

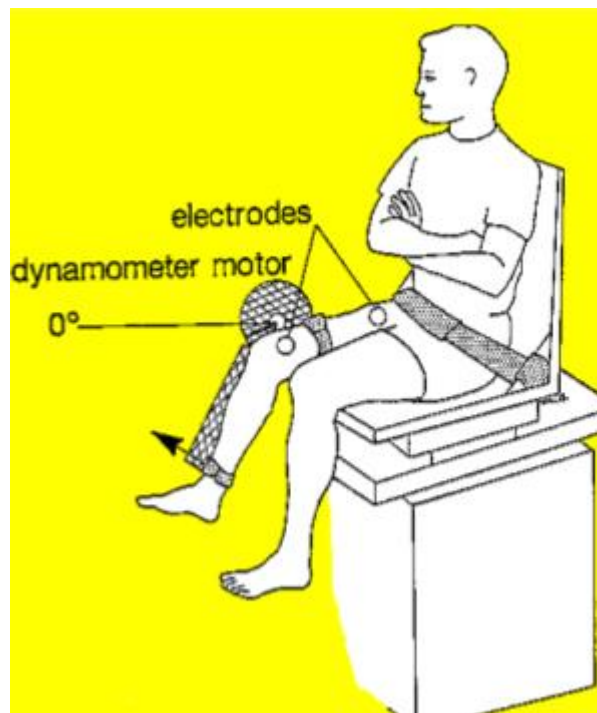


## Rehab Practice Guidelines for: PCL Reconstruction

Assumptions:	Isolated PCL Injury or PCL/PL
Primary surgery:	PCL Reconstruction with or without PL repair/reconstruction
Secondary Surgery (possible):	Meniscal injury, Chondroplasty
Precautions:	<b>See end of note</b>
Expected # of visits:	30-40

### NMES Guideline:

1. Electrodes placed over proximal lateral quadriceps and distal medial quadriceps. (Modify distal electrode placement by not covering superior medial (VMO) arthroscopy portal until stitches removed and skin is healed)
2. Stimulation parameters: 2500Hz, 75 bursts, 2 sec. ramp, 12 sec. on, 50 sec. rest, intensity to max tolerable [at least 50% MVIC (see note at end)], 10 contractions per session. 3 sessions per week until quadriceps strength MVIC is 80% of uninjured.
3. Stimulation performed **isometrically** at 30° (dependent on graft site)





**PCL Rehabilitation Protocol**

<b><u>Phase of Rehabilitation</u></b>	<b><u>Treatment</u></b>	<b><u>Milestones</u></b>
<u>Week 1</u>  Total Visits: 1	<ul style="list-style-type: none"> <li>▪ NMES (see guidelines)</li> <li>▪ Quad sets</li> <li>▪ SLR</li> <li>▪ Patellar mobilization</li> <li>▪ HEP: patellar mobilization 30-50X, quad sets, and SLR 3x10 (3x per day)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Good quadriceps contraction</li> <li>▪ Superior patellar glide</li> <li>▪ Ambulating PWB with crutches with post-op orthosis locked</li> </ul>
<u>Week 2</u>  2-3 visits/week  Total Visits: 3-4	<ul style="list-style-type: none"> <li>▪ Portal/incision mobilization as needed</li> <li>▪ SAQ 30°-0°</li> </ul>	<ul style="list-style-type: none"> <li>▪ Full extension</li> <li>▪ Flexion to 60</li> <li>▪ SLR without lag (full quadriceps contraction)</li> </ul>
<u>Weeks 3-5</u>  2-3 visits/week  Total Visits: 9-13	<ul style="list-style-type: none"> <li>▪ Prone knee flexion therapist assisted 0-60°</li> <li>▪ Supine knee flexion holding tibia forward</li> <li>▪ OKC 60-0°</li> <li>▪ Stationary bike for ROM-easy</li> <li>▪ Gait training PWB with crutches no orthosis</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flexion to 110°</li> <li>▪ Quad strength &gt;60% of uninvolved wean from orthosis, normalize gait crutches</li> </ul>
<u>Weeks 6-10</u>  2-3 visits/week  Total Visits: 19- 28	<ul style="list-style-type: none"> <li>▪ Stationary bike-easy</li> <li>▪ Begin closed chain if good quad control: wall sits, wall squats 0°-45°</li> </ul>	<ul style="list-style-type: none"> <li>▪ Normal gait without crutches</li> <li>▪ Quad strength &gt;80% of uninvolved</li> </ul>
<u>Week 12</u>  Twice per week to rechecks	<ul style="list-style-type: none"> <li>▪ Progress exercise intensity and duration</li> <li>▪ 0°-90° hamstring exercises against gravity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Painfree AROM to within 10 of uninvolved</li> <li>▪ Maintaining or increasing quadriceps strength (&gt;= 90%)</li> </ul>
<u>Week 16</u>  Twice per week to rechecks	<ul style="list-style-type: none"> <li>▪ Begin running progression with functional brace (see note)</li> <li>▪ PRE-Hamstring curls 0°-90°</li> <li>▪ Transfer to fitness facility (if all milestones are met)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Full ROM (compared to uninvolved)</li> <li>▪ Maintaining quadriceps strength ≥ 95%</li> </ul>
<u>Week 20</u>  Rechecks  Total Visits: 25-44	<ul style="list-style-type: none"> <li>▪ Return to sport transition</li> <li>▪ Proprioceptive, static balance, dynamic balance, functional activities:               <ul style="list-style-type: none"> <li>○ Slow to fast speed</li> <li>○ Low to high force</li> <li>○ Controlled to uncontrolled</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Global report &gt;70%</li> <li>▪ KOS ADLS &gt; 90%</li> </ul>

**MVIC: Maximum Volitional Isometric Contraction**

Patient is asked to volitionally extend the involved leg as hard as possible while knee is maintained isometrically at 30° knee flexion. Side to side comparison: (involved/uninvolved X 100 = % MVC)



**Precautions**

<b><u>Surgical Procedure</u></b>	<b><u>Considerations</u></b>
Partial meniscectomy	<ul style="list-style-type: none"> <li>▪ No modifications required; progress per patient tolerance and protocol.</li> </ul>
Meniscal Repair	<ul style="list-style-type: none"> <li>▪ No modifications required; progress per patient tolerance and protocol.</li> <li>▪ Weight bearing in full extension OK</li> </ul>
Chondroplasty	<ul style="list-style-type: none"> <li>▪ Restricted weight-bearing for 4 weeks</li> <li>▪ No weight-bearing exercise for 4 weeks</li> <li>▪ Consider Tibiofemoral unloading brace to help facilitate earlier participation in functional rehabilitation activities if limited by pain</li> </ul>
MCL injury	<ul style="list-style-type: none"> <li>▪ Restrict motion to sagittal plane until week 4-6 to allow healing of MCL.</li> <li>▪ Perform PRE's with tibia in internal rotation during early post-op period to decrease MCL stress.</li> <li>▪ Consider brace for exercise and periods of activity if severe sprain and/or patient has pain.</li> </ul>
ACL injury	<ul style="list-style-type: none"> <li>▪ Follow PCL rehabilitation guidelines.</li> </ul>

**Running Progression:**

- 1.) Treadmill walking
- 2.) Treadmill walk/run intervals
- 3.) Treadmill running
- 4.) Track: run straights, walk turns
- 5.) Track: run straights and turns
- 6.) Run on road

Progress to next level when patient is able to perform activity for 2 miles without increased effusion or pain. Perform no more than 4 times in one week and no more frequently than every other day. Do not progress more than 2 levels in a 7-day period