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BONE·JOINT·SPINE·MUSCLE

Matthew Lavery, MD
Orthopedic Sports Medicine Surgeon
[P] 317.802.2000 • [F] 317.802.2050
OrthoIndy.com

PCL Reconstruction Post-operative Rehab Protocol

Moderate to severe calf pain should be reported immediately after posterior cruciate ligament (PCL) reconstruction.

Phase I (Weeks 0 to 2):

- Cryocuff or ice, TED hose, rest, ice, compression and elevate (RICE)
- Brace on at all times
- No active or passive motion during the first two weeks after surgery
- Crutches: Partial weight bearing up to 50 percent on operative leg with brace locked in extension
- Office visit for wound check and to initiate physical therpy within one week post-op

Goals

- Minimize pain and swelling
- Good quad set with minimal extensor lag
- Independent straight leg raises (SLR)
- Patient should be instructed/reminded to protect against posterior tibial translation
- Pillow or towel under proximal tibia during quad sets (QS)
- When leg is elevated at rest, place a pillow under the knee
- Crutch/gait training

Exercises

- SLR daily (up to 300 to 500 per day)
- QS
- Ankle pumps with pillow under proximal leg
- **Use biofeedback and/or NMES as needed for quad shut down** (if patient does have quad shut down, issue NMES for home use at minimum of one hour per day)

Phase II (Weeks 2 to 6):

- Begin motion progression
- Begin weight bearing as tolerated with brace locked in extension
- Normalize gait and wean down to one, then no crutches as tolerated
- Remove TED hose

Goals

- Up to 90° flexion (no more) by the end of week four
- Up to 110° flexion (no more) by the end of week six
- Control pain and swelling
- Full quad activation without lag

Exercises

- Passive terminal extension (40 to 0°)
- Active flexion to the limits outlined above
  - Leg press in 90 to 40° arc; start with eccentrics

- Hip progressive resistance exercises
  - Resistance for hip progressive resistance exercises (PRE's) placed above knee for hip abduction (AB), adduction (AD)
  - Resistance may be distal to knee for hip flexion as long as not putting posterior proximal tibial force
- Quad isometrics at 60° flexion/straight leg raises
- Gastroc/soleus exercises
- Patellar mobilization

Phase III (Weeks 6 to 12):

- Begin squat/step program
- Ambulate with brace unlocked, followed by weaning out of brace as indicated
- Begin proprioception program
- Begin quad isotonics with proximal tibial pad (prevent posterior sag) in 90 to 40° arc
- Continue closed chain quadriceps strengthening in 90° arc (leg press, wall slides)
- Hip strengthening
- Hamstring (isometric only), adductor, achilles strengthening
- Hamstring, achilles tendon stretching
- Patellar mobilization
- Anti-inflammatory modalities
- Closed chain stationary bike; minimal resistance up to 20 minutes
- Caution/educate patient regarding the revascularization of the PCL graft from weeks 6 to 12 (the graft weakens from weeks 6 to 12, so avoid cutting, pivoting or jumping)

Phase IV (Weeks 12 to 24):

- Quadriceps isotonics; full arc closed chain
- Begin functional exercise program once cleared by Dr. Lavery
- Continue to stress endurance activities
- Isokinetic quadriceps with distal pad
- Okay to walk on treadmill (forward) and slow retro-step
- Begin running program at 18 weeks
- Continue bike
- Continued isolated muscle stretching and strengthening
- Begin low level plyometrics at 70 to 80 total foot contacts (no depth jumps) at 20 to 22 weeks

Phase V (Weeks 24 and Beyond):

- Full arc progressive resistance exercises; emphasize quads
- Advanced functional exercises
- Progress to full speed at various distances
- Begin higher level plyos such as low depth jumps at 80 to 100 foot contacts
- Begin agility exercises in forward and lateral patterns
- Isokinetic test to 60° per second, 180° per second, 240° per second
- Progress to full participation (must pass functional progression)