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Rehabilitation Following ACL PTG/QTG Reconstruction

I. Immediate Post-Operative Phase

A. POD 1:

Brace: EZ Wrap 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

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

B. POD 2 to 3:

Brace: EZ Wrap brace locked at zero degrees extension for ambulation, etc.

Weight Bearing: Two crutches, weight bearing as tolerated

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

Exercises:

- Knee Extension 90-40 degrees
- Intermittent ROM exercises continued
- Patellar mobilization
- Ankle pumps
- Straight leg raises (multi-plane)
- Standing weight shifts and mini squats [(0-30) ROM]
- Hamstring curls
- Continue quad sets/glut sets

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

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

C. POD 4 to 7:

Brace: EZ Wrap brace locked at zero degrees extension for ambulation and unlocked for sitting

Weight Bearing: Two crutches weight bearing as tolerated

POD 4 to 7 - Continued:

Range of Motion: Patient out of brace to perform ROM 4-5 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 (0-30)
- Passive knee extension to 0 degrees
- Hamstring curls
- Proprioceptive and balance activities

Muscle Stimulation: Electrical muscle stimulation (continue 6 hours daily)

II. Maximum Protection Phase (Week 2-3)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:

- 1) Absolute control of external forces and protect graft
- 2) Nourish articular cartilage
- 3) Decrease fibrosis
- 4) Stimulate collagen healing
- 5) Decrease swelling
- 6) Prevent quad atrophy

A. Week 2

Goals: Prepare patient for ambulation without crutches

Brace: EZ Wrap locked at zero degrees for ambulation only, unlocked for self ROM (4-5 times daily)

Weight Bearing: As tolerated (goals to discontinue crutches 7-10 days post op)

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

Exercises:

- Muscle stimulation to quadriceps during quadriceps exercises
- Leg raises (4 planes)
- Hamstring curls

Week 2 Exercises - Continued

- Knee extension 90-40 degrees
- Mini squats (0-40) and weight shifts
- PROM 0-105 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 3

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

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

Full Weight Bearing: No crutches

Exercises:

- Same as week two
- PROM 0-115 degrees
- Bicycle for ROM stimulus and endurance
- Pool walking program (If incision closed)
- Initiate eccentric quads 40-100 (isotonic only)
- Leg press (0-60)
- Stairmaster
- Nordic Track

III. Controlled Ambulation Phase (Week 4-7)

Criteria to Enter Phase III:

- 1) AROM 0-115 degrees
- 2) Unchanged KT Test (+1 or less)
- 3) Minimal effusion

Goals: Control Forces during walking

Brace: Discontinue brace

Range of Motion: Self ROM (4-5 times daily), emphasis on maintaining 0° passive extension

Exercises:

- Same as week three
- PROM 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:

- 1) AROM 0-125 degrees
- 2) No change in KT Test (+2 or less)
- 3) Minimal effusion
- 4) No patellofemoral complaints
- 5) Satisfactory clinical exam

Goals:

- 1) Protect patellofemoral joint's articular cartilage
- 2) 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 and 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 ½ - 3 ½)

Criteria to Enter Phase IV:

- 1) AROM 0-125 degrees >
- 2) No change in KT scores (2+ or less)
- 3) Minimal/no effusion
- 4) Satisfactory clinical exam

Goals:

- 1) Development of strength, power, and endurance
- 2) 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

Light Activity Phase (Month 2 ½ - 3 ½) - Continued:**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 ½ - 4 ½)Criteria to Enter Phase VI:

- 1) Isokinetic test that fulfills criteria
- 2) KT 2000 Test unchanged
- 3) Functional test 85%> contralateral leg
- 4) Proprioceptive test 100% of contralateral leg
- 5) 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