



Austin Cole, MD

## **Anterior Cruciate Ligament (ACL) Reconstruction with Meniscus Repair (Peripheral/Vertical)**

### **Post-Operative Protocol**

#### **Phase I – Maximum Protection**

##### **Weeks 0 to 3:**

- Brace - locked in full extension during all ambulation for 3 weeks (and sleep)
  - Can unlock brace to allow 0-90 degrees for unloaded range of motion only
- Use two crutches with touch-down weight bearing (<25% body weight) at all times for 3 weeks
- Limit knee flexion to 90-degrees for 3 weeks

##### Goals

- Reduce inflammation and pain
- 0 degrees of knee extension

##### Exercise progression

- Quadriceps setting using NMES as needed
- Emphasize patellofemoral mobilizations
- Passive/active knee range of motion with 90° flexion limit
- Quadriceps setting emphasize VMO function
- Multi-plane straight leg raising
- Open chain hip strengthening
- Gait training

##### **Weeks 3-6:**

- Brace – open to 0-90 degrees for ambulation (initially start locked until quad improves)
- Continue using two crutches, with gradual progression of weight bearing
  - Increase WB to FWB over next 2 weeks
- Progress as tolerated past 90 degrees of knee flexion

##### Goals

- Reduce inflammation and pain
- Maintain 0° of knee extension

#### **Phase II – Progressive Stretching and Early Strengthening**

##### **Weeks 6 to 8:**

- Discontinue brace if appropriate gait at 6 weeks

##### Goals

- Full knee extension/hyperextension
- Gradual progression to full knee flexion
- No swelling
- Normal gait

##### Exercise progression

- Continue to emphasize patella mobility
- Begin bilateral closed kinetic chain strengthening (limited range initially)
- Step-up progression
- Begin stationary bike with light resistance initially
- Proprioception drills
- Gait training – normalize gait pattern

### **Phase III – Advanced Strengthening and Endurance Training**

#### **Weeks 8 to 10:**

##### Goals

- Full knee range of motion

##### Exercise progression

- Avoid rotational movements until 14 weeks
- Advance stationary biking program (increase intensity)
- Introduce treadmill walking and elliptical trainer
- Begin unilateral closed kinetic chain program
- Gym strengthening progression (leg press above 90-degrees, hamstrings curls etc.)

#### **Weeks 12 to 16:**

##### Exercise progression

- Outdoor biking
- Lung progression (retro, walk and split) as indicated
- Swimming freestyle, deep water pool running progression
- Forward/backward elevated treadmill walking
- Progress other exercises with anticipation of prelim test at 16 weeks

#### **Week 16:**

Administer preliminary functional test. Brace ordered (for athletes).

### **Phase IV – Advanced Strengthening and Running Progression**

##### 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 ladder series
- Lateral lunge progression
- Begin running program, start short (walk-jog) at week 16
- Basic plyometric box progression – week 16-18

##### Criteria to progress to Phase V

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

### **Phase V – Return to Sport**

#### **Weeks 20 to 24:**

##### Exercise progression

- Advance ladder, 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 to sport until minimum of 9 months
  - Physician may direct progression back to sport with certain programs and restrictions from 6-9 months