PCL Reconstruction Rehab Protocol

Rehabilitation after posterior cruciate ligament reconstruction

Physiotherapy after posterior cruciate ligament reconstruction, phase by phase. Associate Professor Chinmay Gupte, PhD, FRCS (Tr & Orth). Version 2026. Last reviewed: [MONTH] 2026.

Recovery after PCL reconstruction takes nine to twelve months, and it is slower and more protected than ACL rehabilitation. You take half your weight through the leg for four weeks, wear a splint holding the tibia forwards for the first two, then a dynamic PCL brace. Isolated hamstring work is avoided for three months, and the brace is worn at night until six months.

> **Why PCL rehabilitation is different.** The posterior cruciate ligament stops the shin bone sliding backwards under the thigh bone. After reconstruction, two everyday forces work against the graft: gravity, which pulls the shin backwards whenever the knee is bent and unsupported, and the hamstrings, which pull it in the same direction. Almost every instruction in this protocol exists to resist those two forces while the graft heals.
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> This protocol covers isolated PCL reconstruction. Combined PCL and posterolateral corner or multiligament reconstruction progresses more slowly. See the PCL and posterolateral corner protocol. If your PCL injury is being managed without surgery, see PCL injury treated without surgery.

Physiotherapy after PCL surgery: what to expect

Physiotherapy starts in the first week and continues for the better part of a year. The early sessions look unusual compared with other knee operations: bending is done lying face down, the leg is supported whenever it is straight, and your physiotherapist will actively discourage you from using your hamstrings.

Expect the first two months to feel restrictive. Half weight bearing, a splint and then a brace, and a long list of things to avoid. The pay off is graft protection during the window when the reconstruction is most vulnerable to stretching out, which is the single commonest reason PCL surgery disappoints.

Recovery timeline at a glance

Phase	Timing	Brace	Weight bearing	Focus
1	Weeks 0 to 2	Splint in extension, supporting the tibia forwards	50%	Swelling, full extension, quadriceps activation, prone range work
2	Weeks 2 to 4	Dynamic PCL brace	50%	Range of movement, quadriceps control, patellar mobility
3	Weeks 4 to 8	Dynamic PCL brace, day and night	Progress to full	Normal gait, closed chain strength within limits
4	2 to 3 months	Brace out of daytime use at 2 months, worn at night	Full	Full range, progressive strength, no isolated hamstring work
5	3 to 6 months	Night brace continues to 6 months if tolerated	Full	Hamstring work introduced, single leg strength, conditioning
6	6 to 9 months	None, functional brace for sport if prescribed	Full	Running, plyometrics, agility
7	9 to 12 months	As above	Full	Staged return to sport on testing

Precautions that run throughout the early phases

- **No isolated hamstring contraction for 3 months.** The hamstrings pull the shin bone backwards, directly loading the graft
- **No unsupported knee flexion.** Gravity alone drags the shin backwards when the knee is bent and hanging. Range work is done lying face down at first
- **Support the whole limb when the leg is straight.** Do not let the calf hang unsupported
- **Avoid hyperextension**
- **Do not pivot on the operated leg**
- **Sleep with a pillow under the upper shin** so the tibia is supported forwards rather than sagging back
- Avoid wall slides and any exercise that lets the shin drop backwards in the early phases

Phase 1: weeks 0 to 2

Brace and weight bearing

A splint holding the knee in extension with the tibia supported forwards, worn for walking and for sleeping. **50% weight bearing with crutches.**

FOR YOU

Keep the knee straight and elevated when sitting or lying, and support the whole leg rather than letting the calf hang. Half your body weight through the leg means the crutches are doing real work, not just steadying you. Ice and elevate for swelling.

The instruction people find hardest is not to use the hamstrings. Bending the knee actively, dragging the heel back along the bed, or tensing the back of the thigh all load the graft. Your physiotherapist will show you how to move the knee without doing this.

FOR YOUR PHYSIOTHERAPIST

- Prone passive range of movement only, avoiding hamstring guarding
- Patellar mobilisations, superior and inferior, medial and lateral
- Quadriceps sets, progressing to straight leg raise
- Ankle pumps
- Side lying and standing hip abduction and adduction, and standing hip extension from neutral
- Resisted plantarflexion in long sitting, progressing to standing calf raise with the knee in full extension
- Electrical stimulation where quadriceps control is poor
- Swelling management with ice, compression, elevation and retrograde massage

> **Criteria to progress** [LIT]
>
> - Full knee extension
> - Good quadriceps control, with no lag on straight leg raise
> - Flexion beyond 60 degrees passively [CONFIRM TARGET]
> - No signs of active inflammation

Phase 2: weeks 2 to 4

Brace and weight bearing

The dynamic PCL brace replaces the splint at 2 weeks. The brace applies a constant forward force to the upper shin, doing the job the graft is not yet strong enough to do alone. It is worn day and night. **Weight bearing remains 50%** for the full four weeks.

