

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

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## Notes:

*\*This protocol is designed to serve as a guide for the rehabilitation process. It is not intended to supersede clinical judgment and decision making. Progression through each phase is designed to allow for maximal tissue healing of repaired tissues and is based on scientific evidence and clinical experience./*

### Estimated Return to Sport / Work:

- 6 months
- 12 months
- 18 months
- 24 months
- \_\_\_\_\_

**Manual:** Initiate scar mobilizations<sup>39,40</sup>  
**Modalities:** Continue PRN  
**CV Exercise:** Biking  
Aquajogging

### Criterion for Progression:

- 1) Minimal to no effusion/edema
- 2) ROM 0-135 degrees
- 3) Full patellar mobility
- 4) Ambulate on level surfaces without brace with quad control

### Phase III – Tissue Remodeling/Hypertrophy Phase (7-16 weeks)

**Goals:** 1) Full knee AROM  
2) Improve eccentric quad control  
3) Strength progression  
4) Begin light jogging by week 12

**ROM:** ROM to full ROM  
**Exercise:** Squat (0-100 degrees)<sup>10,14,19-21</sup>  
Single Leg Squats<sup>10</sup>  
Advanced Proprioception/Balance Activities  
**CV Exercise:** Elliptical  
Jogging Progression (week 12-16)

### Criterion for Progression:

- 1) No pain or edema/effusion
- 2) Full ROM
- 3) 20 reps to 60 degrees single leg squat with eccentric control and good lower extremity alignment
- 4) Quad strength >80% of uninvolved LE (10RM single leg press or isokinetically if available)
- 5) Jogging without pain or antalgic gait
- 6) Normal clinical exam

### Phase IV – Sport Specific Training (weeks 16- ) [See Estimated Return to Sport]

**Goals:** 1) Begin sport specific drills – no cleats or contact  
2) Normalize neuromuscular control  
3) Normalize jumping/landing mechanics if indicated  
4) Prepare for return to sport

**Exercise:** Begin agility progression (week 16)  
Begin plyometric progression (week 20)  
Progress on running progression/sport-specific training

### Criterion for Return to Sport: (Recommend combination testing of strength, agility, and power according to available resources/clinic setting)<sup>3</sup>

- 1) No pain or swelling
- 2) Quad strength > 90% of uninvolved (10RM leg press or isokinetic testing)<sup>12</sup>
- 3) IKDC (MCID 6.3 @ 6mo; 16.7 @ 12 mo)<sup>2,4,5,16</sup>
- 4) Confidence Question<sup>17</sup>

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## ACL Allograft Reconstruction

### Weight Bearing

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

### Brace

Brace : \_\_\_\_\_ weeks

With Sleep: \_\_\_\_\_ weeks

### 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

**ROM:** 0-110 x 2 weeks

0-135 by week 4

### Precautions

### Phase I – Tissue Protection/Healing Phase (0-2 weeks)

- Goals:**
- 1) Reduce pain
  - 2) Reduce effusion
  - 3) Minimize scar adhesion formation
  - 4) Achieve full knee extension ROM
  - 5) Facilitate quadriceps activation

**ROM:** PROM/AAROM/AROM (0-MD prescribed limit)<sup>1,2,9,41</sup>

Bike: Rocking for ROM – progress to full revolution if ROM allows<sup>4</sup>

**Exercise:** Quad Isometrics<sup>11,12</sup>  
SLR – 3 way (flex/abd/ext)<sup>11,12</sup>  
Clamshells/Reverse Clamshells<sup>7-9</sup>  
Bridging/Hamstring Isometrics<sup>7-9</sup>

**Manual:** Patella Mobilizations<sup>38,39</sup>  
Extension with Overpressure<sup>2,39</sup>

**Modalities:** Functional Electrical Stimulation<sup>29-32</sup>  
Cryotherapy<sup>33,34,36</sup>

### Criterion for Progression:

- 1) **Voluntary quadriceps isometric contraction**
- 2) **No extensor lag with SLR**
- 3) **Good patellar mobility**
- 4) **Knee ROM 0-110 degrees by week 2**

### Phase II – Tissue Proliferation Phase/Progression Phase (3-6 weeks)

- Goals:**
- 1) Pain and edema control
  - 2) Improve knee ROM
  - 3) Strength progression – develop functional quad control
  - 4) Achieve full terminal knee extension with normalized gait

**ROM:** PROM/AAROM/AROM (progression to 0-MD prescribed limit)  
Bike for ROM

### **Gait Training/Cone Walking**<sup>17,18</sup>

**Exercise:** Open Chain Knee Ext 90-40 deg (LAQ)<sup>10-14</sup>  
Open Chain Knee Flex 0-90 deg (stand/prone)  
Calf raises  
Weight Shifting  
Balance Board<sup>15</sup>  
Wall sits (60 degrees)  
Mini squats (0-50 degrees)<sup>10,14,19-21</sup>  
Shuttle Leg Press (70-0 degrees)<sup>10, 14, 19-21</sup>  
Step ups, Step Downs, Lateral Step Downs<sup>22,23</sup>  
Perturbation Training<sup>24-25</sup>  
Retrowalking (Treadmill)<sup>27,28</sup>