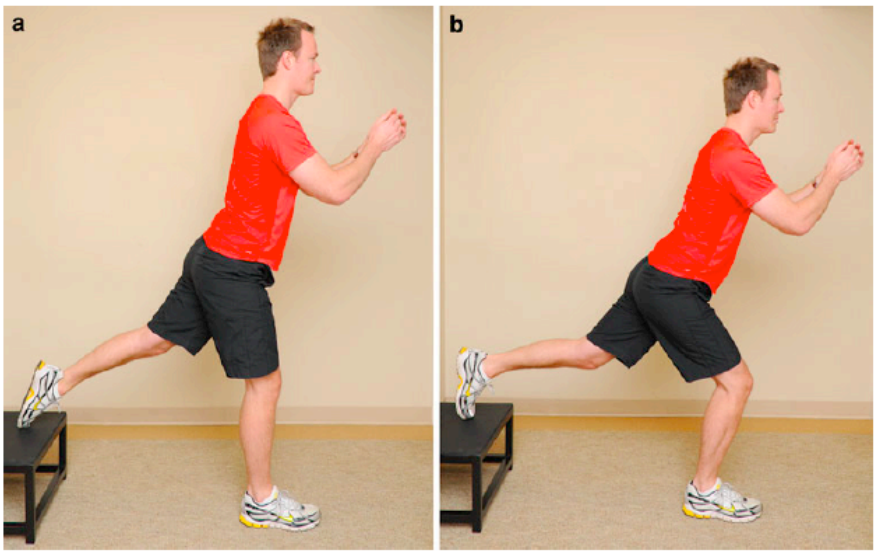


Fig. 6 Single leg balance squat demonstrating the starting position (**a**) and finishing position (**b**); allow the toe of the uninvolved leg to touch the chair and squat with involved leg to 70° keeping the hips level and the knees behind the toes while avoiding full extension of the leg upon returning to start position

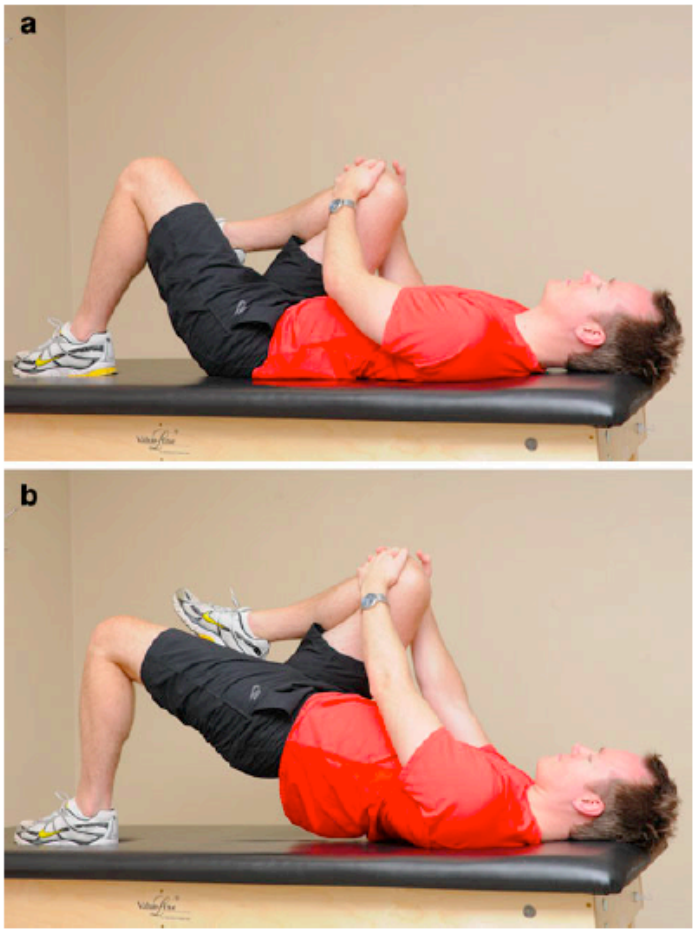


Fig. 7 Single leg bridge demonstrating the starting position (**a**) and finishing position (**b**); lie supine with the knees bent and feet shoulder width apart, grasp the uninvolved knee to chest and contract the gluteal muscles of the involved side to raise the hips off the mat to form a straight line with the shoulders, hips, and knee

Reference: Pierce CM, O'Brien L, Griffin LW, Laprade RF. Posterior cruciate ligament tears: functional and postoperative rehabilitation. Knee Surg Sports Traumatol Arthrosc. 2012 Apr 8.