



## ACL Repair with Bucket Handle Repair Post-Operative Rehabilitation Protocol

- |                     |   |
|---------------------|---|
| <b>0-4 weeks</b>    | <ul style="list-style-type: none"><li>▪ NWB for 6 weeks</li><li>▪ ROM: 0-90° with emphasis on full extension</li><li>▪ Patella mobilization</li><li>▪ SLR supine with brace locked at 0 degrees</li><li>▪ Quad Sets with brace locked at 0 degrees</li><li>▪ Ankle Pumps</li><li>▪ Short crank (90mm) ergometry</li></ul>   |
| <b>4-6 weeks</b>    | <ul style="list-style-type: none"><li>▪ Continue NWB status</li><li>▪ ROM: 0-125 degrees (maintain full extension)</li><li>▪ Active knee extension to 40 degrees</li><li>▪ Standard (170 mm) ergometry (ROM &gt;115°)</li><li>▪ Avoid Tibial rotation until 6 weeks</li></ul>   |
| <b>6-14 weeks</b>   | <ul style="list-style-type: none"><li>▪ Transition to an unloader brace at 6 weeks</li><li>▪ Begin WBAT progression</li><li>▪ Discontinue crutches when gait is non-antalgic</li><li>▪ Progressive squat program</li><li>▪ Initiate Step-up program &amp; progress to Step-Down</li><li>▪ Leg press, lunges</li><li>▪ Isotonic knee extensions (90-40 degrees, close chain preferred)</li><li>▪ Agility exercises (sport cord)</li><li>▪ Versaclimber /Nordic track</li><li>▪ Retrograde treadmill ambulation</li></ul> |
| <b>14-22 weeks</b>  | <ul style="list-style-type: none"><li>▪ Begin forward running (treadmill program when 8" stepdown status satisfactory)</li><li>▪ Continue strengthening and flexibility program</li><li>▪ Advance sports-specific agility drills</li><li>▪ Start plyometric program</li></ul>   |
| <b>&gt;22 weeks</b> | <ul style="list-style-type: none"><li>▪ Advance plyometric program, return to sport (MD directed)</li></ul>   |

### 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

PROM 0-90° 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	[Teal bar]																			
Patella/Tendon mobilization	[Teal bar]																			
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									
Calf stretch, seated HS stretch	[Teal bar]																			
Ankle Pumps	[Teal bar]																			
Crutch weaning	NWB					[Teal bar]														
Heel prop knee extension stretch	[Teal bar]																			
SLR (w/ brace until quad control restored)	[Teal bar]																			
SLR hip ABD, ADD, Ext (w/ brace on)				[Teal bar]																
Bridge in knee extension-calves over balls				[Teal bar]																
<b>Weight-bearing Strength Exercises:</b>	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Marching into brief SLS	NWB						[Teal bar]													
Leg Bridges (2 → 1 leg)							[Teal bar]													
SLS Balance progressions							[Teal bar]													
Squat/Leg press (ISO → reps, 2 → 1 leg)										0-45°			0-70°			>70° gradual				
Step-up/Lunge Progressions										ISOs			0-70°			>70°				
Dead Lift (2 → 1 leg)							[Teal bar]													
Banded resisted directional stepping							[Teal bar]													
<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						[Teal bar]													
Bike with both legs- resistance							[Teal bar]													
Aqua jogging							[Teal bar]													
Treadmill-walking (no limp)							[Teal bar]													
Swimming with fins-light flutter kick							[Teal bar]													
Elliptical Trainer							[Teal bar]													
Stair stepper							[Teal bar]													
*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)													
<b>Agility Exercises:</b>	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Running Progression	NWB						[Teal bar]													
Initial-Single Plane							[Teal bar]													
Advance-Multi Directional							[Teal bar]													
Functional Sports Test							[Teal bar]													
<b>High Level Activities:</b>	1	2	3	4	5	6	7	8	9	10	12	16	20	24						
Golf Progression	NWB						[Teal bar]													
Outdoor biking, hiking, running							[Teal bar]													
Return to Full Sport at 9 months post-op							[Teal bar]													



## 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 between 9 months



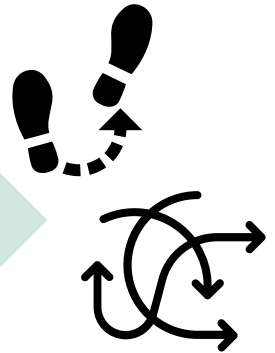
## Return to Running Criteria

- 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

