



*Orthopedic Surgery, Sports Medicine & Arthroscopy Specialists*

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### REHABILITATION PROTOCOL- Nonoperative PCL tear

The rehabilitation guidelines are presented in a criterion based progression program. General time frames are given for reference to the average, but individual patients will progress at different rates depending on their age, associated injuries, pre-injury health status, rehab compliance, tissue quality and injury severity. Specific time frames, restrictions, and precautions may also be given to protect healing tissues and the surgical repair/reconstruction. It should not be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam findings, individual progress, and/or the presence of post-operative complications. The therapist should consult the referring physician with any questions or concerns.

Special attention must be given to impairments that caused the initial problem. For example, if the patient is s/p partial medial meniscectomy and they have a varus alignment, post-operative rehabilitation should include correcting muscle imbalances or postures that create medial compartment stress.

### **INDIVIDUAL CONSIDERATIONS: S/p**

#### **PHASE 1- (~0-4 weeks)**

REHAB GOALS	<ol style="list-style-type: none"> <li>1. Protection of the Ligament</li> <li>2. Restore leg control – no lag with straight-leg-raise</li> <li>3. Eliminate effusion/swelling</li> <li>4. Gait training and mobility with crutches</li> </ol>
PRECAUTIONS	<ol style="list-style-type: none"> <li>1. Crutches and non-weight bearing to partial weight bearing for 2 weeks with knee immobilizer in extension, pad behind tibia. Transition to PCL rebound brace at that time and full weight bearing.</li> <li>2. ROM from 45-90 deg only for first 2 weeks</li> <li>3. Cryocuff 3-5 times per day for 20 minutes and ice after every therapy session</li> </ol>
RANGE OF MOTION EXERCISES	<ul style="list-style-type: none"> <li>○ Prone passive ROM, restrictions as noted above</li> </ul>
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> <li>○ Supine SLR, side lying hip abduction, standing hip extension</li> <li>○ UE, core strengthening as tolerated</li> <li>○ Abdominal bracing with leg lifting in supine &amp; prone, seated rows &amp; pull downs with legs straight</li> <li>○ Standing weight shifts, heel raises when weight bearing</li> <li>○ Single leg balance, progress to unstable, perturbations, etc</li> <li>○ Knee extension from 90 to 60</li> </ul>

	<ul style="list-style-type: none"> <li>○ Standing wall &amp; mini squats 0-70, leg press 30-70 start ¼ body weight</li> <li>○ 6 in step ups</li> </ul>
<b>CARDIOVASCULAR EXERCISE</b>	Upper body circuit training or UBE.
<b>PROGRESSION CRITERIA</b>	<ul style="list-style-type: none"> <li>○ Minimal pain &amp; swelling</li> <li>○ Normal gait</li> <li>○ Good quad set, able to perform SLR without lag</li> <li>○ At least 120 deg of knee flexion</li> <li>○ Able to do stairs without limp</li> </ul>

**PHASE 2- (~5-8 weeks)**

<b>REHAB GOALS</b>	<ol style="list-style-type: none"> <li>1. Protection of the healing ligament</li> <li>2. Restore full ROM</li> <li>3. Regain quadriceps control</li> <li>4. Minimize pain and swelling</li> <li>5. Restore normal gait</li> </ol>
<b>PRECAUTIONS</b>	<ol style="list-style-type: none"> <li>1. Continue PCL brace</li> <li>2. Continue ice post activity</li> <li>3. No isolated hamstring strengthening for 6 weeks</li> </ol>
<b>RANGE OF MOTION EXERCISES</b>	<ul style="list-style-type: none"> <li>○ Continue phase 1 exercises</li> <li>○ Prone quad stretching</li> </ul>
<b>SUGGESTED THERAPEUTIC EXERCISES</b>	<ul style="list-style-type: none"> <li>○ Continue phase 1 exercises, progress with weight/resistance</li> <li>○ Clamshell hip ER, standing heel raises</li> <li>○ Core- side planks, bridges</li> <li>○ LE- increase leg press to 60-80% weight. Single leg squats (limit 70 deg flexion), forward &amp; backward lunges, resisted toe raises</li> <li>○ Double leg landings, squats on unstable surface, one legged balance throws, balance lunges</li> <li>○ Plyometrics- side to side jumps, jumping jacks, squat jumps</li> <li>○ Week 7- light hamstring strengthening</li> </ul>
<b>CARDIOVASCULAR EXERCISE</b>	<p>Stationary bike at 6 weeks</p> <p>Elliptical, stairmaster</p> <p>Walk/run progression at week 7</p>
<b>PROGRESSION CRITERIA</b>	<ul style="list-style-type: none"> <li>○ Minimal pain &amp; swelling</li> <li>○ Single leg squat to 70 deg, hold for 5 seconds</li> <li>○ Running with normal gait</li> <li>○ Negative PCL specific exam findings</li> </ul>

