

**ACL Reconstructon with Quad tendon  
POST-OPERATIVE PHYSICAL THERAPY PROTOCOL**

## **ACL Reconstruction Using Quadriceps Tendon Autograft**

### **Criterion Based Postoperative ACL Quadriceps Tendon Reconstruction Rehabilitation**

*\*Because this procedure only requires harvest of a portion of the quadriceps tendon rehabilitation can begin with minimal soft tissue limitations. Watch for excessive quadriceps pain with exercises, however immediate weight bearing and flexion range of motion have no real restrictions.*

### **PHASE I (PREOPERATIVE)**

#### **Goals**

Restoration of ROM both active and passive  
Reduced knee swelling  
Reduced knee pain

#### **Weight bearing status**

Weight bearing as tolerated, crutches as needed

#### **Exercises**

Extension stretching (heel props, towel stretch, prone hangs)  
Flexion exercises (heel slides, supine flexion hangs)  
Straight Leg Raise x 4  
Quadriceps sets  
Hamstring sets  
Leg press  
Mini squats  
Step downs

#### **Criteria to Progress to Phase II**

Surgical reconstruction  
Restoration of ROM  
Restoration of quadriceps and hamstring strength  
Minimal pain and swelling

### **PHASE II (DAYS 1-14)**

#### **Goals**

Restoration of ROM both active and passive  
Full extension and 110° flexion by end week 1  
Full extension and 130° flexion by end week 2

Reduced knee swelling  
Reduced knee pain

### **Weight bearing status**

Weight bearing as tolerated, crutches as needed  
Full weight bearing with no antalgic gait by 3 weeks

### **Exercises**

Extension stretching (heel props, towel stretch, prone hangs)  
Flexion exercises (heel slides, supine flexion hangs) as tolerated  
Straight Leg Raise x 4  
Quadriceps sets in full extension with or without electrical stimulation  
Hamstring sets  
Ankle pumps  
Weight shifting as tolerated  
Continuous Passive Motion  
Standing terminal knee extension (Knee lockouts)  
Cryotherapy for edema and effusion

### **Criteria to Progress to Phase III**

Clean and dry wound/incisions  
Restoration of ROM (Full extension and 130° flexion)  
Straight leg raises with minimal extensor lag  
Improved quadriceps and hamstring strength  
Minimal pain and swelling

## **PHASE III (WEEKS 2-4)**

### **Goals**

Restoration of ROM both active and passive  
Maintain full weight bearing  
Improve balance and proprioception  
Minimize knee swelling  
Minimize knee pain

### **Weight bearing status**

Full weight bearing with no antalgic gait by 3 weeks

### **Exercises**

Previous exercises  
Isometric quadriceps sets against resistance at 0°, 90° and 60°  
Closed kinetic chain squats or leg press bilateral 0-60°  
Stationary bike with gradual increase in resistance  
Step-downs  
Leg press

Mini squats  
Calf raises bilateral  
Band exercises (lateral walking, monster walks)  
Single leg balance drills  
Bilateral single plane balance board

#### **Criteria to Progress to Phase IV**

Restoration of ROM (Full extension and 130° flexion)  
Equal motion bilaterally  
Normal gait without assistive device  
Single leg stance without assistance > 30 seconds  
Minimal pain and swelling

#### **PHASE IV (WEEKS 4-12)**

**\*PRECAUTION - Graft at weakest point during this period. No impact loading activities such as jumping, running, pivoting, or cutting.**

#### **Goals**

Maintenance of ROM both active and passive  
Full bilateral equal flexion and extension  
No knee pain or swelling  
Preparation for activities

#### **Exercises**

Previous exercises  
Calf raises bilateral progressing to unilateral  
Squats and leg press 0-60° bilateral progressing to unilateral  
Lunges 0-60°  
Balance board multiple planes bilateral progressing to unilateral  
Single leg balance eyes open/eyes closed  
Ball toss while in single leg stance  
Sports cord resisted walking  
Single leg deadlift  
Core strengthening

#### **Criteria to Progress to Phase V**

Restoration of ROM (Full extension and 130° flexion)  
Equal motion bilaterally  
Normal gait without assistive device  
Single leg stance without assistance > 30 seconds  
Ability to bilaterally squat to 60° with equal weight bearing  
Minimal pain and swelling

## **PHASE V (WEEKS 12+)**

### **Goals**

Maintenance of ROM both active and passive  
Full bilateral equal flexion and extension  
No knee pain or swelling  
Preparation for activities

### **Exercises**

Previous exercises  
Calf raises unilateral  
Progressive resistance for squats, leg press and lunge  
Continue core exercises  
Advance hamstring exercises  
Advanced balance exercises  
Start functional drills such as ladder drills, carioca at weeks 10-12

12 weeks +

Mini-jumping exercises progressing to hopping  
Perturbation exercises on balance board  
Increase speed of functional drills  
Functional activities such as jump shot, kicking soccer ball, ect.  
Begin progressive running program

### **Criteria for Return to Activity**

Restoration of ROM (Full extension and 130° flexion)  
Equal motion bilaterally  
Normal gait  
Negative Lachman's test with excellent stability  
Single leg stance without assistance > 30 seconds  
Ability to bilaterally squat to 60° with equal weight bearing  
Minimal pain and swelling  
80% bilateral symmetry and with reported norms on scores on functional tests