



# Multiligament Reconstruction

## Post-Operative Therapy Protocol

### 0-2 weeks

- NWB for 6 weeks
- 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

### 2-6 weeks

- Flexion extension wall slides

### 6-12 weeks

- Begin spinning on a stationary bike
- Begin to wean off crutches
- Sit and reach for hamstrings
- Progressive Squat program
- Initiate Step Down program
- Balance Series
- Double leg bridges
- Begin cord exercise

### 12-20 weeks

- Sports test exercises
- No gravity running

### >24 weeks

- Running progression
- Agility exercises
- Multidirectional motions
- Functional sports test

### 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						
<b>Initial Exercises:</b>																				
ROM Goals	0-90°		0-125°			Progress to full														
Flexion/extension, heel slides																				
Flexion/extension- seated/ calf-assisted																				
Patella/Tendon mobilization																				
Quad Series	0° ISOs, SLR			60° ISOs			70-30° arc-resisted			Full arc resisted										
Hamstring Sets																				
Sit and Reach for Hamstrings																				
Ankle Pumps																				
Crutch weaning	NWB																			
Heel prop knee extension stretch																				
SLR (w/ brace until quad control restored)																				
Toe and heel raises																				
<b>Weight-bearing Strength Exercises:</b>	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Double Knee Bends	NWB																			
Double Leg Bridges																				
Step up/Lunge Progression																				
Beginning cord exercises																				
Proprioception/Balance Training																				
Dead Lift (2 → 1)																				
Squat/Leg Press (ISO → reps, 2→1 leg)										0-45°			0-70° (70° Max on press)							
Sports Test Exercises																				
<b>Cardiovascular Exercises:</b>							1	2	3	4	5	6	7	8	9	10	12	16	20	24
Bike with both legs-no resistance	NWB																			
Bike with both legs- resistance																				
Aqua jogging																				
Treadmill-walking 7% incline																				
Swimming with fins-light flutter kick																				
Elliptical Trainer																				
Rowing																				
Stair stepper																				
*Cardio Exercises	Must tolerate daily walking with no limp & no significant increase in pain/swelling prior to initiating WB cardio (walk, elliptical, stepper)																			
<b>Agility Exercises:</b>	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Running Progression*	NWB																			
Initial-Single Plane																				
Advance-Multi Directional																				
Functional Sports Test																				
<b>High Level Activities:</b>	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Golf Progression	NWB																			
Outdoor biking, hiking, running																				
Return to Full Sport at 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



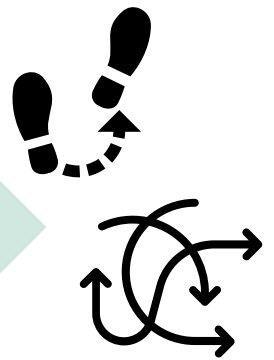
## Return to Running Criteria

- 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 Criteria

- 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 (< 2cm 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

