

Protocol for Non-Operative Treatment of PCL Tears

Precautions:

- Avoid greater than 90 degrees of knee flexion for the first 6 weeks post injury.
- If greater than 90 degrees of knee flexion is performed, this **MUST** be done with an anterior drawer forced 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.
- Avoid open-chain knee flexion exercises. Utilize closed-chain exercises to enhance function of hamstrings.
- Early consideration: Quadriceps sets, straight leg raises, biofeedback, electrical stimulation for quads.
- Muscle functions:
 - Open chain knee extension: 90-60 degrees and 20-0 degrees
 - Closed chain: Mini-squats, wall slides, step-ups, leg press/squat

Phase I – Week 3:

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

Phase II – Week 4-6:

- Range of motion: Early range of motion with limits of pain: Active-assisted and passive range of motion less than 60 degrees. Can increase to 90 degrees of knee flexion, this **MUST** be done with anterior drawer force protection the knee.
- Effusion: Ice, elevation, NSAIDs, electrical stimulation.
- Gait/Weight bearing: Weight bearing as tolerated with knee brace locked in extension.
 - Discontinue crutches when patient is able to and the effusion is controlled.
- Exercise Isometric quadriceps when pain permits
 - Leg press 0-60 degrees.
- **Avoid open chain hamstring strengthening exercises**
- Avoid posterior tibial subluxation: Place a pillow under posterior aspect of lower leg when lying down.

Phase III – Week 6-8:

- Range of motion: Progress as tolerated.
- Effusion: Ice, elevation, NSAIDs, electrical stimulation.
- Gait/Weight bearing: Weight bearing as tolerated.
 - Discontinue the large hinged knee brace as tolerated.
 - Obtain a functional PCL brace.
- Exercise/Functional Training:
 - Focus on increasing strength and endurance of quadriceps
 - Open chain knee extension exercises allowed IF no patellofemoral symptoms
 - Quadriceps set and terminal knee extension.
 - May perform hip extension with knee extension.
 - No hamstring exercises with knee flexed.

- Bike
- Mini-squats 0-60 degrees
- Leg press 0-60 degrees
- Continue anterior drawer with knee flexion as above.

Phase IV – Week 8-12:

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

Phase V – Week 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)