ORTHOPAEDIC MEDICAL GROUP OF TAMPA BAY

Christopher T. Donaldson, MD
813.684.BONE (2663)

www.omgtb.com

Post-op PATIENT Instructions: KNEE MICROFRACTURE

Dressing: A dressing has been applied to your knee to absorb any fluid/blood. A small amount of blood on the dressing is expected. Leaving the steri-strips on the skin, replace the covering gauze dressing daily with new dry, sterile gauze (obtained from your pharmacy). Unless directed by your surgeon, **no salves, balms, or ointments (even antibiotic ointments) to the incisions.** Soreness and bruising is expected for several days afterward.

Showering (No bathtub): is permitted 72 hours after surgery with the incisions covered. After showering, gently dry the incision and apply a new dry dressing. ***Do NOT soak/submerge the incisions. No swimming/hot-tubs until cleared by your surgeon.***

Ice: Ice is a powerful anti-inflammatory. Icepacks/wraps will help to reduce swelling and pain. Use liberally (20-30 min./session), but remember to protect the skin from direct contact (and frostbite).

Activity: Crutches may be needed for the first several days after surgery. Unless specified otherwise you may **NOT bear weight** on your leg immediately. Foot and ankle motion (foot pumps) are encouraged and will help to reduce your chance of a blood clot. Additionally, tightening the thigh muscle and straight leg raises will assist your thigh muscle in returning its function faster. Bending the knee as soon as you are comfortable (unless otherwise restricted) is also encouraged. However, **no driving until permission is given by your surgeon.**

Pain: A nerve block has been performed for immediate post-op pain control by the anesthesiologist. It typically "wears off" at about 8-12 hrs. following surgery. A long-acting narcotic (every 12 hrs) used in combination with a shorter-acting narcotic (taken every 3-4hrs as needed for breakthrough pain) is given for your pain control. **Begin taking these pain medications when you BEGIN experiencing pain!** These meds can take 30-45 minutes to start "working". You do not want to play "catch-up" by letting your pain get out of control. Nausea, drowsiness, and constipation are common side effects of narcotics. Adequate fluid intake and a stool softener obtained over the counter from your local pharmacy is recommended to minimize constipation. Call the office if you are unable to tolerate your medication.

Precautions: If you develop temperatures above 101.5°F (38.5°C), uncontrolled pain, marked redness, persistent/discolored drainage, or significant swelling. Call the office ***813)-684-2663**

Follow-up: If you do not already have an appointment scheduled, call the office as soon as possible to schedule your first post-op visit.

Special Instructions: _____ (Additionally, follow any indicated instructions below.)

☒ **Physical therapy:** ☒per attached prescription; to be scheduled as soon as able

☒ **Weightbearing (operative leg):** ☒ non-weightbearing; advance as PT protocol directs

☒ **Brace:**

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☒ **Continuous Passive Motion (CPM) Machine:** Begin 0-60 deg. For 8hrs/day; advance 5-10 deg/day

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PT/OT PRESCRIPTION: **KNEE MICROFRACTURE**

(Revised 11.3.15)

***MD Orders for the Therapist*:**

- Physical Therapy Prescription: 2-3 times per week x 6 weeks
- Follow this protocol *without substitution*. Contact my office with any questions.

_____
Christopher T. Donaldson, MD

LESION LOCATION & SIZE:_____

REHABILITATION PRECAUTIONS:

- Weight Bearing: WB status varies based on lesion location and size.
- *Very important to know lesion* ***location*** *and* ***size!!***
    - Small lesion <2cm^2
    - Large lesion >2cm^2
- All progression based on soft tissue healing
- Brace
    - **Femoral condyle (FC):** No brace, may use elastic wrap to control swelling
    - **Patellofemoral (PF):** Brace locked in 0 degrees extension; may progress opening of brace 6-8 weeks.

