ORTHOPEDICS & SPORTS MEDICINE
BAYCARE CLINIC

DR. JOHN AWOWALE
MENISCAL ROOT REPAIR POST-OP THERAPY PROTOCOL

Phase 1 – Maximum Protection Phase (0-6 weeks)

Goals for Phase 1	Precautions for Phase 1
• Protect repair • Minimize effusion • ROM per guidelines listed, emphasis on extension • Encourage quadriceps function • Scar tissue mobility	• Avoid knee hyperextension during this phase • No isolated resistance knee flexion for 6 weeks due to semi-membranous attachment to medial meniscus and popliteus to the lateral meniscus

Immobilization/Weight Bearing
- 5% weight bearing with crutches and brace from 0 – 90° for 6 weeks

Range of Motion
- **0-6 weeks:** 0-90° PROM, emphasis on full extension

Brace
- **0-6 weeks:** brace opened from 0-90° and to be worn at all times unless performing physical therapy or for hygiene. Keep brace locked at 0° for ambulation.

Manual Therapy
- Patellar mobility (superior, medial, lateral)
- Scar massage when incisions closed
- Gentle flexibility using deep tissue mobilization or the “Stick” – hamstring, quadriceps, gastroc-soleus, ITB
- PROM knee flexion to 90°, strong emphasis on full knee extension
- Quadriceps setting
- NMES if needed to promote quadriceps contraction
- Avoid knee hyperextension with quadriceps setting

Strengthening
- Hip strengthening
  - Multi-plane open kinetic chain SLR with brace on if needed for quad lag
- Core strengthening

Modalities
- Vasopneumatic compression for edema management 2-3x/week
- Cryotherapy, 3 x per day for 20 minutes each with knee elevated above heart
- NMES for quadriceps function if quad lag present

Form Number 80220
Rev. 12/1/2025

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Phase 2 – Moderate Protection Phase (6-8 weeks)

Goals for Phase 2	Precautions for Phase 2
• Minimize effusion • Gently increase ROM • Normalize gait with heel-toe pattern • Discharge brace • Closed kinetic chain strengthening program	• No kicking in pool for 12 weeks • Avoid closed kinetic chain knee flexion past 90° • Avoid twisting and pivoting for 12 weeks

Immobilization/Weight Bearing
- Slow progression back to FWB with BW% increasing by 25% every 3-4 days if patient has controlled effusion and appropriate knee control

Range of Motion
- Gradually progress toward full range of motion

Brace
- Begin progression of opening brace from 0-30° if able to demonstrate good quad control during ambulation with brace being further opened every 3-4 days until 90° is reached.
- Expectation of 0-90° while weight-bearing for 3-4 days without crutches before discharge or brace

Manual Therapy
- Gentle flexibility – hamstring, quad, gastric-soleus, ITB

Strengthening
- Stationary bike with light resistance (seat height=less than a 120° knee angle through entire revolution on upright bike)
- Bilateral gym strengthening program (mini squats, leg press, 4-way hip strengthening, step-ups, bridging, calf raises)
- Initiate knee AROM with CKC strengthening
- Core strengthening

Aquatics
- Initiate aquatic therapy program when incisions are closed

Neuromuscular Control
- Proprioception on stable surface

Modalities
- Vasopneumatic compression for edema measurement 2x/week
- Cryotherapy, 2 x per day for 20 minutes each with knee elevated above the heart
- NMES for quadriceps function if quad lag present with SLR

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Phase 3 – Advanced Strengthening Phase (8-12 weeks)

Goals for Phase 3	Precautions for Phase 3
• Progress muscle strength, endurance, and balance	• No kicking in pool for 12 weeks • Avoid twisting and pivoting for 12 weeks • Avoid deep squatting for 4 months • Avoidance of impact activity until able to pass functional testing

Range of Motion
- Restore full ROM

Strengthening
- Stationary bike or elliptical for warm-up
- Bilateral gym strengthening with progression to unilateral as able (leg press, step- ups, hamstring curls, side-stepping, single leg squat, multi-directional lunges)
- Hamstring strengthening with progression to OKC
- Core strengthening

Neuromuscular Control
- Advanced proprioception on unstable surfaces
- Add dual tasking and sport specific balance as able

Modalities
- Cryotherapy after activity

Testing to Advance to Phase 4 of Protocol
- Functional testing to be scheduled before 12-week follow-up with physician
- **Criteria**:
  - Y-Balance testing within 6 cm of involved LE
  - Isometric quadriceps testing (<25% difference)
  - Single leg squat with good control

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Phase 4 – Strengthening and Plyometric Phase (12-20 weeks)

Goals for Phase 4	Precautions for Phase 4
• Progress single leg muscle strength, endurance, and balance • Initiate impact activity • Sport or work specific tasks	• None

Manual Therapy
- Restore flexibility – hamstring, quad, gastroc-soleus, ITB

Strengthening
- Stationary bike or elliptical
- Unilateral gym strengthening program (single leg squats, eccentric leg press, lateral step-downs, advanced bridging, multi-directional lunges, CKC hamstring curls)
- Initiate impact activities
- **12-14 weeks**: sub-maximal body weight impact exercise (pool, GTS, plyo-press, Alter G)
- **14+ weeks**: sagittal plane running, agility drills, sub-maximal plyometrics
- **16+ weeks**: Advance to multi-directional
- Core strengthening

Neuromuscular Control
- Advanced proprioception on unstable surfaces with perturbations and/or dual tasking, add sport specific balance tasks as able

Modalities
- Cryotherapy after activity

Return to Function Testing
- **Week 24**: Return to function testing per physician approval
- **Criteria**:
  - Pain-free
  - Full ROM
  - Minimal joint effusion
  - Isokinetic strength and functional testing at 90% compared to uninvolved
  - adequate knee control with sport and/or work specific tasks

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Rev. 12/1/2025