



**Kalyani's
Knee & Shoulder
Clinic**

कल्याणी घुटना एवम कंधा क्लिनिक

Cartilage Injury of the Knee

Patient Awareness | Knee Preservation & Sports Medicine

Appointments: 9554066663, 9554066664, 9219200378

Address: Umaraha Market, Varanasi

What is knee cartilage injury? Cartilage is the smooth covering over the ends of bones that allows the knee to move with low friction. Injury can be a small focal defect after trauma, sports injury or ligament/meniscus injury, or part of early wear-and-tear arthritis. Cartilage damage can cause pain, swelling, catching and reduced confidence in the knee.

Knee preservation focus: Early assessment and targeted treatment aim to protect the remaining cartilage, correct contributing problems such as malalignment or instability, restore activity and delay or avoid total knee replacement in suitable patients.

Types of cartilage problems

- Focal articular cartilage defect after twisting injury, fall or sports trauma.
- Cartilage injury associated with ACL, meniscus or patella dislocation.
- Osteochondral defect, where cartilage and underlying bone are involved.
- Early unicompartmental wear with varus or valgus malalignment.
- Degenerative cartilage loss as part of knee osteoarthritis.

Mode of injury

- Twisting, pivoting or sudden deceleration injury during sports.
- Direct blow, fall or road traffic accident.
- Repeated overload due to bow-leg/knock-knee alignment or high impact activity.
- Previous meniscus removal, ligament instability or untreated maltracking.
- Gradual age-related wear in some patients.

Common symptoms

- Pain in one area of the knee, often worse with loading, stairs or squatting.
- Swelling after activity or repeated effusions.
- Catching, clicking, grinding or locking sensation.
- Giving way, reduced confidence or difficulty returning to sport.
- Stiffness, reduced range of motion and difficulty sitting cross-legged or kneeling.

Examination and diagnosis

History: injury mechanism, pain location, swelling pattern, locking/catching, activity level, occupation, sports goals and previous surgery are reviewed.

Clinical examination: alignment, gait, swelling, tenderness, range of motion, patellar tracking, meniscus signs and ligament stability are checked.

Imaging: weight-bearing X-rays assess joint space and alignment. MRI helps identify cartilage defects, bone bruising, meniscus tears and ligament injuries.

Cartilage mapping: defect size, depth, location, bone involvement and surrounding cartilage quality guide treatment planning.

Treatment options

Non-operative care: activity modification, weight management, physiotherapy, strength training, pain medicines, braces and selected injections may help early or mild symptoms.

Arthroscopy: used when there are mechanical symptoms, loose bodies, unstable cartilage flaps, meniscus tears or associated problems requiring treatment.

Cartilage repair/restoration: microfracture, drilling, osteochondral autograft/allograft transfer, AMIC or ACI/MACI may be considered depending on defect size, location and patient factors.

Correct the cause: ligament reconstruction, meniscus repair/transplant, patella stabilisation or HTO may be required when instability, meniscus deficiency or malalignment is driving cartilage overload.

Replacement surgery: partial or total knee replacement may be better for advanced diffuse arthritis, severe stiffness or multi-compartment cartilage loss.

Cartilage Restoration: Technical Details and Knee Preservation Plan

When to seek early consultation

- Persistent pain or swelling after injury.
- Locked knee, repeated catching or inability to fully straighten the knee.
- Young/active patient with cartilage defect on MRI.
- Knee pain after ACL/meniscus injury or previous arthroscopy.
- Pain limiting work, walking, stairs or desired sports.

Technical details

Defect assessment: the surgeon assesses cartilage defect size, depth, containment, location, bone quality and limb alignment.

Microfracture/drilling: small holes are made in the bone to stimulate marrow cells to form repair tissue. Often considered for small contained defects.

OATS / mosaicplasty: healthy cartilage-bone plugs are transferred to a focal defect, usually for selected small-to-medium lesions.

Osteochondral allograft: a donor cartilage-bone graft can treat larger defects or defects with bone involvement in selected patients.

ACI / MACI: patient cartilage cells are grown and implanted later, commonly considered for larger focal defects in suitable active patients.

Biological adjuncts: PRP or other injections may be used selectively for symptom control, but they do not replace proper mechanical correction when alignment or instability is the cause.

Rehabilitation and recovery

Protection phase: bracing or crutches may be needed to protect the repair site, depending on procedure and location.

Movement phase: early controlled knee motion helps reduce stiffness and nourish cartilage.

Strength phase: quadriceps, hamstrings, hip strength, balance and gait training are progressed step by step.

Return to sport/work: depends on defect size, procedure, healing, strength and objective functional testing.

Follow-up: clinical review and imaging may be needed to monitor healing and protect the knee long term.

Lifestyle: weight control, low-impact conditioning and avoidance of repeated overload support knee preservation.

Cartilage preservation vs total knee replacement: key difference

Feature	Cartilage preservation approach	Total knee replacement
Main aim	Treat focal damage, protect remaining cartilage and preserve the natural joint.	Replace damaged joint surfaces in end-stage arthritis.
Best suited for	Selected patients with focal defects, early disease or correctable mechanical causes.	Advanced arthritis, severe pain and major functional limitation.
Activity goal	Pain reduction, joint preservation and return to chosen activity where possible.	Reliable pain relief and improved daily function.
Future options	May delay or avoid partial/total knee replacement in suitable patients.	Revision may be required later in some patients.

Kalyani's Knee & Shoulder Clinic

For cartilage injury, knee preservation, sports injury, arthroscopy, alignment correction and rehabilitation guidance

Call: 9554066663 | 9554066664 | 9219200378

Address: Umaraha Market, Varanasi

Note: This handout is for patient education only. Final diagnosis and treatment should be individualised after orthopaedic consultation, weight-bearing X-rays, MRI and appropriate imaging. Sources reviewed: AAOS OrthoInfo, NHS patient guidance and peer-reviewed cartilage restoration literature.