

Jeffrey Dean, MD  
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**MICROFRACTURE TREATMENT  
OF ARTICULAR CARTILAGE DEFECTS  
(Rehabilitative Guidelines)**

*Revised January 2003*

**Post-op Days 1 – 14**

**No Resisted** Dressing – POD 1: Debulk dressing, TED Hose in place  
**Open Chain** – POD 2: Change dressing, keep wound covered, continue TED Hose  
**Ex x 8 Wks** – POD 7-10: Sutures out, D/C TED Hose when effusion resolved

Ankle – NWB x 6 wks

Tibiofemoral – TTWB x 6wks, No Brace

**No Resisted** Patellofemoral – WBAT, D/C when gait is WNL  
**Closed Chain** – Brace 0-20 x 6 weeks

**Ex x 6 Wks** CPM – Speed and ROM to patient tolerance, begin with 0-45 (8hrs daily)

AROM as tolerated

Stationary bicycle for ROM, seat adjusted high, no resistance

Passive extension with heel on bolster or prone hangs

Patellar mobilization (teach patient)

Calf pumping

Short arc quads, 0-20 only, without resistance

Standing HS curls in parallel bars

SLR x 4 with knee in brace

Electrical stimulation in full extension with quad sets and SLR

**Goals**

CPM or bicycle: 500 cycles or more per day the first week

1000 cycles or more per day thereafter

Full extension

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**Weeks 2 – 4**

Continue appropriate previous exercises  
D/C CPM once patient is independent with stationary bicycle  
AROM, AAROM as tolerated  
Co-contractions quads/hams at 0, 30, 60, 90 degrees  
SLR x 4 – add light weight below the knee if quad control is maintained  
Pool therapy – deep water (chest/shoulder) walking and ROM exercises  
– water jogging floating upright in deep water  
Stretches – HS, AT, Hip flexors, ITB  
*Continued on next page*

**Patellofemoral** (brace locked at 0-20)

- BAPS, ball toss, body blade, heel raises
- Forward, backward, lateral walking in parallel bars

**Goals** – No extensor lag, Full ROM, No effusion

**Weeks 4 – 6**

Continue appropriate previous exercises  
AROM, AAROM as needed  
**Tibiofemoral** – Standing SLR x 4 with Theraband (standing on uninvolved LE)  
**Patellofemoral** – Standing SLR x 4 with Theraband bilaterally  
Stationary bike – continue for ROM  
**Goals** – No calf atrophy

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**Weeks 6 – 8**

Tibiofemoral – WBAT, D/C crutches when gait is WNL

Patellofemoral – D/C brace

Continue appropriate previous exercises

Leg press with light weight

Total gym – mini squats

Hamstring curls – closed chain (carpet drags or rolling stool)

Treadmill – Backwards and forward walking

**Goals** – Normal gait

**Weeks 8 – 12**

Continue appropriate previous exercises

HS curls – open chain

Quad extensions with light weight

Proprioceptive training – BAPS, ball toss, body blade, fitter, slide board

Forward, lateral and retro step downs

Continue stationary bike, add low resistance

Treadmill – Forward walking approaching 15 min/mile pace

Pool therapy – Waist deep water walking or slow jogging

Tibiofemoral – Elliptical trainer, Stairmaster (if gait pattern normal)

Patellofemoral – Elliptical trainer – **No** Stairmaster

Quad stretches

**Goals** – No thigh atrophy, Walk 2 miles at 15 min/mile pace

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**Months 3 – 4**

Continue appropriate previous exercises with progressive resistance  
Treadmill – Running progression program  
Pool therapy – Begin swimming laps

**Goals** – Run 2 miles at easy pace

**Months 4 – 6**

Home/gym program  
Continue appropriate previous exercises  
Agility drills / Plyometrics  
Sit-up progression

**Goals** – Return to all activities, Pass APFT at 6 months post-op

***No contact sports until 6 months post-op***

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**References:**

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3. Rodrigo J, Steadman JR, Silliman JE, Fulstone AH. Improvement of Full Thickness Chondral Defect Healing in the Human Knee After Debridement and Microfracture Using Continuous Passive Motion. *Am J Knee Surg*. 1994: 4: 109-116.