



Meniscal Repair (Inside Out) Post-Operative Rehabilitation Protocol

0-2 weeks

- NWB for 6 weeks with brace locked in extension
- ROM: 0-90° with emphasis on full extension
- Patella mobilization
- SLR supine with brace locked at 0 degrees
- Quad Sets with brace locked at 0 degrees
- Ankle Pumps
- Short crank (90mm) ergometry

2-4 weeks

- Continue NWB status until 6 weeks
- Brace locked in full extension until 6 weeks
- ROM: 0-125 degrees (maintain full extension)
- Active knee extension to 40 degrees
- Standard (170 mm) ergometry (ROM >115°)

4-8 weeks

- Begin WBAT progression advance to PWB (25% then 50%) starting at 6 weeks
- Discontinue crutches once gait is normalized and non-antalgic
- Discontinue brace once adequate quad control
- Wall sits to 90 degrees
- Leg press (80-0 degree arc)
- Mini squats/weight shifts
- Proprioception training

8-12 weeks

- Advance to full WBAT without brace
- Full ROM
- Leg press 0-70 degrees, lunges 0-70 degrees
- Continue proprioception exercises
- Begin stationary bike

12-16 weeks

- Progress strengthening exercises
- Single leg strengthening
- Begin jogging to running transition
- Advance sports-specific exercise

Weight Bearing Status

NWB x 6
weeks

Brace Settings

Locked
straight x 6
weeks when
ambulating
or sleeping.
Otherwise
open brace
once good
quad control

ROM Restrictions

Full PROM
beginning POD
1



Exercise	Week																		
	1	2	3	4	5	6	7	8	9	10	12	16	20	24					
Initial Exercises:																			
ROM Goals	0-90°				0-125°				Progress to full										
Flexion/extension, heel slides	[Shaded]										[]								
Patella/Tendon mobilization	[Shaded]							[]											
Quad Series	0° ISOs, SLR				60° ISO				70-30° arc-resisted				Full arc resisted						
Hamstring strength progression	No isolated, resisted HS							ISOs, hip based				Knee-based resisted arc							
Sit and reach for hamstrings (no hyperextension)	[Shaded]										[]								
Ankle Pumps	[Shaded]										[]								
Crutch weaning	NWB					[Shaded]				[]									
Heel prop knee extension stretch	[Shaded]								[]										
SLR (w/ brace until quad control restored)	[Shaded]							[]											
Toe and heel raises	[]							[Shaded]				[]							
Balance series	[]							[Shaded]											
Weight-bearing Strength Exercises:																			
Double knee bends	[]					NWB				[Shaded]					[]				
Leg Bridges (2 → 1 leg)	[]					NWB				[Shaded]					[]				
SLS Balance progressions	[]					NWB				[Shaded]					[]				
Squat/Leg press (ISO →reps, 2 → 1 leg) (Max 70°)	[]					NWB				0-45°		0-70°		Max 70°					
Step-up/Lunge Progressions (Max 70°)	[]					NWB				ISOs			0-70°		Max70°				
Dead Lift (2 →1 leg)	[]					NWB				[Shaded]						[]			
Banded resisted directional stepping	[]					NWB				[Shaded]					[]				
Cardiovascular Exercises:																			
Bike with both legs-no resistance	[]					NWB				[Shaded]					[]				
Bike with both legs- resistance	[]					NWB				[Shaded]						[]			
Aqua jogging	[]					NWB				[Shaded]					[]				
Treadmill-walking (no limp)	[]					NWB				[Shaded]						[]			
Swimming with fins-light flutter kick	[]					NWB				[Shaded]					[]				
Elliptical Trainer	[]					NWB				[Shaded]					[]				
Stair stepper	[]					NWB				[Shaded]					[]				
*Note for Cardio Exercises	Must tolerate daily walking with no limp & no significant increase in pain/swelling prior to initiating WB cardio (walk, elliptical, stepper)																		
Agility Exercises:																			
Running Progression	[]					NWB				[]					[Shaded]				
Initial-Single Plane	[]					NWB				[]					[Shaded]				
Advance-Multi Directional	[]					NWB				[]					[Shaded]				
Functional Sports Test	[]					NWB				[]					[Shaded]				
High Level Activities:																			
Golf Progression	[]					NWB				[]					[Shaded]				
Outdoor biking, hiking, running	[]					NWB				[]					[Shaded]				
Return to Full Sport at 7-9 months post-op	[]																		

Adapted from post-operative protocol created by Howard Head Physical Therapy, Jill Monson, PT, OCS and Jon Schoenecker, PT, OCS, CSCS



Quad Series:

- Quad sets (5 sec hold) also quick contractions (NMES to supplement)
- Prone quad sets
- SLR with no extension leg
- Progression of Quad Strengthening (WB exercises at 6 weeks)
 - LAQ in safe range -no added resistance to begin
 - Once weight bearing tandem stance TKE with 5 sec hold
 - Isometric wall sit
 - SLR with resistance
 - Step up progression
 - Squat progression
 - Leg press progression
 - Lunge progression

Hamstring Series:

- Hamstring stretching (supine/prone)
- Hamstring set (heel dig)- contract hamstring with knee flexed pressing heel into the floor (5 sec hold)
- Hamstring curls
- Progress to resisted hamstring curl

Sport Test Exercises:

- Goals: impact training and introduction of directional drills
- Double leg squat jumps
- Box jumps
- Speed skaters
- Double leg jumps for height and distance progress to single leg as tolerated
- Blaze pod change of direction drills

Further Clarifications and Considerations

- May begin to implement BFR as early as 1 week into post-op period
- Functional Sports Test: Baseline completed at 7 months post-op with subsequent test at 9 months



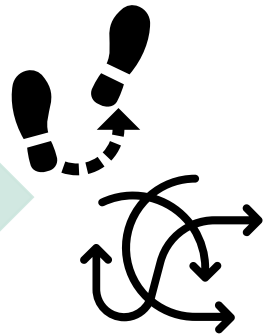
Return to Running Criteria

- Trace effusion, flexion within 5 degrees of contralateral side
- LSI on anterior reach Y balance test $\geq 90\%$
- LSI on quadriceps torque output on isometric measurement $\geq 75\%$
- 12" SL squat tolerance
- Able to walk > 1 mile with no limping or pain
- Able to "hop" with UE assist on operative leg 5 times without pain or compensation
- SL balance with eyes closed 30 seconds without loss of balance



Return to Agility/Change of Direction Activity

- Return to running criteria listed above met
- No effusion
- Full ROM
- Quad LSI on isokinetic $\geq 85\%$
- Hamstring LSI on isokinetic $\geq 85\%$
- LSI on anterior reach Y-balance $\geq 95\%$
- SL hopping pain-free and effusion free



Return to Sport Criteria

- In order to test must demonstrate full AROM, no pain, no/trace effusion, 5/5 strength, negative lachman and pivot shift, LSI $\geq 95\%$ hamstring curl and leg press
- Quadricep strength $\geq 95\%$ of contralateral side (< 2 cm of atrophy)
- Able to perform single leg squat with correct form
- LSI SL hop $\geq 95\%$
- Y-Balance $\geq 95\%$ (mean of 3 trials in anterior, posterolateral, posteromedial /100)
- Vertical jump test, single leg hop distance, and timed single leg hop over 20 -feet $\geq 90\%$ of contralateral side

