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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