

# Saumya Orthocare



Center for  
Advanced Surgeries of  
The Knee Joint

## Patient Information Booklet

<http://www.knee.in>

**Dr Deepak Goyal**

MBBS, MS(Orth), DNB(Orth), MNAMS  
**Consultant Knee Joint Surgeon**



### Dr Deepak Goyal

is a Consultant Knee Joint Surgeon, who had his training in various world famous Knee Joint centers of the Europe. Through out a

ranker, he was third in merit list in Gujarat state in XIIth Std. He did his MBBS & MS (Orthopedics) from NHL Medical College, Sheth KM School of Postgraduate Medicine and allied hospitals like V S Hospital. He is Diplomate of National Board of Examinations (Orthopedics), New Delhi; a prestigious post graduate medical qualification in India.



### International Paper on Cartilage, Budapest, Hungary 2005

Dr Deepak Goyal is practicing Orthopedics for more than 10 years in Ahmedabad. He has dedicated his practice to exclusive Knee Joint care. Dr Deepak has presented more than 35 lectures at local, national and international conferences. Recently, he was invited to present a paper on his work on Cartilage care of the Knee Joint; at Budapest, Hungary & at Hyderabad, Pakistan. Dr Deepak Goyal is probably the **First Surgeon in India** to start a **Comprehensive Cartilage Care Services**, covering all methods for treatment of Cartilage defects and lesions of the Knee Joint.

Dr Deepak Goyal has done several **Fellowship in Knee Joint Surgeries** at renowned Knee Joint centers of the world. He has worked with renowned Knee Joint Surgeons of **Sweden, Hungary and UK.**



### With Dr Mats Brittberg, Sweden.



He worked with **Prof. Hangody** of **Budapest** for training of Mosaicplasty. He also did a fellowship with **Dr Lars Peterson** and **Dr Mats Brittberg** of **Sweden**. Prof Hangody is inventor of **Mosaicplasty** technique that is used to treat Cartilage defects of the Knee Joint in young people. Dr Peterson and Brittberg are the persons, who invented and popularized the **Cartilage Transplantation Techniques** (FDA-USA approved technique) This technique has revolutionized the Knee Joint care and has prevented many Knee Joints for getting replaced with artificial ones.



### With Lars Peterson, Sweden

He was also privileged to do a Fellowship in **Knee Surgery** at **Wellington Hospital, London** with **Dr George Dowd**. This fellowship was approved by **ISAKOS** (*International Society of Arthroscopy, Knee Surgery & Orthopedic Sports Medicine*). Dr George Dowd is a renowned Senior Knee Joint Surgeon in London and heads one of the biggest private Knee Joint centers of London.



### With Dr George Dowd, Wellington Hospital, London, UK

Dr Deepak Goyal was awarded a Scholarship by **European Society of Sports Medicine, Knee Surgery and Arthroscopy** in 2005. Only one candidate was selected from Asia for this Scholarship. He was invited to visit National Institute of Sports Medicine, Hungary. This institute is main hospital treating all international and national sports persons of Hungary. Many patients treated here have been successful in winning medals at Olympics.



◀ **Dr Berkes Istvan, Director General,  
National Institute of sports medicine,  
Budapest, Hungary**

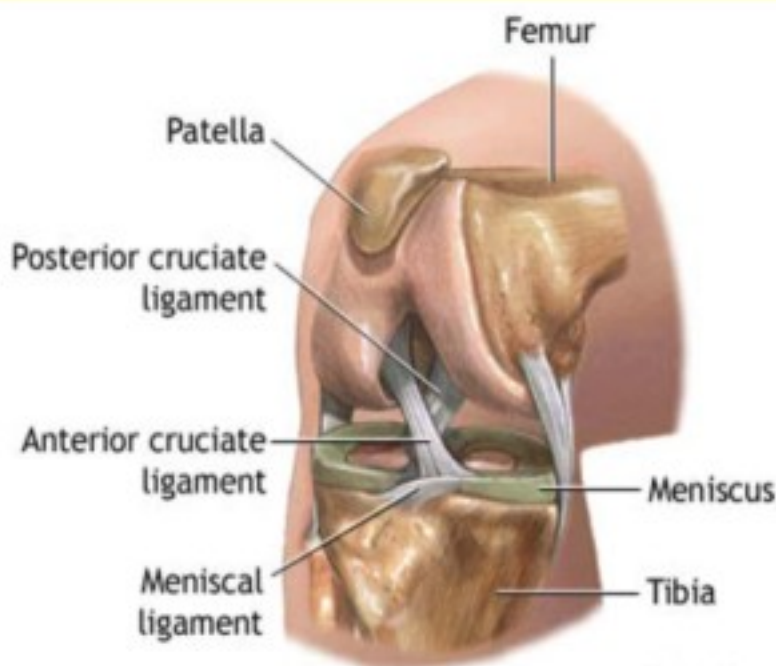
Dr Deepak Goyal presented his own study and results for treatment of various Cartilage lesions of the Knee Joint at Indian Orthopedic Association's National Conference at Mumbai in 2005. He won Dr K P Shrivastava Gold Medal by Indian Orthopedic Association.

