



**Lahey Hospital
& Medical Center**

**Rehabilitation Protocol:
Meniscal Repair**

Department of Orthopaedic Surgery

Lahey Hospital & Medical Center, Burlington 781-744-8650

Lahey Outpatient Center, Lexington 781-372-7020

Lahey Medical Center, Peabody 978-538-4267

Department of Rehabilitation Services

Lahey Hospital & Medical Center, Burlington 781-744-8645

Lahey Hospital & Medical Center, Wall Street, Burlington 781-744-8617

Lahey Danvers 978-739-7400

Lahey Outpatient Center, Lexington 781-372-7060

Meniscal Repair: Overview:

Meniscal tears occur in different ways. Tears are noted by how they look, as well as where the tear occurs in the meniscus. Common tears include longitudinal, parrot-beak, flap, bucket handle, and mixed/complex.

The decision by the surgeon to repair or remove is based primarily on the location of the meniscal tear.

The outer one-third of the meniscus has a rich blood supply. A tear in this “red” zone may heal on its own, or can often be repaired with surgery. A longitudinal tear is an example of this kind of tear. Tears that exist in the periphery are more likely to heal and as a result often will be repaired, especially in younger patients and in those whose sport or job requires increased stress to the knee.¹

The inner two-thirds of the meniscus lacks blood supply. Without nutrients from blood, tears in the “white” zone cannot heal. These complex tears are often in thin, worn cartilage. Because the pieces cannot grow back together, tears in this zone are usually surgically trimmed away.¹

Weight bearing should be limited after meniscal repair, and progressed slowly over eight weeks to allow for biological healing. If the repair is in an area of sufficient vascularity and the fixation is stable, weight bearing is often allowed in fixed extension (brace locked in extension). This position protects the repair, and allows for controlled axial loading while limiting shear forces that may impede healing.² Weight bearing is at the discretion of the surgeon but often is immediate (in full extension) or begins within two weeks progressing to full by the four-week time period. In the first four weeks following the repair, weight-bearing activities in angles greater than 45° of knee flexion are avoided to allow for healing of the repair; while loaded knee flexion beyond 90° is limited for 8 week.³ The postoperative rehabilitation focus on quadriceps strengthening is performed in the open kinetic chain position to avoid loading the meniscus and stressing the fixation or aggravating the tear.³ In cases of complex meniscal repairs, weight bearing restrictions can extend to 6-8 weeks due to vascularization and healing.

¹ Meniscal Tears. In AAOS.org. Retrieved 4/3/13, from <http://orthoinfo.aaos.org/topic.cfm?topic=a00358>

² Brontzman SB, Wilk KE, *Clinical Orthopaedic Rehabilitation*. Philadelphia, PA: Mosby Inc; 2003:315-319.

³ Current Concepts in Orthopaedic Physical Therapy, 3rd Edition. The Knee: Physical Therapy Patient Management Utilizing Current Evidence—Tara Jo Manal, PT, DPT, OCS, SCS; Steve A. Hoffman, PT, ATC, SCS; and Lynne Sturgill, PT, MHS, OCS (Subject Matter Expert: Lisa T. Hoggund, PT, PhD, OCS, Cert MDT)

◀ Phase I Protective Phase 1–4 Weeks

Goals

- Diminish inflammation and swelling
- Restore ROM (full knee ext, knee flex to 90°, hip and ankle ROM WNL)
- Reestablish Quad muscle activity-SLR without Quad lag
- Full scar mobility
- Full patellar mobility

Precautions

- **WB status:** WBAT with crutches and brace locked at 0°
- **ROM Restrictions:** Passive ROM 0°-90°
- **Recommended Restrictions:** avoid pivoting and varus/valgus stress, no flexion beyond 90°

Treatment:

- Ice, compression, elevation
- Electrical muscle stimulation
- WBAT with crutches and brace locked at 0°
- Motion is limited for the first 7-21 days, depending on the development of scar tissue around the repair site. Gradual increase in flexion ROM is based on assessment of pain and site of repair (0°-90°)
- Patellar mobilization
- Scar tissue mobilization
- Proprioception training with brace locked at 0°
- **Exercises:** Quad isometrics, HS isometrics (if posterior horn repair, no HS exercises until 6 weeks), ankle pumps, Quad sets, heel slides, Hip ABD, Hip ADD

