

## DELHI INSTITUTE OF TRAUMA & ORTHOPEDICS

What we Offer:

- Joint replacement of Knee, Hip and Shoulder
  - Arthroscopic surgery of knee and shoulder
- Spine surgery including spinal trauma deformity correction, spinal fixation
  - Complex fracture and trauma care
- A team of surgeons working in close co-ordination
- 24 hour trained orthopedic surgeon in attendance
- Intensive care unit equipped with monitors and ventilators
  - Laminar flow operation theaters
    - 24 hour blood bank
    - 24 hour CT scan and MRI



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A patient's guide to everything you need to know about

## KNEE REPLACEMENT SURGERY



**Authored by**  
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## Knee Replacement Surgery "Changing Lives"

### -Preface-

Total Knee Replacement is a very successful operation which has changed the lives of millions of people worldwide who are crippled with end stage arthritis of the knee. This operation relieves knee pain, improves walking ability and therefore allows you to resume your social and recreational activities as before.

Advances in design and materials of artificial joints, advances in surgical techniques, better pain management after surgery, and quicker rehabilitation are all factors that have made knee replacement surgery one of the safest and clinically proven procedures. In India alone, approximately 1 lakh knees are replaced every year.

The results of this operation can vary depending upon your preexisting medical conditions such as diabetes, your overall health, obesity and type of arthritis.

This booklet is written to answer many of your questions and guide you for a successful operation.

Good Luck and Best Wishes

Dr. Shekhar Agarwal

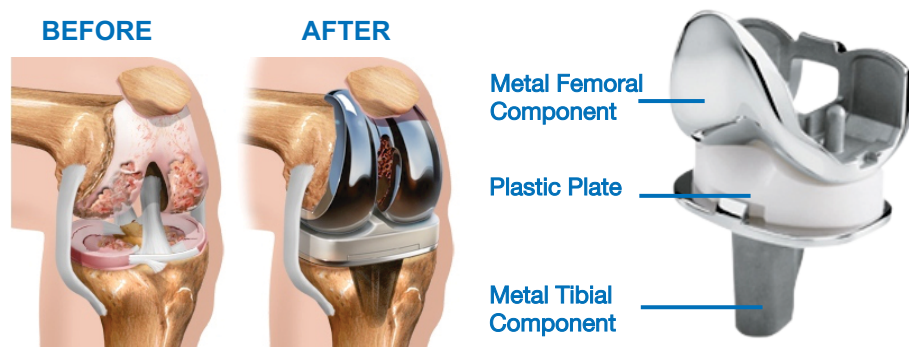
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## INTRODUCTION

The knee joint is the largest and the most complex joint of the body. It provides us with support and mobility for movements of our daily living such as walking, sitting, squatting, turning, running, driving etc. Healthy knees are taken for granted without giving any thought about stresses it undergoes for all of us. We are forced to restrict our activities only when the knee becomes painful, stiff or swollen. It is only then we realize how much freedom of movement means to all of us.

Fortunately, today's advanced medical technology makes it possible to replace the knee joint with an artificial one that reduces pain, allows you to strengthen your legs and improves your quality of life.

This booklet provides you and your family information regarding total knee joint operation. It discusses surgical procedure, risks and benefits of surgery, preparation before surgery and post-operative care thereafter.



## WHAT IS A TOTAL KNEE REPLACEMENT?

Total Knee Replacement is an operation in which we do not remove the whole joint, only the damaged surface of thigh bone (femur) and shin bone (tibia) are shaved off. Often, underside of the kneecap (patella) is also removed and these surfaces are replaced with artificial parts. The new joint consists of a metal shell on the end of the femur, a metal plate covered with a plastic trough on the tibia, and if needed, a plastic button on the kneecap. It is an operation where one just resurfaces the damaged knee joint, as is done in capping a damaged tooth.

## WHAT ARE THE TYPES OF TOTAL KNEE REPLACEMENT?

Conventional Total Knee implant allows a person to have good range of motion of knee, however, now High Flex Knees and Unicondylar Knees are also available. High Flex Knee gives full flexion to the patient thereby allowing sitting on the floor. Unicondylar Knees also known as half joint replacement are indicated for very early arthritis and when only one half of the joint is involved. You and your surgeon can discuss the most suitable implant for yourself.