## What is Cartilage? What is Arthritis?

Our Knee Joint is a joint between three bones. Patella known as Knee cap; Femur, the thigh bone and the Tibia, known as leg bone. The bones at joints are covered by a layer called Cartilage. The Cartilage is a smooth, elastic structure that protects bone ends from rubbing with each other. It protects our joint from wear and tear and allows smooth gliding motion of the joints. When this protective layer gets damaged or becomes defective; process of arthritis starts.

The Knee Joint also has some extra structures like ligaments and meniscus inside the joint. These structures though essential, if damaged, can further damage the Cartilage indirectly.

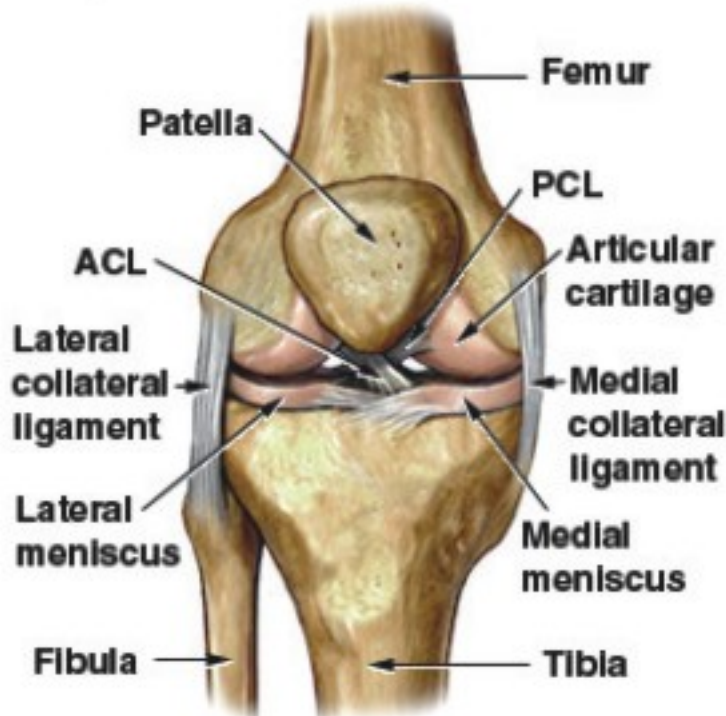
There are certain diseases that can also damage the Cartilage. Cartilage also tends to degenerate with age. In Indian population; it usually starts at 40-50 years of age in the Knee Joints. This is age related phenomenon and is going to happen to all of

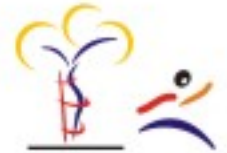


us. However we can delay its onset if proper care is taken.

In short, "Damaged Cartilage" is the main culprit for onset of arthritis. The damage could be either direct or indirect; could be because of some disease or may be a simple aging phenomenon. If a damaged cartilage is treated in time, especially in young people, than we can prevent the arthritis process. But if damaged cartilage is not treated in time, or is resistant to the treatment; than arthritis process starts. This arthritis process gradually spreads and damages whole knee joint. One can definitely put a check on the progress of arthritis by modification of lifestyle. Drugs and physiotherapy also can delay its progression and give relief. However, if arthritic process continues, than other corrective measures should be taken.

The common words used for this condition are Osteoarthritis, OA, Joint has worn out, the gap at Knee has reduced or your leg has bowed from Knee Joint.



