

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

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___ Phase I (Weeks 0-12)

● **Weightbearing**

- Weeks 0-2: Non-weightbearing
- Weeks 2-4: Partial weightbearing (30-40 lbs)
- Weeks 4-8: Continue with partial weight bearing (progress to use of one crutch at weeks 6-8)
- Weeks 8-12: Progress to full weight bearing with discontinuation of crutch use

● **Bracing**

- Weeks 0-2: Hinged knee brace locked in extension — remove for CPM and rehab with PT
- Weeks 2-4: Locked in extension for weightbearing — can open brace for NWB ROM 0-30°
- Weeks 4-6: Open brace to 30° for ambulation
- Discontinue brace at 6 week post-op

● **Range of Motion** — Continuous Passive Motion (CPM) Machine for 6-8 hours per day for 8 weeks

- Set CPM to 1 cycle per minute — set at 0-30° for the first 3 weeks
- Starting at week 3, increase flexion 5-10° per day until full flexion is achieved (should be at 90° by week 6 and 120° by week 8)
- 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 not adequate)
- Weeks 4-10: Begin isometric closed chain exercises (at week 6, start weight shifting activities with operative leg in extension)
- At week 8 can begin balance exercises and stationary bike with light resistance

- Weeks 10-12: Hamstring strengthening, theraband resistance exercises 0-30°, light open-chain knee isometrics

___ **Phase III (Months 6-9)**

- **Weightbearing** Full weightbearing with a normal gait pattern
 - Full weight bearing with a normal gait pattern
- **Range of Motion**
 - Advanced to full/painless ROM
- **Therapeutic Exercises**
 - Advance closed chain strengthening and start unilateral closed-chain exercises
 - Progress to fast walking and backward walking on the treadmill (add incline at 8 months)
 - Start light plyometric training

___ **Phase IV (Months 9-18)**

- **Weightbearing** Full weightbearing with a normal gait pattern
 - Full weight bearing with a normal gait pattern
- **Range of Motion**
 - Full/painless ROM
- **Therapeutic Exercises**
 - Continue closed chain strengthening exercises and proprioception activities with an emphasis on single leg loading
 - Sport-specific rehabilitation with jogging and agility training at 9 months
 - Return to impact athletics at 16 months if pain free
 - Maintenance program for strength and endurance

Comments:

Frequency: ___ times per week

Duration: ___ weeks

Signature: _____ **Date:** _____