

MICROFRACTURE POST-OP PROTOCOL

Dr Elrashidy – Tri-Valley Orthopedics

PHASE 1: Maximum Protection (0 to 1 Week)

- Ice and soft-tissue modalities to reduce pain and inflammation
- Brace 0°- 30° for 6 weeks
- Crutches as needed (10-14 days), wean off as gait normalizes + swelling improves
- Elevate the knee to the level of the heart for 3-5 days
- Begin ROM and quad sets focusing on VMO activation
- Gait training

PHASE 2: Progressive Stretching and Early Strengthening (Weeks 1-6)

BRACE

- Patella/trochlear lesions: Brace locked at 0°-30° with WB, unlocked when NWB
- No brace for femoral condyle or tibia lesions

WEIGHT-BEARING

- Patella/trochlear lesions: WBAT in brace (locked from 0°-30° x 6 weeks)
- Femoral condyle or tibia lesions: NWB x 6 weeks

EXERCISES – Global lower extremity stretching and core strengthening

- Continuous Passive Motion (CPM) Machine: 6-8 hours/day
 - Aim for 2 hour sessions at slow, comfortable speed
 - Start at 50° of flexion and increase 10° per day up to 90°
- If CPM isn't used, passive flexion/extension of knee 500 cycles, 3 times/day
- Passive knee ROM exercises (see attached figures) including:

Extension:

Passive Extension: Sit in a chair and place heel on the edge of a stool or chair. Relax thigh muscles and let knee sag under its own weight until max extension is achieved

Heel Props: Place rolled up towel under heel and allow leg to relax

Prone Hangs: Lie face down on a table/bed with the legs hanging off the edge of the table, allow the legs to sag into full extension

Flexion:

Passive Flexion: Sit on chair or edge of bed and let knee bend under gravity. You may use the other leg to support and control flexion

Wall Slides: Lie on your back with the involved foot on the wall. Allow foot to slide down the wall by bending the knee; use the other leg to apply pressure downward

Heel Slides: Use good leg to pull involved heel towards the buttocks, flexing the knee. Hold for 5 seconds, straighten the leg by sliding heel downward, hold for 5 seconds

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OTHER EXERCISES

- Quad sets in full extension
- Straight leg raises (with brace locked in extension for patella/trochlea lesion)
- Hamstring isometric sets in full extension
- Patella mobilization
- Core, hip abductor and adductor strengthening
- Ankle ROM and gastroc-soleus strengthening with therabands

PHASE 3: Strengthening and Proprioception (Weeks 7-12)

BRACE

- Patella/trochlear lesions: Brace unlocked to full ROM, then wean off as tolerate.
- Unlock 15° every 3 days (i.e 0°-45°, then 0°-60°, then 0°-90°). Then out of brace
- Ok to continue brace as needed during strenuous exercise

WEIGHT-BEARING

- Gradual increase to WBAT

EXERCISES

- Full active knee range of motion
- Stationary bicycle – Begin with no resistance, with goal of 45 minutes for endurance training. May then gradually increase resistance
- Treadmill walking or elliptical trainer: Slow speed, no incline. Begin with 5-10 minute duration and advance 5 minutes each week
- Standing hamstring curls and toe raises
- **Closed-chain exercises** for hamstring. For quadriceps, may begin squats to chair and wall slides (back against wall) at week 8 with knee flexion limited from 0°-45°. If patella/trochlea, avoid until week 12
- Advance core strengthening

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PHASE 4: Advanced Strengthening (Weeks 13-17)

EXERCISES

- Continue previous exercises with progressive resistance
- Begin running program: Start on treadmill or soft track. Start with 1 minute running, 4 minute walking intervals. Increase running by 1 minute/week (with decrease in walking interval). Goal = 20 minutes continuous running after 5 weeks
- Seated leg press (avoid if patella/trochlea repair)
- For patella/trochlea surgery, ok to begin squats to chair and wall slides (back against wall) with knee flexion 0°-30°.

PHASE 5: Week 17+

EXERCISES

- Continue to increase lower extremity strength and endurance
- Pool running with progression to dry land
- Advance running program: Linear running drills with progression to lateral and rotational as tolerated
- Begin agility and plyometric training

Week 25: RETURN TO SPORT (AFTER CLEARANCE BY ORTHO)

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