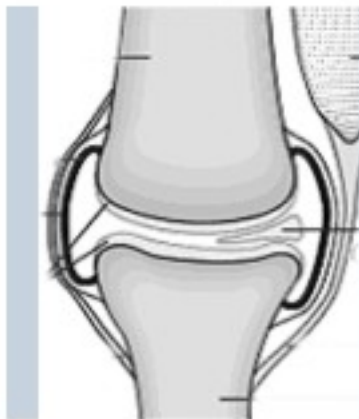


## So, Arthritis is age related phenomenon. Young people should not bother about it. Is it true??

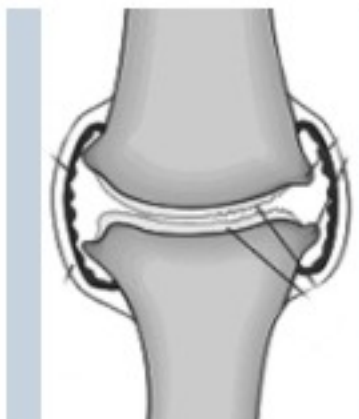
**NO**, more and more young people are seen with arthritis. The usual causes in young people are neglected Knee Joint injuries or some disease. Most young people tend to ignore Knee injuries after fall from bike or after sports trauma. The small damage caused to the Knee Joint can progressively damage more and more Cartilage leading to early age arthritis. The damage can be at meniscus, ligament or directly at Cartilage.

Consider one example here. If you buy a new car, and

accidentally there is some damage to engine and it is making some sounds. Will you get it rectified at the earliest or ignore it? If you ignore the sound from your engine, it can lead to engine failure in less than expected time. You may need to get your engine replaced. Similarly a neglected Knee injury at early age can progress to arthritis very soon and lead to Knee Joint replacement at a younger age. If this is to be avoided, than all Knee Joint injuries must be treated in time, no matter how small it is.



**Normal Knee Joint** (Diagram made easy for understanding) (A good space between two bones indicate healthy Cartilage)



**Beginning of arthritis** (Cartilage thins out on one side of joint. the space between two bones on X-ray has reduced (arrow). This causes occasional pain, occasional catching of Knee and occasional crep sound in the Knee.)



**Severe Osteoarthritis** (Cartilage between two bones on one side has totally worn out, bone are rubbing with each other, causing severe pain, disability, loss of movement and swelling)



## Is Knee Joint Replacement necessary? Is there any alternative?

No, Knee Joint Replacement is one of the various methods to treat the arthritic (painful) Knee Joint. There are several world wide accepted alternative methods to manage painful Knee Joints without replacing it. But one should remember one principle, earlier the better. However, if you are too late to act in time, Knee Joint Replacement may be the only option available. The other options available are.....

1. Arthroscopic lavage and cleaning of the joint.
2. Correction of angle of the Knee, to cover up for the lost Cartilage.
3. Treatment of Cartilage Defect using best indicated method, like...
  - Cartilage repair      • Cartilage regeneration
  - Cartilage transfer   • Cartilage transplantation Techniques.

### 1. Arthroscopic lavage and cleaning of the joint

Because of long standing wear and tear of the joint (Arthritis), small bone and Cartilage pieces starts accumulating in Knee Joint. These particles further irritate Knee Joint leading to more inflammation (swelling). This inflammation and swelling further weakens the Knee Joint leading to more wear and tear. These particles are also the cause of pain and swelling. With the help of Arthroscopy; the joint is cleaned and washed. It is a short and small procedure. Patient can go back to his work in one day, in majority of the cases.

### What is Arthroscopy?

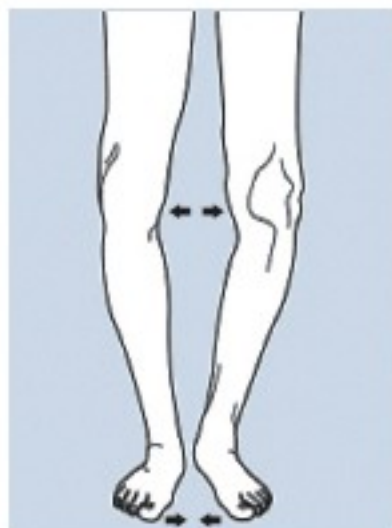
Arthroscopy is a sophisticated procedure that uses special instruments, but is very patient friendly. Only two small  $\frac{1}{2}$  cm incisions are put and surgeons' special instruments goes inside the Knee Joint. All structures inside the Knee Joint like ligaments, Meniscus, Cartilage and Joint linings; are seen on TV Screen. A detailed judgment can be made and majority of corrections can be done simultaneously.



Two small single stitches

### 2. Correction of angle of the Knee, to cover up for the lost Cartilage

With increasing age and increasing wear & tear (Arthritis), the Knee Joint Cartilage thins out on inner side of the Knee, as explained earlier. This causes Knee Joint to bend out and our legs become bowed. As the arthritis increases, Knee Joint becomes more and more bow leading to change in angle of our legs. If you see yourself in mirror, you will find that if you keep your foot together, there is remarkable distance between your two Knee Joints. If angle of Knee Joint is corrected in time; progression of arthritis can be delayed for so many years. This also leads to elimination of pain and improves function of Knee Joint. We get better results, if we act early.

