



## PHYSICAL THERAPY PROTOCOLS

### MICROFRACTURE PROTOCOL (Femoral Condyle)

#### I. IMMEDIATE-OPERATIVE PHASE POST (0-4 WEEKS)

**Goals:**

- Reduce swelling and inflammation*
- Protection of healing articular cartilage*
- Restoration of full passive knee extension*
- Gradual restoration of knee flexion*
- Re-establish voluntary quadriceps control*

##### A. WEEKS 0-2

**Weight Bearing:** Toe-touch WB (~20 pounds) Weeks 0-2  
Use of crutches to control weight bearing forces

**Swelling/  
Inflammation Control:** Cryotherapy (Polar Care or ice pack)  
Compression bandage (Ace Wrap)  
Elevation & ankle pumps

**Range of Motion:** Immediate motion  
Full passive knee extension  
Active assisted knee flexion (3-5 times daily)  
Week One: 0-90 degrees or beyond to tolerance  
Week Two: 0-115 degrees or beyond to tolerance

**Muscle Retraining:** Quadriceps isometrics  
Straight leg raises (4 directions)  
Multi-angle quadriceps  
Electrical muscle stimulation to quads  
Bicycle for ROM stimulus only  
Proprioception and balance training (weight shifts)

##### B. WEEKS 3-4

**Weight Bearing:** 50% WB – Week 3  
75% WB – Week 4

**Range of Motion:** Gradually progress knee flexion  
Week 3 = 0-125 degrees  
Week 4 = 0-135 degrees  
Maintain full passive knee extension  
Continue stretches for quadriceps, hamstrings, gastroc  
Perform active ROM (4-5 times daily)

Strengthening Exercises:	Bicycle (light resistance) Quad sets Straight leg raises ( 4 way) Light hamstring curls Mini-squats (Weeks 3-4) Front and side lunges Leg press (light – Weeks 3-4) Pool program (once incisions are healed) Proprioception and balance training
Inflammation Control:	Continue use of ice, elevation, and compression

## II. INTERMEDIATE PHASE (4-8 WEEKS)

**Goals:** *Protect and promote articular cartilage healing*  
*Gradually increase joint stresses and loading*  
*Improve lower extremity strength and endurance*  
*Gradually increase functional activities*

Weight Bearing:	Full WB Weeks 4-6 as tolerated (physician discretion)
Strengthening Exercises:	Initiate functional rehab exercises Closed kinetic chain exercises (step-ups, lunges) Vertical squats, wall squats, leg press Bicycle Initiate progressive resistance exercise (PRE's) Hip abd/adduction, extension/flexion Hamstring strengthening (light) Pool program (running Weeks 4-6) Initiate walking program (Weeks 6-8) Proprioception and balance training
Functional Activities:	Gradually increase walking program

## III. LIGHT ACTIVITY PHASE (8-12 WEEKS)

**Goals:** *Improve muscular strength/endurance*  
*Increase functional activities*  
*Gradually increase loads applied to joint*

*Criteria to Progress to Phase III:*

1. Full non-painful ROM
2. Strength within 20% contralateral limb
3. Able to walk 1.5 miles or bike for 20-25 minutes w/o symptoms

Exercises:	Continue progressive resistance exercises Continue functional rehabilitation exercises Balance and proprioception drills Bicycle and stair climber Neuromuscular control drills Initiate light running program (Weeks 8-10)  <i>**physician will determine**</i>
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Functional Activities: Gradually increase walking distance/endurance  
Light running Weeks 8-10

#### **IV. RETURN TO ACTIVITY PHASE (12-20 WEEKS)**

<b>Goals:</b>	<b><i>Gradual return to full unrestricted functional activities</i></b>
Exercises:	Continue functional rehab exercises Continue flexibility exercises
Functional Activities:	Per physician direction Low impact sports (cycling, golf, Weeks 6-8) Moderate impact sports (jogging, tennis, aerobics, Weeks 8-12) High impact sports (basketball, soccer, v-ball, Weeks 12-16)