



# Rehab Protocol

ACL and colateral ligament  
reconstruction

**LJ BRADLEY**   
ORTHOPAEDIC SURGEON

[northlandorthopaedicsurgeon.co.nz](http://northlandorthopaedicsurgeon.co.nz)

Post-op recovery		First 2 weeks	Date
Goals	<ul style="list-style-type: none"> <li>• Protect the knee and surgical incisions</li> <li>• Recover from swelling and inflammation</li> <li>• Control of post-surgical pain</li> </ul>		
Precautions	<ul style="list-style-type: none"> <li>• Fully weight-bear but use crutches for support and to improve gait</li> </ul>		
Brace	<ul style="list-style-type: none"> <li>• Locked in extension when mobilising</li> <li>• Unlock brace at rest and when doing ROM exercises</li> <li>• At rest the brace can be loosened to allow swelling and discomfort to settle</li> <li>• Sleep in brace (locked in extension)</li> </ul>		
Recommendations	<ul style="list-style-type: none"> <li>• Rest and elevate as required</li> <li>• Ice the knee up to 3 times a day – particularly in the first 72 hours</li> <li>• Range of motion exercises of ankle</li> <li>• Range of motion exercises of hip</li> <li>• Gentle movement of the knee from full extension to 90 degrees of flexion as pain and swelling allows</li> <li>• When walking with crutches – concentrate on achieving heel strike, roll through and toe off</li> <li>• When standing, push both knees back straight to help achieve full extension</li> </ul>		
Exercise suggestions	<ul style="list-style-type: none"> <li>• Static quads contraction</li> <li>• Supine straight leg raise</li> <li>• Ankle pumps</li> <li>• Supine bed supported knee bend</li> <li>• Sitting supported knee bend</li> <li>• Sitting knee extension stretch – foot on floor</li> <li>• Supine knee extension – foot elevated/supported</li> <li>• Standing knee extension</li> <li>• Side leg raise – knee straight in brace</li> <li>• Double calf raises</li> </ul>		
Criteria for progression	<ul style="list-style-type: none"> <li>• Healed surgical incisions</li> </ul>		

Phase 1		Week 2 to week 6	
Goals	<ul style="list-style-type: none"> <li>• Increase ROM</li> <li>• Begin strengthening</li> <li>• Normal gait</li> <li>• Minimal Pain</li> <li>• Minimal Swelling</li> </ul>		
Precautions	<ul style="list-style-type: none"> <li>• Keep using crutches and wearing brace</li> </ul>		
Brace	<ul style="list-style-type: none"> <li>• Locked in extension when mobilising</li> <li>• Unlock brace at rest and when doing ROM exercises</li> </ul>		

	<ul style="list-style-type: none"> <li>• At rest the brace can be loosened to allow swelling and discomfort to settle</li> <li>• Brace can come off to sleep</li> </ul>	
Recommendation	<ul style="list-style-type: none"> <li>• When standing, push knees back straight to help achieve full extension</li> <li>• When walking – concentrate on achieving heel strike, role through and toe off</li> <li>• Increase range of motion from full extension to full flexion</li> <li>• Hip and gluteal muscle strengthening</li> <li>• No gluteal band exercises – protect collateral ligament repair</li> <li>• Ankle range of motion and strengthening</li> </ul>	
Exercise suggestions	<ul style="list-style-type: none"> <li>• Low load, long duration (assisted as required)</li> <li>• Wall slide mini squat</li> <li>• Double leg squats (0-60)</li> <li>• Sitting unsupported knee extension and flexion</li> <li>• Single leg stance – knee straight, knee flexed</li> <li>• Straight leg raise</li> <li>• Step ups</li> <li>• Double calf raises – progress to single calf raise</li> <li>• Side leg raise – knee straight in brace</li> <li>• No gluteal band exercises – protect collateral ligament</li> <li>• Bridging with gluteal contraction</li>   <li>• Exercycle – low resistance, short interval</li>   <li>• Cardio:</li> <li>• Swimming (freestyle or backstroke only), Hydrotherapy, Stationary bike cycling, Upper body weight training (must be seated or lying)</li> </ul>	
Criteria for progression	<ul style="list-style-type: none"> <li>• No active extension lag, 110° active flexion</li> <li>• Minimal effusion/pain</li> <li>• Normal Gait</li> <li>• Functional strength and control in daily activities</li> </ul>	

<b>Phase 2</b>	<b>Week 7 to week 12</b>	
Goals	<ul style="list-style-type: none"> <li>• Gain full range of motion</li> <li>• Muscle strengthening</li> <li>• Neuromuscular control</li> <li>• No swelling</li> <li>• No pain</li> </ul>	
Precautions	<ul style="list-style-type: none"> <li>• Wean off crutches as soon as able</li> <li>• No running until week 12 if meeting all criteria</li> </ul>	
Brace	<ul style="list-style-type: none"> <li>• Fully unlock brace at all times</li> </ul>	

