



Microfracture Rehabilitation Protocol

(Tibiofemoral Lesions)

Phase 1 (0-6 weeks post-op).

Rehabilitation Goals

- Full knee ROM
- Regain adequate quadriceps control

PRECAUTIONS

- **NO** running until 4 months post-op

Crutches

Touch weight-bearing (Foot flat: 0 - 10% body weight)

Brace

None required; if patient struggling with ROM CPM may be required

Wound

- Post-op dressing remains intact until post-op day #3 (~72 hours after surgery)
- May begin showering after post-op day #3 (no need to cover incision site)
- **Do NOT** submerge knee in tub or pool for 4 weeks
- Bilateral compression stockings for 3-7 days: unilateral use thereafter as needed
- Suture/staple removal @ 7-10 days per Ortho/PT

Rehabilitation

- Frequent use of cryocuff and/or ice with lower extremity elevated
- Begin patellar mobilizations (10 reps each direction TID) after suture/staple removal
- Begin scar massage after incision site sloughs/scar is formed. ROM as tolerated with goal of 500 reps each day to stimulate joint fluid

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Phase 1 (0-6 weeks post-op)

Weeks 1-2

- Calf pumping with tubing
- Static quad sets (with e-stim until patient able to do 10 SLRs without extension lag)
- Heel slides - assisted as needed
- Supine passive extension to 0° extension
- Gentle hamstring stretching
- SLRs: All directions - may add light weight when pain free

Weeks 3-4

- Short arc quads - may add light weight when pain free
- Stationary bike for ROM - progress to biking for conditioning
- General LE stretching (calf, HS, quads, HF, hip adductors)
- UBE and/or well leg cycle

Weeks 5-6

- Beginning level pool exercises - chest deep water gait training, deep water jogging
- Seated bilateral calf raises
- Seated ankle disk training

Follow-up

- Physical Therapy: Weekly
- Ortho: ~6 weeks post-op
- Supervised rehabilitation: 2-3 x per week as needed

Documentation

- Precautions
- Pain level, medications, modalities
- Observation: (incision sites) - Signs/symptoms of infection? Site healing well? Effusion?
- Neurovascular status: Distal pulses, motor and sensation intact? Presence of calf pain?
- Knee ROM & quadriceps function



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Microfracture Rehabilitation Protocol

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Phase 2 (7-12 weeks post-op)

Rehabilitation Goals

- Normal gait and stair ambulation
- $\geq 80\%$ quadriceps and hamstring strength return

PRECAUTIONS

- **NO** running until 4 months post-op

Crutches

Weight-bearing as tolerated - (suggest a gradual increase as follows):

- Week 7: partial weight-bearing @ 25-50% body weight
- Week 8: partial weight-bearing @ 50-75% body weight
- Week 9+: weight-bearing as tolerated @ 75-100% body; can be more quickly if pt tolerates

Brace

None

Rehabilitation

- Progress to the following exercises and increase intensity gradually when patient is ready (i.e., no increase in knee pain or effusion since the previous exercise session)
- Note: all strengthening should be done with the brace on, using low weights, high repetitions, and in a painless ROM



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Phase 2 (7-12 weeks post-op)

Weeks 7-8

- Active assisted weight shifts
- Stationary bike for conditioning
- General LE stretching (calf, HS - add quads, HF, hip adductors)
- Gait training (cone walking, marching, retrowalking, cariocas, shuffles, etc.)
- Double leg mini-squats (0-45°) - add unilateral minisquats @~week 9
- Bilateral calf raises - add unilateral calf raises @~week 9

Weeks 9-10

- Step-ups
- Progressive strengthening (calf press, leg press, squats (0-45°), HS curls, hip abd/add) (first set: 30 repetitions, then 1 additional sets at the same weight to muscle failure)
- Progressive pool program as tolerated
- Progressive standing balance exercises (body blade, plyo-ball, platform training, etc.) (progress in duration, intensity, double leg to single leg, etc.)

Weeks 11-12

- May gradually add elliptical and stairmaster for conditioning
- Progressive strengthening (calf press, leg press, squats (0-45°), HS curls, hip abd/add) (first set: 20 repetitions, then 2 additional sets at the same weight to muscle failure)

Follow-up

- PT: Bimonthly
- Ortho: ~12 weeks post-op
- Supervised rehabilitation: 2-3 x per week as needed

Documentation

- Precautions, pain level, medications, modalities
- Effusion
- Knee ROM & quadriceps function
- Gait



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Phase 3 (4-6 months post-op)

Rehabilitation Goals

- Jog at own pace and distance without pain
- > 90% quadriceps and HS strength return
- > 90% hop for distance

PRECAUTIONS

- **NO** running until 4 months post-op
- **NO** participation in contact/collision sports ~9 months post-op

Brace

None

Rehabilitation

- Continue phase II exercises as needed
- Progress in duration and intensity of exercise only if there is no increase in knee pain or effusion since the previous exercise session.

Weeks 13-16

- Aerobic conditioning (biking, elliptical, stairmaster)
- General LE stretching: 5-10 minutes (calf, HS, quads, HF, hip adductors)
- Progressive strengthening (calf press, leg press, squats (0-60°), HS curls, hip abd/add) (first set: 10 repetitions, then 2 additional sets at the same weight to muscle failure)
- Progressive balance training as needed

Weeks 16-26

- Progressive jogging program (Begin jogging for 5-10 minutes TIW - increase time and/or distance no more than 10-20% per week)
- Progressive functional training: Begin at 25-50% intensity and progress gradually (jumping, hopping, directional jogging, cariocas, shuffles, etc.)

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Phase 3 (4-6 months post-op)

Follow-up

- PT: Monthly
- Ortho: ~6 months post-op
- Supervised rehabilitation: 1-2 x per week as needed

Documentation

- Pain level & medications
- Effusion
- Knee ROM & quadriceps function
- Hop for distance at 6 months post-op

Miscellaneous

- After 6 months post-op: Exercises in phase III are continued, gradually increasing intensity & duration as tolerated.
- The recommendation is to wait until 9-12 months post-op to return to contact/collision sports. This time period may be adjusted slightly by the surgeon and therapist according to patient progress.



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