◀ Phase II – Intermediate Phase

Weeks 4 – 6

Goals

- Diminish inflammation and swelling
- Restore Full AROM
- Reestablish Quad muscle activity
- Criteria to progress to next phase: ROM 0°-90°, no change in pain or effusion, Quad control (MMT 4/5)

Precautions

- WB status: WBAT with crutches and brace locked at 0°
- ROM Restrictions: Passive ROM 0°-90°
- Recommended Restrictions: Avoid pivoting and varus/valgus stress, no flex beyond 90°

Treatment:

- Immobilizer D/C per surgeon
- Progress PRE's for hip, knee, ankle
- Progress WB flex 45°-90°
- Continue proprioceptive training
- Exercises: heel raises, mini-squats (less than 90° knee flexion), stationary bike (no resistance)

◀ **Phase III Week 6-12**

Goals

- Restore full AROM
- Regain full muscle strength
- Prepare patients for advances exercises
- Criteria to progress to next phase: full, pain free ROM, no pain or tenderness, SLR without lag, gait without device, brace unlocked

Precautions

- WB status: FWB D/C crutches and brace
- ROM restrictions: WB flex 0°-90°
- Recommended Restrictions: Avoid patellofemoral overload, avoid squatting, avoid pivoting or twisting on knee

Treatment:

- Begin loaded flex beyond 90° at 8 weeks
- Exercises: Progress PRE's, stationary bike, Quad set, heel slides, SLR, SAQ, heel raises, side lying hip ABD, standing HS curl, wall slides with knee flex <90°, squat to chair, seated leg press, step up/down, flexibility exercise (HS, Quad, Gastroc stretching)

◀ **Phase IV Weeks 12-16**

Goals

- Regain full muscle strength
- Increase power and endurance
- Prepare for return to unrestricted activities
- Work on cardiovascular conditioning
- Sport-specific training

Precautions

- WB status: FWB
- ROM Restrictions: No restrictions
- Recommended Restrictions: Avoid patellofemoral overload, avoid squatting, avoid pivoting or twisting on knee

Treatment:

- Continue all exercises
- Increase plyometrics and pool program (if available)
- Initiate running program
- Sport specific drills
- Emphasize plyometrics, jumping, cutting

- Exercises: Progress PRE's, flexibility exercises, mini-squats, step up/down, lateral step-ups, stationary bike, swimming (no front kick), pool running, balance, backward walking, plyometrics

**◀ Phase V
Weeks 16 – onward**

Goals

- Safely recondition the injured area for the demands of sports activity
- Criteria for discharge from skilled therapy:
 - Non-antalgic gait pattern
 - Pain free full ROM
 - No palpable edema
 - LE strength at least 4/5
 - Independent HEP
 - Age appropriate balance and proprioception abilities

Precautions

- WB status: FWB
- ROM Restrictions: No restrictions
- Recommended Restrictions: Avoid patellofemoral overload, avoid squatting, avoid pivoting or twisting on knee

Treatment:

Return to Running Progression:

- Light running on soft, level surface per MD
- Need full ROM, good strength and no swelling to run safely
- Start with running 10 minutes, 3 times per week for first 2 weeks...if pain free with running, can increase running time by 1 minute per session for max 30 minutes

Speed and Agility Running Program for Return to Sport:

- Straight ahead running phase
- Direction change running phase
- Unrestricted direction change

