Najib Ussef, MD
Orthopedic Surgery

Rehabilitation Protocol: Autologous Chondrocyte Implantation (ACI (Trochlea/Patella))

Name: _____   Date: _____

Diagnosis: _____   Date of Surgery: _____

☐ **Phase I (Weeks 0–12)**
- **Weightbearing:**
  o Weeks 0–2: Non–weightbearing
  o Weeks 2–4: Partial weightbearing (30–40 lbs)
  o Weeks 4–8: Continue with partial weightbearing (progress to use of one crutch at weeks 6–8)
  o Weeks 8–12: Progress to full weightbearing with discontinuation of crutch use
- **Bracing:**
  o Weeks 0–2: Hinged knee brace locked in extension– remove for CPM and rehab with PT
  o Weeks 2–4: Locked in extension for weight bearing – Can open brace for NWB ROM 0–30°
  o Weeks 4–6: Open brace to 30° for ambulation
  o D/C brace at 6 weeks post–op
- **Range of Motion** – Continuous Passive Motion (CPM) Machine for 6–8 hours per day for 1 month
  o Set CPM to 1 cycle per minute – set at 0–30°
  o PROM/AAROM and stretching under guidance of PT
- **Therapeutic Exercises**
  o Weeks 0–4: Straight leg raise/Quad sets, Hamstring isometrics
    ▪ Perform exercises in the brace if quad control is inadequate
  o Weeks 4–10: Begin isometric closed chain exercises
    ▪ At week 6 can start weight shifting activities with operative leg in extension
  o At week 8 can begin balance exercises and stationary bike with light resistance
  o Weeks 10–12: hamstring strengthening, theraband resistance exercises 0–30°, light open–chain knee isometrics

☐ **Phase II (Weeks 12–24)**
- **Weightbearing:** Full weightbearing with a normal gait pattern
- **Range of Motion** – Advance to full/painless ROM
- **Therapeutic Exercises**
  o Gait training/treadmill use at slow–moderate pace
  o Progress balance/proprioception exercises
  o Start sport cord lateral drills

☐ **Phase III (Months 6–9)**
- **Weightbearing:** Full weightbearing with a normal gait pattern
- **Range of Motion** – Advance to full/painless ROM
- **Therapeutic Exercises**
  o Advance closed chain strengthening/Start unilateral closed chain exercises
  o Progress to fast walking and backward walking on treadmill (add incline at 8 months)

        o   Start light plyometric training

☐ **Phase IV (Months 9–18)**
- **Weightbearing:** Full weightbearing with a normal gait pattern
- **Range of Motion** – Full/Painless ROM
- **Therapeutic Exercises**
   - Continue closed chain strengthening exercises and proprioception activities
      - Emphasize single leg loading
   - Sport-specific rehabilitation – jogging/agility training at 9 months
   - Return to impact athletics – 16 months (if pain free)
- Maintenance program for strength and endurance

Protocol Modifications:

Comments:

Frequency: _____ times per week   **Duration: _____ weeks**

Signature: _____   **Date: _____**