Physical Therapy Protocol: Meniscal Repair (Radial Repair)

Phase 1: Weeks 0 through 6 – Meniscus Repair Protection, Quad Activation

Physician Goals: Protect the meniscus root repair which is at its most vulnerable during this time, decrease pain, prevent significant stiffness, re-activate the quadriceps
Restrictions: Nonweightbearing with crutches, range of motion 0 to 90° when nonweightbearing, brace locked in full extension for sleep and when moving around
Exercises: Patella mobilization, quad sets with brace locked at 0°, straight leg raises with brace locked in full extension until quad control is good, then straight leg raises unlocked, heel slides to maximum of 90° of flexion, ankle pumps, body weight core strengthening, isometric knee extensions (90-45°), no-load full-ROM knee extensions, progress to weighted knee extensions (1-2 lbs increments; must be pain free), Passive BFR at 100% LOP, 5-minute occlusion, 3-minute reperfusion cycles No exercise required during this phase. Focus on mitigating muscle atrophy. NMES during OKC exercises Parameters: 2-second ramp-up, 10-second contraction, 50-second rest
Total Visits: 12 – once to twice per week with daily at home range of motion exercises, quad sets, ankle pumps

Phase 2: Weeks 6 through 12 – Range of Motion Recovery

Physician Goals: Gradually increase to full weight bearing by the end of week 10 (25% per week), regain full range of motion, begin to build lower extremity strength and endurance while minimizing impact, discontinue crutches completely, transition from postoperative brace to unloader brace
Restrictions: No weight bearing with the knee beyond 90° of flexion, unloader brace whenever weight bearing, no running, jumping, cutting, pivoting
Exercises: Short arc squats/weight shifts, start proprioceptive training, initiate step-up program and progress to step-down program, leg press, lunges, isotonic knee extensions, stationary bike with low resistance, retrograde treadmill ambulation, advance hip/core/glute strengthening; continue BFR with OKC exercises at 80% LOP, 30-15-15-15 rep scheme with gradual progression to 20-30% 1 rep max resistance. NMES with advanced resistance exercises Adjust intensity as needed for strength recovery; ensure proper patient comfort.
Total Visits: 12 – once to twice per week depending on patient's ability to perform HEP independent of PT sessions

Phase 4: Weeks 12+ – Strength Recovery and Return to Activity

Physician Goals: Increase strength throughout the entire range of motion without restrictions, gradually resume impact activity and return to recreation/sports
Restrictions: Continue to wear unloader brace whenever weight bearing for 6 months, return to running, cutting/agility work, and sports per criteria below
Exercises: Progress lower body strengthening without restriction, plyometric program, elliptical; swimming OK at this phase
Total Visits: 24 – once to twice per week depending on patient's ability to perform strength training independently – goal is strengthening 3-4x per week

Return to Running Criteria:

☐Trace effusion, flexion within 5° of contralateral side
☐Limb symmetric index (LSI) on anterior reach Y balance test ≥ 90%
☐LSI on quadriceps torque output on isometric measurement ≥ 75%
☐12” single leg squat tolerance with good hip control
☐Able to walk > 1 mile with no limping or pain
☐Able to “hop” with upper extremity assistance on operative leg 5 times without pain or compensation
☐Single leg balance with eyes closed ≥ 30 seconds

Return to Cutting / Agility Training Criteria:

☐Return to running criteria met above
☐No effusion
☐Full range of motion
☐Quad LSI on isokinetic ≥ 85%
☐Hamstring LSI on isokinetic ≥ 85%
☐LSI on anterior reach Y-balance ≥ 95%
☐Single leg hopping pain free

Return to Sport Criteria:

☐LSI ≥ 95% hamstring curl and leg press
☐Able to perform single leg squat to 75° with correct form
☐Single leg hop LSI ≥ 95%
☐Y-balance ≥ 95% (mean of 3 trials in anterior, posterolateral and posteromedial ÷ 100)
☐Vertical jump test, single leg hop distance, and timed single leg hop over 20 feet ≥ 90% contralateral side