

Rehabilitation Following ACL-PTG Reconstruction

I. IMMEDIATE POSTOPERATIVE PHASE

POD 1

Brace – Drop lock brace locked at zero degrees extension

Weight Bearing Two crutches as tolerated

Exercises

- * Ankle pumps
- * Passive knee extension to zero
- * Straight leg raises
- * Quad sets, glut sets
- * Hamstring stretch

Muscle Stimulation Muscle stimulation to quads (4 hours per day) during quad sets

CPM PRN, Zero to 90 degrees as tolerated (as directed by physician)

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

POD 2 to 3

Brace – Drop lock brace locked at zero degrees extension for ambulation and unlocked for sitting, etc.

Weight Bearing Two crutches, weight bearing as tolerated

Range of Motion Patient out of brace 45 times daily to perform self ROM

Exercises

- * Multi-angle isometrics at 90 and 60 degrees (for quads)
- * Knee Extension 90-40 degrees
- * Intermittent ROM exercises continued
- * Patellar mobilization
- * Ankle pumps
- * Straight leg raises (multi-plane)
- * Standing weight shifts and mini squats [(030) ROM]
- * Hamstring curls
- * Continue quad sets/glut sets

Muscle Stimulation Electrical muscle stimulation to quads (6 hours per day)

CPM Zero to 90 degrees

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

POD 4 to 7

Brace – Drop lock brace locked at zero degrees extension for ambulation and unlocked for sitting

Weight Bearing Two Crutches weight bearing as tolerated
Range of Motion Patient out of brace to perform ROM 45 times daily

Exercises

- * Knee Extension 90-40 degrees
- * Intermittent PROM exercises
- * Patellar mobilization
- * Ankle pumps
- * Straight leg raises (multi-plane)
- * Standing weight shift and mini squats (030)
- * Passive knee extension to 0 degrees
- * Hamstrings curls
- * Proprioceptive and balance activities

Muscle Stimulation Electrical muscle stimulation (continue 6 hours daily)

CPM Zero to 90 degrees PRN

II. MAXIMUM PROTECTION PHASE (Week 23)

Criteria to Enter Phase II

- 1) Quad Control (ability to perform good quad set and SLR)
- 2) Full passive knee extension
- 3) PROM 0-90 degrees
- 4) Good patellar mobility
- 5) Minimal effusion
- 6) Independent ambulation with one or two crutches

Goals: Absolute control of external forces and protect graft
Nourish articular cartilage
Decrease fibrosis
Stimulate collagen healing
Decrease swelling
Prevent quad atrophy

A: Week Two

Goals: Prepare patient for ambulation without crutches

Brace – Drop lock brace locked at zero degrees for ambulation only, unlocked for self

ROM (4-5 times daily)

Weight Bearing As tolerated (goal to discontinue crutches 710 days post op)

Range of Motion - Self ROM (4-5 times daily), emphasis on maintaining zero degrees passive extension

KT 2000 Test (15 lb anterior-posterior test only)

Exercises

- * Muscle stimulation to quadriceps during quadriceps exercises
- * Multiangle isometrics at 90, 60, 30 degrees
- * Leg raises (4 planes)
- * Hamstring curls
- * Knee extension 90-40 degrees

- * Mini squats (040) and weight shifts
- * PROM 0105 degrees
- * Patellar mobilization
- * Hamstring and calf stretching
- * Proprioception training
- * Well leg exercises
- * PRE Program start with 1 lb, progress 1 lb per week

Swelling control Ice, compression, elevation

B: Week Three

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

Range of Motion Self ROM (45 times daily), emphasis on maintaining zero degrees passive extension

Full weight bearing No crutches

Exercises

- * Same as week two
- * PROM 0115 degrees
- * Bicycle for ROM stimulus and endurance
- * Pool walking program
- * Initiate eccentric quads 40100 (isotonic only)
- * Leg press (060)
- * Stairmaster
- * Nordic Track

III. CONTROLLED AMBULATION PHASE (Week 47)

Criteria to Enter Phase III

- * AROM 0115 degrees
- * Quad strength 60 % > contralateral side (isometric test) (60 degree knee flexion angle)
- * Unchanged KT Test (+1 or less)
- * Minimal effusion

Goals: Control Forces during walking

Brace - Discontinue Brace

Range of Motion - Self ROM (4-5 times daily), emphasis on maintaining zero degrees passive extension

KT 2000 Test (Week 4, 20 lb anterior and posterior test)
(Week 6, 20 and 30 lb anterior and posterior test)

Exercises

- * Same as week three
- * PROM 0 130 degrees
- * Initiate swimming program
- * Initiate stepups (start with 2" and gradually increase)
- * Increase closed kinetic chain rehab
- * Increase proprioception training

IV. MODERATE PROTECTION PHASE (Week 712)**Criteria to Enter Phase IV**

- * AROM 0125 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 joint's articular cartilage
Maximal strengthening for quads, lower extremity
KT 2000 Test (Week 10) Total Displacement at 15 lb, 20 lb and 30 lb, Manual Maximal Test

Isokinetic Test (Week 10)**Exercises**

- * Emphasize eccentric quad work
- * Continue closed chain exercises, stepups, minisquats, leg press
- * Continue knee extension 9040 degrees
- * Hip abduction/adduction
- * Hamstring curls and stretches
- * Calf raises
- * Bicycle for endurance
- * Pool running (forward/backward)
- * Walking program
- * Stairmaster
- * Initiate isokinetic work 10040 degrees

V. LIGHT ACTIVITY PHASE (Month 2 1/2 3 1/2)**Criteria to Enter Phase V**

- * AROM 0125 degrees >
- * Quad strength 70 % of contralateral side, knee flexor/extensor rated 7079%
- * 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 1012 and 1618)

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 4 1/2)

Criteria to return to activities

- * Isokinetic test that fulfills criteria
- * KT 2000 Test unchanged
- * Functional test 85% > contralateral leg
- * Proprioceptive test 100% of contralateral leg
- * Satisfactory clinical exam

Goals: Achieve maximal strength and 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 and drills

6 MONTH FOLLOWUP

Isokinetic test
KT 2000 test
Functional test

12 MONTH FOLLOWUP

Isokinetic test
KT 2000 test
Functional test