

PCL Reconstruction

High Yield Information / Timeline Summaries:

ROM: 0-90 degrees x 2 weeks -> no restrictions after 2 weeks / ****Prone ROM only****

Weightbearing: Nonweightbearing x 6 weeks; May unlock brace for ambulation to allow slight knee flexion to help toe clear the ground.

Brace: Lock straight for sleep x 2 weeks; Transition to PCL brace at 2 weeks or when swelling allows transition (if you have opted to use PCL brace ****Preferred****); PCL brace x 6 months

Precautions: No active knee flexion x 8 weeks. No open chain hamstring exercise x 4 months

Return to Sport Brace: PCL brace may be used as return to sport brace. Obtain measurements pre-operatively when possible. Otherwise, measure post-operatively when swelling adequately resolved (will use hinged brace for longer period of time in this case)

Driving: R knee: 6 weeks – based on therapy progress

L knee: 1-2 weeks – when appropriate motion achieved and off of pain medication

Estimate of Return to Activities (subject to therapy progress):

Kneeling: No kneeling prior to 6 months

Jogging: 5 months

Golfing: 6 months, progress each week - (chip/putt -> high irons -> low irons -> driving)

Outdoor Biking, Hiking, Running: 6 months

Agility/Sport-Specific Drills: 6-9 months

Full Cutting/Pivoting (contact): 9-12 months

Return to Sport Criteria:

1. ROM Full
2. No effusion
3. Single leg squat with good form
4. Dynamic neuromuscular control with multi-plane activities at high velocity without pain or swelling
5. Quadriceps strength $\geq 90\%$ of contralateral side – Biodex if available
6. Vertical jump test, single leg hop tests (distance and timed test over 20ft) $\leq 5\%$ deficit compared to contralateral lower extremity
7. DorsaVi Limb Symmetry $> 90\%$ Limb Symmetry Index (LSI) on AMI and Acceleration/Deceleration Testing (If available)
8. Y-Balance $\geq 95\%$ (mean of 3 trials in anterior, posterolateral, posteromedial)

Postop	Goals	Precautions	Exercises
GENERAL POST-OP COURSE PRECAUTIONS	Protect graft during recovery Obtain early ROM Emphasis on full passive extension	0-90° for 2 weeks, then advance as tolerated Prone ROM only Hinged brace all times x 6wks, or until transition to PCL brace	
Weeks 0-6 PT 2x/week HEP daily	Full passive knee extension Diminish pain and effusion Initiate early controlled motion (Goal: 0-90) Restore patellar mobility – superior patella glide with quad set Straight leg raise independently for transfers Ambulate safely with 2 crutches	NWB Brace locked at 0° for sleep ROM: 0-90 x 2 weeks, then advance° Do not lift extremity by heel / hyperextend knee No active hamstring exercise No kneeling	1. Crutch/walker training 2. Patellar mobilizations inf/sup; med/lat 3. Supine/Prone knee extension stretch 4. Isometric quad sets; NMES 5. Prone passive flexion 6. SLRs in brace, all planes **May progress with weight as needed 7. HS/Gastroc stretch 8. Supine/seated core stabilization 9. Supine/seated core isometrics 10. Ice, e-stim, elevation, ankle pumps for edema control, and vasopneumatic compression 11. BFR 2x weekly 12. Brace adjustment
Criteria to Progress	Pain free ROM 0-90+ Pain/swelling controlled SLR with no extensor lag		
Weeks 6-12 PT 2x/week HEP daily	Normal gait; no AD Maintain full knee extension AROM = contralateral side Perform ADLs without pain Eccentric leg press (4 sec) 1 x body weight ≤ 10° valgus collapse SL squat to 45° knee flexion with less than 10° of valgus collapse Ascend stairs unsupported with normal reciprocal gait	WBAT – transition with PWB first ROM: 0-135° No kneeling No running No quick change of direction No hamstring strength exercises Do not go beyond 70° flexion for leg press, squats	1. Decrease use of crutches with gait training / wean fully as able 2. As quad control improves unlock brace for ambulation 3. May begin stationary bike (no resistance) 4. CKC ext: may begin exercises as outlined in weeks 2-3 in standard ACL protocol and advance as appropriate 5. Squats (8 wks) / Bridges (10 wks) 6. Begin proprioceptive/balance exercises – may advance as outlined in standard ACL protocol 7. Continue BFR 2x weekly 8. Stairmaster- 7-8 wks 8. Resistance on bike – 9-10wks 9. Treadmill 7% incline – 9wks