**PHASE 3- (~9-14 weeks)**

REHAB GOALS	<ul style="list-style-type: none"> <li>○ Maintain/restore full ROM</li> <li>○ Improve quad strength &amp; endurance</li> <li>○ Improve hip &amp; core strength, balance, stability</li> </ul>
PRECAUTIONS	<ul style="list-style-type: none"> <li>○ Continue PCL brace</li> <li>○ Continue ice after PT</li> <li>○ Avoid post activity swelling</li> </ul>
RANGE OF MOTION EXERCISES	<ul style="list-style-type: none"> <li>○ Continue exercises from phase 2.</li> <li>○ Soft tissue mobilizations as needed</li> <li>○ Sport specific flexibility exercises</li> </ul>
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> <li>○ Continue phase 2 exercises</li> <li>○ Advance double leg squats to 90 deg</li> <li>○ Forward, lateral, crossover step ups</li> <li>○ Hip &amp; core strengthening- lateral &amp; backward band walking</li> <li>○ Week 8- eccentric hamstrings, supine heel digs, rollouts</li> <li>○ Week 8- plyometric jump training, begin 2 leg, advance to single leg as tolerated</li> <li>○ Balance- progress activities to perturbations, unstable, etc</li> <li>○ Sport specific/agility- lateral shuffle, grapevine, progress to figure 8s, sprints with direction change, ladders</li> </ul>
CARDIOVASCULAR EXERCISE	<p>Continue phase 2 Progress to sprinting at 10 weeks</p>
PROGRESSION CRITERIA	<ul style="list-style-type: none"> <li>○ Full active ROM</li> <li>○ No instability</li> <li>○ At least 80% quad strength</li> <li>○ At least 85% single leg hop distance</li> </ul>

**PHASE 4- (~15-20 weeks)**

REHAB GOALS	<ul style="list-style-type: none"> <li>○ Restore/maintain full ROM</li> <li>○ Improve strength</li> <li>○ Continue neuromuscular progression</li> <li>○ Return to sport/work</li> </ul>
PRECAUTIONS	<p>Continue PCL brace Post-activity soreness should resolve within 24 hours Avoid post activity swelling Continue ice after PT</p>
RANGE OF MOTION	<p>Continue with flexibility exercises PNF stretches</p>

EXERCISES	
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> <li>○ Progress phase 3 activities with resistance/weight</li> <li>○ Balance/neuromuscular- continue progression with unstable surface, perturbations, etc</li> <li>○ Continue open and closed chain exercises, progress with weight/resistance</li> <li>○ Continue plyometric progression</li> <li>○ Non contact sport specific drills/activities</li> </ul>
CARDIOVASCULAR EXERCISE	Continue previous phase exercises, progress to baseline
PROGRESSION CRITERIA- RETURN TO SPORT	<ul style="list-style-type: none"> <li>○ Full, painless active and passive ROM</li> <li>○ &gt;90% quad strength of contralateral</li> <li>○ No instability/apprehension</li> <li>○ Completion of sport/work specific program</li> <li>○ Pass return to sport test</li> <li>○ Clearance by physician</li> </ul>

**RETURN TO SPORT TEST**

- 10 rep max single leg squat with external weight
- Single broad jump landing on one foot
- Triple broad jump landing on one foot
- Single leg forward hop
- Single leg crossover hop
- Single leg medial and lateral hop
- Single leg medial and lateral rotating hop
- Single leg vertical hop
- Single leg triple hop
- Timed 6 meter hop
- 10 yard lower extremity functional test
- 10 yard pro agility run