



**Nathan E Marshall MD**  
*Rochester Hills, MI*  
(248) 650-2400  
*Shelby Township, MI*  
(586) 254-2777  
[NateMarshallMD.com](http://NateMarshallMD.com)

## **PCL Non-Op Physical Therapy Protocol**

### **Precautions:**

- Avoid greater than 90° of knee flexion for the first 6 weeks post injury.
- If greater than 90° of knee flexion is performed, this **MUST** be done with an anterior drawer force to prevent posterior subluxation.
- Posterior knee pain may mean the patient is progressing too quickly.

### **Guidelines:**

- Must be highly individualized.
- Quadriceps strength is related to return to sport and patient satisfaction.
- Protect the patellofemoral joint.
- Avoid open-chain knee flexion exercises. Utilize closed-chain exercises to enhance function of hamstrings.

### **Early considerations:**

- Quadriceps sets, straight leg raises, biofeedback, electrical stimulation for quads.
- Open chain knee extension: 90-60° and 20-0°
- Closed chain: Mini-squats, wall slides, step-ups, leg press/squat

### **Phase I - Day 0-10:**

- Range of motion: 0 – 60 degrees
- Effusion: Ice, elevation, NSAIDs
- Gait/Weightbearing: Protected weightbearing (50%) with crutches.
- Exercise: Isometric quadriceps when pain permits
- Avoid open chain hamstring strengthening exercises

### **Phase II - Day 10-21:**

- Range of motion: Early range of motion within limits of pain: Active-assisted and passive range of motion less than 60°. Can increase to 90° of knee flexion, this **MUST** be done with anterior drawer force protecting the knee.
- Effusion: Ice, elevation, NSAIDs, electrical stimulation
- Gait/Weightbearing: Weight bearing as tolerated with knee brace locked in extension. o Discontinue crutches when patient is able to and the effusion is controlled.

- Exercise: Isometric quadriceps when pain permits o Leg press 0-60 degrees. • Avoid open chain hamstring strengthening, Avoid posterior tibial subluxation: Place a pillow under posterior aspect of lower leg when lying down.

### **Phase III - Weeks 3-5:**

- Range of motion: Progress as tolerated.
- Effusion: Ice, elevation, NSAIDs, electrical stimulation
- Gait/Weightbearing: Weightbearing as tolerated.
  - o Discontinue the large hinged knee brace as tolerated.
  - o Obtain a functional PCL brace.
- Exercise/Functional Training:
  - o Focus on increasing strength and endurance of quadriceps.
  - o Open chain knee extension exercises allowed IF no patellofemoral symptoms
  - o Quadriceps sets and terminal knee extension. o May perform hip extension with knee extension.
  - o No hamstring exercises with knee flexed.
  - o Bike
  - o Mini-squats 0-60 degrees
  - o Leg press 0-60 degrees
  - o Continue anterior drawer with knee flexion as above.

### **Phase IV - Weeks 5-8**

- Range of motion: Monitor
- Effusion: Monitor
- Gait/Weightbearing: As tolerated.
- Exercise/Functional Training:
  - o Closed chain exercises to improve functional strength:
    - o Mini squats o Wall slides
    - o Step ups and leg press o Isotonic quadriceps progressive resistance exercises.
    - o Proprioceptive training follows strengthening: Slide board

### **Phase V – Weeks 8-12**

- Begin a running program
- Gradual return to sport specific training Return to sports criteria:
  - Full pain-free knee extension
  - Full pain-free knee flexion
  - Quadriceps strength > 85% of contralateral side
  - Continue PCL brace until full return to play with no effusion (remainder of season)