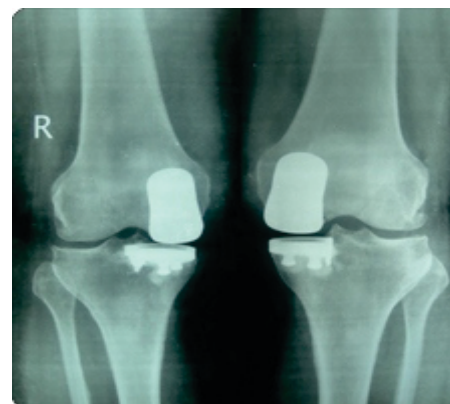
X-ray of Replaced Total Knee



Total Knee Implant



X-ray of Replaced Uni Condylar Knee



Uni Condylar Implant





## CUSTOMIZE YOUR KNEE : PATIENT SPECIFIC TECHNOLOGY

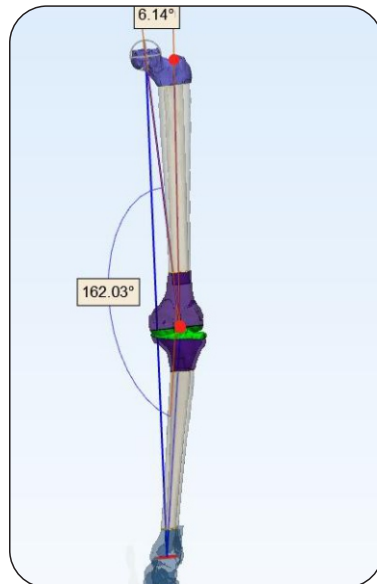
Every individual's knees are different, and having the precise anatomy and exact measurements of your knees allows us to give you a more natural fit of your new knee implant. From a CT scan of your legs, we can view your entire knee joint and joint line mechanics three dimensionally in a medical 3D software. Custom manufactured instruments are designed highlighting all the specific requirements of your unique anatomy in order to get a more personalized fit of the implant.

Using this detailed planning, your surgical operation is customized to

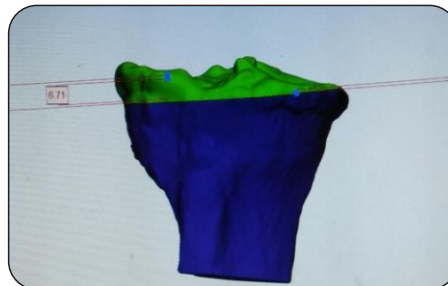
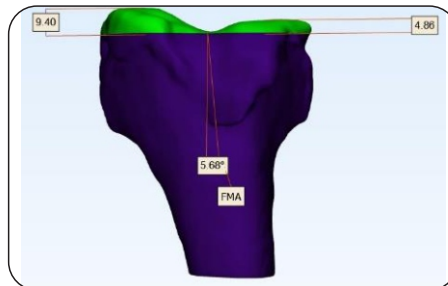
- Be less invasive
- Achieve higher level of accuracy
- Reduce surgical time
- Reduce blood loss
- Improve recovery

This surgical technique is also recommended for patients that suffer from other morbidities such as coronary artery disease, obesity and diabetes as well as those patients who already have pre-existing hardware in the joint such as presence of nail, screws etc.