Weight-bearing (WB):

- WB status varies based on lesion location and size
    - For **(FC)** lesions:
        - Large **FC** lesions (>2.0 cm^2):
            - Wk 1 -6: NWB
            - Wk 6-8: Wean off crutches to FWB
        - For small **FC** lesions (<2.0 cm^2):
            - Wk 1-4: NWB
            - Wk 4-6: Wean off crutches to FWB
    - For **(PF)** lesions:
        - Immediate TTWB of approximately 25% body weight with brace locked in full extension;
        - Wk 2: progress to 50% WB - brace locked in full extension
        - Wk 3: progress to 75% WB - brace locked in full extension,
        - Wk 4: progress to full WB - brace locked in full extension
        - Wk 6-8: progress opening of brace to D/C of brace

Range of motion (ROM):

- Immediate motion exercise day 1
- Full passive knee extension immediately
- CPM 6 wks for large **FC** & **PF** lesions; 3 wks for small **FC** lesions
    - Initiate CPM day 1 for total of 8-12 h/d (0°-60°; if PF >6.0 cm, 0°-40°)
    - Progress CPM ROM as tolerated 5°-10° per day
    - CPM for total of 6-8 hours per day for up to 6 weeks

- Patellar mobilization (4-6 times per day)
- Motion exercises throughout the day
- Passive knee flexion ROM at least 2-3 times daily
- Progress passive knee ROM as tolerated, NO FORCED FLEXION BEYOND 90°

- ROM goals: (**PF lesions may be limited due to location and size)**
  - Wk 1: 0°-90°
  - Wk 2: 0°-105°
  - Wk 3: 0°-115°
  - Wk 4: 0°-125°
  - Wk 8 : Full (equal) ROM
- Stretch hamstrings and calf

PHASE I (WEEKS: 0-6): Proliferation phase

Goals
- Protect healing tissue from load and shear forces
- Decrease pain and effusion
- Restoration of full passive knee extension
- Gradually restore knee flexion
- Regain quadriceps control

Brace
- See above guidelines

Weight Bearing
- See above guidelines

ROM
- See above guidelines

Strengthening program
- Ankle pumps
- Quadriceps setting
- Multi-angle isometrics
- Active knee extension 90°-40° for **FC** lesions (no resistance)
- No active NWB knee extension exercises for **PF** lesions
- Straight leg raises (4 directions)
- Initiate weight shifting exercises with knee in extension week 1-2 for **PF** lesions, 4 weeks for small **FC** lesions, week 6-8 for larger **FC** lesions
- Partial weight bearing leg press 0°-60° week 4-6 for small **FC** lesions and **PF** lesions, progress to 0°-90° week 6-8
- Toe calf raises week 4-6 for small **FC** and **PF** lesions
- May begin use of pool for gait training and exercises week 3-4 (when incisions fully healed)
- May begin stationary bike week 4, low resistance with appropriate seat height

Functional activities
- Gradual return to daily activities
- If symptoms occur, reduce activities to reduce pain and inflammation

- Swelling control: Ice, elevation, compression, and modalities as needed

Criteria to progress to phase 2

- Full passive knee extension
- Knee flexion to 125°
- Minimal pain and swelling
- Voluntary quadriceps activity

PHASE II: (WEEKS: 6-12): Transition phase

Goals

- Gradually improve quadriceps strength/endurance
- Gradual increase in functional activities

WB

- Refer to above WB guidelines

ROM

- Gradual increase in ROM
- Maintain full passive knee extension
- Progress to full knee flexion by week 8 (refer to above ROM guidelines)
- Continue patellar mobilization and soft tissue mobilization as needed
- Continue stretching program

Strengthening exercises

- Progress WB exercises
- Initiate partial weight bearing leg press for large **FC** lesions week 8
- Mini-squats 0°-45° week 8-10
- Toe-calf raises week 6-8 for **FC** lesions
- Progress balance and proprioception drills
- Initiate front lunges, wall squats, front and lateral step-ups week 6-8 for small **FC** and **PF** lesions, week 8-10 for large **FC** lesions
- For **FC** lesions, progress non-WB knee extension, 1lb/wk
- Continue stationary bicycle, low resistance (gradually increase time)
- Continue use of pool for gait training and exercise

