

## Trochlear Osteochondral Defect Repair Protocol

### Preoperative

#### Goals:

1. *Maximize ROM and progress functional strength*
2. *Independent post operative HEP*
3. *Independent in crutch use Non-weight bearing (NWB) including all of patient's known ambulation barriers (stairs, varied surfaces)*

#### Treatment:

- ROM, joint mobilization
- Aquatics exercise program, Therapeutic exercise program
- Education on HEP to be initiated post operatively
- Crutch training NWB. Include training for any ambulatory barriers
- Any modalities needed for symptomatic control

### Phase 1

#### Postoperative Week 0-6

#### Goal:

1. *Full passive knee extension to 120°*
2. *Full passive knee flexion to 115-120°*
3. *Minimal pain and swelling*
4. *Voluntary quadriceps control*
5. *Ambulating partial weight bearing at 75% by week 3-4.*
6. *Normalized gait pattern in the pool*

#### Treatment:

- In brace locked at 0° during weight bearing
  - i. Sleep in locked brace for 4 weeks
- Weight bearing
  - i. Partial Weight Bearing (25% of body weight) immediately
  - ii. 50% by week 2 in brace
  - iii. 75% by week 3-4 in brace
- CPM to start day 1
  - i. Day 1 8-12 hours in CPM 0-40° for big lesions (>6cm), 0-60° for smaller lesions
  - ii. Increase 5-10° daily as tolerated.
  - iii. After 3 weeks, decrease CPM use to 6-8 hours daily through week 6
- Patellar mobilization 4-6 times daily
- Full passive knee extension immediately
- Passive knee flexion 2-3 times daily
  - i. 0-90 by end of post op week 2-3
  - ii. 0-105 at post op week 3-4, 120° by week 6

- iii. 0-120 by post-op week 6
- Calf and hamstring stretching
- Ankle pumps with thera-tubing
- Quad setting, Glut setting, Hamstring setting
- Toe-calf raises by week 2 (partial weight)
- SLR 4 directions (no resistance)
- Stationary bike when ROM permits (no resistance)
- Initiate weight shifts by week 2-3
- At week 4
  - i. Multi angle leg press isometric
  - ii. Pool program (gait and exercise)
- Modalities for pain and swelling control
- Biofeedback and muscle stim as needed
- gradual return to activities
- NO PROLONGED STANDING
- Strong caution with stair climbing

## **Phase 2**

### **Postoperative Week 6-12**

#### ***Goal:***

- 1. Full ROM***
- 2. Able to walk 1-2 miles or bike 30 minutes***
- 3. Increased strength***
  - a. Hamstrings within 20% of uninvolved side***
  - b. Quadriceps within 30% of uninvolved side***
- 4. Balance testing within 30% of uninvolved side***

#### **Treatment:**

- Brace discontinued by week 6
  - i. Consider unloading brace
- Weight Bearing
  - i. Progress to Weight Bearing As Tolerated
  - ii. Full Weight Bearing by week 6-8
  - iii. Discontinue crutches Week 6-8
- Gradual increase in ROM
- Maintain full Passive knee extension
- Progress knee flexion to 120-135° by week 8
- Continue patellar mobilizations and soft tissue mobilizations
- Continue LE stretching program
- Initiate mini squats 0-45° by week 8
- Closed kinetic chain exercises (leg press 0-60°) by week 8
- Toe-calf raises by week 6 (full weight)
- Open kinetic chain knee extensions
  - i. No resistance
  - ii. Start 0-30 then progress to deeper angles
- Exercise bike (gradually increase time)
- Elliptical week 9-10
- Treadmill walking week 10-12
- Stairmaster at week 12
- Balance a proprioception drills. Progress static to dynamic

- Initiate front and lateral step ups by week 8-10
- Initiate front and lateral step ups and wall squats by week 8-10
- Modalities for pain and swelling control
- Biofeedback and muscle stim as needed
- Continue pool
- Continue slow steady progressions into functional activities
- Increase standing and walking tolerances

### **Phase 3**

#### **Postoperative Weeks 12-32**

##### *Goals:*

1. *Full ROM without pain*
2. *Strength within 80-90% of uninvolved side*
3. *Balance/stability within 75-80% of uninvolved side*
4. *Functional activities without increase in any symptoms.*

##### Treatment:

- Full ROM
- Leg Press 0-60° progressing to 0-90°
- Bilateral squats 0-60°
- Unilateral step-ups progressing from 2" to 8"
- Forward lunges
- Walking program
- Open kinetic chain knee extension
  - i. From 90° to 40° progressing 1# every 2 weeks beginning week 20 if no pain or crepitation.
- Bicycle, stairmaster, elliptical, treadmill
- Swimming
- Return to all functional activities
- Light running toward end of this phase with MD approval
- Initiate Home Maintenance Program (week 16-20)
  - i. Bicycle
  - ii. Progressive walking program
  - iii. Pool program
  - iv. SLR 4 directions
  - v. Wall squats
  - vi. Front lunges
  - vii. Step ups
  - viii. LE stretching program

### **Phase 4**

#### **Postoperative Week 32-52**

##### *Goals:*

1. *Return to full unrestricted functional activity*

##### Treatment:

- maintenance program 3-4 times a week
- Progress resistance to all strengthening exercises
- Progress to agility and dynamic balance drill
- Plyometric activity based on patient need
- Sports specific training

- Return to sports:
  - i. Low impact sports routinely around month 6 post op
  - ii. Medium impact sports months 8-9 for small lesions and 9-12 for larger lesions.
  - iii. High impact sports months 12-18