### UNIQUE PATIENT ANATOMY WITH JOINT LINE



### FEMUR & TIBIA MEASUREMENT



## SPECIALIZED INSTRUMENTS FOR YOUR SURGERY

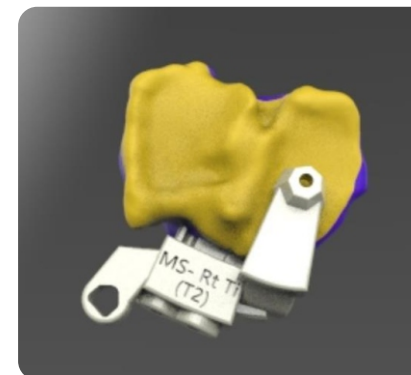
### FEMUR MATCHED INSTRUMENT



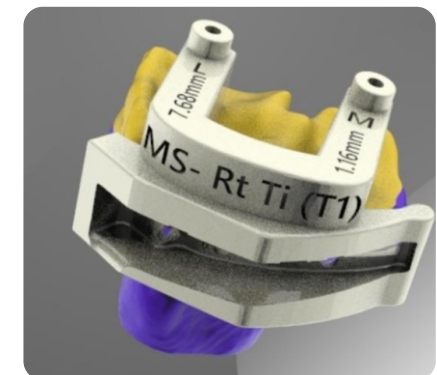
### TIBIA MATCHED INSTRUMENT



### TIBIA MATCHED INSTRUMENT (TOP VIEW)



### TIBIAL MATCHING



## WHO NEEDS A TOTAL KNEE REPLACEMENT?

Total Knee Replacement surgery is an elective procedure. Your doctor has more than likely treated your condition with physiotherapy, pain medicines, anti-inflammatory drugs, and injections in the knee. You may have also had minor surgeries of your joint in the past.



### You would be considered for total knee replacement if:

- you have daily pain
- your pain is severe enough to restrict not only work and recreations but also the ordinary activities of daily living
- you have significant stiffness of your knee
- you have significant instability (constant giving way) of your knee
- you have significant deformity (knock knees or bow legs) causing pain and inability to walk

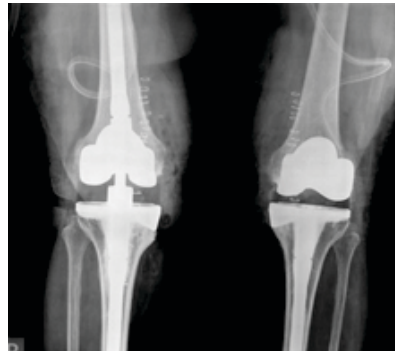
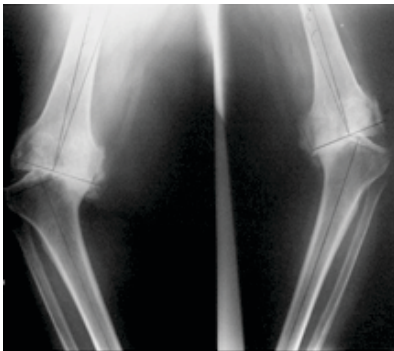
You and your doctor are probably the best judge of when you will finally need total knee replacement surgery.

### SOME COMMON DEFORMITIES

#### Before Surgery

#### After Surgery

#### 1. Bow Legs (varus)



#### 2. Knock Knees (valgus)



### 3. Wind Swept Legs



### CAN I CONTINUE WITH ALL THESE DIASBILITIES?

Yes you can, but your unstable joints may cause a fall and you may have fractures around the knees and the hips because of osteoporotic bones. Regular consumption of analgesics and anti-inflammatory drugs may damage your kidneys and cause ulcers in your stomach.

### IS THERE ANY AGE CONSIDERATION FOR KNEE REPLACEMENT?

Although knee joint replacement is recommended in older age group, it can be considered in younger patients who are severely crippled due to rheumatoid arthritis or post traumatic osteoarthritis of knees. As such, age is no bar to this operation.

### WHAT ARE THE BENEFITS OF KNEE JOINT REPLACEMENT?

Once your new joint has completely healed, you will reap the benefits of the surgery.

These include:

- Reduced joint pain dramatically (may be no pain)
- Increased movement and mobility
- Correction of deformity
- Improved quality of life - the ability to return to normal activities
- Running, jumping, jogging or other high impact activities are discouraged. However, you can resume playing golf, walking, bicycling, swimming and other low impact sports

Full knee movement after surgery



Can sit cross legged after surgery



Can also cycle after surgery



Can walk comfortably without support



## HOW LONG DO ARTIFICIAL KNEES LAST?

Surgeons and manufacturers have made remarkable advances in joint replacement technology over the last few years. The materials are long lasting and durable. The surgical methods have been fine tuned and standardized. As a result, the chances for a successful outcome are excellent.

