

# Meniscus Root Repair Rehabilitation Protocol

Mark Ayzenberg, MD, FAAOS

## PHASE I (Week 0-6) - Maximum Protection

### Goals:

- **Brace locked at 0 degrees and NON-WEIGHT BEARING x 4 weeks**
- Alleviate acute pain and swelling
- Prevent muscle atrophy, re-establish quad activity
- Gentle AROM
- Crutch Training
- Maintain cardiovascular conditioning

### Plan:

- Hinged knee brace locked in extension at all times when ambulating with NO weight bearing
- Ice, compression, elevation
- E-stim
- Brace **locked at 0 degrees, non-weight bearing**
- ROM 0-60 (not ambulating) first 2 weeks, 0-90 (not ambulating) weeks 2-6
  - Motion limited first 7-21 days. Gradual increase in flexion based on assessment of pain and site of repair
- Patellar mobilization
- Scar tissue mobilization
- Exercises:
  - Range of motion out of brace to **60 degrees flexion max when strengthening.**
  - Quadriceps Isometrics
  - Hamstring isometrics (**minimize hamstring exercises x 6 weeks to only very gentle exercise given posterior horn/root repair**)
  - Hip flexion, abduction, adduction, extension
  - Early proprioceptive training with brace locked in extension
  - Ankle exercises (theraband)
  - LE stretching (ham/ gastroc)
- Modalities as needed (EMS for muscle re-ed; edema control)

## PHASE II (Weeks 6-12) – Moderate Protection

### Criteria for progression to Phase II:

- ROM 0-90 degrees
- Quadriceps control (MMT 4/5)
- No change in pain or effusion

**Goals:**

- Independent ambulation
- Full ROM and wean from brace and crutches
- Increase quadriceps and hamstring strength, power, endurance
- Continue general conditioning

**Plan:**

- Progress to weight bearing as tolerated
- Ambulation with hinged knee brace locked to 90 degrees flexion
- Full symmetric ROM
- Normal gait
- Exercises:
  - Continue with previous strength exercises (progress as tolerated)
  - Squats ok to 60, then progress to 90° at 8-10 weeks
  - Progress with cardiovascular exercises (Stairmaster, bike, elliptical)
  - May begin gentle swimming (no whip kick, frog kick, eggbeater kick)
  - PREs 1-5lbs
  - Flexibility exercises
  - Lateral Step-ups
- Endurance Exercises:
  - Swimming (no frog kick, eggbeater or whip kick), pool running (if available)
  - Cycling
  - Stair machine
- Coordination Exercises:
  - Balance board
  - Pool sprinting (if available)
  - Backward walking
  - Plyometrics

**PHASE III (Week 12-16+) – Advanced Phase**

**Criteria for progression to Phase III:**

- Full, painless ROM
- No pain or tenderness
- Satisfactory clinical exam
- SLR without lag
- Gait without device, brace unlocked

**Goals:**

- Improve proprioception
- Improve strength, power, endurance
- Emphasize return to skill activities
- Prepare for return to full unrestricted activities at months 4-6

**Plan:**

- Begin running on track
- Progress with proprioceptive training
- Continue with strength training
- Increase plyo, pool program

---

Some suggested therapeutic exercises for closer to the end of rehab protocol *if age and sport-appropriate* once patient judged ready and safe by physical therapist:

- Low amplitude low velocity agility drills: forward and backward skipping, side shuffle, skater's quick stepping, carioca, cross overs, backward jog, forward jog
- Closed chain strengthening for quadriceps and glutes - progressing from double leg strengthening to single leg strengthening: lunge progressions and single leg squat progressions
- Single leg balance exercises and progressions, progressing from stationary to deceleration in to holding posture and position
- At approximately 12-14 weeks initiate low amplitude landing mechanics: med ball squat catches, shallow jump landings, chop and drop stops, etc
- Hip strengthening - especially oriented at neuromuscular control in prevention of hip adduction at landing and stance
- Core strength and stabilization - especially orientated at preventing frontal plane trunk lean during landing and single leg stances
- Unanticipated movement control drills, including cutting and pivoting
- Agility ladder drills
- Stretching for patient specific muscle imbalances

**Criteria for discharge:**

- Non-antalgic gait
- Painless, full ROM
- Full strength
- Independent with home program
- Normal age-appropriate balance and proprioception
- Resolved palpable edema
- Patient should have <15% difference in Biodex strength test, force plate jump and vertical hop tests as well as functional horizontal hop tests.