



ACL Rehabilitation +/- Meniscal Repair Protocol

This is a concise, practical rehabilitation protocol for patients and physiotherapists after ACL reconstruction, with guidance for cases with or without meniscal. The structure is designed for blog or patient education use and follows the broad themes of early extension recovery, swelling control, quadriceps activation, progressive strengthening, neuromuscular retraining, and criteria-based return to running and sport

Please do not deviate from this protocol without discussing with Dr Rishabh Hegde (the treating doctor / primary surgeon) prior.

General principles

Full knee extension should be restored as early as possible.

Swelling control, pain control, and quadriceps activation are the main priorities in the first few weeks.

Rehabilitation should be progression-based, not purely calendar-based.

Meniscus repair usually requires modification of weight-bearing and flexion range in the first 4 to 6 weeks.

Long knee brace may be given for the first 2 and then moved to a hinged knee brace

ACL reconstruction without meniscus repair

Weight-bearing is tolerated with crutches/walker as per pain tolerance

ROM can usually be progressed more freely, with strong emphasis on full extension early.

Closed-chain strengthening can begin as early as possible

ACL reconstruction with meniscus repair

Non Weight-bearing and knee flexion upto 90 degrees for the first 3 weeks.

Partial weight bearing from 3-6 weeks and Full weight bearing after that

Deep loaded knee flexion should be delayed.

Phase	Time	Standard ACLR	ACLR + meniscus repair
Phase 1	0-2 weeks	WBAT with crutches, regain extension, activate quad	Protected WB, protect repair, extension emphasis
Phase 2	2-6 weeks	Normalize gait, improve ROM, begin closed-chain work	Gradual ROM progression, cautious WB progression, protect flexion
Phase 3	6-12 weeks	Full ROM, strength, balance, bike, step work	Similar goals, but loaded flexion and impact may lag

Phase	Time	Standard ACLR	ACLR + meniscus repair
Phase 4	3–4 months	Running preparation, advanced strength, hop prep	Begin higher loading only if swelling-free and repair tolerated
Phase 5	4–6 months	Running, agility progression, plyometric progression	Similar, but rotation, pivoting, and deep flexion may lag
Phase 6	6–9+ months	Return-to-sport testing and gradual sports return	Same, but final timing depends on meniscus healing and symptoms

Phase 1: 0 to 2 weeks

Goals

- Control pain and swelling.
- Achieve full passive knee extension or get very close.
- Improve quadriceps recruitment.
- Restore patellar mobility.
- Walk safely with crutches.
- Weight-bearing

Range of motion

- Prioritize full extension immediately.
- Flexion can begin early, usually to tolerance.
- If there is a meniscus repair, flexion may be limited to 90 degrees in the first few weeks depending on tear type and repair security.

Exercises

- Ankle pumps.
- Patellar mobilizations.
- Heel props and prone hangs for extension.
- Heel slides for flexion.
- Quadriceps sets.
- Straight-leg raise once no extension lag is present.
- Glute sets and hip abduction/adduction work.
- NMES can be added if quadriceps inhibition is significant.
- Cryotherapy and compression for swelling.

Avoid

- Persistent flexion contracture.
- Active straight-leg raise with an extension lag.

- Loaded knee flexion if a meniscus repair has been performed.
- Pivoting or twisting.

Phase 2: 2 to 6 weeks

Goals

- Achieve full extension.
- Improve flexion steadily.
- Reduce swelling.
- Wean crutches as gait normalizes.
- Build early strength and neuromuscular control.
- Aim for near-full ROM by the end of this phase in uncomplicated ACL cases.
- Meniscus repair cases often still protect loaded flexion and deep flexion.

Exercises

- Continue extension restoration work.
- Stationary bike when ROM allows.
- Mini-squats, wall sits, sit-to-stand drills.
- Step-ups.
- Double-leg calf raises.
- Closed-chain strengthening in protected ranges.
- Balance drills.
- Core and hip strengthening.
- Open-chain knee extension can be used in a controlled manner if indicated, but loading and range should be sensible.

Avoid

- Effusion flare after exercise.
- Poor gait mechanics.
- Deep squatting, twisting, or pivoting in meniscus repair cases.

Phase 3: 6 to 12 weeks

Goals

- Restore full ROM.
- Improve quadriceps and hamstring strength.
- Improve balance and single-leg control.
- Build confidence in functional movement.

