



ACL Reconstruction

Post-Operative Rehabilitation Protocol

0-2 weeks

- WBAT with brace locked in extension
- Discontinue crutches when gait is non-antalgic
- ROM: 0-90° with emphasis on full extension
- Patella mobilization
- SLR supine with brace locked at 0°
- Quad Sets with brace locked at 0°
- Ankle Pumps
- Short crank (90mm) ergometry

2-6 weeks

- Can discontinue brace between 3-4 weeks once quad control is good
- ROM: 0-125° (maintain full extension)
- Active knee extension from 40°
- Standard (170 mm) ergometry (if ROM >115°)
- Leg press (80-0° arc)
- Mini squats/weight shifts
- Proprioception training
- Initiate Step-Up program

6-14 weeks

- Progressive Squat program
- Initiate Step-Down program
- Leg press, lunges
- Isotonic knee extensions (90-4°, close chain preferred)
- Agility exercises (sport cord)
- Versa climber/Nordic track
- Retrograde treadmill ambulation

Weight Bearing Status

WBAT

Brace Settings

Locked straight x 2 weeks when ambulating or sleeping. Otherwise open brace once good quad control

ROM Restrictions

Full PROM beginning POD 1



14-22 weeks



- Begin forward running (treadmill) program when 8" step down satisfactory
- Continue strengthening and flexibility program
- Advance sports-specific agility drills
- Start plyometric program
- Plyo Prep Screen when initiating running and/or jumping. Schedule via QR code or spc@rushortho.com

>22 weeks



- Running progression
- Agility exercises
- Multidirectional motions
- Lower Body Assessment when initiating return to sport progression. Schedule via QR code email or spc@rushortho.com



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																
Patella/Tendon mobilization																
Quad Series																
Hamstring Sets																
Sit and Reach for Hamstrings																
Ankle Pumps																
Crutch weaning	WBAT															
Heel prop knee extension stretch																
SLR (w/ brace until quad control restored)																
Toe 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																
Reverse Lunge, static holds																
Beginning cord exercises																
Balance Squats																
Single Leg Dead Lift																
Leg Press (80-0° arc)																
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																
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																



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 (initiate between 20-24 weeks)
- 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



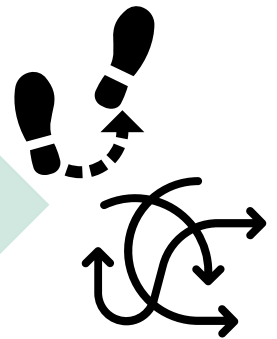
Return to Running Criteria

- 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 (< 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