FOR YOUR PHYSIOTHERAPIST

- Continue prone range of movement, progressing flexion gradually
- Continue patellar mobilisation, quadriceps sets and straight leg raise
- Continue hip and calf work with the knee in extension
- No hamstring loading of any kind

Phase 3: weeks 4 to 8

Brace and weight bearing

Dynamic PCL brace continues day and night. **Weight bearing progresses from 50% towards full from 4 weeks**, as comfort and quadriceps control allow. [CONFIRM: rate of progression to full weight bearing.] Crutches are discarded when there is no quadriceps lag, full extension is maintained, flexion is 90 to 100 degrees actively, and the walking pattern is normal.

FOR YOUR PHYSIOTHERAPIST

Weeks 4 to 8, all within a controlled range: [LIT]

- Wall slides, 0 to 45 degrees
- Leg press, 0 to 60 degrees
- Standing four way hip work for flexion, extension, abduction and adduction, with resistance placed above the knee
- Side lying hip external rotation and clam shells
- Core work in hook lying
- Gait retraining over level ground

> **Criteria to progress** [LIT]
>
> - No effusion, swelling or pain after exercise
> - Normal gait
> - Range of movement equal to the other side

Phase 4: 2 to 3 months

> **The dynamic PCL brace comes out of daytime use at 2 months, and is worn at night from then until 6 months if tolerated.** Night wear matters because the knee spends hours bent and unsupported during sleep, which is exactly when the shin sags backwards.

Isolated hamstring work is still not permitted. That restriction runs to 3 months.

FOR YOUR PHYSIOTHERAPIST

- Stationary bike, set up to minimise hamstring work: foot placed forward on the pedal, no toe clips, seat slightly higher than usual [LIT]
- Elliptical trainer
- Closed chain terminal knee extension with a band or machine
- Mini squats, 0 to 90 degrees
- Leg press, 0 to 90 degrees
- Seated calf raises

- Single leg balance with the knee slightly flexed, static progressing to dynamic, stable progressing to unstable surfaces

Phase 5: 3 to 6 months

Isolated hamstring work may now be introduced, the three month restriction having passed. Build it gradually rather than starting at load. The night brace continues to six months if tolerated.

FOR YOUR PHYSIOTHERAPIST

- Gym based strengthening: leg press, hip abductor and adductor machines, hip extension, seated calf
- Squat to chair, lateral lunges, Romanian deadlift
- Single leg progression: single leg press, slide board lunges, step ups with march, lateral step ups, step downs, single leg squats, single leg wall slides
- Bridges progressing to single leg bridges
- Balance and proprioception: lateral step overs, joint position sense, single limb balance with perturbation
- Conditioning: treadmill walking, pool jogging with a vest or belt, swimming with **no breaststroke or frog kick** [LIT]

> **Criteria to progress to running and impact** [LIT]
>
> - Surgeon clearance
> - Full pain free active and passive range of movement
> - Quadriceps, hamstring and hip strength at 80% of the other leg by handheld dynamometer [CONFIRM THRESHOLD]
> - No pain or swelling after exercise

Phase 6: 6 to 9 months

FOR YOUR PHYSIOTHERAPIST

- Interval running programme, progressing walk and jog intervals to continuous running
- Plyometric and agility programme, anterior progression first, then lateral, then multiplanar
- A functional brace may be used for impact work if prescribed
- Continue closed chain strengthening throughout

Run on softer surfaces at first, keep non impact work on the off days, and increase either distance or pace but not both at once.

Phase 7: from 9 months, return to sport

Return is staged: non contact practice, then full practice, then full play. Cutting and pivoting are added according to the demands of your sport and only after clearance.

Return to sport battery [LIT: thresholds to be confirmed against the ACL and MPFL protocols, which use 95% and 90%]

- **Strength:** quadriceps, hamstring and gluteal index at 90% or more of the other leg, by dynamometry or isokinetic testing
- **Hamstring to quadriceps ratio:** 66% or more
- **Hop tests:** 90% or more of the other leg, with good landing mechanics
- **Patient reported outcome:** KOOS sport above 90%, IKDC above 93
- **Psychological readiness** assessed formally
- **Clinical:** no effusion, full range of movement, running programme completed without pain or swelling
- **Surgeon clearance**

Everyday milestones

Activity	Typical timing
Walking, 50% weight through the leg with crutches	From day one
Full weight bearing	Progressing from 4 weeks
Crutches discarded	When gait is normal, no quadriceps lag and flexion is 90 to 100 degrees
Out of the brace during the day	2 months
Night brace stops	6 months, if tolerated to that point
Driving	Self certified. Not before 4 weeks at the earliest, and not before 6 weeks for an operated right knee or a manual car. See the driving section
Desk based work	[CONFIRM. Often possible early, limited by transport and by the need to keep the leg supported and elevated]
Manual work	[CONFIRM. Usually after full weight bearing and out of the daytime brace]
Running	From 6 months, on meeting the criteria
Return to sport	9 to 12 months

Frequently asked questions

When can I drive after PCL reconstruction?

