

## ACL Reconstruction Post-operative Rehabilitation Protocol

### Days 1 to Seven

- Moderate to severe calf pain should be reported immediately.

#### Brace

- Knee immobilizer or fracture brace is used 24 to 48 hours after surgery. This can be removed once the femoral nerve block has worn off and an independent straight leg raise is achieved.
- TED hose to be worn until ambulation has returned to normal pre-surgery level or two weeks.
- Crutches – weight bearing as tolerated with two crutches, once able to perform straight leg raise. Ambulation is not emphasized in first week – restoring range of motion and controlling swelling take priority at this time.
- Tubigrip for Edema control

#### Goals

- Minimize pain and swelling with use of cryotherapy and RICE (rest, ice, compression and elevation)
- Full passive extension measured in prone
- Good quadriceps set with minimal extensor lag
- Independent straight leg raise
- Knee flexion (active) 90 degrees at this time
- Knee extension achieved by placing pillows under ankle (**do not place pillows under knee**)
- Crutch and gait training with physical therapist or certified athletic trainer

**Note: Office visit for dressing change one to three days post-op**

#### Knee Motion

##### Passive Range of Motion:

- Extension: prone hanging and/or heel prop

##### Active Range of Motion:

- Ankle pumps in elevation

#### Strengthening Resistive Range of Motion

- Quadriceps sets with or without heel prop (completed hourly)
- Hamstring contractions (completed hourly)
- Straight leg raise 100 per day
- Step ups three to six inches
- Dead lift partial squats
- Stationary bike may begin three to four days post-op as tolerated for range of motion. No resistance.

#### Modalities

- Use neuromuscular electrical stimulation as needed for quadriceps shut down. Thirty minutes, two times a day, seven days a week (issue home unit if quad shutdown occurs).

## Days 8 to 14

### Brace

- Continue use of TED hose until day 14 or ambulating back to pre-operative activity level
- Crutches – weight bearing as tolerated (one or two crutches) with normal gait
- Tubigrip for Edema control

### Goals

- Control pain and swelling
- Full quadriceps activation without lag
- Full knee extension
- Knee flexion at 110 degrees
- Normalize gait and wean down to one crutch. Then no crutches as tolerated.

### Knee Motion

#### Passive Range of Motion:

- Extension: prone hanging and/or heel prop

#### Active Range of Motion:

- Heel raises
- Wall slides supine to increase knee flexion

### Strengthening Resistive Range of Motion

- Don Tigne/terminal knee extension
- Seated and prone hamstring exercises
- Straight leg partial squats
- Shuttle leg press 90 to 40 degrees
- Leg press 15 to 20 repetitions at 90 to 40 degrees

### Stretching

- Gastroc and soleus stretch

### Cardiovascular

- Stairmaster, elliptical or stationary bike

### Modalities

- Neuromuscular electrical stimulation if patient has quadriceps shut down.  
Thirty minutes, two times a day, seven days a week.

## Day 15 to Week 6

### Goal

- Full active range of motion
- Continue to wean off crutches as needed (off crutches by four weeks)
- Increase cardiovascular endurance via low impact activities (start at four weeks)
- Patellar mobilization (begin at week four)

### Knee Motion

- Continue above exercises

### Proprioception

- Begin closed kinetic chain proprioception exercises

### Functional

- Advanced closed kinetic chain exercises

### Cardiovascular

- Deep water running and swimming

## Weeks 6 to 8

Note: Gym exercises may include partial squats, leg press, lunges, leg curl, etc.

**Avoid open kinetic chain knee extension machine.**

- Continue to stress functional training exercises and endurance activities
- May begin retro ambulation on treadmill
- Caution and educate patients regarding the revascularization of the ACL graft from weeks 6 to 12 (the graft weakens from weeks 6 to 12, so avoid cutting, pivoting or jumping).
- Do **not** progress to running yet
- AlterG® Anti-Gravity Treadmill® if available

## Weeks 8 to 12

- Begin low level plyometrics at 70 to 80 total foot contacts (no depth jumps)

## Month 3

- Begin running progression (straight line only)

## Month 4

- Begin speed work progressing to full speed at various distances
- Begin higher level plyometrics, e.g. low depth jumps at 80 to 100 foot contacts
- Begin agility exercises in forward and lateral patterns

## Month 6

- Progress to full participation (must pass functional progression). Quadriceps and hamstring strength to be at least 90 percent compared to contralateral lower extremity.

Helping you achieve the optimal activity level  
for your lifestyle is my first priority.

- Scott Gudeman, MD



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