

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

Name: _____ Date: _____
Diagnosis: _____ Date of Surgery: _____

Phase I (Weeks 0-12)

• Weightbearing:

- Weeks 0-2: Non-weightbearing
- Weeks 2-6: Partial weightbearing (30-40 lbs or resting foot on ground)
- Weeks 6-8: Continue partial weightbearing (gradually progress to use of one crutch at weeks 6-8)
- Weeks 8-12: Progress to full weightbearing with discontinuation of crutch use

• Bracing:

- Weeks 0-2: Hinged knee brace locked in extension– remove for CPM and rehab with PT
- Weeks 2-6: Locked in extension for weight bearing – Can open brace for NWB ROM 0-30°
- Weeks 6-8: Open brace to 30° for ambulation
- D/C brace at 8 weeks 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 first 3 weeks
- Starting at week 3 increase flexion 5-10° per day as tolerated 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 inadequate
- Weeks 4-10: Begin isometric closed chain exercises
 - At week 6 can 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 (no squats, wall slides, or lunges for 9 months)

Phase II (Weeks 12-24)

• Weightbearing: Full weightbearing with a normal gait pattern

• Range of Motion – Advance to full/painless ROM

• Therapeutic Exercises (no squats, wall slides, or lunges for 9 months)

- Gait training/treadmill use at slow-moderate pace (no incline yet)
- Progress balance/proprioception exercises
- 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** (no squats, wall slides, or lunges for 9 months)
 - Advance closed chain strengthening/Start unilateral closed chain exercises
 - Progress to fast walking and backward walking on treadmill (add incline at 8 months)
 - 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