Driving is self certified. You may drive when you can perform an emergency stop and any evasive manoeuvre without your operated knee hindering the movement. As a guide, we would not usually advise driving before six weeks with an operated right knee, or before six weeks in a manual car with either knee. An operated left knee in an automatic car is often earlier. You cannot drive at 50% weight bearing or in the extension splint. You must also be off opioid painkillers. Tell your insurer.

How long does PCL reconstruction take to recover from?

Nine to twelve months to full return to sport. PCL rehabilitation is slower and more protected than ACL rehabilitation because gravity and the hamstrings both work against the graft, so the early phases are deliberately restrictive.

Why can't I use my hamstrings after PCL surgery?

The hamstrings pull the shin bone backwards, which is the exact movement the posterior cruciate ligament exists to prevent. Loading them early stretches the graft. Isolated hamstring work is avoided for three months, after which it is reintroduced gradually.

How long do I wear a brace after PCL reconstruction?

A splint holding the knee straight with the shin supported forwards for the first two weeks, then a dynamic PCL brace. The brace comes out of daytime use at two months and is worn at night until six months if tolerated.

Why do I have to wear the brace at night?

The knee spends hours bent and unsupported during sleep, and gravity pulls the shin bone backwards in that position. Night wear protects the graft during the part of the day you have no control over.

How much weight can I put through my leg after PCL surgery?

Half your body weight for the first four weeks, using crutches, then progressing towards full weight bearing. Crutches are discarded once you can walk normally with full extension, no quadriceps lag and 90 to 100 degrees of bend.

Why is my physiotherapist making me bend the knee lying face down?

Lying prone takes gravity out of the equation. If you bend the knee while lying on your back or sitting with the leg hanging, gravity drags the shin backwards and loads the graft. Prone range work avoids that.

When can I run after PCL reconstruction?

From around six months, and only after meeting the criteria: surgeon clearance, full pain free range, no swelling after exercise, and quadriceps, hamstring and hip strength at the required percentage of the other leg.

Is PCL rehab the same as ACL rehab?

No. They protect against opposite movements, so the exercises that help one can harm the other. ACL rehabilitation encourages hamstring work early; PCL rehabilitation forbids it for three months. See the ACL rehab protocol for the comparison.

Driving after surgery

Driving is self certified. There is no fixed date at which you are allowed to drive. You may drive when you can perform an emergency stop and any evasive manoeuvre without your operated knee hindering the movement. Only you can judge that, and it varies considerably between people.

As a guide:

- **Operated right knee:** we would not usually advise driving before 6 weeks
- **Manual car, either knee:** we would not usually advise driving before 6 weeks
- **Operated left knee in an automatic car:** often possible earlier, once you can meet the test above

In addition, you cannot drive at 50% weight bearing or in the extension splint, so driving does not start before 4 weeks at the very earliest.

You should also be off opioid painkillers and anything else affecting your reactions, and able to get in and out of the car independently. Try the emergency stop in a stationary car first, then in a quiet car park before driving on the road.

Tell your insurer. Driving before you are medically fit can invalidate your policy if you are involved in an accident. **The DVLA usually does not need to be told** about recovery from surgery, unless you are still unable to drive three months afterwards or your surgeon advises it. If you hold a Class 2 licence or drive for work, expect a longer period off the road and speak to your employer.

References

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4. de Paula Leite Cury R, Kiyomoto HD, Rosal GF, Bryk FF, de Oliveira VM, de Camargo OP. Rehabilitation protocol after isolated posterior cruciate ligament reconstruction. *Revista Brasileira de Ortopedia* 2012;47(4):421 to 427.
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About this protocol

Rehabilitation protocol for isolated posterior cruciate ligament reconstruction, used by Associate Professor Chinmay Gupte, PhD, FRCS (Tr & Orth), MA (Oxon), BMBCh (Oxon), consultant knee and sports injury surgeon, London. Version 2026. Last reviewed [MONTH] 2026. Next review due [MONTH] 2027.

Bracing, weight bearing and hamstring restrictions are set by the operating surgeon. Range of movement milestones, progression criteria and the return to sport battery draw on published PCL rehabilitation protocols and reviews.

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This protocol is a general guideline and does not replace the specific instructions given by your own surgeon and physiotherapist. If you are being treated elsewhere, please share this document with your physiotherapist together with your operation note.