



**Post-operative Rehabilitation Protocol**  
**Knee Multiple Ligament Injury Reconstruction/Repair**  
**(ACL, PCL, +/- MCL, LCL, or PLC)**

**The goals of this protocol are to protect the reconstructions while preventing knee stiffness. Early passive ROM exercises are very important, as is preventing excessive anterior and/or posterior tibia translation.**

**Phase 1 (0-6 weeks post op):**

<b>Goals</b>	<ul style="list-style-type: none"><li>• Full knee ROM—all ROM exercises must be performed in the prone or side lying position for the first six weeks</li><li>• Pain/edema reduction</li><li>• Begin and enhance normalization of quad recruitment</li><li>• Prevent anterior/posterior translation and tibia rotation</li></ul>
<b>Brace/Precautions/ Crutch Use</b>	<ul style="list-style-type: none"><li>• Weight bearing:<ul style="list-style-type: none"><li>○ 0-6 weeks: 50% weight-bearing</li></ul></li><li>• Brace: 0-2 weeks: locked in extension (0 degrees)<ul style="list-style-type: none"><li>○ Brace may be unlocked for prone ROM exercises under guidance of PT or ATC</li></ul></li><li>• Brace: 2-6 weeks: unlocked 0-90 degrees if able to tolerate<ul style="list-style-type: none"><li>○ Brace may be removed for hygiene and therapy</li></ul></li></ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"><li>• Weeks 0-2: 0 degrees</li><li>• Weeks 2-6: 0-90 degrees</li></ul>
<b>Strengthening</b>	<ul style="list-style-type: none"><li>• Quad Sets for strengthening</li><li>• NO active strengthening with knee flexion</li></ul>
<b>Home Instructions</b>	<ul style="list-style-type: none"><li>• Keep surgical dressings clean and dry</li><li>• Change surgical bandages on the 2<sup>nd</sup> day after surgery (keep covered until first clinic visit)</li><li>• Avoid getting sutures wet until at least 5 days after surgery (do not scrub, soak, or submerge the incisions)</li><li>• Note DVT (blood clot) prophylaxis medications provided by your surgeon to take following surgery – follow those instructions carefully.</li></ul>
<b>Suggested Exercises</b>	<ul style="list-style-type: none"><li>• Modalities as needed</li><li>• Perform home stretching exercises 2-3 times daily</li><li>• ROM exercises: In prone position or side lying only, grip the heads of the gastroc/soleus group and maintain neutral pressure proximally to the tibia while flexing the knee</li><li>• Advance ROM as tolerated</li><li>• Begin patella mobilizations</li><li>• Scar management</li><li>• Quad sets/SLR in brace at 0° (assist patient with this exercise until solid quad contraction developed, prevent posterior sag) 10x10 3 times daily. May use ankle weights as they will increase anterior translation</li></ul>

<b>Suggested Exercises</b>	<ul style="list-style-type: none"> <li>Seated calf exercises</li> <li>Time modulated AC (also known as Russian stim) in full extension</li> <li>Quad exercises for home program</li> </ul> <p><b>After 2 weeks post op:</b></p> <ul style="list-style-type: none"> <li>May add stationary bike to increase ROM. Start with high seat and progress to normal seat height when able, resistance as tolerated.</li> </ul> <p><b>After 3 weeks post op:</b></p> <ul style="list-style-type: none"> <li>Leg press with both legs</li> <li>Leg extensions with anti-shear device or cuff weights. Progress weight as tolerated, keep resistance proximal.</li> </ul>
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## **Phase 2 (6-10 weeks post op):**