Postop	Goals	Precautions	Exercises
Criteria to Progress	<ol style="list-style-type: none"> 1.) Normal gait without assistive device 2.) Full ROM achieved 3.) Quad strength \leq 20% deficit compared to uninvolved knee with isokinetic testing or 5 rep max testing 		
Weeks 12-20 PT 2-3x/week HEP daily	Maintain full AROM MMT > 5/5 Q MMT > 5/5 HS SL squat to 45°-60° with \leq 10° valgus collapse without raising heels Descend stairs unsupported with reciprocal gait	No hamstring strength exercises Do not go beyond 80° flexion for leg press, squats Avoid painful activities No kneeling No running No jumping No cutting/pivoting	<ol style="list-style-type: none"> 1. Progress CKC ex's: multidirectional lunges (sagittal, frontal, transverse), walking lunges, sidestepping 2. Advance multiplanar proprioceptive training 3. May begin hamstring strengthening exercises at 16 weeks 4. AROM knee ext 80°-0° (full) with light resistance 5. Can begin Fitter/slide-board 6. BFR as needed
Weeks 20-24 PT 1-2x/week HEP daily	Criteria to begin jogging (16-20 weeks) <ol style="list-style-type: none"> 1. Y-balance test < 4 cm deficit in any direction 2. SL squat \geq 30° with less than 10° valgus collapse \geq 15 reps 3. Perform \geq 15 SL heel raises 4. Perform SL bridge \geq 15 reps 5. Quad girth symmetry \geq 80% 6. SL repeated forward hop \geq 15 reps 7. SL repeated vertical hop \geq 15 reps Initiate running with Alter G if available for 2-4 weeks before full body running	No cutting/pivoting No sports	<ol style="list-style-type: none"> 1. May begin hamstring strengthening 1. Lateral sports cord drills 2. Test Y Balance 3. Begin T-Drill with shuffle only 4. Isokinetic strength training Q/HS bilateral comparison 90°-0° at 180°/s & 300°/s (alternative: knee extension 10 rep max) 5. If strength appropriate: may initiate light double leg plyometric program: 4- square, tuck jumps, and jump rope 6. Advance multiplanar proprioceptive agility drills that are sport specific: T drill, box drill, cone agility drills 7. Initiate deceleration training (TM Decline, Sports Cord)

<u>Postop</u>	<u>Goals</u>	<u>Precautions</u>	<u>Exercises</u>
<p>Weeks 20-24 PT 1-2x/week HEP daily</p>	<p>Independent with jog/run program</p> <p>Increase sport specific endurance</p>	<p>No cutting/pivoting</p> <p>No sports</p>	<ol style="list-style-type: none"> 1. Progress plyometric program; multidirectional, progress DL hop 2. Initiate DL to SL hop, focus on landing mechanics 3. Progress isokinetic strength training 4. Progress sport specific training and agility 5. Progress to sprinting 6. Continue deceleration training with jogging
<p>Weeks 24+ PT 1-2x/week HEP daily</p>	<p>Quad strength \leq 10% deficit compared to uninvolved knee with isokinetic testing or 5 rep max testing (week 20)</p> <p>\leq10° knee valgus with DorsaVi Knee module (week 20)</p> <p>Pass Pro-Agility Shuttle Test within norms determined by PT (week 24)</p> <p>Unilateral hop tests \leq 5% deficit compared to contralateral LE (week 24):</p>	<p>No live sports</p> <p>No sport drills with opponent</p>	<ol style="list-style-type: none"> 1. Test isokinetic strength 60°/s, 180°/s, & 300°/s (alternative test: 5 rep max knee extension) 2. Test DorsaVi Knee module if available 3. T-Drill Test (4. Pro Agility Shuttle Test 5. Functional hop tests: 6. Progress to single leg plyometric drills