

Arthroscopic Meniscal Repair Protocol

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General Principles and Precautions

- **The "Shear" Rule:** Strictly avoid knee flexion greater than 90 degrees for the first 6 weeks to prevent suture failure and meniscal displacement.
- **Weight-Bearing:** Weight-Bearing As Tolerated (WBAT) is permitted, but only with the **brace locked in full extension**.
- **No Pivoting:** No twisting or pivoting on the operative leg for the first 12 weeks.
- **Open-Chain Restriction:** No resisted hamstring curls for the first 8 weeks, as the hamstrings pull on the posterior horn of the meniscus.

Phase I: Maximum Protection (Weeks 0–6)

Goals: Protect the repair, reduce swelling, and achieve full knee extension.

- **Brace Use:** * Brace must be locked in full extension (0 degrees) for all ambulation and sleeping.
 - Brace may be unlocked to 0-90 degrees only when seated and performing exercises.
- **Weight-Bearing:** WBAT with the brace locked in extension and the use of crutches for stability.
- **Range of Motion (Strict Limits):**
 - **Flexion:** 0 to 90 degrees only. Do not exceed 90 degrees.
 - **Extension:** Achieve 0 degrees (full extension) as soon as possible.
- **Exercises:**
 - **Quadriceps Activation:** Quad sets and Straight Leg Raises (SLR) in the brace.
 - **Patellar Mobilizations:** Medial, lateral, superior, and inferior glides.
 - **Distal Mobility:** Ankle pumps and circles (100 reps daily).
 - **Hamstring Stretching:** Seated "sit and reach" with a towel (keep knee flat).
 - **Biking:** Single-leg biking only (unaffected side).

Phase II: Early Mobilization (Weeks 6–10)

Goals: Discontinue brace, restore full range of motion, and normalize gait.

- **Brace:** Wean from the brace as quadriceps control allows (typically discontinued by Week 7).
- **Weight-Bearing:** Progress to full weight-bearing without crutches or brace.
- **Motion Progression:**
 - **Flexion:** Gradually increase beyond 90 degrees as tolerated. Goal is full ROM by week 10.
 - **Biking:** Begin biking with both legs (low resistance initially).
- **Strengthening:**
 - **Closed-Chain:** Mini-squats (0 to 45 degrees), toe raises, and heel raises.
 - **Proprioception:** Double-leg balance exercises and weight-shifting.
 - **Cardio:** Treadmill walking (flat surface or up to 7 percent incline).

Phase III: Intermediate Strengthening (Weeks 10–16)

Goals: Restore lower extremity strength and begin functional loading.

- **Motion Progression:** Achieve full, non-painful active range of motion.
- **Strengthening:**
 - **Leg Press:** 0 to 90 degrees with progressive weight.
 - **Hamstrings:** Initiate light resisted hamstring sets (Week 8) progressing to curls by week 12.
 - **Step-Ups:** Lateral and forward step-ups with focus on knee alignment.
 - **Terminal Knee Extensions:** Use a resistance band to focus on the Vastus Medialis Obliquus (VMO).
- **Cardio:** Rowing machine and outdoor biking (flat surfaces).

Phase IV: Advanced Training & Return to Sport (Weeks 16–24+)

Goals: Return to running, agility, and high-level sports.

- **Criteria to Begin Running:** Full ROM, no swelling, and quadriceps strength at least 70 percent of the uninvolved side.

- **Progression:**
 - **Running:** Start with a "Walk-Run" progression on a track or treadmill.
 - **Agility:** Figure-8 running, lateral shuffles, and carioca (Week 20+).
 - **Plyometrics:** Box jumps (up only) and bilateral jumping drills.
 - **Return to Sport Timeline:**
 - **Golf:** 12 to 14 weeks.
 - **Tennis/Skiing:** 20 to 24 weeks.
 - **Contact Sports:** 6 months, contingent on passing a functional knee stability test.
 - **Discharge Criteria:**
 - Quadriceps and Hamstring strength greater than 90 percent of the uninvolved side.
 - Limb Symmetry Index (LSI) > 90 percent on hop testing.
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Clinical Pearls for the Therapist

1. **Extension is Priority:** Lack of full extension (0 degrees) is a primary cause of long-term knee pain. Emphasize prone hangs if 0 degrees is not met by Week 2.
2. **Avoid Deep Squats:** Even in late phases, avoid deep weighted squats (beyond 90 degrees) as this creates significant posterior horn stress on the meniscus.
3. **The Hamstring Connection:** The semimembranosus and biceps femoris have attachments near the meniscus. Resisted hamstring work must be delayed to prevent "tugging" on the healing repair.