

Knee Cartilage Repair (Autograft or Allograft)

Core Rehabilitation Guidelines

- Toe touch weight bearing for first week
- Progress to full weight bearing by second week
- Wean off brace by 2 weeks
- Wean off crutches when gait normalized, ideally by 4 weeks
- No range of motion restrictions

Specific Timeline: Weeks 0-6

Goals:

- Control post-operative pain / swelling
- Range of Motion 0-130°
- Prevent Quadriceps inhibition
- Restore normal gait
- Normalize proximal musculature muscle strength
- Independence in home therapeutic exercise program

Precautions:

- TTWB with crutches for 1 week
- Progress to WBAT after week 1 (DC crutches when gait is non-antalgic)
- Avoid neglect of range of motion exercises
- Postoperative bracing for 2 weeks postoperatively then can D/C to compression sleeve

Treatment Strategies:

- Active – Assistive Range of Motion Exercises (Pain-free ROM)
- Towel extensions
- Patella mobilization all planes
- Underwater treadmill system (gait training) if incision benign
- Quadriceps re-education (Quad Sets with EMS or EMG)
- Multiple Angle Quadriceps Isometrics (Bilaterally – Submaximal, Avoid lesion)
- Short Crank ergometry → Standard ergometry
- SLR's (all planes)
- Hip progressive resisted exercises
- Bracing / Patella sleeve per MD preference
- Pool exercises
- Cryotherapy
- Plantar Flexion Theraband
- Lower Extremity Flexibility exercises
- Upper extremity cardiovascular exercises as tolerated
- Home therapeutic exercise program: Evaluation based
- Emphasize patient compliance to home therapeutic exercise program and weight bearing progression

Criteria for Advancement:

- Normalized gait pattern
- ROM 0 → 130°
- Proximal Muscle strength 5/5
- SLR (supine) without extension lag

Specific Timeline: Weeks 6-12

Goals:

- ROM 0° → full
- Normal patella mobility
- Ascend 8” stairs with good control without pain

Precautions:

- Avoid descending stairs reciprocally until adequate quadriceps control & lower extremity alignment is demonstrated
- Avoid pain with therapeutic exercise & functional activities

Treatment Strategies:

- Continue Progressive Weight Bearing as Tolerated /Gait Training with crutches (if needed)
- Brace / Patella sleeve per therapist and patient preference
- Underwater treadmill system (gait training)
- Gait unloader device
- AAROM exercises
- Patella mobilizations
- Mini Squats
- Retrograde treadmill ambulation
- Proprioception/Balance training:
 - Proprioception board / Contralateral Theraband Exercises / Balance systems
- Initiate Forward Step Up program
- Stairmaster
- SLR's (progressive resistance)
- Lower extremity flexibility exercises
- OKC knee extension to 40° – (*pain/crepitus free arc*)
- Home therapeutic exercise program: Evaluation based

Criteria for Advancement:

- ROM 0° - full
- Demonstrate ability to ascend 8” step
- Normal patella mobility

Specific Timeline: Weeks 12-18

Goals:

- Demonstrate ability to descend 8” stairs with good leg control without pain
- 85% limb symmetry on Isokinetic testing and Forward Step Down Test
- Return to normal ADL

- Improve lower extremity flexibility

Precautions:

- Avoid pain with therapeutic exercise & functional activities
- Avoid running until adequate strength development and Dr. Ramkumar clearance

Treatment Strategies:

- Progress Squat program
- Initiate Step Down program
- OKC knee extensions 90-0° (*pain/crepitus free arc*)
- Advanced proprioception training (perturbations)
- Agility exercises (sport cord)
- Elliptical Trainer
- Retrograde treadmill ambulation / running
- Hamstring curls / Proximal strengthening
- Lower extremity stretching
- Forward Step Down Test (NeuroCom)
- Isokinetic Test
- Home therapeutic exercise program: Evaluation based

Criteria for Advancement:

- Ability to descend 8”stairs with good leg control without pain
- 85% limb symmetry on Isokinetic testing and Forward Step Down Test

Specific Timeline: Weeks 18 and Beyond (Return to Sport)

Goals:

- Lack of apprehension with sport specific movements
- Maximize strength and flexibility as to meet demands of individual’s sport activity
- Isokinetic & Hop Testing \geq 85% limb symmetry

Precautions:

- Avoid pain with therapeutic exercise & functional activities
- Avoid sport activity till adequate strength development and MD clearance
- Be conscious of Patellofemoral overload with increased activity level

Treatment Strategies:

- Continue to advance LE strengthening, flexibility & agility programs
- Forward running
- Plyometric program
- Brace for sport activity (MD preference)
- Monitor patient’s activity level throughout course of rehabilitation
- Reassess patient’s complaint’s (i.e. pain/swelling daily – adjust program accordingly)
- Encourage compliance to home therapeutic exercise program
- Home therapeutic exercise program: Evaluation based

Criteria for Discharge:

- Isokinetic & Hop Testing \geq 85% limb symmetry
- Lack of apprehension with sport specific movements
- Flexibility to accepted levels of sport performance
- Independence with gym program for maintenance and progression of therapeutic exercise program at discharge