Rehabilitation Protocol for Meniscal Repair

Rehabilitation Guidelines: Summary Table

Post –op Phase/Goals	Therapeutic Exercise	Precautions
<p>Phase I Weeks 1-4</p> <p>Goals:</p> <p>Diminish inflammation and swelling Restore ROM (full knee ext, knee flex to 90°, hip and ankle ROM WNL) Reestablish Quad muscle activity- SLR without Quad lag Full scar mobility Full patellar mobility</p>	<p>Ice, compression, elevation Electrical muscle stimulation WBAT with crutches and brace locked at 0° Motion is limited for the first 7-21 days, depending on the development of scar tissue around the repair site. Gradual increase in flexion ROM is based on assessment of pain and site of repair (0°-90°) Patellar mobilization Scar tissue mobilization Proprioception training with brace locked at 0° <u>Exercises:</u> Quad isometrics, HS isometrics (if posterior horn repair, no HS exercises until 6 weeks), ankle pumps, Quad sets, heel slides, Hip ABD, Hip ADD</p>	<p>WB status: WBAT with crutches and brace locked at 0° ROM Restrictions: Passive ROM 0°-90° Recommended Restrictions: avoid pivoting and varus/valgus stress, no flex beyond 90°</p>
<p>Phase II Weeks 4-6</p> <p>Goals:</p> <p>Diminish inflammation and swelling Restore full AROM Reestablish Quad muscle activity Criteria to progress to next phase: ROM 0°-90° no change in pain or effusion, Quad control (MMT 4/5)</p>	<p>Immobilizer D/C per surgeon Progress PRE’s for hip, knee, ankle Progress WB flex 45°-90° Continue proprioceptive training <u>Exercises:</u> heel raises, mini-squats (less than 90° knee flex), stationary bike (no resistance)</p>	<p>WB status: WBAT with crutches and brace locked at 0° ROM Restrictions: Passive ROM 0°-90° Recommended Restrictions: avoid pivoting and varus/valgus stress, no flex beyond 90°</p>
<p>Phase III Weeks 6 - 12</p> <p>Goals</p> <p>Restore full AROM Regain full muscle strength Prepare patients for advances exercises Criteria to progress to next phase: full, pain free ROM, no pain or tenderness, SLR without lag, gait without device, brace unlocked</p>	<p>Treatment: Begin loaded flex beyond 90° at 8 weeks Exercises: Progress PRE’s, stationary bike, Quad set, heel slides, SLR, SAQ, heel raises, side lying hip ABD, standing HS curl, wall slides with knee flex <90°, squat to chair, seated leg press, step up/down, flexibility exercise (HS, Quad, Gastroc stretching)</p>	<p>Precautions WB status: FWB D/C crutches and brace ROM restrictions: WB flex 0°-90° Recommended Restrictions: Avoid patellofemoral overload, avoid squatting, avoid pivoting or twisting on knee</p>

Post –op Phase/Goals	Therapeutic Exercise	Precautions
<p>Phase IV Weeks 12-16 <i>Goals</i> Regain full muscle strength Increase Power and endurance Prepare for return to unrestricted activities Work on cardiovascular conditioning Sport-specific training</p>	<p>Continue all exercises Increase plyometrics and pool program (if available) Initiate running program Sport specific drills Emphasize plyometrics, jumping, cutting Exercises: Progress PRE’s, flexibility exercises, mini-squats, step up/down, lateral step-ups, stationary bike, swimming (no from kick), pool running, balance, backward walking, plyometrics</p>	<p>WB status: FWB ROM Restrictions: No restrictions Recommended Restrictions: Avoid patellofemoral overload, avoid squatting, avoid pivoting or twisting on knee</p>
<p>Phase V Weeks 16-onward <i>Goals</i> Safely recondition the injured area for the demands of sports activity Criteria for discharge from skilled therapy: Non-antalgic gait pattern Pain free full ROM No palpable edema LE strength at least 4/5 Independent HEP Age appropriate balance and proprioception abilities</p>	<p><u>Return to Running Progression:</u> Light running on soft, level surface per MD Need full ROM, good strength and no swelling to run safely Start with running 10 minutes, 3 times per week for first 2 weeks...if pain free with running, can increase running time by 1 minute per session for max 30 minutes</p> <p><u>Speed and Agility Running Program for Return to Sport:</u> Straight ahead running phase Direction change running phase Unrestricted direction change</p>	<p>WB status: FWB ROM Restrictions: No restrictions Recommended Restrictions: Avoid patellofemoral overload, avoid squatting, avoid pivoting or twisting on knee</p>