

Post op Anterior Cruciate Ligament Reconstruction

CPM machine 10-60° increase 10-20° as tolerated

WEEK 1:

- Weight bearing to tolerance unless otherwise prescribed by MD
- Bracing: Locked at 0° extension until adequate quad control developed
- Ice machine as recommended or regular ice 3-4 times a day for 10-15 minutes per session.
- Range of motion:
 - Flexion: Wall slides, heel slides to patient tolerance
 - Extension: Passive knee extension using towel roll, prone hangs
- Strengthening:
 - Quad setting with knee support
 - Hamstring digs with knee support
 - Begin ankle strengthening exercises using surgical or rubber tubing (plantar/dorsiflexion, eversion/inversion)

WEEK 2:

- Unlock brace when quad control is adequate for knee support (discontinue brace when able to control knee)
- Gait training: WBAT (unless otherwise directed by Physician) with assistive devices as needed.
- Range of motion:
 - Bike as ROM allows, no resistance of affected leg
 - Flexion: (Goal 90° flexion unless otherwise indicated) heel slides, wall slides, sitting flexion
 - Extension: prone hang, passive terminal knee extension with overpressure to tolerance
- Open Kinetic Chain:
 - NMES as needed to address quadriceps activation
 - Straight leg raise (minimize lag)
 - Hip ABDuction
 - Hip ADDuction
 - Hip Extension in prone or off the end of plinth
 - Hamstring set or prone hamstring curl
- Closed Kinetic Chain:
 - Heel raises (if full knee extension achieved)
 - Leg press with minimal resistance (flexion up to 90°)
 - Weight shifting onto single leg
- Trunk Stabilization exercises
- Manual Interventions:
 - Patellar mobilization as needed
 - Tibiofemoral mobilization into extension
 - Soft tissue as indicated based on graft type and comorbidities
- Modalities as needed for swelling and pain management

WEEK 3-4:

- Gait training: Goal is to achieve full weight bearing without assistive device with functional gait pattern by 4 weeks-address as needed with cone walks, weight shifting
- Range of Motion:
 - Bike: progress with full revolutions adding resistance as able
 - Flexion: progress as able with expectation of approximately 10° gain per week
 - Extension: Achieve and maintain full passive and active extension
- Open Kinetic Chain:
 - Continue with progression of straight leg raises into flexion with emphasis on endurance of quadriceps and full knee extension
 - Continue with hip strengthening and hamstring curls
 - Short Arc quadriceps extension
- Closed Kinetic Chain (Emphasis on proper hip-knee-foot alignment for all exercises):
 - Leg press: increasing resistance as able; progress to single leg
 - Partial squat to 60°
 - Step ups
 - Heel raises progressing to single leg
- Continue with manual interventions, modalities and trunk stabilization exercises

WEEK 4-6:

- Range of motion:
 - Expect full extension range to be maintained and flexion within 10° of uninvolved leg
- Closed Kinetic Chain (Emphasis on proper hip-knee-foot alignment for all exercises):
 - Step downs
 - Single leg balance
 - Terminal active knee extension to 0° against resistance
 - Full squat to 90°
 - Single leg squat
 - Elliptical
 - Treadmill walking if gait pattern is functional (flat or incline)
- Functional Goals:
 - Reciprocal stair ascending
 - Walking with normal gait pattern without assistive device
 - Full active and passive extension
 - Full passive flexion, active flexion to within 10 degrees of uninvolved leg

WEEK 6-8:

- Continue with progression of intensity of strengthening program incorporating single leg activities to improve balance and proprioception
- Cardio activities including elliptical, treadmill, stair climber, walking outdoors and on uneven surfaces as able
- Closed Kinetic Chain:
 - Step downs
 - Lateral step/down
 - Sustained squat side stepping

- Functional Goals:
 - Full active and passive extension and flexion ROM
 - Reciprocal stair ascending and descending

WEEK 8-12:

- Continue with progressive strengthening program to address quadriceps, hamstring, calf, glut and hip strengthening. Proper proximal hip control is critical to achieve in this time frame to prepare the patient for returning to running and sports
- Closed Kinetic Chain:
 - Jumping activities on gravity eliminated shuttle with minimal resistance, double progressing to single leg
 - Jogging on trampoline
 - Dynamic single/double leg functional exercises as anticipated for sport activity

WEEK 12 +:

- Functional goals to return to running:
 - 90% quadriceps strength as measured with functional testing:
 - Single leg squat depth
 - Hop testing
 - Single leg balance duration
 - Proper hip-knee-foot alignment with all of the above activities to ensure minimal varus/valgus, anterior/posterior stresses at the knee
- Return to running progression: to be performed every other day, progress to next stage when able to perform for 20 min of activity without residual knee complaints
 - Treadmill walk/run intervals
 - Treadmill running
 - Track running-run straights, walk turns
 - Track running full
 - Road running
- Agility and plyometrics exercises as indicated per sports specific requirements
- Lateral and cutting maneuvers as indicated per sports specific requirements

Home Exercise Instruction

Frequency: 1x/wk 2x/wk 3x/wk. 4x/wk. 5x/wk.

Duration: 1 week 2 weeks 3 weeks 4 weeks 5 weeks 6 weeks