

PATELLA FRACTURE REPAIR

# Physical Therapy, Strength and Conditioning

## PHASE I: MAXIMUM PROTECTION (WEEKS 0 TO 6)

### Weeks 0-2

- Brace locked in full extension during ambulation for 6 weeks
- Weight bearing as tolerated with crutches for 2 weeks
- Ice, compression and modalities to reduce pain and inflammation
- Patellofemoral mobilizations
- **No knee range of motion**
- Begin gentle submaximal quadriceps setting
- Recommended loading
  - *Short but frequent bouts of quadriceps activation 3-5x/day*

### Weeks 2-4

- Weight bearing as tolerated with brace locked in extension, wean off of crutches
- Continue with inflammation control
- Continue with patella mobility
- **Range of motion—0° to 45°**
- Exercise progression
  - *Gait training*
  - *Flexion—off table to 45°*
  - *Quadriceps setting*
  - *Multi-plane straight leg raises*
  - *Bilateral calf raises*
  - *Hamstring isometrics*
  - *Ball bridges*

### Weeks 4-6

- Weight bearing as tolerated with brace locked in extension
- **Range of motion—0° to 90°**
- Exercise progression
  - Open and closed multiplane hip strengthening
  - Proprioception drills

## PHASE II: PROGRESSIVE STRETCHING AND EARLY STRENGTHENING (WEEKS 6 TO 12)

### Goals

- Full knee extension/hyperextension
- Knee flexion – progress gradually to full
- Normalize gait mechanics
- Normalize patellofemoral joint and scar mobility

### Exercise Progression

- Extension—heel props and prone hangs as needed
- Flexion—end range heel slides and progressive quadriceps stretching
- Bilateral squat / leg press progression—focus on proper alignment with gradually increasing depth
- Multi-plane open and closed kinetic chain hip strengthening
- Step-up progression—focus on proper alignment and eccentric control

- Controlled movement series
- Hamstring activation with bridge on floor, ball or box
- Hamstring curls on machine or single leg RDL's
- Progress to unilateral heel raise off the floor then off a step
- Proprioception drills

#### **Cardiovascular Exercise**

- Stationary biking
- Treadmill/outdoor walking with focus on proper gait mechanics
- Arc trainer
- Elliptical
- Swimming—light flutter kick

#### **Recommended Loading**

- ROM: 2-3x/day
- Strength: 5x/week on straight leg raises and cord kicks. 3x/week on closed chain progression
- Cardiovascular: 20-30 minutes 5x/week with low to moderate intensity

### **PHASE III: ADVANCED STRENGTHENING AND ENDURANCE TRAINING (3 TO 4 MONTHS)**

#### **Goals**

- Control inflammation with increasing loads
- Full knee flexion and extension with terminal stretch
- Progressive strengthening
- Increase muscular endurance

#### **Movement Prep**

- Foam roller
- Controlled movement series

#### **Exercise Progression**

- Weighted squat progression
- Single leg squat/lunge progression (dips, retro, walk and split), focus on eccentric control and alignment.
- Lateral band walk

#### **Core Program**

- Integrate with LE program

#### **Cardiovascular Exercise**

- Stationary biking
- Treadmill/outdoor walking with focus on proper gait mechanics
- Arc trainer or elliptical

#### **Activity Progression**

- Outdoor biking – week 12
- Shallow water pool running – week 16
- Higher intensity interval work with CV program—week 12-16

#### **Recommended Loading**

- ROM: 1-2x/day
- Strength: 3x/week on closed chain loading
- Cardiovascular: 20-45 minutes 5x/week with moderate intensity and intervals.

## PHASE IV: ADVANCE STRENGTHENING AND RUNNING PROGRESSION (4 TO 6/9 MONTHS)

### Goals

- Control inflammation with increasing loads
- Progressive strengthening
- Increase muscular strength, power and endurance

### Movement Prep

- Foam roller
- Controlled movement series

### Exercise Progression

- Increasing loads from phase III

### Core Program

- Increasing loads from phase III

### Non-impact Cardiovascular Exercise

- Stationary biking
- Arc trainer or elliptical
- Swimming

### Running Progression

- Basic ladder series—16 weeks
- Skipping—16 weeks
- Walk/jog interval—16-20 weeks
- Linear acceleration/deceleration—20-24 weeks
- Sprinting—20 weeks
- Change of direction and lateral agility—20-24 weeks

### Jumping Progression (\*gradual progression)

- Low amplitude bilateral single response jumps—20 weeks
- Bilateral multiple response jumps—20-24 weeks
- Unilateral single response jumps—24 weeks

### Sport Specific Activity Progression

- Interval golf program—20 weeks
- Non-contact and non-reactive field/court progression—20-24 weeks
- Reactive and contact field court progression—6-9 months

### Sports Test and Follow-up with Physician

- Follow-up examination with the physician
- Sports test for return to competition at 6-9 months

### Recommended Loading

- ROM: global stretching
- Strength: 2-3x/week with increasing resistance
- Cardiovascular: 20-45 minutes 5x/week. Alternate impact and non-impact days using sound recovery principles.