



Austin Cole, MD

Anterior Cruciate Ligament (ACL) Reconstruction

Post-Operative Protocol

Phase I – Maximum Protection

Weeks 0 to 1:

- Use crutches - 50% weight bearing with brace
- Brace locked in extension for 1 week (sleep and ambulation) to ensure extension

Goals

- Reduce inflammation
- Normalize patella mobility with manual mobilizations
- Full extension
- 90° - 100° of knee flexion, progressing to full as tolerated
- Heel-toe gait pattern, with crutches

Exercise progression

- Quadriceps setting using NMES as needed
- Multi-plane straight leg raising

Weeks 1 to 2:

- Use crutches - 50% weight bearing with brace, wean from crutches by week 2
- Brace locked with initiation of weight bearing. May unlock for ambulating when quad strength and gait improve (2-4 weeks). Otherwise, full ROM including out of brace.

Goals

- Reduce inflammation
- Full knee extension/hyperextension
- 100° – 120° of knee flexion, progress as tolerated

Phase II – Progressive Stretching and Early Strengthening

Weeks 2 to 4:

Goals

- Progress off crutches (brace unlocked when quad strength improves)
- Full knee extension/hyperextension
- Knee flexion to 120°, progress as tolerated
- Normalize gait mechanics
- Normalize patellofemoral joint and scar mobility

Exercise progression

- Bilateral squat progression
- Multi-plane open and closed kinetic chain hip strengthening
- Step-up and step-down progression
- Stationary biking and treadmill/outdoor walking
- Proprioception drills

Weeks 4 to 6:

Goals

- Reduce inflammation
- Full range of motion
- Normal gait, discontinue brace

Exercise progression

- Leg press, hamstrings curls
- Increase intensity of stationary bike program, may add elevation to treadmill walking and elliptical

Phase III – Advanced Strengthening and Proprioception

Weeks 6 to 12:

Goals

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

Exercise progression

- Weighted squat progression
- Lunge progression (retro, walk and split) as indicated
- Single limb stability exercises

Weeks 8 to 12:

Exercise progression

- Outdoor biking – week 10
- Lateral lunge progression – week 8 to 10
- Shallow water pool running – week 10
- Swimming free style – week 10
- Backward elevated treadmill walking – week 10
- Basic ladder series – week 10
- Begin light hopping/plyo (in preparation for running)- week 10

Weeks 12 to 14:

Administer preliminary functional test for physician to review
Brace ordered (athletes)

Phase IV – Advance Strengthening and Running Progression

Weeks 12 to 20:

Exercise progression

- Progress resistance with squat and lunge strengthening program
- May add leg extensions at 30° - 0° (exclude patients with patellar or trochlear groove chondral pathology)
- Basic plyometric box progression
- Advanced ladder series
- Progressive running program at week 16 (start short intervals, walk-jog)

Criteria to progress to Phase V

- Quadriceps >65% compared to other side
- Minimal swelling/pain with activity

Phase V – Return to Sport

Weeks 20 and beyond:

Exercise progression

- Hurdle and plyo box progressions
- Sport specific field/court drills
- Strengthening program

Criteria to be released for return to sport

- Follow-up examination with the physician
- Pass return-to-sport functional test at >90% (involved vs uninvolved limb)
 - Typically at 6-7 months initially. Retest as needed.
 - Display symmetry and confidence in high-speed cutting, multi-plane plyometric drills, sprinting and decelerating
 - No full return until minimum of 9 months
 - Physician may direct progression back to sport with certain programs and restrictions from 6-9 months.