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## Nonoperative PCL Tear Protocol:

PCL tear healing protocol: The patient has a Grade II PCL avulsion tear in isolation. They will be wearing a Rebound PCL brace (Ossur or Donjoy) at all times for 5 months, except when showering. A return to regular activities and sports can be anticipated at 6-8 months post injury. If any additional collateral ligament or posterior lateral corner injury occurred and nonoperative treatment was decided upon then the duration of brace use is extended to at least 6 months.

### Time following injury

### Specific protocol

#### **Phase I**

#### **0-6 weeks after injury**

#### **Precautions PRICE (Protect, Rest, Ice, Compress, Elevate)**

- 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 for the first 2 weeks, and then progress to full ROM Brace
- PCL 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 after injury**

**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 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
- Proprioceptive and balance exercises

**Phase III**

**Brace**

### 13-18 weeks after injury

Discontinue PCL Rebound brace at 18wks

#### **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

### 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 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