



NICK AVALLONE, M.D.

www.dravallone.com

755 Memorial Pkwy
Suite 201
Phillipsburg, NJ 08865

22 Walmart Plaza
2nd Level
Clinton, NJ 08809
908-847-8884

Rehabilitation after Meniscal Root Repair

DISCLAIMER: The following Physical Therapy protocol is intended to be utilized by the clinician as a guideline in the treatment of this disorder. It is based on current research and has been formulated as a collaborative effort between Physicians and Physical Therapists. It is not intended to serve as a substitute for sound clinical decision making. Every patient is a unique case, and it should be anticipated that not all patients will fit into the timelines set forth in this protocol. If the Physical Therapist has any questions regarding the course of treatment, the referring physician should be contacted for further guidance.

Phase I: 0-8 Weeks post op (start day 3)

Rehabilitation Goals

- Protection of the post-surgical knee
- Eliminate effusion (swelling)
- Restore leg control

Precautions

- Weight bearing: touch down weight bearing (TDWB) with crutches
- Brace: post-operative extension brace for 6 weeks. Wean from brace locked to unlocked to no brace after 6 weeks and as patient establishes leg control, pain control and safe gait mechanics.
- Range of Motion (ROM): *Goal of 0-90° by week 6, progress beyond 90 degrees after week 6*

Passive and Assisted Range of Motion Exercises

- Knee extension on a bolster
- Prone hangs
- Supine wall slides with no push into wall
- Knee flexion off the edge of the table assisted by other leg or person

Suggested Therapeutic Exercise

- Quadriceps sets
- Hamstring sets
- Straight leg raises
- 4 way leg lifts in standing with brace on for balance and hip strength
- Heel slides to 90°

Revised 2020

- Abdominal isometrics

Cardiovascular Exercise

- Upper body circuit training or upper body ergometer

Progression Criteria

- 8-10 weeks after surgery
 - Pain-free gait without crutches
 - No effusion (swelling)

Phase II: Weeks 8-12

Rehabilitation Goals

- Single leg stand control
- Normalize gait
- Good control and no pain with functional movements, including step up/down, squat, partial lunge (between 0° and 60° of knee flexion)

Precautions

- No forced flexion with passive range of motion with knee flexion or weight bearing
- activities that push the knee past 60° of knee flexion
- Avoid post-activity swelling
- No impact activities

Suggested Therapeutic Exercise

- Non-impact balance and proprioceptive drills
- Stationary bike
- Gait drills
- Hip and core strengthening
- Stretching for patient-specific muscle imbalances
- Quadriceps strengthening, making sure that closed chain exercises occur between 0° and 60° of knee flexion

Cardiovascular Exercise

- Non-impact endurance training: stationary bike, Nordic track, swimming, deep water running or cross trainer

Progression Criteria

- Normal gait on all surfaces
- Ability to carry out functional movements without unloading affected (injured) leg or pain, while demonstrating good control
- Single leg balance greater than 15 seconds

Phase III: Weeks 12-20

Rehabilitation Goals

- Good control and no pain with sport and work specific movements, including impact

Precautions

- Post-activity soreness should resolve within 24 hours
- Avoid post-activity swelling
- Avoid posterior knee pain with end range knee flexion

Suggested Therapeutic Exercise

- 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

Cardiovascular Exercise

- Replicate sport or work specific energy demands

Return To Sport/Work Criteria

- Dynamic neuromuscular control with multi-plane activities without pain or swelling

Phase IV: Weeks 20-24

Rehabilitation Goals

- Normal multi-planar high velocity without side to side differences or compensations.
- Normal double leg landing control without side to side differences or compensations.
- Adherence to home exercise program (HEP)

Precautions

- No active reactive swelling or joint pain that lasts more than 12 hours

Suggested Therapeutic Exercise

- Progressive agility drills: forward and backward skipping, side shuffle, skater's quick stepping, carioca, cross overs, backward jog, forward jog
- Landing mechanics - progressing from higher amplitude double leg to single leg landing drills. Start uni-planar and gradually progress to multi-planar
- Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities
- Unanticipated movement control drills, including cutting and pivoting
- Agility ladder drills
- Strength and control drills related to sport specific movements
- Sport/work specific balance and proprioceptive drills

