Quadriceps Tendon Repair Rehab Protocol

Rehabilitation after quadriceps tendon repair

Physiotherapy after quadriceps tendon rupture surgery, phase by phase. Associate Professor Chinmay Gupte, PhD, FRCS (Tr & Orth). Version 2026. Last reviewed: [MONTH] 2026.

Recovery from quadriceps tendon repair takes six to twelve months, and the first eight weeks are spent protecting the repair. You walk on the leg from the start, in a brace locked straight. Bending is opened up in stages, reaching 90 degrees by week eight. Most people are out of the brace at eight weeks, driving between eight and twelve, and running only after four months.

> **What the operation does.** The quadriceps tendon connects the thigh muscle to the kneecap and is what lets you straighten your knee and hold it straight when you stand. When it ruptures, that connection is gone. The repair reattaches it, and the brace and bending limits below exist to stop the repair being pulled apart while it heals.
>
> This protocol covers quadriceps tendon repair. Patellar tendon repair is a different operation with a different outlook. See the patellar tendon repair rehab protocol.

Physiotherapy after quadriceps tendon rupture surgery: what to expect

Physiotherapy usually starts within the first week. The early sessions are about swelling, keeping the kneecap moving, and getting the quadriceps to fire again, which after this particular injury is the hardest and most important part.

Be prepared for this to be slower than knee operations you may have heard about. Quadriceps strength is the last thing to come back and often remains slightly down on the other side for a long time. Loss of bend and stiffness at the front of the knee are the other common problems, which is why the range schedule is followed carefully rather than rushed or delayed.

Most people who rupture a quadriceps tendon are not athletes. If you are not returning to sport, the milestones that matter to you are stairs, driving, work and kneeling, and those are set out in their own section below.

Recovery timeline at a glance

Phase	Timing	Bending allowed	Brace	Focus
1	Weeks 0 to 2	0 to 30 degrees	Locked in extension for walking	Swelling, full straightening, kneecap mobility, quadriceps activation
2	Weeks 2 to 4	0 to 45 degrees	Locked in extension for walking	Eliminate swelling, hold extension, early strengthening
3	Weeks 4 to 6	0 to 60 degrees	Locked in extension for walking	Range, gait quality, resistance work within limits
4	Weeks 6 to 8	0 to 90 degrees	Locked in extension for walking, discontinued at 8 weeks	Reach 90 degrees, prepare to come out of the brace
5	2 to 4 months	Full	None	Normal gait, full range, strength and endurance
6	From 4 months	Full	None	Functional testing, running, return to sport

The bending limit for each phase governs everything the knee does in that phase, including sitting, not just the exercise programme.

Precautions throughout

- Weight bear as tolerated, in the brace locked in extension for walking, for the first 8 weeks
- No open chain knee extension for the first 4 weeks
- No weight bearing with the knee bent beyond 90 degrees until after 8 weeks [ADDED]
- Do not progress range faster than about 10 degrees per week before 12 weeks [ADDED]
- Avoid aggressive quadriceps stretching [ADDED]
- Avoid an extension lag. If one develops, back off and rebuild quadriceps control
- **Sitting must stay within the range of movement permitted for that phase.** The range limits apply to everything, not only to exercises. Until you reach 90 degrees at 8 weeks, you cannot sit with the knee fully bent

Phase 1: weeks 0 to 2

Goals

- Minimise swelling
- Full knee extension
- Patellofemoral joint mobility
- Quadriceps grade 3 out of 5

FOR YOU

Keep the brace locked straight whenever you are on your feet. Ice and elevate regularly. The most useful thing you can do is the quadriceps set, done little and often, because switching the muscle back on early is what everything later depends on.

Sitting counts. The bending limit for each phase applies to how you sit as well as to your exercises. In these first two weeks the knee stays within 30 degrees of straight, so sit with the leg supported out in front of you rather than dropped down off a chair. Low chairs, car seats and sofas all bend the knee further than you might think.

FOR YOUR PHYSIOTHERAPIST

- Patellar mobilisations, all planes
- Heel slides and wall slides to 30 degrees
- Quadriceps sets and straight leg raise in all directions, with the brace locked at 0 degrees. Use electrical stimulation as needed
- Hamstring stretches and hamstring isometrics
- Foot and ankle mobility
- Bilateral calf raises
- Ice and modalities as required

> **Criteria to progress** [ADDED]
>
> - Full passive extension
> - Straight leg raise with no extension lag, or a clearly reducing lag
> - Swelling settling
> - Good patellar mobility in all planes

Phase 2: weeks 2 to 4

Goals

- Eliminate swelling
- Maintain knee extension
- Knee flexion to 45 degrees
- Quadriceps grade 3+ out of 5
- Equal hamstring length
- Maintain patellofemoral joint mobility

FOR YOUR PHYSIOTHERAPIST

All work stays within the 45 degree cap.

