

Athletic Preparation

ACL Reconstruction - Accelerated Rehabilitation

Autologous Bone-Tendon-Bone, Patella Tendon Graft

I. Immediate Post-Operative Phase

POD 1

Brace – Post-Op hinged brace, locked in zero degrees immediate postop

Weight bearing - Two crutches as tolerated (less 50%)

Exercises

- * Ankle pumps
- * Passive knee extension to zero (out of brace)
Towel roll under heel, ice bag on knee for passive extension stretch
- * Straight leg raising
- * Quad sets, glut sets
- * Hamstring stretch

Muscle Stimulation - Muscle stimulation to quads

Ice and Elevation - Ice 20 minutes an hour & elevate with knee in extension

Criteria for discharge from hospital

- * *Quad control (ability to perform good quad set and straight leg raise)*
- * *Full passive knee extension*
- * *Passive range of motion 0-90 degrees*
- * *Good patellar mobility*
- * *Minimal effusion*
- * *Ambulation with crutches*

POD 2 to 4

Brace – Post-Op brace locked at zero degrees

Weight bearing - Two crutches as tolerated

Range of motion - Patient out of brace 4-5 times daily to perform self ROM

Exercises

- * Multi-angle isometrics at 90,60,30 degrees (for quads)
- * Intermittent ROM exercises continued
- * Patellar mobilization
- * Ankle pumps
- * Straight leg raises (all 4 directions)
- * Standing weight shifts & mini squats [(0-30) ROM]
- * Hamstring curls
- * Continue quad sets/glut sets

Muscle Stimulation - Electrical muscle stimulation to quads
quad sets, multi-angle isometrics and straight leg raises.

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

POD 5 to 7

Brace – Post-OP brace locked in zero degrees

Weight Bearing - Two crutches as tolerated

Range Of Motion - Patient out of brace to perform range of motion 4-5 times daily

Exercises

- * Multi-angle isometrics at 90,60,30 degrees
- * Intermittent PROM-exercises
- * patellar mobilization
- * Ankle pumps
- * Straight leg raises (all 4 directions)
- * Standing weight shift and mini squats (0-30)
- * Passive knee extension to 0 degrees
- * Hamstrings curls
- * Active knee extension 90 degrees to 40 degrees

Muscle Stimulation - Electrical muscle stimulation

Criteria for discharge from hospital

- * *Quad control (ability to perform good quad set and straight leg raise)*
 - * *Full passive knee extension*
 - * *Passive range of motion 0-90 degrees*
 - * *Good patellar mobility*
 - * *Minimal effusion*
 - * *Ambulation with crutches*
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II. Maximum Protection Phase (Week 2-3)

Goals: *Absolute control of external forces & protect graft*

Nourish articular cartilage

Stimulate collagen healing

Decrease swelling. Prevent quad atrophy.

A. Week Two

Goals: Prepare patient for ambulation without crutches

Brace – Post-OP brace locked at 0 degrees for ambulation only, unlocked for self ROM.

Some patients can come out of brace for this. (4-5 times daily)

Out of brace for household ambulation

Weight bearing - As tolerated (goal to discontinue crutches 7-10 days post-op)

Exercises:

- * Multi-angle isometrics at 90,60,30 degrees
- * Leg raises (4 planes)
- * Hamstring curls
- * Knee extension 90-40 degrees
- * Mini squats (0-40) and weight shifts
- * Passive range of motion 0-105 degrees
- * Patellar mobilization
- * Hamstring and calf stretching
- * Proprioception training
- * PRE Program - start with 1 lb, progress 1 lb per week

Swelling control - Ice, compression, elevation

B: Week Three

Brace – Post-OP brace locked at 0 degrees for community ambulation only,
Remove for self ROM (4-5 times daily). Out of brace at home.

Full weight bearing - no crutches

Exercises

- * Same as week two
 - * PROM-0-115 degrees
 - * Bicycle for ROM stimulus and endurance
 - * Pool walking program
 - * Initiate eccentric quads 40-100 (isotonic only)
 - * Leg press (0-60)
 - * StairMaster
 - * Nordic track
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III. Controlled Ambulation Phase (Week 4-7)

Criteria to Enter Phase III

- * AROM 0-115 degrees
- * Quad strength 60% > contralateral side (subjective) (60 degrees of knee flexion)
- * Unchanged KT Test (+1 or less)
- * Minimal effusion

Goals: Control forces during walking

Brace: Discontinue bracing at this time – if good quad control.

KT 2000 Test - (Week 6, 20 and 30 lb test)

Exercises

- * Same as week three
- * Passive range of motion 0-130 degrees
- * Initiate swimming program
- * Initiate step-ups (start with 2" and gradually increase)
- * Increase closed kinetic chain rehab
- * Increase proprioception training

IV. Moderate Protection Phase (Week 7-12)

Criteria to Enter Phase IV

- * AROM 0-125 degrees
- * Quad strength 60% of contralateral leg (isokinetic test)
- * No change in KT scores (+2 or less)
- * Minimal effusion
- * No patellofemoral complaints
- * Satisfactory clinical exam

Goals: Protect patellofemoral joints articular cartilage
Maximal strengthening for quads, lower extremity

Isokinetic Test - (Week 10)

Exercises

- * Emphasize eccentric quad work
- * Continue closed chain exercises, step-ups, mini-squats leg press
- * Continue knee extension 90-40 degrees
- * Hip abduction/adduction
- * Hamstring curls & stretches
- * Calf raises
- * Bicycle for endurance
- * Pool running (forward/backward)
- * Walking program
- * StairMaster
- * Initiate isokinetic work 100-40 degrees

V- Light Activity Phase (Month 2-1/2 to 3-1/2)

Criteria to Enter Phase V-

- * AROM 0-125 degrees >
- * Quad strength 70% of contralateral side, knee flexor/extensor rated 70-79%
- * No change in KT scores (+2 or less)
- * Minimal/no effusion
- * Satisfactory clinical exam

Goals: Development of strength, power, and endurance
Begin to prepare for return to functional activities

Tests - Isokinetic test (week 10-12 and 16-18)

Exercises

- * Continue strengthening exercises
 - * Initiate plyometric program
- * Initiate running program
- * Initiate agility drills
- * Sport specific training and drills

Criteria to initiate running program:

- * Satisfactory isokinetic test
- * Unchanged KT results
- * Functional test 70% > contralateral leg
- * Satisfactory clinical exam

VI. Return to Activity Phase (Month 3-1/2 to 4-1/2)

Criteria to return to activities

- * Isokinetic test that fulfills criteria
- * KT 2000 Test unchanged
- * Functional test 80% > contralateral leg
- * Proprioceptive test 100% of contralateral leg
- * Satisfactory clinical exam

Goals: Achieve maximal strength & further enhance neuromuscular coordination and endurance.

Tests - Isokinetic test prior to return, KT 2000 Test, functional test

Exercises

- * Continue strengthening program
- * Continue closed chain strengthening program
- * Continue plyometric program
- * Continue running and agility program
- * Accelerate sport specific training & drills

6 MONTH FOLLOW-UP

Isokinetic test
KT 2000 test
Functional test

12 MONTH FOLLOW-UP

Isokinetic test
KT 2000 test
Functional test