

# **Autologous Chondrocyte Implantation (ACI) (Trochlea/Patella)**

## PHASE I (Weeks 0-12)

- Weight Bearing:
  - 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:

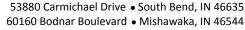
- o Weeks 0-2: Hinged knee brace locked in extension remove for CPM and rehab with PT
- o Weeks 2-4: Locked in extension for weightbearing can open brace for NWB ROM 0-30<sup>o</sup>
- o Weeks 4-6: Open brace to 30° for ambulation
- o D/C brace at 6 weeks post-op
- Range of Motion Continuous Passive Motion (CPM) Machine for 6-8 hours per day for 8 weeks
  - o Set CPM to 1 cycle per minute set at 0-30° for first 3 weeks
  - o Increase flexion 5-10<sup>0</sup> per day until full flexion is achieved
    - Should be at 90° by week 6 and 120° by week 8
  - o PROM/AAROM and stretching under guidance of PT

# • Therapeutic Exercises:

- 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
- Weeks 6-10: Progress bilateral closed chain strengthening, begin open chain knee strengthening
- o Weeks 10-12: Hamstring strengthening, theraband resistance exercises 0-30<sup>0</sup>, light open chain knee isometrics

# PHASE II (Weeks 12-24)

- Weight Bearing: Full weightbearing with 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
  - Start sport cord lateral drills



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## PHASE III (Months 6-9)

- Weight Bearing: Full weightbearing with normal gait pattern
- Range of Motion -- Full/painless ROM
- Therapeutic Exercises:
  - o Advance closed strengthening/start unilateral closed chain exercises
  - o Start light plyometric 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)

- Weight Bearing: Full weightbearing with normal gait pattern
- Range of Motion Full/ painless ROM
- Therapeutic Exercises:
  - o Continue closed chain strengthening exercises and proprioception activities
    - Emphasize single leg loading
  - o Sport-specific rehabilitation running/agility training at 9 months
  - o Return to impact athletics 16 months (if pain free)
- Maintenance program for strength and endurance