

Rehabilitation Protocol: Anterior Cruciate Ligament (ACL) Reconstruction

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ARTHROSCOPIC SURGERY | JOINT RECONSTRUCTION



Name: _____

Date: _____

Diagnosis: _____

Date of Surgery: _____

Week 1

- **Primary Goals:** Eliminate swelling; ROM – full extension; FWB; Regain Quad Control
- Weight bearing to tolerance unless otherwise prescribed by MD
- Unlock brace for ambulation with return of active straight leg raise
- Brace locked in extension for sleep
- Range of Motion
 - ROM as tolerated: minimum 0-90°
 - Flexion: Wall slides, heel slides to patient tolerance
 - Extension: Passive knee extension using towel roll, prone hangs
- Strengthening
 - Quad setting with knee support
 - Hamstrings with knee support
- Begin ankle strengthening exercises using surgical or rubber tubing (plantar/dorsiflexion, eversion/inversion)

Week 2

- Gait training: WBAT with assistive devices as needed
- Range of Motion
 - Bike as ROM allows, no resistance on affected leg (Week 2)
 - Extension: prone hang, passive terminal knee extension with overpressure to tolerance (Week 2)
- Open Kinetic Chain
 - NMES as needed to address quadriceps activation
 - Straight leg raise (minimize lag) (Week 2)
 - Hip ABDuction (Week 2)
 - 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
 - Patella mobilization
 - Sit to stand squats – 0-45°
- Modalities as needed for swelling and pain management

Weeks 3-4

- **Primary Goals:** Increase ROM; Increase total leg strength; Normalize gait
- Discontinue brace (if possible)
- 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 hamstrings 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

Weeks 5-6

- **Primary Goals:** Normal ADLs; Increase functional capacity; Increase Strength
- Range of Motion
 - As tolerated (minimum 0-110°)
 - 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° of uninvolved leg

Weeks 7-8

- **Primary Goals:** Increase functional leg strength; Normalize balance and proprioception
- Continue with progression of intensity of strengthening program incorporating single leg activities to improve balance and proprioception
- Cardio activities including elliptical, treadmill, stairclimber, 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

Weeks 9-12

- **Primary Goals:** Increase agility and speed of training; Normalize strength; Increase muscular endurance
- Continue with progressive strengthening program to address quadriceps, hamstrings, calf, glute 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

Weeks 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 minutes 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 plyometric exercises as indicated per sports specific requirements
- Lateral cutting maneuvers as indicated per sports specific requirements