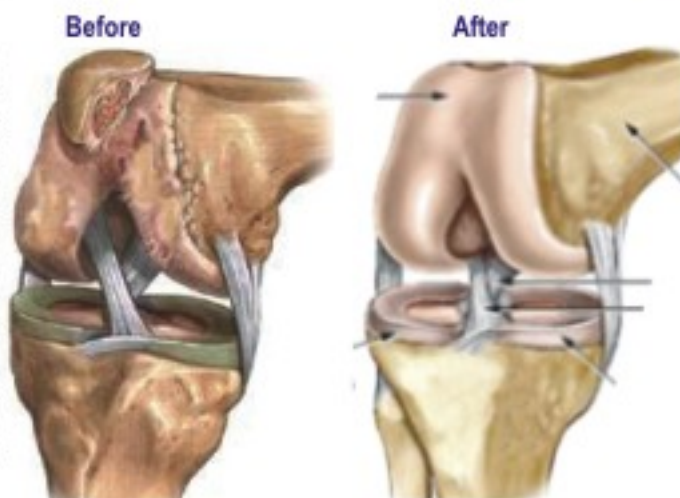


### 3. Treatment of Damaged Cartilage

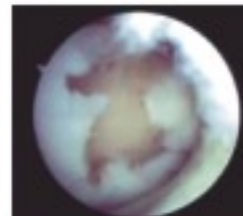
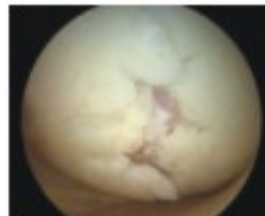
Cartilage is the protective layer of Knee Joint that protects the Knee Joint from wear and tear. As you have learned before, a small neglected damage can lead to early arthritis of the Knee Joint.

If untreated this arthritis or early damage progresses to full arthritis. A patient with arthritis has only two choices; either live with pain and disability life time or go for a Knee Joint replacement. This decision is more difficult when the patient is young and active. A patient with arthritis has only two choices; either live with pain and disability life time or go for a Knee Joint replacement. This decision is more difficult when the patient is young and active.

A few very recent technologies have evolved over last decade. Each method is good in certain cases but may not be good in other cases. Hence a wise selection of treatment option to treat cartilage defect is must. Utmost care should be taken in selection of best method, before cartilage defect is treated.



#### As seen on Arthroscopy



#### Cartilage damage of Knee Joint



Normal Cartilage  
seen on Arthroscopy



Early damage to  
Cartilage

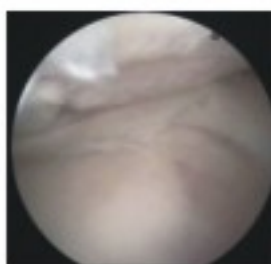


progressing Cartilage  
damage

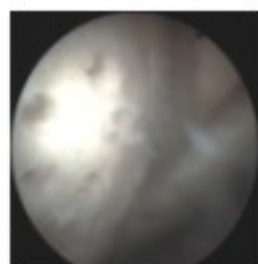


Severe  
damage

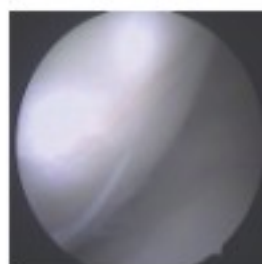
## Cartilage Regeneration Technique



Damaged Cartilage  
surface



Microfracture  
technique



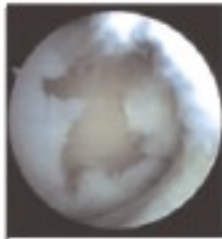
Newly regenerated  
Cartilage

The figure shows a Cartilage Regeneration Technique called Microfracture technique. Multiple punches are done on the damaged area so that inner bone is stimulated to form a new Cartilage.



## Cartilage Transfer Technique

In this technique, a healthy cartilage from less important area of the Knee Joint is shifted to more important and crucial area of the Knee Joint. This popular technique is known as Mosaicplasty. This technique is used to treat major Cartilage defects of the Knee Joint in young. This method is done using Arthroscopy is a day care Surgery & Patient can go home next day.



