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
      ■ 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 (ROM)
      ■ 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