Exercises

- Leg press in controlled range.
- Split squats and lunges within tolerance.
- Step-downs.
- Single-leg balance progression.
- Romanian deadlift pattern and posterior chain work.
- Hamstring strengthening, modified if hamstring graft pain is present.
- Bike, elliptical, pool work if wounds are healed.
- Neuromuscular and perturbation drills.
- Meniscus repair modifications
- If swelling, joint-line pain, or flexion pain persists, delay deep loaded flexion and reduce rotational demands.

Phase 4: 3 to 4 months**Goals**

- Build strength toward symmetry.
- Improve landing control and movement quality.
- Prepare for return to running.
- Criteria to begin running preparation
- Full ROM.
- Minimal or no effusion.
- Good single-leg squat control.
- Good quadriceps control.
- Satisfactory strength recovery compared with the opposite side.

Exercises

- Progressive leg press and squat patterns.
- Single-leg strengthening.
- Lateral step work.
- Low-level plyometric preparation.
- Trunk and pelvis control drills.
- Progressive conditioning.
- Running
- Running should be delayed if there is persistent swelling, poor control, pain

Phase 5: 4 to 6 months**Goals**

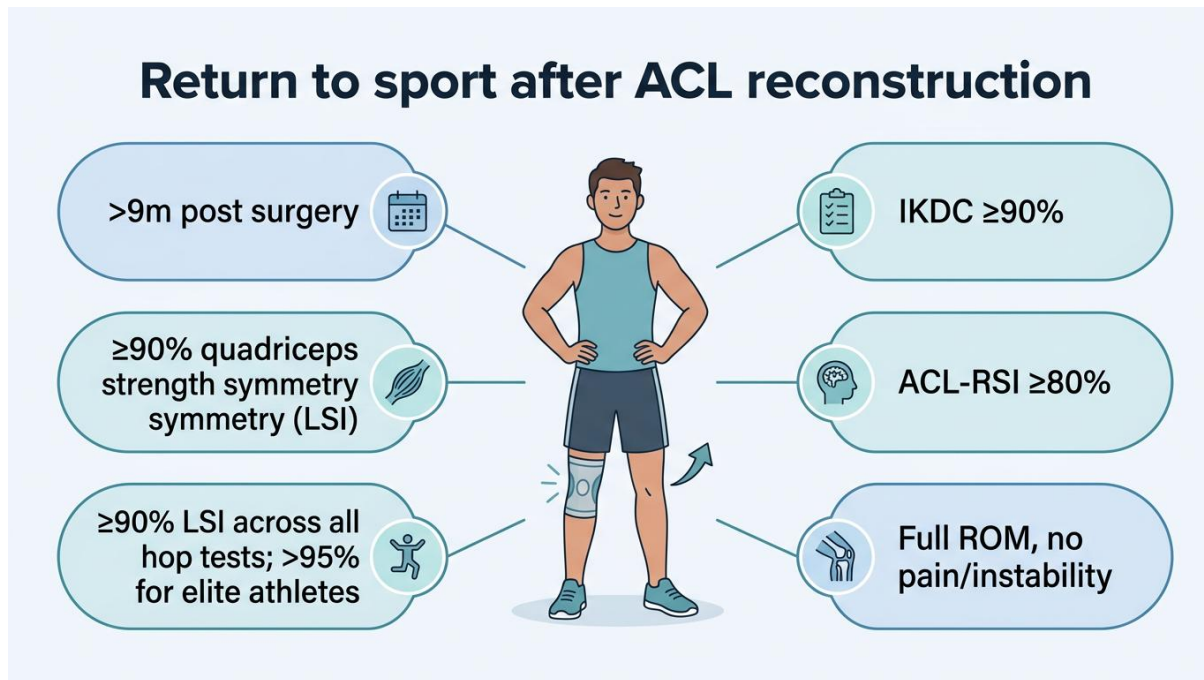
- Build power, endurance, and deceleration control.
- Begin running progression if criteria are met.
- Introduce change-of-direction and plyometric progression when appropriate.

Exercises

- Jog-walk progression.
- Plyometric drills from double-leg to single-leg.
- Landing mechanics.
- Forward, lateral, and diagonal movement drills.
- Agility progression.
- Sport-specific non-contact drills.
- Meniscus repair modifications

Phase 6: 6 to 9+ months**Goals**

- Pass return-to-sport testing.
- Restore confidence and repeat high-speed tasks safely.
- Return to unrestricted sport only after objective clearance.
- Return-to-sport criteria



Important clinical notes

Address loss of full extension first

Persistent swelling means the knee is not tolerating current load.

Quadriceps weakness often lingers longer than patients expect and should be measured, not guessed.

NMES is useful early when quadriceps activation is poor.

Cryotherapy helps with early pain and swelling, but it is only an adjunct.

Dr Rishabh Hegde