

ACL Reconstruction Rehabilitation (Patellar tendon graft)

IMMEDIATE POST-OPERATIVE PHASE

GOALS

- *Control pain and decrease swelling
- *Achieve and maintain full extension range of motion
- *Prevent quadriceps atrophy and shutdown of the muscle
- *Begin early range of motion exercises
- *Walk with a normal gait

EXTREMELY IMPORTANT TO WORK ON EXTENSION RANGE OF MOTION IMMEDIATELY

Post-op Day 1

- Ankle pumps
- Glut Sets
- Quad Sets
- Passive knee extension- heel prop
- Straight leg raises in brace
- Hamstrings stretches

Brace- locked at 0 degrees of extension

Weight bearing- two crutches weight bearing as tolerated

Continuous Passive Motion machine- Zero to 90 degrees as tolerated (as directed by physician)

Ice and Elevation- Ice 20 minutes out of every hour and elevate with knee in extension

Post-op Day 2-3

- Ankle pumps, Glut Sets, Quad Sets
- Passive knee extension – heel prop
- Prone heel hangs
- Towel stretches for the calf muscles
- Multi-angle quadriceps isometrics at 90 and 60 degrees
- Multi-plane straight leg raises
- Heel slides
- Standing weight shifts

Brace- locked at 0 degrees of extension for ambulation

Weight bearing- two crutches weight bearing as tolerated

Range of Motion- Patient out of brace 4-5 times daily to perform ROM exercises

Continuous Passive Motion machine- Zero to 90 degrees as tolerated (as directed by physician)

Ice and Elevation- Ice 20 minutes out of every hour and elevate with knee in extension

Post-op Day 3-7

Physical Therapy should begin during this time frame.

- Passive knee extension exercises
 - Prone hangs, supine hangs, self prone hangs (Extension should be 0 degrees!!!)
- Flexibility exercises
 - Calf, hamstrings, IT band
- ROM exercises
 - Heel slides, heel slides with strap, wall slides, hamstrings curls
 - (Flexion should be 90 degrees)
- Straight leg raises (multi plane)
- Mini squats (0-30 degrees)
- Proprioceptive and balance activities
 - SLS, Fitter Board, weight shifts, foam standing
- Total Gym squats and heel raises
- Bike- Rocking if ROM < 90 degrees
- Patellar mobilizations

Muscle Stimulation- Electrical muscle stimulation to quads (4 hours per day)

CPM- Zero to 90 degrees PRN

Brace- locked at 0 degrees of extension for ambulation

Weight bearing- two crutches weight bearing as tolerated

Range of Motion- Patient out of brace 4-5 times daily to perform ROM exercises.

ROM goals 0 degrees extension and 90 degrees flexion

Ice and Elevation- Ice 20 minutes out of every hour and elevate with knee in extension

MAXIMUM PROTECTION PHASE

Week 2-3

GOALS

- *Protection of graft
- *Increase ROM and prevent stiffness
- *Decrease swelling
- *Stimulate healing
- *Prevent quad atrophy and increase strength/stability
- *Normalize patellar mobility

Week 2

- Passive knee extension exercises
 - Prone hangs, supine hangs, self prone hangs (Extension should be 0 degrees!!!)
- Flexibility exercises
 - Calf, hamstrings, IT band
- ROM exercises
 - Heel slides, heel slides with strap, wall slides
 - (Flexion should be 105 degrees)
- Straight leg raises (multi plane)
- Hamstrings curls with resistance
- Step-ups/ lateral step-ups 2"
- Mini squats (0-40 degrees)
- Proprioceptive and balance activities
 - SLS, Fitter Board, weight shifts, foam standing
- Total Gym squats and heel raises
- Patellar mobilizations
- Begin trunk strengthening

Muscle Stimulation- Electrical muscle stimulation to quads during quad exercises

CPM- Discontinued once active ROM = >90 degrees

Brace- locked at 0 degrees of extension for ambulation and unlocked sitting

Weight bearing- as tolerated

Goal- Discontinue crutches 7-10 days post-op

Range of Motion- Patient out of brace 4-5 times daily to perform ROM exercises.

ROM goals 0 degrees extension and 105 degrees flexion

Ice and Elevation- Ice 20 minutes out of every hour and elevate with knee in extension

Week 3

- Same as week 2
- Progress step-up height if technique maintained
- Leg Press (60-0 degrees)
- Stairmaster
- Pool walking program

Brace- Discontinue locked brace. Brace opened 0-125 degrees for ambulation.

Range of Motion- Patient out of brace 4-5 times daily to perform ROM exercises.

ROM goals 0 degrees extension and 115 degrees flexion

Weight bearing- Full weight-bearing- no crutches

CONTROLLED AMBULATION PHASE

Weeks 4-7

GOALS

***Control forces during walking**

***Improve strength and limb support**

***Improve proprioception**

- Continue to progress exercises
- Initiate swimming program
- Increase closed kinetic chain rehab
- Increase proprioceptive training
- Week 6- initiate leg extension 90-40 degrees and progress 10 degrees towards 0 each week
- Begin eccentric quadriceps and gluteus maximus- leg press/Total Gym

Brace- Discontinue brace

Discontinuing brace should only occur if quad recruitment is adequate and patient is able to perform SLR's

Range of Motion- Patient out of brace 4-5 times daily to perform ROM exercises.

ROM goals 0 degrees extension and 125 degrees flexion

Ice- after exercise and as needed 10-20 minutes

MODERATE PROTECTION PHASE

Weeks 7-12

GOALS

***Protect patellofemoral joint cartilage**

***Maximum strengthening of quads and lower extremity**

***Protection of graft**

- Emphasize eccentric quad work
- Continue closed chain exercises- step-ups, mini-squats, leg press
- Continue knee extension progression
- Hip abduction/adduction
- Hamstrings curls and stretches
- Bicycle and elliptical for endurance
- Pool running (forward and backward)
- Walking program
- Begin light jumping working on proper landing technique
- Stairmaster

LIGHT ACTIVITY PHASE

Month 3

GOALS

***Development of strength, power, and endurance**

***Begin to prepare for return to functional activities**

- Perform Functional Test Series
- Continue strengthening program
- Initiate plyometric program
- Initiate running program
- Criteria to initiate running program
 - Equal strength in quads comparing sides
 - Functional test 70% of contralateral leg
 - Satisfactory clinical exam
 - Minimal to no effusion
- Initiate agility drills
- Sports specific training and drills

RETURN TO ACTIVITY PHASE

Months 4-5

GOALS

***Achieve maximal strength and further enhance neuromuscular coordination and endurance**

- Continue strengthening program
- Continue closed kinetic chain strengthening program
- Continue plyometric program
- Continue running and agility program
- Accelerate sport specific training and drills
- Criteria to return to activities
 - Functional test 85% of contralateral leg
 - Proprioceptive test 100% of contralateral leg
 - Satisfactory clinical exam