



## ACL Reconstruction with Meniscal Repair (All Inside) Post-Operative Rehabilitation Protocol

### 0-2 weeks

- NWB for 2 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

### Weight Bearing Status

NWB x 2  
weeks

### 2-6 weeks

- Begin WBAT
- No WB with the knee past 90 degrees of flexion
- Discontinue crutches when gait is non-antalgic
- ROM: 0-125 degrees (maintain full extension)
- Active knee extension to 40 degrees
- Standard (170 mm) ergometry (ROM >115°)
- Leg press (80-0 degree arc)
- Mini squats/weight shifts
- Proprioception training
- Initiate Step Up program
- Avoid tibial rotation until 6 weeks

### Brace Settings

Locked  
straight x 3-4  
weeks when  
ambulating  
or sleeping.  
Otherwise  
open brace  
once good  
quad control

### 6-14 weeks

- Progressive squat program
- Initiate Step-Down program
- Leg press, lunges
- Isotonic knee extensions (90-40 degrees, close chain preferred)
- Agility exercises (sport cord)
- Versaclimber /Nordic track
- Retrograde treadmill ambulation

### ROM Restrictions

Full PROM  
beginning  
POD 1

### 14-22 weeks

- Begin forward running (treadmill program when 8" stepdown status satisfactory)
- Continue strengthening and flexibility program
- Advance sports-specific agility drills
- Start plyometric program



## **>22 weeks**

- Advance plyometric program, return to sport (MD directed)
- \*\*May perform Functional Sports Assessment (FSA) 7 months and then subsequent test at 9 months postop for clearance to return to sport



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	[Green bar from Day 1 to Day 12]														
Flexion/extension- seated	[Green bar from Day 8 to Day 16]														
Patella/Tendon mobilization	[Green bar from Day 1 to Day 9]														
Quad Series	[Green bar from Day 1 to Day 9]														
Hamstring Sets	[Green bar from Day 4 to Day 24]														
Sit and Reach for Hamstrings	[Green bar from Day 3 to Day 9]														
Ankle Pumps	[Green bar from Day 1 to Day 7]														
Crutch weaning	NWB		[Green bar from Day 3 to Day 5]												
Heel prop knee extension stretch	[Green bar from Day 1 to Day 7]														
SLR (w/ brace until quad control restored)	[Green bar from Day 1 to Day 7]														
Toe and heel raises	[Green bar from Day 3 to Day 7]														
<b>Weight-bearing Strength Exercises:</b>															
Double Knee Bends	[Green bar from Day 1 to Day 24]														
Double Leg Bridges	[Green bar from Day 1 to Day 12]														
Step up/Lunge Progression	NWB		ISOs			0-70°			70-90°						
Beginning cord exercises	[Green bar from Day 8 to Day 24]														
Proprioception/Balance Training	[Green bar from Day 1 to Day 16]														
Dead Lift (2 → 1)	[Green bar from Day 1 to Day 24]														
Squat/Leg Press (ISO → reps, 2→1 leg)	NWB		0-45°		0-70°			>70° gradual							
Sports Test Exercises	[Green bar from Day 1 to Day 24]														
<b>Cardiovascular Exercises:</b>															
Bike with both legs-no resistance	[Green bar from Day 1 to Day 4]														
Bike with both legs- resistance	[Green bar from Day 4 to Day 24]														
Aqua jogging	[Green bar from Day 12 to Day 24]														
Treadmill-walking 7% incline	[Green bar from Day 8 to Day 24]														
Swimming with fins-light flutter kick	[Green bar from Day 8 to Day 24]														
Elliptical Trainer	[Green bar from Day 12 to Day 24]														
Rowing	[Green bar from Day 12 to Day 24]														
Stair stepper	[Green bar from Day 16 to Day 24]														
<b>Agility Exercises:</b>															
Running Progression	[Green bar from Day 12 to Day 24]														
Initial-Single Plane	NWB		[Green bar from Day 16 to Day 24]												
Advance-Multi Directional	[Green bar from Day 16 to Day 24]														
Functional Sports Test	[Green bar from Day 16 to Day 24]														
<b>High Level Activities:</b>															
Golf Progression	[Green bar from Day 16 to Day 24]														
Outdoor biking, hiking, running	NWB		[Green bar from Day 16 to Day 24]												
Return to Full Sport at 9 months post-op	[Green bar from Day 16 to Day 24]														

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 (2-6 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:

- Double Knee Bends: feet shoulder width apart, bend knees to 30°, keeping knees behind the toes.
- Cord exercises (resistance band/cord): resisted double knee bends, resisted hamstring curls
- May begin to implement BFR as early as 1 week into post-op period
- Functional Sports Test: Baseline completed around 7 months post-op with subsequent test at 9 months



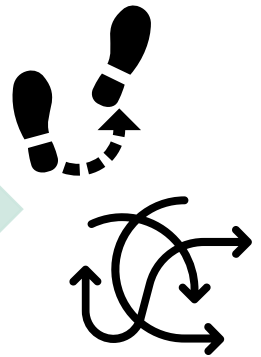
## Return to Running Criteria

- 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 ( $< 2$ 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