- Quadriceps sets with or without biofeedback, continuing electrical stimulation as needed
- Heel slides progressing to 45 degrees
- Multi-hip work

- Single leg stance exercises
- Leg curls
- Bridges
- Hamstring tubing curls and hip exercises with tubing
- Single leg calf raise
- Routine ice after exercise

Note: bike rocking, leg press to 90 degrees, step ups and step downs and partial squats appeared in this phase in the original document but exceed the 45 degree limit. They now appear in the phases where that range is permitted.

> **Criteria to progress** [ADDED]
>
> - Flexion to 45 degrees
> - Extension maintained, with no lag
> - Swelling resolved

Phase 3: weeks 4 to 6

Goals

- Knee flexion to 60 degrees
- Progress quadriceps strength
- Maintain full extension

FOR YOUR PHYSIOTHERAPIST

Open chain knee extension may now be introduced, the 4 week restriction having passed. All work stays within 60 degrees.

- Bike rocking, within the range limit
- Leg press and total gym, within the range limit
- Partial squats and semi-squats, within the range limit
- Step ups and step downs, low height
- Proprioception and dynamic balance
- Scar massage
- Continue hamstring, hip and calf work

Phase 4: weeks 6 to 8

Goals

- Knee flexion to 90 degrees
- Normalise gait pattern in preparation for coming out of the brace
- Quadriceps grade 4- out of 5

FOR YOUR PHYSIOTHERAPIST

- Bike, full rotation once 90 degrees is available
- Elliptical trainer
- Resistive equipment, progressing load
- Gait training
- Progress step ups, step downs and squats within 90 degrees
- Continue proprioception and dynamic balance

> **The brace is discontinued at 8 weeks.** Crutches are weaned as gait normalises. Expect the knee to feel weak and unfamiliar for the first week or two out of the brace, which is normal after eight weeks held straight.

> **Criteria to come out of the brace and progress** [ADDED]
>
> - At least 8 weeks after surgery
> - Flexion to 90 degrees
> - Full extension with no extension lag on straight leg raise
> - Quadriceps control sufficient to walk without the knee giving way
> - Surgeon approval

Phase 5: months 2 to 4

Goals

- Full range of movement
- Normal gait pattern on level ground and stairs
- Full strength and endurance of the affected limb

FOR YOUR PHYSIOTHERAPIST

- Progressive resistance training through the whole limb
- Bike, stepper, treadmill and elliptical trainer
- Proprioception and single leg control
- Introduce plyometrics towards the end of this phase where appropriate
- Sport specific drills and restricted training where applicable
- [ADDED] Begin objective strength testing with a handheld or isokinetic dynamometer from 12 weeks, and repeat it. Manual muscle testing cannot detect the deficits that matter at this stage

Phase 6: from 4 months, testing and return to sport

Functional testing is performed at four months. Return to sport follows when the operated leg reaches **85% of the other leg**.

Return to sport battery [ADDED: standard battery, applied at the 85% threshold from the original protocol]

All symmetry measures compare the operated leg with the other leg.

- **Strength:** quadriceps and hamstrings at 85% or more, by isokinetic or handheld dynamometry
- **Hop tests:** 85% or more across single hop for distance, triple hop, triple crossover hop and timed 6 metre hop
- **Balance:** Y-Balance test composite score, assessed for side to side difference
- **Clinical:** full range of movement, no extension lag, no effusion
- **Movement quality:** controlled landing and single leg squat, maintained under fatigue
- **Patient reported outcome:** Lysholm or IKDC, tracked through rehabilitation
- **Surgeon clearance** before returning to cutting, pivoting or contact sport

Running progression

Running begins after the four month test, not before.

1. Treadmill walk and jog intervals, self paced
2. Treadmill running
3. Running on the road
4. Running on the surface specific to your sport

Take one to two days off between running days to begin with.

If you are not returning to sport

Most people who rupture a quadriceps tendon want their ordinary life back rather than a pitch. These are the milestones that matter, and they are reached well before the four month test.

