Central Indiana Orthopedics
INVESTED IN KEEPING YOU ACTIVE

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Femoral Condyle Microfracture Rehabilitation Protocol

The intent of this protocol is to provide the clinician with a guideline of the post-operative rehabilitation course of a patient that has undergone a microfracture surgery to the femoral condyle. It is by no means intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient please consult with Dr Camilleri.

Please reference the exercise progression sheet for timelines and use the following precautions during your treatments. Thank you for progressing all patients appropriately and please fax all progress notes to Dr. Camilleri's office or hand deliver with the patient. Successful treatment requires a team approach and we value your care for the patient as well as your input. Please contact Dr. Camilleri at any time with your input on how to improve the therapy protocol.

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Phase I
(Post-operative Day 1/2 – 6 Weeks)

.Goals:

1. **Full passive knee extension to 0°**
2. **Full passive knee flexion to 120°**
3. **Minimal pain and swelling**
4. **Voluntary quadriceps control**
5. **Ambulating partial weight bearing (PWB) by week 4-5.**
6. **Normalized gait pattern in the pool .**

Treatment:

- Weight Bearing
    i. Non Weight bearing for 1-2 weeks
    ii. Toe-Touch Weight Bearing (20-30lbs) week 2-3
    iii. Partial Weight Bearing (25% of body weight) at week 4-5
- CPM
    i. Day 1: 8-12 hours in CPM 0-40° to start 6-8 hours post op
    ii. Increase 5-10° daily as tolerated.
    iii. After 3 weeks, decrease CPM use to 6-8 hours daily
- Patellar mobilization daily
- Immediate quad recruitment (E-stim/TENS unit)
    i. Consider home TENS unit
- Full passive knee extension **immediately**
- Passive knee flexion 2-3 times daily
    i. 0-90 by end of post op week 2
    ii. 0-105 at post op week 3-4
    iii. 0-120 by post-op week 6
- Calf and hamstring stretching
- Ankle pumps with thera-tubing
- **Quad setting, Glut setting, Hamstring setting**
- Multi-angle isometrics (quads and hamstrings)
- Active Knee extension 90° to 40° (no resistance)
- SLR 4 directions (no resistance)
- Stationary bike when ROM permits (no resistance)
- At week 4
    i. Multi angle leg press isometric
    ii. Pool program
- Modalities for pain and swelling control
- Biofeedback and muscle-stim as needed
- gradual return to activities
- NO PROLONGED STANDING

If patient has access to Anti-gravity/Alter-G treadmill:

* Ambulation on the AlterG Anti-Gravity Treadmill may begin as soon as the patient can begin 25% weight bearing.
* Gait training may be performed daily and begins at 2.0 MPH with no incline. Gait training begins at 5 minutes per day and may progress to up to 20 minutes during this phase
* As the patient progresses to 50% WB, they may begin to increase the speed of the treadmill to a comfortable level of ~3.0-3.5 MPH with no incline.
* As the patient progresses to 75% WB, they may begin to increase the speed of the treadmill to a comfortable level of ~3.5-4.0 MPH with no incline.
* Monitor pain levels and gait mechanics during AlterG Anti-Gravity Treadmill training; body weight support may be increased on the AlterG Anti-Gravity Treadmill to reduce pain and correct gait kinematics during training

Phase II
(Week 6-12)

Goals:

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:

- Weight Bearing
    i. Progress to Weight Bearing As Tolerated
    ii. Full Weight Bearing by week 8-9
    iii. Discontinue crutches Week 8-9
- Gradual increase in ROM
- Maintain full Passive knee extension
- Progress knee flexion to 120-135° by week 8
- Continue patellar mobilizations
- Continue LE stretching program
- Initiate weight shifts at week 6
- Initiate mini squats 0-45° by week 8
- Closed kinetic chain exercises (leg press)
- Toe-calf raises by week 8
- Open kinetic chain knee extensions (progress 1# per week)

- Progress resistance and time on exercise bike
- Treadmill walking week 10-12
- Balance a proprioception drills. Progress static to dynamic
- 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 III
(Weeks 12-26)

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 0-90°
- Bilateral squats 0-60°
- Unilateral step-ups progressing from 2" to 8"
- Forward lunges
- Walking program
- Open kinetic chain knee extension 0-90°
- Bicycle, stairmaster, elliptical, treadmill
- Swimming
- Return to all functional activities
- 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

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Phase IV
(6 Months - 1 Year)

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