

Postoperative Rehabilitation Protocol for Anterior Cruciate Ligament Reconstruction (NK)

Postoperative period	Bracing	Range of motion	Weightbearing	Exercises
Day 1	- Use knee immobilizer at 10-30° of knee flexion	- Obtain full passive extension (0°) out of immobilizer (essential)	- Protected weight bearing with crutches	1. Ankle pumps
Day 2 -6	- Use a functional knee brace		- Weight bear as tolerated	1. Ankle pumps
Day 7 -13 (Week 2)				2. Straight leg raises
				3. Side lying abduction/adduction
				4. Prone hip extension
Day 14 -27 (Week 3-4)		- Continue passive extension to 0° - Active assisted knee flexion (Goal: 90° of flexion)		5. Quad sets
Week 5-6		- Achieve full extension - Active assisted knee flexion (Goal: 120° of flexion)		6. Knee extension with band (range: 90 → 70° knee flexion)
Week 7-8				7. Static squats (bodyweight)
Week 9-12	- Gait without bracing	- Achieve passive flexion to 140°		8. Hamstring curls with band (range: 45 → 90° knee flexion)
Week 13-14				9. Half-squat (bodyweight, range: 30 to 90° knee flexion)
Week 15-16				10. Biking as tolerated to 30 minutes (low resistance)
Week 17-20				11. Standing calf raises with/without support
Week 21-24				12. Step-ups 2-4"
Week 25-28 (6 months---) ¹				13. Knee extension with band (range: 90 → 30° knee flexion)
Week 29 ---				14. Step-ups 6-8"
				15. Quick walk
				16. Half-squat (10 to 90° knee flexion)
				17. Single-leg squat with support
				18. Leg press (10 to 90° knee flexion)
				19. Hamstring curls with band (range: 10 → 90° knee flexion)
				20. Pool walking (+swimming: flutter kick only)
				21. Split squat
				22. Lunge
				23. Treadmill/Jogging (level surfaces only, straight line), 100m x 10
				24. Jogging* 20 minutes at 10-12km/h, 2 sets
				25. Balance drills*
				26. Gait drills*
				27. Jogging/running (no limits)
				28. Agility drills*
				29. Landing drills*
				30. Return to sport skills on own at practice with minimal risk of re-injury ²

1. Quadriceps/thigh circumference should be within 1 cm of nonoperative side at 6 months.

2. No competitive or pivot sports until cleared by surgeon.

***Jogging in the park or athletic field**

- Before starting running drills, check if complete single leg sit-to-stand-to-sit sequence is achieved (single leg sit-to-stand test or chair stand test).
- Start slowly and progress to the next level only if there is no pain, swelling or instability.
 - [Week 1] **Day 1:** Jogging (level surfaces only, straight line) 100m x 2
Jogging 300-400m in a clockwise direction and 300-400m in a counter-clockwise direction
 - Day 2:** Jogging 500-600m in a clockwise direction and 500-600m in a counter-clockwise direction
 - Day 4:** Jogging 800m in a clockwise direction and 800m in a counter-clockwise direction
 - Day 6:** Jogging 1000m in a clockwise direction and 1000m in a counter-clockwise direction
- [Week 2~] Jogging 20 minutes at 10-12km/h, 1-2 sets

***Balance drills**

- Single leg balance, eyes closed
- Single leg balance, arms side-to-side
- Single leg balance, trunk flexion/extension
- Single leg balance, angular trunk flexion/extension
- Single leg balance, leg forward/side/back

***Gait drills**

- Side step
- Lunge walk
- Cross step
- Side step in mini squat position
- Forward zig-zag skater's step
- Backward zig-zag skater's step

***Agility drills**

- Figure 8's
- Backward jog
- Acceleration/deceleration/sprints
- Shuttle runs
- Zig-zag running
- Ladder drill

***Landing drills**

- Step offs, both legs
- Step offs, single leg
- Box jump
- Leap & land (single leg jump → Pause and hold your balance in this partial squat position for 2-3 seconds)
- Jump stops (Perform three forward jumps, with both legs, then stop. Maintain good balance in a squat position for 3-4 seconds)
- Bounce jumps

Note:

- (1) There may be slight variations in this protocol if there are limitations imposed from associated injuries such as meniscal tears, cartilage injuries, or other ligamentous injuries.
- (2) This protocol must be individualized for optimal return to activity because an individual's progress is variable.