



ACL + MCL 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
Initial Exercises:														
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														
Weight-bearing Strength Exercises:	1	2	3	4	5	6	7	8	9	10	12	16	20	24
Double Knee Bends														
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														
Cardiovascular Exercises:	1	2	3	4	5	6	7	8	9	10	12	16	20	24
Bike with both legs-no resistance														
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)													
Agility Exercises:	1	2	3	4	5	6	7	8	9	10	12	16	20	24
Running Progression*														
Initial-Single Plane														
Advance-Multi Directional														
Functional Sports Test														
High Level Activities:	1	2	3	4	5	6	7	8	9	10	12	16	20	24
Golf Progression														
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



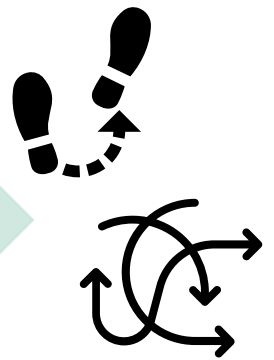
Return to Running Criteria

- 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

