



## ANTERIOR CRUCIATE LIGAMENT (ACL) REHABILITATION GUIDE

PHASE	SUGGESTED INTERVENTIONS	TO ADVANCE TO NEXT PHASE
<p><b>PHASE I</b> <b>EDUCATIONAL</b> <b>PHASE</b> <b>PRE-</b> <b>SURGICAL</b> <b>STAGE</b></p>	<p><b>Goal:</b> -Discuss exploration of Anatomy, Current Pathology, Post-operative Rehabilitation Timetable, Bracing, and Anticipated Progressions</p> <p><b>Pre-Operative Assessments:</b> -Conduct contralateral isokinetic tests at 60/180/300°/Sec. -Introduction to Blood Flow Restriction Training</p> <p><b>Immediate Post-Surgery Guidelines:</b> -Follow instructions for ice application and medication -Perform quad setting every hour -Prop heel up to tolerance every 3 hours using towel for assistance</p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Absence of discomfort or swelling</li> <li>2. Typical walking pattern and range of motion</li> <li>3. Outstanding quad muscle activation</li> </ol>
<p><b>PHASE II</b> <b>MAXIMUM</b> <b>PROTECTION</b> <b>PHASE</b> <b>0-3 WEEKS</b></p> <p>6-9 EXPECTED VISITS</p>	<p><b>Goal:</b> -Follow these guidelines for optimal recovery: When bearing weight, ensure the brace is in a securely locked position, maintaining full extension. Exercise exceptional control over the unlocking process, utilizing the strength of your quadriceps muscles. Additionally, during the initial 7-14 days, incorporate crutches as needed to provide necessary support and aid in a smooth rehabilitation journey.</p> <p><b>ROM:</b> -Achieve full extension with the heel propped to match the other side within 2 weeks -Attain flexion ROM of 90 degrees by 10 days and 110 degrees by 3 weeks</p> <p><b>Recommended Therapies:</b> <b>APPLY MODALITIES AS PERSCRIBED:</b> - Employ treatments to control edema - Use Neuromuscular Electrical Stimulation (NMES) for quadricep activation</p> <p><b>Manual Therapy:</b> - Perform patellar mobilizations with a focus on superior glide</p> <p><i>*Ask healthcare provider for recommended exercises for this phase</i></p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Management of Post-operative discomfort (Associated with activities of Daily Living) at up to 10 days while wearing the brace.</li> <li>2. Regaining complete extension (comparable to the opposite side)</li> <li>3. Passive range of motion from 0 to 110°</li> <li>4. Independant straight leg raise without the brace, and no lag in extension.</li> <li>5. Walking normally with the brace unlocked</li> </ol>
<p><b>PHASE III</b> <b>INITIAL</b> <b>REHABILITATION</b> <b>PHASE</b> <b>3-6 WEEKS</b></p> <p>5-10 EXPECTED VISITS</p>	<p><b>Goal:</b> -Progress in your rehabilitation by transitioning to a light Closed Kinetic Chain (CKC) program, placing a strong emphasis on maintaining excellent control of the knee throughout each exercise. This shift in your rehabilitation approach allows for targeted strengthening while ensuring stability. Concurrently, it is essential to uphold a consistent and continuous use of the drop lock brace. This precautionary measure provides added support and stability, further safeguarding the knee joint during various activities. Combining these two elements in your recovery plan enhances the overall effectiveness and promotes a more secure and steady progression.</p> <p><b>ROM:</b> -Reinforce achieving and maintaining full extension -Gradually increase flexion as tolerated</p> <p><b>Reccomended Therapies:</b> -Continue to employ treatments to control edema as needed -Continue progressing Neuromuscular Electrical Stimulation (NMES) for quadricep activation</p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Attain symmetrical hyperextension to 130 degrees or beyond and achieve flexion.</li> <li>2. Walk normally with the brace in an unlocked position.</li> <li>3. Demonstrate good knee control and symmetry during Closed Kinetic Chain (CKC) exercises.</li> </ol>

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<p><b>PHASE IV</b>  <b>MANAGED MOBILITY &amp; STRENGTH BUILDING</b>  <b>PHASE</b>  <b>6-16 WEEKS</b></p> <p>10-20 EXPECTED VISITS</p>	<p><b>Goal:</b>            -Begin by revising your home program to specifically address any existing deficiencies in your condition. Tailor your exercises to target and improve areas of concern, ensuring a more targeted and effective approach to your recovery. Additionally, incorporate a self-directed weight training program into your routine, engaging independently 1-2 times per week. This initiative fosters self-driven progress and contributes significantly to your overall strength and well-being.</p> <p><b>ROM:</b>            -Advance the progression of full flexion ROM, including kneeling exercises.            -Incorporate progressive strength training.</p> <p><b>Activity Examples:</b>            -Progression of extraneous weight bearing exercises from Week 6 to jumping and testing functional movements in Week 16.            -Water-based regimen and intervals and resistance on the bike or elliptical machine.</p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Achieve full, pain-free active and passive Range of Motion (ROM).</li> <li>2. Attain a quadriceps &amp; hamstring deficit of less than 25% at 60°/Sec.</li> <li>3. Perform a single-leg step-down with proper form and no compensatory movements.</li> <li>4. Execute a back squat with 70% of body weight without compensatory movements.</li> </ol>
<p><b>PHASE V</b>  <b>PROGRESSED STRENGTH &amp; POWER DEVELOPMENT</b>  <b>PHASE</b>  <b>16-24+ WEEKS</b></p> <p>8-16 EXPECTED VISITS</p>	<p><b>Goal:</b>            -Focus on a comprehensive approach to enhance your overall physical well-being. Firstly, prioritize the improvement of muscular strength, power, and endurance through targeted exercises and training. Simultaneously, work towards enhancing cardiovascular endurance and conditioning to optimize your overall fitness level. Additionally, address psychological aspects by actively working to reduce fear and bolster confidence in the affected limb. This integrated strategy aims to promote a well-rounded improvement in both physical and mental aspects, contributing to a more holistic and effective wellness journey.</p> <p><b>ROM:</b>            -Advance the progression of closed and open chain quadriceps strengthening within the range of 0 to 90 degrees.</p>	
<p><b>PHASE VI</b>  <b>PROGRESSIVE MOVEMENT</b>  <b>PHASE</b>  <b>6+ MONTHS</b></p> <p>8-24 EXPECTED VISITS</p>	<p><b>Goal:</b>            -Getting back to regular daily activities with comfortability in repaired ligament.</p> <p><b>Depending on the specific activity level goals of the patient:</b></p> <ul style="list-style-type: none"> <li>-Implement an Interval Distance Running Program</li> <li>-Introduce an Interval Intensity Running Program</li> <li>-Incorporate Plyometric Progressions</li> <li>-Include Movement Retraining Progressions</li> </ul>	<p><b>Criteria:</b></p> <p><b>INITIATING ACTIVITIES:</b></p> <ol style="list-style-type: none"> <li>1. Quad, hamstring, and gluteal strength deficit of less than 25%.</li> </ol> <p><b>ASPECTS FOR DISCHARGE:</b></p> <ol style="list-style-type: none"> <li>1. Achieve less than a 10% strength deficit in quadricep and gluteal.</li> <li>2. Attain a limb similarity index of 90% or higher on functional hop and Y balance tests.</li> <li>3. Score 45 out of 50 on biomechanical functional assessment tests (if conducted).</li> <li>4. No reported pain or complaints of instability during the functional progression of sport-specific skills.</li> <li>5. Achieve a score of over 90% on outcome measures.</li> </ol>