- 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 stance
- Stretching for patient specific muscle imbalances

Cardiovascular Exercise

- Progressive running program. Design to use sport specific energy systems

Return To Sport/Work Criteria

- Patient may return to sport after receiving clearance from the orthopedic surgeon and the physical therapist/athletic trainer. Progressive testing will be completed.
 - The patient should have less than 15% difference in dynamometer strength test and vertical hop tests, and functional horizontal hop tests
 - Pass Vail Sport Test >46/54
 - Anterior reach on Y Balance Test <5-cm difference
 - Y Balance Test composite score >94%
 - Quadriceps index >90%
 - Single-leg hop series >90%

◦ Modified Vail Test:

Component	Points
Single-leg squats, 2 minutes, blue sport cord	10 possible (5 per minute)
Lateral bounding, 2 minutes, 2 blue sport cords	10 possible (5 per minute)
Forward jogging, 1 minute, 2 blue sport cords	6 possible (6 per minute)
Backward jogging, 1 minute, 2 blue sport cords	6 possible (6 per minute)
Total points possible	32
Passing score	>27/32 (>85%)

◦ Running Progression:

Week 22: 4 minute walk, 1 minute run 15-20 minutes
 Week 23: 3 min walk, 2 min run for 20 min
 Week 24: 2 minute walk, 3 min run for 20 min
 Week 25: 1 minute walk, 4 minute run for 20 min

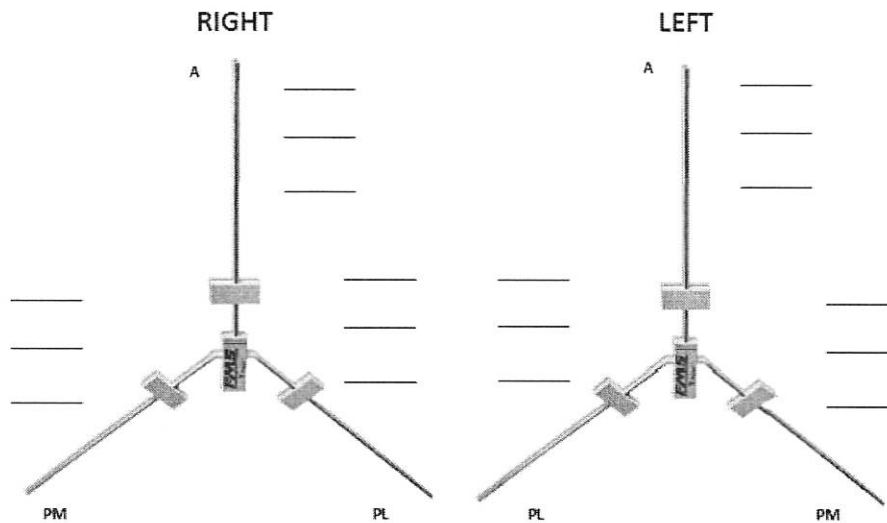
◦ Single leg hop series:

Single hop for distance
 Triple hop for distance
 Cross over hop for distance

- Y Balance:

Y-Balance Test – Score Sheet

Right limb length in centimeters: _____
 (Measure from right ASIS to right medial malleolus in supine after performing bilateral bridge)



Greatest Successful Reach

	Right	Left	Difference
Anterior (A)			
Posteromedial (PM)			
Posterolateral (PL)			

Composite Score

Right	
Left	

$$\frac{(\text{Anterior} + \text{Posteromedial} + \text{Posterolateral})}{3 \times \text{Right Limb Length}} \times 100$$

References of adaptation:

Rehabilitation Guidelines for Meniscal Repair of Root and Complex Tears. University of Wisconsin. Madison, WI; 2018.

Mueller B, Moulton S, O'Brien L, Laprade R. Rehabilitation Following Meniscal Root Repair: A Clinical Commentary. *J Orthop Sports Phys Ther* 2016; 46 (2): 104-112.

Revised 2020