Kalyani's Knee & Shoulder Clinic

कल्याणी घुटना एवम कंधा क्लिनिक

Patellofemoral Pain
Anterior Knee Pain

Patient Awareness | Knee Pain & Sports Medicine

Appointments: 9554066663 | 9554066664 | 9219200378

Address: Umaraha Market, Varanasi

What is patellofemoral pain? Patellofemoral pain is pain arising from the front of the knee, around or behind the kneecap (patella). It is one of the most common causes of anterior knee pain and is often related to overload, altered kneecap tracking, muscle imbalance, training errors or prolonged sitting/stairs/squatting.

Anterior knee pain focus: The aim is to identify why the patellofemoral joint is overloaded, reduce pain, restore hip-knee control, protect cartilage and help the patient return safely to walking, stairs, work and sport.

Common symptoms

- Dull aching pain in front of the knee, around or behind the kneecap.
- Pain increases with stairs, squatting, kneeling, running, jumping or rising from a chair.
- Pain after sitting for a long time with the knee bent, sometimes called theatre sign.
- Clicking, grinding or crepitus may be present, but is not always dangerous.
- Occasional swelling, stiffness, reduced confidence or feeling of weakness.
- Difficulty with sports, gym exercises, prolonged walking or daily work.

Mode / cause of pain

- Sudden increase in running, stairs, gym load or jumping activity.
- Overuse in sports such as cricket, football, badminton, running or cycling.
- Muscle imbalance: weak hip abductors/external rotators, weak quadriceps or poor control.
- Tight hamstrings, quadriceps, calf or iliotibial band increasing patellar load.
- Flat feet, altered limb alignment, dynamic knee valgus or poor landing mechanics.
- Previous injury, patellar instability, cartilage wear or early arthritis in some patients.

When to seek early consultation

- Pain persists beyond 2-3 weeks despite rest and basic care.
- Recurrent swelling, locking, giving way or inability to fully straighten the knee.
- Pain after a fall, twist or direct trauma.
- Pain limiting work, stairs, sports, school/college or daily activities.
- History of kneecap dislocation, severe maltracking or progressive deformity.

Examination and diagnosis

History: pain location, duration, training changes, stairs/squatting pain, sitting pain, sports/work demands and previous knee injuries are reviewed.

Inspection: alignment, gait, foot posture, swelling, quadriceps bulk, patellar position and dynamic knee control are assessed.

Patellofemoral assessment: patellar tracking, apprehension, tilt, glide, crepitus, tenderness around patella and pain with resisted activity may be checked.

Functional tests: single-leg squat, step-down test, jump/landing mechanics and hip-knee control can identify overload patterns.

Associated problems: meniscus, ligament, tendon, fat pad, plica, hip and spine causes may need exclusion.

Imaging: X-rays may assess alignment, patellar position or arthritis. MRI is useful if swelling, locking, instability, cartilage injury or failure to improve is suspected.

Technical details

Patellofemoral joint: the patella glides in the trochlear groove as the knee bends and straightens.

Load mechanics: patellofemoral joint load rises with stairs, squats, lunges, jumping and deep knee flexion.

Tracking factors: hip weakness, dynamic valgus, tight lateral structures, trochlear shape, patella alta or foot mechanics may affect tracking.

Pain drivers: pain may arise from overloaded cartilage, bone, retinaculum, synovium, fat pad or surrounding soft tissues.

Treatment planning: successful care usually corrects the load problem rather than only treating pain.

Patellofemoral Pain - Treatment, Recovery and Prevention

Non-surgical / rehabilitation-based treatment

- Activity modification: reduce painful stairs, running, deep squats and jumping temporarily.
- Ice, simple pain medicines or anti-inflammatory medicines if advised and safe.
- Physiotherapy is the main treatment: hip, quadriceps and core strengthening.
- Stretching of quadriceps, hamstrings, calf and iliotibial band when tight.
- Patellar taping, knee sleeve, brace or foot orthoses may help selected patients.
- Gradual return to running/sport using load monitoring and movement retraining.

When injections or surgery may be considered

- Injections are not first-line and are considered only in selected cases after diagnosis.
- Arthroscopy is not routinely required for simple patellofemoral pain.
- Surgery is considered only when a structural problem is present, such as recurrent patellar instability, significant maltracking, loose body, focal cartilage defect or advanced arthritis.
- Possible procedures vary by cause: MPFL reconstruction, tibial tubercle osteotomy, cartilage procedure, lateral retinacular procedure in selected cases, or replacement for end-stage disease.
- Most patients improve with correct rehabilitation and load management.

Rehabilitation: key principles

Phase	Main goals	Progression depends on
Pain control phase	Reduce pain/swelling, avoid overload, maintain movement	Pain response and daily activity tolerance
Strength phase	Hip abductors/external rotators, quadriceps, calf and core strengthening	Good control without pain flare
Movement control phase	Step-down, squat, landing and running mechanics	Alignment, balance and confidence
Return phase	Gradual return to sport/work-specific activity	No swelling, good strength and functional testing

How treatment helps anterior knee pain

Patellofemoral pain is usually a load-and-control problem. Treatment aims to reduce painful overload, improve patellar tracking, strengthen the hip and thigh muscles, correct movement patterns and build the knee back up gradually. This helps patients return to stairs, walking, work, gym and sport while protecting the patellofemoral joint.

Simple patient guide

Problem pattern	Typical approach	Patient goal
Overload / training error	Activity modification, gradual loading plan	Pain settles while fitness is maintained
Weak hip/quads control	Targeted physiotherapy strengthening	Better kneecap control during stairs/sport
Maltracking / instability signs	Specialist assessment, imaging if needed	Prevent recurrent symptoms or dislocation
Cartilage or arthritis changes	Knee preservation plan, weight/load management, selected procedures	Reduce pain and protect joint function

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For anterior knee pain, patellofemoral pain, sports injury, knee preservation and rehabilitation guidance

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