

**Patella Tendon Debridement and Repair**

**IMMEDIATE POST-OPERATIVE PHASE (Day 1 to Day 14)**

**Goals:**

Restore full passive knee extension  
Diminish joint swelling and pain  
Restore patellar mobility  
Gradually improve knee flexion  
Re-establish quadriceps control  
Restore independent ambulation

**Brace**

Locked in full extension during ambulation & sleeping  
Can Unlock brace while sitting

**Weight Bearing**

Two crutches, weight bearing as tolerated, brace locked in extension

**Exercises:**

- \*Ankle pumps
- \*Overpressure into full, passive knee extension
- \*Active and Passive knee flexion → goal for 90 degrees in Post-op week 2, increase by ~10-15 degrees per visit, but should not be overly painful
- \*Straight leg raises (Flexion, Abduction, Adduction)
- \*Quadriceps isometric setting
- \*Hamstring stretches

Muscle Stimulation – Use muscle stimulation during active muscle exercises

**Ice and Elevation**

Ice 20 minutes out of every our and elevate with knee in full Extension

## **II. EARLY REHABILITATION PHASE (Week 2-4)**

### Criteria to Progress to 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 joint effusion
- 6) Independent ambulation

### **Goals:**

Maintain full passive knee extension (at least 0 to 5-7 hyperextension)  
Gradually increase knee flexion  
Diminish swelling and pain  
Muscle control and activation  
Restore proprioception/neuromuscular control  
Normalize patellar mobility

### Week 2

#### **Brace**

Continue locked brace for ambulation & sleeping

#### **Weight Bearing**

As tolerated with crutches and locked in extension

#### **ROM**

Passive Range of Motion – Self-ROM stretching (4-5 times daily), 0-100

\* Restore patient's symmetrical extension

#### **Exercises:**

##### \*BEGIN BLOOD FLOW RESTRICTION (BFR)

- \*Isometric quadriceps sets
- \*Straight Leg raises (4 planes)
- \*Hamstring Curls standing (active ROM)
- \*Bicycle (if ROM allows) for ROM, minimal resistance
- \*Proprioception training
- \*Overpressure into extension
- \*Passive range of motion from 0 to 100 degrees
- \*Patellar mobilization
- \*Well leg exercises

#### **Swelling control**

Ice, compression, elevation

## Week 3-4

### **Brace**

If appropriate quad control, can DC crutches and unlock brace for ambulation

### **Weight Bearing**

WBAT with brace unlocked

### **ROM**

Continue range of motion stretching and overpressure into extension

ROM should be 0-100/105 degrees

\* Restore patients symmetrical extension

### **Exercises:**

\*Continue all exercises as in week two

\*Passive Range of Motion 0-115 degrees

\*Continue BFR

\*Bicycle for range of motion stimulus and endurance

\*Leg Press (0-60 degrees)

\*Half squats (0-40)

## **III. PROGRESSIVE STRENGTHENING/NEUROMUSCULAR CONTROL PHASE (Week 4-10)**

### Criteria to Enter Phase III

- 1) Active Range of Motion 0-115 degrees
- 2) Quadriceps strength 60 % > contralateral side (isometric test at 60 degree knee flexion)
- 3) Minimal to no full joint effusion
- 4) No patellofemoral pain

### **Goals:**

Restore full knee range of motion (5- 0 to 125 degrees) symmetrical motion

Improve lower extremity strength

Enhance proprioception, balance, and neuromuscular control

Improve muscular endurance

Restore limb confidence and function

### **Brace**

No immobilizer or brace, may use knee sleeve to control swelling/support

### **Range of Motion**

Self-ROM (4-5 times daily using the other leg to provide ROM)

emphasis on maintaining zero degrees passive extension

PROM 0-125 degrees at 4 weeks

#### Week 4-5

##### **Exercises:**

##### **\*Continue BFR**

- \*Progress isometric strengthening program
- \*Leg Press (0-90 degrees)
- \*Knee extension 90 to 40 degrees
- \*Hamstring Curls (isotonics)
- \*Hip Abduction and Adduction
- \*Hip Flexion and Extension
- \*Lateral Step Ups
- \*Front Step Downs
- \*Standing Toe Calf Raises
- \*Seated Toe Calf Raises
- \*Proprioception Drills
- \*Bicycle
- \*Eccentric quadriceps program 40-100 (isotonic only)
- \* Proprioception drills, neuromuscular control drills

#### Week 6-7

##### **Exercises:**

- \*Continue all exercises
- \*Wall Squats
- \*Vertical Squats

##### **Proprioception/Neuromuscular Drills**

- Tilt board squats (perturbation)
- Passive/active reposition OKC

#### Week 8-9

##### **Exercises:**

- \*Continue all exercises listed in Weeks 4-6
- \*Leg Press Sets (single leg) 0-100 degrees and 40-100 degrees
- \*Bicycle for endurance
- \*Stair Stepper Machine for endurance
- \*Balance on tilt boards
- \*Progress to balance and ball throws
- \*Wall slides/squats

## Week 10

### Exercises:

- \*Continue all exercises listed in Weeks 6- 10
- \*Plyometric Training Drills
- \*Continue Stretching Drills
- \*Plyometric Leg Press
- \*Perturbation Training
- \*Progress strengthening exercises and neuromuscular training

## IV. ADVANCED ACTIVITY PHASE (Week 10-16)

### Criteria to Enter Phase IV

- 1) AROM 0-125 degrees or greater
- 2) Quad strength 75% of contralateral side, knee extension  
Flexor/extensor ratio 70% to 75%
- 3) No pain or effusion
- 4) Satisfactory clinical exam

### **Goals:**

- Normalize lower extremity strength
- Enhance muscular power and endurance
- Improve neuromuscular control
- Perform selected sport-specific drills

### **Exercises:**

- \*May initiate running program at week 12 → **Physician Decision**
- \*Continue BFR
- \*Continue all strengthening drills
  - Leg press
  - Wall squats
  - Hip Abd/Adduction
  - Hip Flex/Ext
  - Knee Extension 90-40
  - Hamstring curls
  - Standing toe calf
  - Seated toe calf
  - Step down
  - Lateral step ups
  - Lateral lunges
- \*Neuromuscular training
  - Lateral lunges
  - Tilt board drills
  - Sports RAC repositioning on tilt board

## **V. RETURN TO ACTIVITY PHASE (Month 4-6)**

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

- 1) AROM 0-125 degrees or greater
- 2) Quad strength 85% of contralateral side, knee extension  
Flexor/extensor ratio >75%
- 3) No pain or effusion
- 4) Satisfactory clinical exam

### **Goals:**

Gradual return to full-unrestricted sports  
Achieve maximal strength and endurance  
Normalize neuromuscular control  
Progress skill training  
Pass LEAP Test

### **Exercises**

- \*Continue strengthening exercises
- \*Continue neuromuscular control drills
- \*Continue plyometrics drills
- \*Progress running and agility program
- \*Progress sport specific training
  - Running/cutting/agility drills
  - Gradual return to sport drills

### **Criteria to Return to Play**

- 1) **FULL AROM/PROM**
- 2) **Quad strength 90-95% of contralateral side, knee extension  
Flexor/extensor ratio >75%**
- 3) **No pain or effusion**
- 4) **Pass LEAP Testing with >95% Score**
- 5) **Physician Approval**

**After above clearance, the Return to play progression is as follows:**

- 1) **Return to practice, non-contact or individual drills**
- 2) **Return to contact practice**
- 3) **Return to scrimmage**
- 4) **Return to interval play**
- 5) **Return to full play**