

Posterior Cruciate Ligament (PCL) Knee Injury



Kalyani's
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Patient Awareness | Knee Preservation &
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What is a PCL injury? The posterior cruciate ligament is a strong stabilising ligament at the back of the knee. It prevents the shin bone (tibia) from moving backwards under the thigh bone. A PCL injury can cause pain, swelling, stiffness and instability, especially during stairs, slopes, squatting, running and return to sport.

Knee preservation focus: Early diagnosis and appropriate treatment of PCL injury helps protect the meniscus, cartilage and other ligaments. Restoring knee stability can reduce repeated giving-way episodes and may help prevent long-term wear, arthritis and future complex knee surgery.

Mode of injury

- Dashboard injury in a road traffic accident, where a bent knee strikes the dashboard and the tibia is pushed backwards.
- Fall directly onto the front of a bent knee during sport or daily activity.
- Hyperextension injury or sudden backward force to the shin bone.
- Contact sports tackle, collision or twisting injury, sometimes with rotational force.
- High-energy trauma may combine PCL injury with ACL, MCL, PLC, meniscus, cartilage or vascular injury.

Common symptoms

- Pain at the back of the knee or deep inside the joint.
- Swelling, stiffness and reduced movement after injury.
- Difficulty walking normally, climbing stairs, squatting or kneeling.
- Feeling of weakness, giving way or lack of confidence, especially on slopes or while slowing down.
- Persistent pain or instability while running, changing direction or returning to sport.

When to seek urgent care

- Severe pain, marked swelling, deformity, inability to bear weight or open wound.

Technical details

Injury grading: PCL injuries are commonly graded by laxity and whether the tear is isolated or combined with other ligament injuries.

Isolated vs combined injury: isolated partial tears often behave differently from multi-ligament injuries and need different treatment planning.

Bony avulsion: occasionally the PCL pulls off a small piece of bone from the tibia; selected avulsions may need fixation.

Reconstruction principle: when surgery is needed, the damaged ligament is reconstructed using a tendon graft to restore posterior stability.

Arthroscopic approach: many reconstructions are performed with keyhole surgery using tunnels, fixation devices and graft tensioning.

Rehabilitation principle: rehab protects the graft/PCL while restoring motion, quadriceps strength, gait, balance and return-to-sport function step by step.

Treatment options

Initial care: protection, rest, ice, compression, elevation, pain control, brace/crutches if needed and early physiotherapy to reduce swelling and regain movement.

Non-operative treatment: often suitable for isolated grade I-II or partial PCL injuries

- Numbness, tingling, cold foot, weak pulses or suspected knee dislocation.
- Locked knee, repeated giving way, or high-energy accident.

Examination and diagnosis

History: mechanism of injury, swelling timing, instability episodes, sports/work demands and previous knee injuries are assessed.

Inspection: swelling, bruising, walking pattern, quadriceps control and range of motion are checked.

PCL tests: posterior sag sign, posterior drawer test and quadriceps active test assess backward tibial movement.

Associated injuries: meniscus tests, collateral ligament tests, dial test for posterolateral corner injury and neurovascular assessment may be required.

Imaging: X-rays check fracture or bony avulsion. MRI confirms PCL tear and looks for meniscus, cartilage and other ligament damage.

without major instability. It may include PCL brace, activity modification and supervised physiotherapy, especially quadriceps strengthening.

Surgical treatment: considered for high-grade tears with persistent instability, bony avulsion, combined ligament injuries, posterolateral corner injury, high-demand athletes or failed conservative treatment.

PCL repair/reconstruction: repair may be possible in selected avulsions. Reconstruction with a graft is used for many chronic or complete unstable injuries.

Return to activity: return to work and sport is individualised after pain control, full movement, strength recovery, stability and objective functional assessment.

Why knee preservation matters

- A stable knee protects cartilage and meniscus from repeated abnormal movement.
- Correctly treating PCL injury may reduce chronic pain, swelling and giving-way episodes.
- Managing associated injuries early can help prevent long-term arthritis and preserve natural knee function.
- Treatment should be individualised according to age, activity level, grade of injury, alignment and MRI findings.

PCL injury treatment pathway

Stage	Main focus	Typical care	Goal
Acute injury	Pain/swelling control	RICE, brace/crutches, X-ray/MRI if required	Protect knee and identify associated injuries
Partial/low-grade tear	Stability and strength	PCL brace, physiotherapy, quadriceps strengthening	Return to daily activity with stable knee
High-grade/combined injury	Restore stability	Specialist assessment; repair/reconstruction if indicated	Prevent chronic instability and protect joint
Rehabilitation	Function restoration	Motion, strength, balance, gait and sport-specific drills	Safe return to work/sport after objective review

Key message: A PCL injury should not be ignored. Many partial injuries heal well with bracing and physiotherapy, but high-grade or combined injuries may need surgery. The aim is to restore a stable, confident knee and preserve long-term joint health.

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For PCL injury, knee instability, sports injury, arthroscopy, ligament reconstruction and rehabilitation guidance

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Patient education only. Final diagnosis and treatment should be individualised after orthopaedic consultation, clinical examination and appropriate imaging.