

## **AUTOLOGUS CHONDROCYTE IMPLANTATION (ACI) PROTOCOL FEMORAL CONDYLE**

### **GENERAL GUIDELINES:**

- NWB with crutches or walker-Specified by MD
- Brace unlocked 0°-30° when adequate quadriceps control is established. Wean from brace at 6 weeks unless otherwise instructed by M.D.
- Regain full knee Extension as quickly as possible. Sleep in the brace locked at 0° until full extension is maintained.
- Patellofemoral protection restrictions with all exercises.
- Elevate the entire leg. Do not place pillows under the knee for long periods of time.
- Modalities: PRN for pain and inflammation.
- Utilize cryotherapy for 20 to 30 minutes every hour for pain and swelling reduction.

### **WEEKS 0-6**

- Weight bearing progression:
  - Weeks 1-2: non weight bearing with bilateral crutches
  - Weeks 2-3: toe touch weight bearing with bilateral crutches
  - Weeks 4-5: partial weight bearing 25-50% with bilateral crutches
  - Week 6: weight bearing as tolerated with bilateral crutches
- Restore patellar mobility.
- Restore knee extension (low load-long duration stretching).
- Hamstring/gastrocnemius stretches.
- Ankle ROM for swelling and DVT prevention.
- PROM of knee (Seated flexion-with assisted knee extension, assisted heel slides)
  - 90° by weeks 1-2
  - 105° by weeks 3-4
  - 120° by week 5-6
- 4-way open chain straight leg exercises.
- Weight shifts and Toe-Calf raises as weight bearing tolerates.
- Initiate HS isometrics on the ball.
- Stationary cycle when ROM allows
- Can initiate active knee extension exercises without weight (90-40°)

- *Focus on knee remaining locked in concentric and eccentric phase. Increase reps and hold time initially, before adding resistance. No ankle weight until extensor lag is eliminated.*
- Modalities: PRN for pain and swelling.
- NMES for Quadriceps activation and re-education.

### **WEEKS 6-12**

- Progress to full weight bearing and discontinue use of crutches by week 8-9
- Discontinue use of the LROM brace at week 6 if adequate quad control is established
- Increase ROM as tolerated
- Continue to increase hip resistance during open chain exercises as tolerated.
- Initiate mini squats 0-45° by week 8
- Leg press 0-60° at week 8
- Can begin open kinetic chain knee extension with resistance
- May start light aquatic exercises once good Quadriceps control is established and wound is healed appropriately.
- Continue stationary cycle
- Start front and lateral step-ups
- Gait training and proprioceptive/balance exercises as weight bearing restrictions allow.
- Allowed to walk for exercise as tolerated

### **3-8+Months**

- Increase resistance with all exercises as tolerated.
- Increase leg strength allow for normal gait and walking longer distances.
- Leg press 0-90°
- Forward lunges and wall squats
- Add resistance to open kinetic chain exercises
- Agility and balance drills can be initiated at 6 months
- No jumping or plyometric exercises until specified by surgeon (8-12 months)
- Walking, swimming, cycling, and elliptical are allowed at 6 months
- Jogging, running, and high impact aerobics are allowed at 8 months
- High impact sports such as tennis, football, basketball are allowed at 12+ months