

# Brandon Beamer M.D - **Orthopedic Sports Medicine Specialist**

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El Dorado Hills, CA 95762

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Notes:

**CV Exercise:** Biking, TM walking, retrowalking on TM, swimming

**Criterion for Progression:**

- 1) **Minimal to no effusion/edema**
- 2) **ROM equal to opposite LE**
- 3) **Full patellar mobility**
- 4) **Ambulate on level surfaces with normal gait**

**Phase III – Tissue Remodeling/Hypertrophy Phase (12-24 weeks)**

- Goals:**
- 1) Normalize eccentric quad control
  - 2) Strength progression
  - 3) Begin sport specific agility drills

**ROM:** PRN

**Exercise:** Advanced Strength/Proprioception/Balance  
Full squat to 90 degrees (as tolerated) <sup>12,25,26,37,38</sup>  
SL Squat to 60 degrees (as tolerated) <sup>12,25,26,37,38</sup>  
Initiate jogging progression

**CV Exercise:** Outdoor walking/hiking  
Swimming

**Criterion for Progression:**

- 1) **No pain or edema/effusion**
- 2) **Full ROM**
- 3) **20 reps to 60 degrees single limb squat with eccentric control and good lower extremity alignment**
- 4) **Quad strength >80% of uninjured LE (10RM single leg press or isokinetically if available)**

**Phase IV – Sport Specific Training (6 months +) –if desired by pt and cleared by MD**

- Goals:**
- 1) Begin sport specific drills
  - 2) Normalize neuromuscular control
  - 3) Normalize jumping/landing mechanics if indicated
  - 4) Prepare for return to sport

**Exercise:** Advance agility progression  
Begin plyometric progression  
Jogging progression/sport-specific training

**Criterion for Return to Sport: (Recommend combination testing of strength, agility, and power according to available resources/clinic setting)**

- 1) No pain or swelling
- 2) Hop Tests – Single Hop, X-Hop, Triple Hop, Timed Hop  $\geq$ 85% uninjured
- 3) Single leg squat to 60 degrees knee flexion with good control for 3 minutes
- 4) Quad strength > 90% of uninjured (10RM leg press or isokinetic testing)
- 5) IKDC (MCID 6.3@ 6mo; 16.7 @ 12 mo)

**Estimated Return to Sport / Work:**

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## Weight Bearing

- NWB x \_\_\_\_\_ wks
- TDWB x \_\_\_\_\_ wks/days
- PWB \_\_\_\_\_% x \_\_\_\_\_ wks
- WBAT
- Brace Locked in Ext x \_\_\_\_\_ wks

## ROM

- Full ROM
- Locked full ext x \_\_\_\_\_ wks
- Locked at \_\_\_\_\_° x \_\_\_\_\_ wks
- ROM limits
- \_\_\_\_\_° to \_\_\_\_\_° x \_\_\_\_\_ wks
- \_\_\_\_\_° to \_\_\_\_\_° x \_\_\_\_\_ wks
- \_\_\_\_\_° to \_\_\_\_\_° x \_\_\_\_\_ wks
- \_\_\_\_\_° to \_\_\_\_\_° x \_\_\_\_\_ wks

## CPM

- \_\_\_\_\_° to \_\_\_\_\_° x \_\_\_\_\_ wks
- 30-70° ↑10°/d @ dir
- None

Recommended Clinical Guidelines

**WB:** TDWB x 2 weeks  
WBAT weeks 3-8 (brace locked in ext)

**ROM:** CPM or AROM 4-8 hours/day x 6-8 weeks

Precautions

## Microfracture (Patellofemoral Joint)

### Phase I – Tissue Protection/Healing Phase (0-8 weeks)

- Goals:**
- 1) Reduce pain and effusion
  - 2) Facilitate new cartilage formation
  - 3) Minimize scar adhesion formation
  - 4) Improve knee ROM
  - 5) Facilitate quadriceps activation

**ROM:** PROM/AAROM/AROM<sup>6</sup>  
Bike: Rocking to full revolution as ROM allows

**Exercise:** Quad Isometrics<sup>21</sup>  
SLR – 4 way (flex/abd/ext/add)<sup>5,20,26,31</sup>  
Clamshells<sup>31</sup>  
Hamstring isometrics

**Manual:** Patella Mobilizations<sup>1,9,10,15,22</sup>  
Patellar tendon Mobilizations<sup>1,9,10,15,22</sup>  
Extension with Overpressure<sup>9,10,22,24</sup>

**Modalities:** Functional Electrical Stimulation<sup>33-35</sup>  
Biofeedback<sup>42</sup>  
Cryotherapy<sup>3,4,19,28,43</sup>

### Criterion for Progression:

- 1) **Voluntary quadriceps isometric contraction**
- 2) **No extensor lag with SLR**
- 3) **Good patellar mobility**
- 4) **Knee ROM full knee extension equaling opposite LE to functional knee flexion**

### Phase II – Tissue Proliferation Phase/Progression Phase (9-12 weeks)

- Goals:**
- 1) Pain and edema control
  - 2) Maximize knee ROM
  - 3) Strength progression – develop functional quad control
  - 4) Achieve normal gait

**ROM:** PROM/AAROM/AROM<sup>6</sup>  
Bike for ROM

**Exercise:** Gait retraining/Cone walking<sup>24</sup>  
Squats /Leg Press (60-0 degrees)<sup>10,12,22,25,27,36,38</sup>  
Closed chain Terminal Knee Extension (30-0)<sup>12,16,25,26,37,38</sup>  
LAQ OKC (90-40)<sup>12,16,25,26,37,38</sup>  
Calf raises  
Weight Shifting/Balance/ Perturbation Training<sup>7,8,27</sup>  
Bridging progression

Step ups, Step Downs, Lateral Step Downs<sup>8,9,10,12,25,38</sup>  
**Manual:** Scar mobilization<sup>1,2,9,10,15,22</sup>  
Patellar mobilization<sup>1,2,9,10,15,22</sup>

**Modalities:** Continue PRN