

PCL Reconstruction Protocol

Weeks One, Two and Three	Weeks four to eight
Initial Evaluation	Evaluate
<ul style="list-style-type: none"> ➤ Range of motion ➤ Joint hemarthrosis ➤ Ability to contract quad/vmo ➤ Gait (generally in brace locked in full extension/PWB) ➤ Patella Mobility ➤ Inspect for infection/signs of DVT ➤ Assess RTW and sport expectations 	<ul style="list-style-type: none"> ➤ Range of Motion ➤ Ability to contract quad/ VMO ➤ Patella mobility ➤ Gait
Patient Education	Patient Education
<ul style="list-style-type: none"> ➤ Support Physician prescribed meds ➤ Ensure compliance w/ pre-op hep ➤ Reinforce use of brace and assistive device ➤ Discuss frequency and duration of treatment (2-3x/wk is expected for 12 weeks, with intermittent appointments over another 6-8 weeks) <p style="text-align: center;"><u>Precautions</u></p> <ul style="list-style-type: none"> ➤ Limit flexion ROM as it directly stretches the graft. Passive Flexion ROM is to begin at 2 weeks and be completed with a manual anterior drawer to prevent posterior sag ➤ No resisted knee flexion until 12 weeks post op 	<ul style="list-style-type: none"> ➤ Reinforce precautions ➤ Discharge brace if good quad contraction ➤ Use crutches as necessary to normalize gait
Therapeutic Exercise	Therapeutic Exercise
<ul style="list-style-type: none"> ➤ Quad sets, Ankle pumps, and SLR ➤ Add SAQ 30 – 0 degrees at week 2-3 	<ul style="list-style-type: none"> ➤ Active assisted flexion (week 4) ➤ Stationary bicycle without resistance or pain (week 6) ➤ Initiate closed chain exercises for quad contraction and proprioception ➤ SLB on stable surface
Manual Techniques	Manual Techniques
<ul style="list-style-type: none"> ➤ Grade I and II patella mobilization ➤ Begin gentle PROM for flexion with anterior drawer (2 weeks) ➤ May initiate mobilization of incision with proper healing (week 2) 	<ul style="list-style-type: none"> ➤ Patella mobilization as needed ➤ Incision mobilization as needed
Modalities	Modalities
<ul style="list-style-type: none"> ➤ NMES / Interferential ➤ Ice 	<ul style="list-style-type: none"> ➤ Modalities may be used as needed
Goals	Goals
<ul style="list-style-type: none"> ➤ Control pain ➤ Reduce joint hemarthrosis ➤ Restore voluntary quad contraction ➤ 0-60 degrees ROM (gain full extension) ➤ Protect graft 	<ul style="list-style-type: none"> ➤ Wean from crutches and restore normal gait ➤ Prevent excessive soft tissue scarring ➤ 0-110 degrees ROM

Weeks eight to twelve	Weeks twelve to sixteen
Evaluate	Evaluate
<ul style="list-style-type: none"> ➤ Patella position and related symptoms ➤ ROM ➤ Joint laxity ➤ HEP compliance 	<ul style="list-style-type: none"> ➤ Patella mobility / crepitus ➤ Excessive joint laxity ➤ Balance / single leg stance ➤ HEP compliance
Therapeutic Exercise	Therapeutic Exercise
<ul style="list-style-type: none"> ➤ Progress closed chain exercises for quad contraction and proprioception ➤ Begin single leg isotonic exercises (no hamstring yet) ➤ 0-90 active hamstring exercises against gravity (week 10) ➤ Begin bridging activity (week 10) ➤ Progress to bilateral closed chain exercises on unstable surfaces (week 10) 	<ul style="list-style-type: none"> ➤ Begin resisted hamstring curls ➤ Progress Isotonic strength training to include multi-plane movements ➤ Progress balance activity to single leg dynamic activity and unstable surfaces
Manual Techniques	Manual Techniques
<ul style="list-style-type: none"> ➤ Patella mobilizations as needed ➤ Incision mobilization as needed ➤ PROM and posterior capsule stretch as indicated 	<ul style="list-style-type: none"> ➤ Continue any mobilization and stretching as needed
Modalities	Modalities
<ul style="list-style-type: none"> ➤ Any as Indicated 	<ul style="list-style-type: none"> ➤ Any as Indicated
Goals	Goals
<ul style="list-style-type: none"> ➤ Normal gait pattern without use of brace or crutches ➤ Normal ROM ➤ No pain with ADL's ➤ Quad strength at least 4/5 by week 10 	<ul style="list-style-type: none"> ➤ 4+/5 strength with manual testing by week sixteen ➤ Good stability across tibiofemoral joint particularly with single leg balance and control of terminal knee extension ➤ May complete exercise independently with intermittent follow up appointments when above criteria is met

Weeks sixteen to discharge

Evaluate

- Any excessive joint laxity
- Isokinetic Strength test and/or functional hop testing for comparison to be completed per physician preference at 16 to 18 weeks
- Address any deficits that may limit return to work or sport goals
- HEP compliance

Therapeutic Exercise

- Continue strength and conditioning
- Complete agility and running activity with good test results and physician approval at 16 to 20 weeks
- May begin bilateral low level plyometrics with good test results and physician approval at 16 to 20 weeks
- Sports specific exercises
- Encourage participation in the CFA

Goals

- Strength of quadriceps and hamstrings no less than 85% per Biodex test at 16 weeks
- Discharge with full return to work or sport activity

Precautions and related issues

PCL reconstruction is typically completed through the use of an Achilles allograft, and may include both the anterolateral and posteromedial bundles. Rehabilitation is typically slower for PCL reconstruction than for ACL as flexion of the knee places direct stress on the graft. PCL reconstruction may be done in conjunction with other surgery or injury often slowing the rehab process. Some of the typical concerns are listed below.

Meniscectomy

- No modification required

Meniscal Repair

- Modifications are not typically needed due to the slow progression following PCL reconstruction
- No combined weight bearing and flexion for at least 4 weeks

Micro fracture

- NWB typically four weeks, and PWB for two weeks

MCL injury

- May use brace while exercising if severe sprain
- May want to consider completing exercises with slight tibial IR to decrease stress on MCL
- May limit motion to the sagittal plane for 4-6 weeks

ACL reconstruction

- Follow PCL protocol as it will be a slower rehab than ACL

Chondromalacia

- Typically our physicians will give us insight into the location and severity of chondromalacia (grades I to IV)
- The location of chondromalacia often provides insight regarding faulty posture and biomechanics.
- Both location and severity should be considered when designing treatment programs

Chondroplasty

- Follow PCL protocol without change
- Consider unloading brace for return to activity if limited by pain