	<ul style="list-style-type: none"> <li>• Brace worn only for mobilising</li> <li>• Brace can be discarded after week 8</li> </ul>	
Recommendations	<ul style="list-style-type: none"> <li>• Fully weight bear as able</li> <li>• Passive stretching to achieve full extension and flexion</li> <li>• Concentrated full rehab program that includes strengthening of core, hip flexors, gluteal muscles, external rotators of the hip, quadriceps, hamstrings and calves. Neuromuscular control and co-ordination of leg</li> </ul>	
Suggested exercises	<ul style="list-style-type: none"> <li>• Double leg squats (0-90)</li> <li>• Single leg squats</li> <li>• Single leg hop</li> <li>• Step ups – increase height</li> <li>• Step downs</li> <li>• Resisted quads and hamstring weight training</li> <li>• Gluteal band exercises</li> <li>• Bridging with gluteal contraction</li> <li>• Double calf raises – progress to single calf raise</li> <li>• Exercycle – increase resistance and training length</li> <li>• Neuromuscular Training: Wobble board, rocker board, roller board, Varied surfaces</li>   <li>• Cardiopulmonary: Bike, Elliptical trainer, Stairmaster, swimming</li> </ul>	
Criteria for progression	<ul style="list-style-type: none"> <li>• Walking 20 minutes without pain or swelling</li> <li>• Neuromuscular and strength training exercises without difficulty</li> <li>• Full ROM</li> </ul>	

Phase 3		3 Months – 6 months	
Goals	<ul style="list-style-type: none"> <li>• Running on flat surface</li> <li>• Jumping (double leg)</li> <li>• Hop Tests 75% of contra-lateral side</li> <li>• Hopping without pain, swelling, or giving way</li> </ul>		
Precautions	<ul style="list-style-type: none"> <li>• Run on flat stable surface in daylight</li> <li>• No pivoting or cutting activities or sports</li> </ul>		
Recommendations	<ul style="list-style-type: none"> <li>• Passive stretching to achieve full extension and flexion</li> <li>• Concentrated full rehab program that includes strengthening of core, hip flexors, gluteal muscles, external rotators of the hip, quadriceps, hamstrings and calves. Neuromuscular control and co-ordination of leg</li> </ul>		
Suggested exercises	<ul style="list-style-type: none"> <li>• Running on flat even surface. Gradually increasing distance</li> <li>• Aggressive strength training Hamstrings, Quads,</li> </ul>		

	<ul style="list-style-type: none"> <li>calves, adductors, abductors, core strength</li> <li>• Cycling with high resistance (standing permitted)</li> <li>•</li> <li>• Neuromuscular Training: Wobble board, rocker board, roller board, varied surfaces</li> <li>• Begin gentle pivoting and direction changing</li> <li>• Cardio:</li> <li>• Running, swimming, cycling, stair climber, elliptical trainer</li> </ul>	
Criteria for progression	<ul style="list-style-type: none"> <li>• Maximum vertical jump without pain or instability</li> <li>• 75% of contralateral on hop tests</li> <li>• Run at 75% speed without difficulty</li> <li>• Some confidence with pivoting and changing direction</li> </ul>	

Phase 4		6 Months – 12 months	
Goals	<ul style="list-style-type: none"> <li>• 100% contralateral strength</li> <li>• 85% contralateral on hop tests</li> <li>• Running without pain</li> <li>• Absolute confidence with pivoting and turning</li> </ul>		
Precautions	<ul style="list-style-type: none"> <li>• NO pivoting or contact sports</li> <li>• Can return to non-competitive non-contact sport training</li> </ul>		
Recommendations	<ul style="list-style-type: none"> <li>• Gain and maintain endurance and strength</li> <li>• Sport specific functional training</li> <li>• Graduated return to cutting and pivoting movements</li> <li>• Neuromuscular control and coordination</li> </ul>		
Suggested exercises	<ul style="list-style-type: none"> <li>• Running on flat even surface. Sprinting. Direction changes</li> <li>• Aggressive strength training Hamstrings, Quads, calves, adductors, abductors, core strength</li> <li>• Cycling with high resistance (standing permitted)</li> <li>• Hopping, jumping</li> <li>• Pivoting and direction changes</li> <li>• Begin cutting (non-competitive environment)</li> <li>• Cardio:</li> <li>• Running, swimming, cycling, stair climber, elliptical trainer</li> </ul>		
Criteria for progression	<ul style="list-style-type: none"> <li>• Return to sport criteria</li> <li>• -One year post reconstruction</li> <li>• -No functional complaints</li> <li>• -Confidence when running, cutting, jumping at full speed</li> <li>• -85% contralateral values on hop tests</li> </ul>		

