

## **Rehabilitation Following ACL PTG Reconstruction**

### **I. IMMEDIATE POSTOPERATIVE PHASE**

#### **Postop Day 1**

##### **Brace**

- Brace locked at 0° extension

##### **Weightbearing**

- 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 for 20 minutes out of every hour
- Elevate with knee in extension

#### **Postop Day 2 to 3**

##### **Brace**

- Brace locked at 0° extension for ambulation and unlocked for sitting, etc.

##### **Weightbearing**

- Two crutches, weight bearing as tolerated

##### **Range of Motion**

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



### **Exercises**

- Multi-angle isometrics at 90° and 60° (for quads)
- Knee extension 90°-40°
- 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 for 20 minutes out of every hour
- Elevate with knee in extension

## **Postop Day 4 to 7**

### **Brace**

- Brace locked at 0° extension for ambulation and unlocked for sitting, etc.

### **Weightbearing**

- Two crutches, weight bearing as tolerated

### **Range of Motion**

- Patient out of brace or in PRS to perform ROM 4-5 times daily

### **Exercises**

- Knee extension 90°-40°
- 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°
- Hamstring curls
- Proprioceptive and balance activities



### **Muscle Stimulation**

- Electrical muscle stimulation (continue 6 hours daily)

### **Criteria to Enter Phase II**

- Quad control (ability to perform good quad set and SLR)
- Full passive knee extension
- PROM 0°-90°
- Good patellar mobility
- Minimal effusion
- Independent ambulation with one or two crutches

## **II. MAXIMUM PROTECTION PHASE (Week 2-3)**

### **Goals**

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

### **Week Two**

#### **Goal**

- Prepare patient for ambulation without crutches

#### **Brace**

- Brace locked at 0° for ambulation only, unlocked for self ROM (4-5 times daily)

#### **Weightbearing**

- As tolerated (goal to discontinue crutches 7 to 10 days postop)

#### **Range of Motion**

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

#### **Exercises**

- Muscle stimulation to quadriceps during quadriceps exercises
- Multi angle isometrics at 90°, 60°, 30° degrees
- Leg raises (4 planes)
- Hamstring curls



- Knee extension 90°-40°
- Mini squats (0-40) and weight shifts
- PROM 0°-150°
- 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

#### **Week Three**

##### **Brace**

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

##### **Range of Motion**

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

##### **Weightbearing**

- Full weight bearing. No crutches.

##### **Exercises**

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

##### **Criteria to Enter Phase III**

- AROM 0°-115°
- Quad strength 60% > contralateral side (isometric test) (60° knee flexion angle)
- Minimal effusion



### III. CONTROLLED AMBULATION PHASE (Week 4-7)

#### 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 3
- PROM 0°-130°
- Initiate swimming program
- Initiate step ups (start with 2" and gradually increase)
- Increase closed kinetic chain rehab
- Increase proprioception training

#### Criteria to Enter Phase IV

- AROM 0°-125°
- Quad strength 60% of contralateral leg (isokinetic test)
- Minimal effusion
- No patellofemoral complaints
- Satisfactory clinical exam

### IV. MODERATE PROTECTION PHASE (Week 7-12)

#### Goals

- Protect patellofemoral joint's 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%
- Hip abduction/adduction



- Hamstring curls and stretches
- Calf raises
- Bicycle for endurance
- Pool running (forward/backward)
- Walking program
- Stairmaster
- Initiate isokinetic work 100°-40°

#### **Criteria to Enter Phase V**

- AROM 0°-125°
- Quad strength 70% of contralateral side, knee flexor/extensor rated 70-79%
- Minimal/no effusion
- Satisfactory clinical exam

#### **V. LIGHT ACTIVITY PHASE (Month 2 ½ - 3 ½)**

##### **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
- Functional test 70% > contralateral leg
- Satisfactory clinical exam

#### **Criteria to Return to Activities**

- Isokinetic test that fulfills criteria
- Functional test 85% > contralateral leg
- Proprioceptive test 100% of contralateral leg
- Satisfactory clinical exam



VI. **RETURN TO ACTIVITY PHASE (Month 3 ½ - 4 ½)**

**Goals**

- Achieve maximal strength and further enhance neuromuscular coordination and endurance

**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
- Functional test

**12 Month Followup**

- Isokinetic test
- Functional test