

# PCL Double Bundle Reconstruction (NWB)

Name: \_\_\_\_\_

Dr: Dr. Chris LaPrade

Date: \_\_\_\_\_

● = Do exercise for that week

**Week**

## ROM RESTRICTIONS

PRONE  
0-90° x 2 weeks  
then progress

No  
hyperextension  
x 8 weeks  
(achieve full  
extension to 0°)

## BRACE SETTINGS

Immobilizer until  
swelling down  
for PCL  
dynamic brace

## Weight Bearing status

NWB x 6 weeks

## TIME LINES

Week 1 (1-7POD)  
Week 2 (8-14POD)  
Week 3 (15-21POD)  
Week 4 (22-28POD)

Initial Exercises	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
PRONE PASSIVE knee flexion	Prone ≤90°		>90°, may transition to seated (brace on) Continue with PROM x 6 weeks																	
Seated PROM foot slides (PCL brace on or manual anterior drawer force)	NO		Gradual progress to 120° by 6 wks, full ROM by 10 wks																	
Knee extension progression	NO knee hyperextension (HE)							Gradual HE to symmetry												
Patella/Tendon mobilization	●	●	●	●	●	●	●	●												
Calf stretch with belt- NO hyperext	●	●	●	●	●	●	●	●												
SLR – hip strength (ABD, ADD, Ext)	Standing (band above knees) or side lying (brace on) PRE																			
Quad strengthening (NMES)	0° ISO			60° ISO			70°-0° arc (Brace on)			Full arc (Brace on)										
Additional Quad training	SLR - tall sit (brace on)			SLR-supine Standing TKE				WB progressions												
Hamstring	NO Hamstring							ISOs <40° Hip-based			Knee-based Resisted arc									
Cardiovascular Exercises	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Stationary Bike	NWB							ROM only		Gradually progress										
Treadmill – walking (no limp)															●	●	●	●	●	
Swimming – flutter kick																●	●	●	●	●
Elliptical trainer, Stair stepper																	●	●	●	●
<b>*NOTE FOR CARDIO</b>	<b>Must tolerate daily walking with no limp &amp; no significant increase in pain/swelling prior to initiating WB cardio (walk, elliptical, stepper)</b>																			
Weight Bearing Strength	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Crutch weaning – return to FWB	NWB							●	●	●										
Marching into brief SLS														●	●	●	●	●	●	●
SLS balance progressions															●	●	●	●	●	●
Squat/Leg Press (ISO→reps, 2→1 leg)															0-45°	0-70°	>70°	gradual		
Step-up/Lunge Progressions																ISOs	0-70°	>70°		
Dead lift (2→1 leg)																	●	●	●	●
Band resisted directional stepping											●	●	●							
Agility Exercises	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Agility: ●single plane, ◆ multi-plane	NWB													●	◆					
Return to run criteria	≥16 wks post-op, YBT-Anterior ≤8 cm SSD, walk ≥1 mile no limp/no pain, Quad strength ≥70% LSI, ≥60% peak torque/BW																			
Sport performance (TRAC) test	Baseline test: 4 months, F/u test: 7 & 10 months																			
High Level Activities	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Golf progression	NWB													●	●					
Outdoor biking, hiking, snowshoeing																			●	
Return to sport progressions																				●

**\*\*NMES & BFR encouraged (per any contraindications)\*\***

<b>PRECAUTIONS</b>	NO resisted OKC quad strength through 100-60° arc x 10 weeks, NO resisted hamstring curling, tibial ER, cross-legged sitting, posterior tibial sag, squatting >70° x 4 months
<b>ABBREVIATIONS</b>	(ISO) Isometric, (KF) knee flexion, (NWB) Non-weight bearing, (PRE) progressive resistance exercise, (SAQ) short arc quad, (SLR) straight leg raise, (SLS) single leg stance, (TKE) terminal knee extension

## POST-KNEE SURGERY "TRAC" PHYSICAL PERFORMANCE TESTING - TIMELINES & GOALS

*(Will be performed at TCO/Training HAUS in Eagan, MN)*

TRAC Test Activity	4 Month Goals	7 Month Goals	10 Month Goals
Knee Extension ROM	≤5° SSD	≤0° SSD	≤0° SSD
Knee Flexion ROM	≤10° SSD	≤5° SSD	≤0° SSD
YBT(A) Squat SSD	≤8 cm SSD	≤4 cm SSD	≤4 cm SSD
<i>Max YBT(A) squat depth relative to LL</i>	≥55% of LL	≥70% of LL	≥70% of LL
Repeated single leg squat (one leg rise test)	25 reps to 60° KF	25 reps to 90° KF	25 reps to 90° KF
2 leg squat symmetry (over force plates)	≤10% off-shift	≤5% off-shift	≤5% off-shift
Hip ABD strength LSI	≥80% LSI	≥90% LSI	≥90% LSI
<i>Hip ABD strength relative to BW</i>	≥20% of BW	≥25% of BW	≥30% of BW
Quad strength LSI	≥70% LSI	≥80% LSI	≥90% LSI
<i>Quad strength relative to BW</i>	≥70% of BW	≥80% of BW	≥90% of BW
Hamstring strength LSI		≥75% LSI	≥90% LSI
Single leg hop (SLH) test LSI		≥80% LSI	≥90% LSI
<i>SLH distance relative to LL (norm comparison)</i>		≥80% of norms	≥90% of norms
Triple hop test LSI		≥80% LSI	≥90% LSI
<i>Triple hop distance (norm comparison)</i>		≥80% of norms	≥90% of norms
2 leg jump (off shift at take-off/landing)		≤20% off shift	≤10% off shift
Peak knee flexion angle SSD with hop landing		≤20° SSD	≤10° SSD

*Abbreviations for both tables above: (ABD) abduction, (BW) body weight, (ISO) isometric, (LL) leg length, (LSI) limb symmetry index, (norm) age & sex-matched normative data, (PRE) progressive resistance exercise, (ROM) range of motion, (SLR) straight leg raise, (SSD) side to side difference, (TRAC) testing to return to athletic competition, (UE) upper extremity, (YBT(A)) Y-balance test anterior reach*

### POST-KNEE SURGERY RETURN TO ACTIVITY GUIDELINES/CRITERIA

Return to run guidelines	≥16 weeks post-op, YBT-Anterior ≤8 cm SSD, walk ≥1 mile no limp/no pain, Quad strength ≥70% LSI, ≥60% peak torque/BW
Return to jump guidelines	≥20 weeks post-op, YBT(A) ≤4 cm SSD, Quad strength ≥80% LSI, ≥80% peak torque/BW, tolerate hopping/skipping drills with no increased soreness/swelling, tolerate lunge/squat/step single leg training progressions
Return to sport guidelines	In addition to TRAC testing goals (listed below), patient must achieve the following: >9 months post-op 16+ weeks progressive strength training 10+ weeks neuromotor training program 6+ weeks within-sport practice progression (per MD/PT team clearance) 3+ weeks graduated return to competition (per MD/PT team clearance)