**Cartilage defect on Knee Joint surface**



**Bone cylinder capped with Cartilage taken from less important but healthy area of the Knee Joint.**



**Bone Cartilage cylinder graft transferred in the defect**



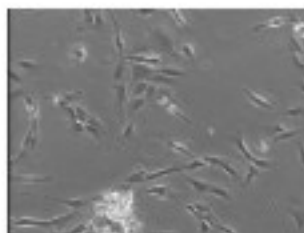
**Fully regenerated Cartilage at the defect**

## Cartilage Transplantation Technique

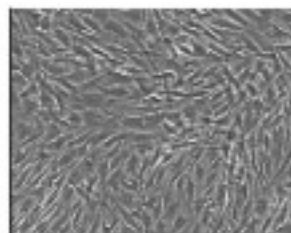
In this technique, a very small amount of the Cartilage Tissue from the Knee Joint is taken and send to laboratory for multiplication. At the end of 2-3 weeks, these cells multiply from 250 cells to around 1,000,000 cells. These cells are retransferred to the defect in the Knee Joint. This technique helps in curing very large defects in young people, who wants to live a very active or a sport related career.



**A small piece of Cartilage taken form Knee Joint**



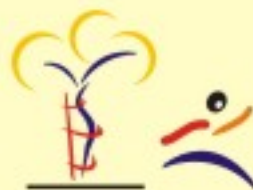
**Cartilage cells from Knee Joint send to Cartilage Lab**



**Cartilage cells grows multiple times in lab**



**Multiplied cells are transferred in the Cartilage defect of the Knee Joint**



#### **Fellow in Knee Surgery**

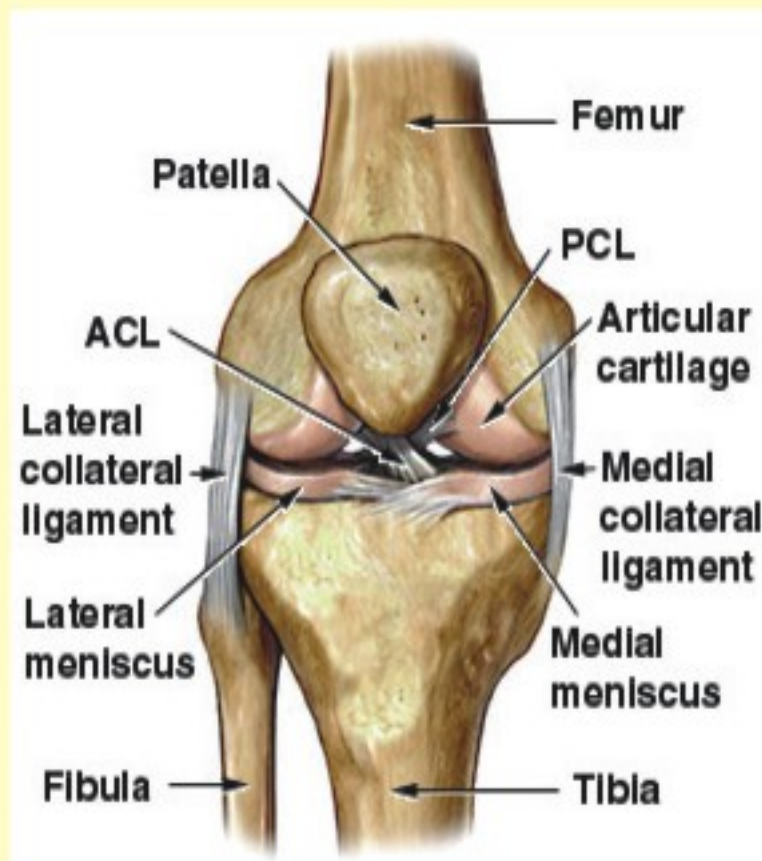
- Wellington Knee Hospital, London, UK.
- Semmelweis University, Budapest, Hungary.
- Hinchingbrooke Hospital, Cambridgeshire, UK.
- Uzsoki Hospital, Budapest, Hungary.
- Sancheti Institute, Pune, India.
- National Institute of Sports Medicine, Budapest, Hungary.
- Sahlgrenska University, Göthenburg, Sweden.

#### **Scholar of Knee Surgery**

- European Society of Sports Medicine, Knee Surgery and Arthroscopy

#### **On Panel & Visiting Knee Surgeon**

- Pukhraj Hospital
- Medisurge Hospital
- Apollo Hospital
- Rajasthan Hospitals
- SAL Hospital
- Sterling Hospital
- ONGC



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### **CONSULTATION**

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Phone: +91-79-27570022 (call after 5:00 pm for an appointment.)

Time: 7:00 pm to 8:30 pm (By Prior app. Only) Email: clinic@knee.in

**Pukhraj Hospital** Ramnagar, Sabarmati, Ahmedabad-380005

Monday to Saturday 9:00 to 11:00 am • Phone : 079-27506861, 079-27508781

**MediSurge Hospital** Mithakhali, Ahmedabad - 380006.

Monday & Thursday 4:00 to 6:00 pm • Phone : 079-2640840 (ask ext. 225 for an appointment).