Functional activities

- As pain and swelling diminish, the patient may gradually increase functional activities
- Gradually increase standing and walking

Criteria to progress to phase 3

- Full ROM
- SLR with no extensor lag
- 10 repeated single leg step downs with good form and no reactive effusion or exacerbation of symptoms
- 10 repeated single leg knee bends with good form and no reactive effusion or exacerbation of symptoms.
- Star Excursion Balance Test 20-30% of contralateral extremity with good form and no reactive effusion or exacerbation of symptoms (see references)

- Timed balance testing within 30% of contralateral extremity Able to bike for 30 min without exacerbation of symptoms or reactive effusion.

PHASE III: (WEEKS: 12-16): Remodeling phase

Goals
- Improve muscular strength and endurance
- Increase functional activities

ROM
- Patient should exhibit full flexion

Exercise program
- Leg press (0°-90°)
- Bilateral squats (0°-60°)
- Unilateral step-ups progressing from 5 to 20 cm
- Forward lunges
- Walking program week 10-12
- NWB extension
    - **FC** lesions: Progress NWB extension (0°-90°)
    - **PF** lesions: Begin NWB extension (90°-40°) or avoid lesion articulation
- Continue progressing balance and proprioception
- Bicycle
- Stairmaster
- Swimming
- Nordic-Trak/elliptical

Functional activities
- Increase walking (distance, cadence, incline, etc)

Conditioning program
- Initiate at weeks 12-16
- Bicycle: low resistance, increase time
- Progressive walking program
- Pool exercises for entire lower extremity
- Leg press
- Wall squats
- Hip strengthening (abduction/adduction)
- Front lunges
- Step-ups
- Stretch quadriceps, hamstrings, calf

Criteria to progress to phase 4
- Full non-painful ROM
- 20 repeated single leg step downs with good form and no reactive effusion or exacerbation of symptoms
- 20 repeated single leg knee bends with good form and no reactive effusion or exacerbation of symptoms.
- Star Excursion Balance Test 85-90% of contralateral extremity

- Timed balance and/or stability within 85%-90% of contralateral extremity
- No reactive pain, inflammation, or swelling with activities.

PHASE IV: (WEEKS 16-26): Maturation phase

Goals

- Gradual return to full unrestricted functional activities
- Single leg hop test within 75%-80% of contralateral extremity in order to progress to jogging activities.
- 10 single leg hops with good form.
- All activities should be with good form and have no reactive pain, inflammation, or effusion with exercises

Exercise Program

- Impact loading program should be individualized to the patient's needs
- Continue conditioning program progression 3-4 times per wk
- Progress resistance as tolerated
- NWB extension
    - **PF** lesions: Add 1lb every 2wks beginning week 20 if no pain or crepitation, perform from 90°-40° or avoid angle where lesion articulates. Must monitor symptoms!
- Emphasis on entire lower extremity strength and flexibility
- 16-18 wks initiate PWB/Aquatic plyometric and hopping activities
- 18-20 wks progress double and single leg hopping (eg. hop downs, double and single leg hops, quick hops front/back/side, etc) as long as there is no reactive pain, inflammation, or effusion – see impact guidelines below for progression of activities.
- Progress agility and balance drills

Functional activities

- Patient may return to various sport activities as progression in rehabilitation and cartilage healing allows. (Communicate with surgeon.)
- Low-impact sports, such as swimming, skating, rollerblading, and cycling, are permitted at
    - 2 mo. - small **FC** and **PF** lesions
    - 3 mo. - large **FC** lesions.
- Higher-impact sports such as jogging, running, and aerobics may be performed at
    - 4-5 mo. - small lesions
    - 6 mo. - large lesions.
- High-impact sports, such as tennis, basketball, football and baseball, are allowed at
    - 6-8 mo. - small lesions
    - 9-12 mo. - large lesions

Goals to Return to Sport

- Physician clearance
- Symmetry with functional testing (3 single-leg cross-over, etc)
- No reactive pain, inflammation, effusion, or instability with sport-specific activity