Activity	Typical timing	What governs it
Walking with the brace and crutches	From day one	Weight bearing as tolerated. The brace protects the repair, it does not keep weight off the leg
Walking without crutches, still in the brace	Usually 4 to 6 weeks	Crutches go when your gait is steady and the leg takes full weight without the knee giving way. Some people are off them sooner, some later
Out of the brace	8 weeks	Fixed point in this protocol, subject to the criteria in Phase 4
Sitting normally, knee fully bent	From 8 weeks	Sitting follows the same range limits as your exercises until you reach 90 degrees
Stairs one foot over the other	Usually 10 to 14 weeks	Needs at least 90 degrees of bend and enough quadriceps control to lower your body weight. Going down is harder than going up and returns later
Driving	Self certified, and not before the brace comes off at 8 weeks	See the driving section below
Desk based work	Often 2 to 6 weeks	Governed by comfort, transport and the ability to keep the leg supported within the range limit rather than by the repair itself. Working from home is usually possible sooner
Standing or light manual work	Usually after the brace comes off, from about 3 months	Needs a normal gait and enough endurance to be on your feet all day
Heavy manual work, ladders, kneeling work	Usually 4 to 6 months	Needs full range, good quadriceps strength and confidence loading the knee in deep bend
Kneeling	Usually the last thing to return, often 4 to 6 months	Needs full flexion and a settled scar. Some discomfort kneeling directly on the scar can persist

These are typical ranges rather than fixed dates, and they assume an uncomplicated isolated repair. Diabetes, kidney disease and steroid use are all common in this injury and all tend to slow healing.

What the research says about the outcome

Worth knowing when setting your own expectations:

- Return to work is the norm. One series found 84% of working patients returned to their previous occupation, and a more recent suture anchor series reported that all patients returned to work
- Return to sport is common, but returning at the same level is less so. A systematic review found 89.8% returned to play after quadriceps tendon repair, with 70% returning to their previous level
- Bend usually comes back well. Average range in one series was around 123 degrees
- Strength often does not fully return. Just over half of patients in one series still had a quadriceps deficit greater than 20% at follow up, and more recent work confirms a measurable extension strength deficit compared with the other side

That last point is the reason strength is measured rather than judged by feel, and the reason quadriceps work continues long after the knee feels usable.

Frequently asked questions

How long does recovery take after quadriceps tendon repair?

Six to twelve months overall. The brace comes off at eight weeks, full range and normal walking return over the following two months, functional testing is done at four months, and return to sport follows once the operated leg reaches 85% of the other.

How long do I wear a brace after quadriceps tendon repair?

Eight weeks. The brace is a drop lock brace, kept locked in extension whenever you are walking. You weight bear on the leg from the start, so the brace is protecting the repair rather than keeping weight off the leg.

Can I walk after quadriceps tendon repair?

Yes, from the start, weight bearing as tolerated with the brace locked straight and crutches for support. Walking normally without crutches comes as your gait allows, and the brace itself stays on until eight weeks.

Why is my knee so weak after quadriceps tendon repair?

The quadriceps shuts down quickly after this injury and is slow to come back. Some strength difference between the legs is common well into the first year, which is why strength is measured objectively rather than judged by feel, and why quadriceps work continues long after the knee feels usable.

When can I run after quadriceps tendon repair?

After the functional test at four months, and only if the results allow. Running before then risks the repair and reinforces a poor pattern in a leg that is not yet strong enough to control landing.

Can I sit normally after quadriceps tendon repair?

Not at first. Sitting has to stay within the bending limit for the phase you are in, the same as your exercises. That means the knee stays within 30 degrees of straight for the first two weeks, 45 degrees to week four, 60 degrees to week six and 90 degrees to week eight. Sitting fully bent comes once you reach 90 degrees.

When can I drive after quadriceps tendon repair?

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 in a brace locked straight, so not before the brace comes off at 8 weeks. You must also be off opioid painkillers. Tell your insurer.

When can I go back to work after quadriceps tendon repair?

Desk based work is often possible from two to six weeks, limited by comfort and transport rather than by the repair. Standing or light manual work usually waits until after the brace comes off at around three months. Heavy manual work, ladders and kneeling work are usually four to six months. Most people do return to their previous job.

Will my knee be as strong as before?

Often not quite. Studies have found that more than half of patients still have a quadriceps strength deficit greater than 20% at follow up, and a measurable difference compared with the other leg is common even in people who are satisfied with the result. Bend usually returns well, averaging around 123 degrees.

Is quadriceps tendon repair the same as patellar tendon repair?

They are different operations on either side of the kneecap, and the rehabilitation is similar but not identical. Published comparisons suggest recovery after patellar tendon repair tends to be better, particularly for returning to work and sport, so expectations after a quadriceps tendon repair should be set accordingly.

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 while the brace is locked in extension, because you cannot operate the pedals or sit properly with the knee held straight. That means driving does not start before the brace comes off at 8 weeks, whichever knee was operated on.

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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About this protocol

Rehabilitation protocol for quadriceps tendon repair, 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.

Therapists: the exercises listed are not exhaustive. Anything within the stated range, weight bearing and open chain parameters for the phase is acceptable.

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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.