

# Palmetto Health USC

## ORTHOPEDIC CENTER

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### ACCELERATED REHABILITATION FOLLOWING ACL-PTG RECONSTRUCTION

#### I. IMMEDIATE POST-OPERATIVE PHASE

##### A. POD 1

1. Brace – immobilizer at 0° extension immediate post-op
2. Weight bearing – 2 crutches as tolerated
3. Exercises –
  - Ankle pumps
  - Passive knee extension to 0°
  - Straight leg raises
  - Quad sets, glut sets
  - Hamstring stretch
4. Muscle stimulation – muscle stim to quads during quad sets
5. CPM – beginning 0° to 30°, progressing as tolerated 6 hours per day
6. Ice and elevation – Ice 20 minutes out of every hour and elevate knee

in extension.

##### B. POD 2-3

1. Brace – immobilizer for ambulation, unlocked for sitting, etc.
2. Weight bearing – 2 crutches, weight bearing as tolerated
3. Range of motion – pt. out of brace 4-5x daily to perform self ROM
4. Exercises –
  - Heel slides
  - Hamstring, gastroc stretches
  - Multi-angle isometrics at 90° and 60° (for quads)
  - Knee extensions 90°-40°
  - Intermittent range of motion exercises continued
  - Patellar mobilizations
  - Ankle pumps
  - Straight leg raises (multi-planes)
  - Standing weight shifts and mini-squats (0-30°) ROM
  - Hamstring curls

- Continue quad sets/glut sets
5. Muscle stimulation – e-stim to quads

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6. CPM – continue 6 hours/day – Goal 0-90° by day 3
7. Ice and elevation – Ice 20 mins every hour and elevate with knee in extension.

**C. POD 4-7**

1. Brace – immobilizer for ambulation
2. Weight bearing – 2 crutches, weight bearing as tolerated
3. Range of motion – pt. out of brace to perform ROM 4-5x daily
4. Exercises –
  - Heel slides
  - Knee extensions 90-40°
  - Intermittent PROM exercises
  - Patellar mobilizations
  - Ankle pumps
  - Straight leg raises
  - Standing weight shifts and mini-squats (0-30°)
  - Passive knee extension to 0°
  - Hamstring curls
  - Proprioceptive and balance activities
5. Muscle stimulation – continue e-stim
6. CPM – (0-90° ) discontinue CPM when 90° is easily achieved

**II. MAXIMUM PROTECTION PHASE (week 2-3)**

\*Criteria to progress to Phase II

1. Quad control (ability to perform good quad sets and SLR's)
2. Full passive knee extension
3. PROM 0-90°
4. Good patellar mobility
5. Minimal effusion
6. Independent ambulation with 1 or 2 crutches

\*Goals

1. Absolute control of external forces and protected gait
2. Nourish articular cartilage
3. Decrease fibrosis
4. Stimulate collagen healing
5. Decrease swelling
6. Prevent quad atrophy

**A. WEEK 2**

- post-op)
1. Goals – Prepare pt. for ambulation without crutches
  2. Brace – Discontinue immobilizer – Criteria: good quad control, no extensor lag
  3. Weight bearing – as tolerated (goal to discontinue crutches 7-10 days)
  4. Range of motion – Self range of motion (4-5 times daily), emphasis on maintaining 0° passive extension
  5. Exercises –
    - Continue e-stim to quads
    - Straight leg raises (4 planes)
    - Hamstring curls
    - Knee extensions 90-40°
    - Mini-squats (0-40°), weight shifts, lunges
    - PROM 0-105°
    - Patellar mobilizations
    - Leg press (0-60°)
    - Hamstring and calf stretches
    - Proprioception training
    - Well leg exercises
    - PRE program – start with 1 lb., progress 1 lb. per week
    - Bicycle, if swelling permits
    - Forward step-ups

**B. WEEK 3**

1. Range of motion – Self ROM (4-5x daily), emphasis on maintaining 0° passive extension
2. Full weight bearing – no crutches
3. Exercises –
  - Same as week 2
  - PROM 0-115°
  - Bicycle for ROM stimulus and endurance
  - Pool walking program
  - Initiate eccentric quadriceps 40-100° (isotonic only)
  - Stair Master
  - Nordic Track
  - Initiate lateral lunges
  - Initiate lateral step-ups
  - Proprioception drills, neuromuscular control drills

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

\*Criteria to enter Phase III

1. AROM 0-115°
2. Quad strength 60% > contralateral side (isometric test)(60° knee flexion)
3. Minimal effusion
4. No joint line or joint pain (patellofemoral or tibiofemoral)

\*Goals

1. Control forces during walking
2. Improve muscular strength and endurance

#### **A. WEEKS 4-7**

1. Range of motion – Self ROM, emphasis on maintaining 0° passive extension
2. Exercises –
  - Same as Week 3
  - Progress to isotonic training
  - PROM 0-130°
  - Initiate swimming program
  - Emphasize step-ups (start with 2” and gradually increase)
  - Emphasize closed kinetic chain rehab
  - Increase proprioception training
  - Pool running program

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

\*Criteria to enter Phase IV

1. AROM 0-125°/135°
2. Quad strength 60% of contralateral leg (isokinetic test)
3. Minimal effusion
4. No patellofemoral complaints
5. Satisfactory clinical exam

\*Goals

1. Protect patellofemoral joint's articular cartilage
2. Maximal strengthening for quadriceps, lower extremity
3. Enhance neuromuscular, proprioceptive abilities

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#### **A. WEEKS 7-12**

1. KT 1000/2000 test – Week 8 – total displacement at 15 lb., 20 lb., and 30 lb., manual maximal test
2. Isokinetic test – Week 10
3. Exercises –
  - Same as Weeks 4-7
  - Emphasize eccentric quad work
  - Hip abduction/adduction
  - Calf raises
  - Walking program
  - Initiate isokinetic work 100-40°
  - Plyometrics, training
  - Evaluate to determine if running can be initiated, fulfills criteria (see Phase V) – Week 12

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

\*Criteria to enter Phase V

1. AROM 0-125° >
2. Quad strength 70% of contralateral side
3. Minimal/no effusion
4. Satisfactory clinical exam
5. Satisfactory isokinetic test

\*Goals

1. Development of strength, power and endurance
2. Begin to prepare for return to functional activities
3. Gradual increase in functional sport activities

### **A. MONTH 2 ½ -3 ½**

1. Tests – Isokinetic test (Week 10-12 and 16-18)
2. Exercises –
  - Continue strengthening exercises
  - Plyometric program
  - Running program
  - Agility drills
  - Sport specific training and drills

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3. Criteria to initiate running program
  - Satisfactory isokinetic test (bilateral comparison, torque to body weight ratio, unilateral limb ratio)
  - Functional test 70% > contralateral leg

- Satisfactory clinical exam
- No joint pain or swelling

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

\* Criteria to return to activities

1. Isokinetic test that fulfills criteria
2. Good KT 1000/2000 test
3. Functional test 85% > contralateral leg
4. Proprioceptive test 100% of contralateral leg
5. Satisfactory clinical exam

\*Goals

1. Achieve maximal strength and further enhance neuromuscular coordination and endurance

**A. MONTH 3 ½-4 ½**

1. Tests – Isokinetic test prior to return, KT 1000/2000 test, functional test
2. Exercises –
  - Continue all programs
  - Accelerate sport specific training and drills

**6 MONTH FOLLOW-UP**

Isokinetic test  
 KT 1000/2000 test  
 Functional test

**12 MONTH FOLLOW-UP**

Isokinetic test  
 KT 1000/2000 test  
 Functional test

