



Austin Cole, MD

Posterior Cruciate Ligament (PCL) Post-Operative Protocol

Phase I: Maximum Protection

Weeks 0-6:

- Partial weight bearing with hinged knee brace x4 weeks
- Week 4 progress to 50% weight bearing with brace open to 30 degrees
- Progress to full weight bearing week 6 with brace open to 30 degrees

Goals

- o PCL protection, prevent posterior tibial translation
- o Reduce inflammation
- o Normalize patella mobility with manual mobilizations
- o Proper gait mechanics ASAP

Exercise progression

- o Quad activation exercises
- o Multi-plan open kinetic chain strengthening
- o Upper body exercise, core muscle training as indicated
- o Avoid isolated hamstring exercises for 12 weeks
- o Stationary bike without resistance, when ROM >115 degrees

ROM limitations

Knee extension 0 degrees

- o Avoid hyperextension

Knee flexion limited to 90 degrees for 6 weeks

- o PROM must be performed in prone

Phase II: Progressive Stretching and Early Strengthening

Weeks 6-12:

WBAT in brace

- o Brace unlocked to 90 degrees when ambulating, unlock to full ROM when adequate quad strength

Goals

- o PCL protection, prevent posterior tibial translation
- o Full ROM, avoid hyperextension
- o Minimize pain and effusion
- o Normalize gait mechanics
- o Normalize patella mobility with manual mobilizations

Exercise progression

- o Bilateral squat progression, leg press limited to 70 degrees knee flexion
- o Single-leg exercises in static positions may begin at 8 weeks
 - No single-leg knee flexion beyond 30 degrees
- o Static lunge, limited to 70 degrees

- o Closed kinetic chain hip strengthening
- o Step-up progression
 - No step downs past 30 degrees of knee flexion
- o Stationary biking with progressive resistance and duration
- o Proprioception drills
 - Stable surface only
- o Single-leg deadlift with knee extended only
- o Incline treadmill walking at 8 weeks

Phase III: Advanced Strengthening and Proprioception

Weeks 12-16:

May wean from brace

Goals

- o Progressive strengthening and endurance training
- o Eliminate movement dysfunction (i.e. no dynamic valgus at the knee)

Exercise progression

- o Begin isolated hamstring exercise, progress slowly
 - Single-leg bridges knees bent, weighted single-leg dead lift starting at 16 weeks
- o Weighted squat progression, can progress past 70 degrees at 16 weeks
- o Lunge progression (retro, walk and split) as indicated
- o Leg press with single limb
- o Add resistance and duration to stationary biking
- o Proprioception drills
 - Vary surfaces
- o When good quad control in functional drills, may begin jogging progression
 - Avoid rotation movements until 16 weeks

Complete preliminary functional test prior to 4 month physician follow up

Phase IV: Advanced Strengthening and Running Progression

Weeks 16-24:

Goals

- o Progressive strengthening and endurance training
- o Power development
- o Functional training, sport specific movement

Exercises

- o Agility drills
- o Linear running progression
- o Advanced ladder series
- o Hurdle and plyo box progressions
- o Non contact drills

Phase V: Return to Sport

Weeks 24+

- o Multiplane dynamic plyometric drills
- o Sprinting, decelerating, change of direction/cutting maneuvers
- o Cognitive processing with sport-specific drills
- o May begin contact drills in controlled setting, progressing to unanticipated challenges

Complete full functional test at 6 months. Consider return to sport at 8mo if >90% of uninvolved limb.