<b>Goals</b>	<ul style="list-style-type: none"> <li>Normalize gait mechanics and progress to full weight bearing as tolerated without assistive devices</li> <li>Improve ROM</li> <li>Completion of exercises without exacerbation of symptoms or reactive effusion</li> </ul>
<b>Brace/Precautions/ Crutch Use</b>	<ul style="list-style-type: none"> <li>Discontinue brace if capable of SLR without extensor lag</li> <li>Begin weaning off crutches and progress to full weight bearing as tolerated</li> </ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"> <li>Prone flexion 120 degrees or more and advance to full ASAP</li> <li>Maintain passive knee extension</li> </ul>
<b>Home Instructions</b>	<ul style="list-style-type: none"> <li>Restore normal activities of daily living (within weight-bearing restrictions)</li> </ul>
<b>Suggested Exercises</b>	<ul style="list-style-type: none"> <li>Continue with Phase 1 exercises as appropriate</li> <li>May begin aquatic therapy emphasizing normal gait, marching forward/backward</li> <li>Treadmill walking—forward and retro</li> <li>Closed and open chain tubing exercises</li> <li>Single leg stands for balance/proprioception on Airex pad or trampoline</li> <li>Chair/wall squats—keep tibia perpendicular to floor</li> <li>Unilateral step-ups—start with 2" height and progress to normal step height as able</li> </ul>

## **Phase 3 (10-16 weeks post-op):**

<b>Goals</b>	<ul style="list-style-type: none"> <li>Progressing to full, pain-free ROM</li> <li>Maintain normal gait mechanics</li> </ul>
<b>Brace/Precautions/ Crutch Use</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"> <li>Progress to and maintain full ROM</li> </ul>
<b>Strengthening</b>	<ul style="list-style-type: none"> <li>Advance hamstring strengthening in prone position</li> <li>Advance quad strengthening as tolerated</li> </ul>
<b>Suggested Exercises</b>	<ul style="list-style-type: none"> <li>Continue with Phase 2 exercises as appropriate</li> <li>Stairmaster</li> <li>Slide board – start with short distance and progress as tolerated</li> <li>Elliptical for conditioning</li> <li>Cable column exercises – retro walking, lateral stepping, NO cross over stepping or shuffling</li> <li>Standing leg curls with cuff weights or seated leg curls with NK table at 5lbs max</li> </ul>

#### **Phase 4 (4-6 month post-op):**

<b>Goals</b>	<ul style="list-style-type: none"><li>• Maintain full, pain-free ROM – symmetrical to uninvolved limb</li><li>• Initiate sport specific activities under supervision by ATC or PT</li><li>• Begin plyometric exercises</li></ul>
<b>Precautions/ Crutch Use</b>	<ul style="list-style-type: none"><li>• None</li></ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"><li>• Maintain full ROM</li></ul>
<b>Strengthening</b>	<ul style="list-style-type: none"><li>• Continue and progress strengthening based on individual needs and deficits</li></ul>
<b>Suggested Exercises</b>	<ul style="list-style-type: none"><li>• Continue with Phase 3 exercises as appropriate</li><li>• Begin walk-jog progression</li><li>• Plyometrics – low intensity vertical and lateral hopping to begin, use both feet and move to one foot ASAP</li><li>• When plyometric exercise intensity is high, the volume must be decreased</li></ul>

#### **Phase 5 (6+ month post-op):**

<b>Goals</b>	<ul style="list-style-type: none"><li>• Safe return to athletics/work</li><li>• Maintenance of strength, power, endurance, proprioception</li></ul>
<b>Precautions/ Crutch Use</b>	<ul style="list-style-type: none"><li>• None</li></ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"><li>• Maintain full ROM</li></ul>
<b>Strengthening</b>	<ul style="list-style-type: none"><li>• Maintenance and progression of strength pending activity level goals</li></ul>
<b>Home Instructions</b>	<ul style="list-style-type: none"><li>• Maintain normal activities of daily living</li></ul>
<b>Suggested Exercises</b>	<ul style="list-style-type: none"><li>• Running and sport specific drills<ul style="list-style-type: none"><li>○ Stepping, shuffling, hopping, cariocas</li></ul></li></ul>