



# Cartilage Restoration – Femoral Condyle Cartilage Restoration and Osteotomy Rehabilitation Protocol

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**Procedure:** Meniscus Allograft Transplant and Femoral Condyle OCA

**PT Frequency:** 2-3 times per week

**ROM Restrictions:** 0-90 x 2 weeks, then advance as tolerated

**Brace:** Locked in full extension x 2 weeks, then unlocked 0-90 until 6-8 weeks

**Weightbearing:** TDWB x 6 weeks, then PWB (25% with progression to full WBAT at 8 weeks)

**PHASE I (Weeks 0 – 6):** Period of protection, decrease edema, activate quadriceps

- **Weightbearing:** Touch Down Weightbearing (TDWB) x 6 weeks with crutches and brace
- **Hinged Knee Brace:**
  - Weeks 0-2: Worn at all times (including ambulation and sleeping) locked in full extension. Ok to remove for hygiene and exercises.
  - Weeks 2-6: Unlocked 0-90° for ambulation and removed while sleeping
- **Range of Motion:** 0-90° with emphasis on full extension
- **Home Exercises:** Quad sets with brace locked at 0°, patellar mobilization, straight leg raise in brace locked at 0°, calf/ankle pumps, passive leg hangs to 90°
- **Therapeutic Exercises:** Patellar mobs, quad/hamstring sets, calf pumps, passive leg hangs to 90°, heel slides, SLR with brace in full extension until quad strength prevents extension lag, Gastroc/Soleus stretching
  - Avoid tibial rotation for first 8 weeks to protect the allograft
- **Modalities:** Per therapist, including electrical stimulation, ultrasound, heat (before), ice (after)

**PHASE II (Weeks 6 – 12):**

- **Weightbearing:** Increase 25% per week, progress to full WBAT by week 8
- **Hinged Knee Brace:** Wean out of brace between 6-8 weeks; discontinue at 8 weeks
- **Range of Motion:** Advance to full ROM
- **Therapeutic Exercises:** Continue Phase I, add stationary bike
  - Begin closed chain exercises (wall sits, shuttle, mini-squats, toe-raises), begin unilateral stance activities and balance training (week 8)
  - Avoid tibial rotation for first 8 weeks to protect the allograft
- **Modalities:** Per therapist, including electrical stimulation, ultrasound, heat (before), ice (after)

**PHASE III (Weeks 12 – 24):**

- **Weightbearing:** Progress to full
- **Range of Motion:** Full, painless
- **Therapeutic Exercises:** Advance Phase II exercises, focus on core/glutes; advance to elliptical, bike, and pool as tolerated



- **Modalities:** Per therapist, including electrical stimulation, ultrasound, heat (before), ice (after)

**PHASE IV (> 6 Months):**

- **Weightbearing:** Full
- **Range of Motion:** Full, painless
- **Therapeutic Exercises:** Advance Phase III exercises, focus single-leg strength, progress plyometrics and sport-specific training
- Encourage maintenance program
- **HOLD ON IMPACT ACTIVITY UNTIL 9 MONTHS**
- Return to sport-specific activity when cleared by Dr. Boden at 8-9 months



SURGERY DATE: \_\_\_\_\_

POSTOPERATIVE WEEKS

POSTOPERATIVE MONTHS

Femoral Condyle Transplant	1-3	4-6	7-9	10-12	3 M	4 M	5 M	6 M	7 M
Brace: Hinged knee brace postoperative	X	X	X						
Range of motion minimum goals:									
0-30°, advance 10°/day as tolerated	X	X	X	X					
Weight bearing:									
Toe touch WB (brace locked at 0°)	X	X							
25-50% (brace unlocked with Dr. clearance)			X						
75% with cane (brace unlocked)				X					
Full WB (brace unlocked with Dr. clearance)					X	X	X	X	X
Patella mobilization	X	X	X	X					
Modalities:									
Electrical muscle stimulation (EMS)	X	X	X						
Pain/edema management (cryotherapy)	X	X	X	X	X	X	X	X	X
Stretching:									
Hamstring, gastroc-soleus	X	X	X	X	X	X	X	X	X
Quad, ITB			X	X	X	X	X	X	X
Strengthening:									
Quad isometrics, straight leg raises	X	X	X	X	X	X	X	X	X
Active assist knee extension (0-30°)	X	X	X	X	X	X	X	X	X
Hip abduction-adduction, multihip		X	X	X	X	X	X	X	X
Closed-chain: gait retraining, toes raises				X	X	X	X	X	X
Knee extension quads (90-0°)					X	X	X	X	X
Leg press (70-10°) ½ BW first month							X	X	X
Wall sits, mini-squats (bilateral)							X	X	X
Closed-chain – as above (unilateral)									X
Leg Press – full motion, progress weight									X
Balance/proprioceptive training:									
Gait training				X	X	X	X	X	X
Weight-shifting, minitrampoline, BAPS, KAT				X	X	X	X	X	X
Conditioning:									
UBE		X	X	X	X				
Aquatic program (weight bearing)				X	X	X	X	X	X
Bike (stationary)						X	X	X	X
Elliptical								X	X
Walking (fast)								X	X
Stair climbing machine									X
Row machine									X
Plyometrics, swimming, and light recreation sports (cleared by doctor)									