The operation will provide pain relief for at least 10-15 years. The major long term problem is loosening of the prosthesis. This occurs because either the cement crumbles (as old mortar in a brick building) or the bone loosens away (resorbs) from the cement. By 10 years, 25% of total knee replacements may look loose on X-ray, and about 10% will be painful and require reoperation. By 15 years possibly 20% may require re-operation.

These complications are more likely in very obese or hyper active people and really depends upon how careful you are about your artificial knee joint.

## CAN BOTH KNEES BE REPLACED AT THE SAME TIME?

If both knees are damaged, both can be replaced in the same sitting. It means one time anaesthesia, one time hospital stay, one time medicines and one time physical therapy. It means saving the cost too. Your doctor can advise you for the need of replacing both the knees simultaneously.

## HOW SHOULD I PREPARE FOR TOTAL KNEE REPLACEMENT?

Following are the essential steps that will help you get into shape before knee replacement surgery:

**Commit to the success of your surgery:** Working as a team you and your family must adopt a positive attitude towards the success of your surgery. Together with your doctor you will gain a clear understanding of the common goals and expectations of the surgery.

**Lose excess weight:** Because excess weight causes more strain on already damaged joints, losing weight is one of the best ways to improve the condition of your knee and optimize surgical results. Your doctor's approval : Before surgery we would like to make sure that your condition is well enough to undergo this operation and also to exclude certain conditions such as dental infection, ear, nose and throat infection, skin infection, urine infection etc.

**Stop smoking:** If you have not already done so, it is suggested that you stop smoking. This will be good for you during and after your surgery. Routinely blood transfusion is not necessary after Single Total Knee Replacement. But if your hemoglobin is less than 10gm% then you may require 1-2 units of blood for your operation, so kindly arrange donors for this purpose. If both of your knees need replacement in the same sitting, then up to 2-3 units of blood may be required depending on your hemoglobin levels.

## CAN YOU EXPLAIN ABOUT THE EVENTS OF MY STAY IN HOSPITAL?

When you have made up your mind for knee replacement surgery, you will be admitted a day before surgery. Your surgeon anaesthetist, physician and physiotherapist will do a complete medical evaluation.

X-ray images will be taken of your knees that help the surgeon plan your surgery. Chest X-rays, ECG, blood and urine test will be done prior to surgery to ensure that you are fit for surgery.

You will be required to scrub the surgical area with soap and water a night before and on the day of surgery, after which your leg will be covered with a sterile drape. You will be transported to the operating room in the morning.

You may have General Anaesthesia or Spinal Anaesthesia with sedation. The duration of surgery for one knee is about 1 hours. Your doctors will talk to your family after the surgery to report your progress.

You will be kept in recovery room for a few hours and then transferred to the room or in some cases to ICU for the monitoring of vital parameters.

The whole limb will be covered with a bandage. After 3-6 hours depending upon the type of anaesthesia given at the time of surgery, you will start with normal diet.

Next morning, you will be transferred to the room and physical therapy usually begins with most of the patients. On 3rd day your dressing will be changed. In some cases a knee immobilizer will be worn. Walking with support & independently using the toilet will be started from 2nd day onwards.

- Independence in getting in and out of bed
- Independence in walking with walker on a level surface
- Independence in your home exercise program

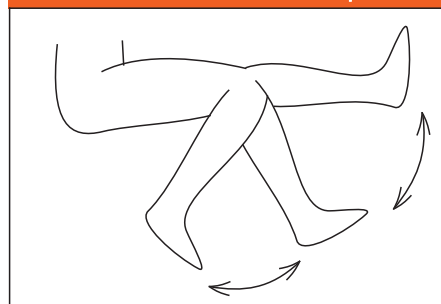
Your doctor and therapist may modify these goals somewhat to fit your particular condition. If there are no complications after surgery, most patients stay in our hospital approximately for 1 week or less.

## CAN I SIT CROSS LEG OR SQUAT AFTER KNEE REPLACEMENT?

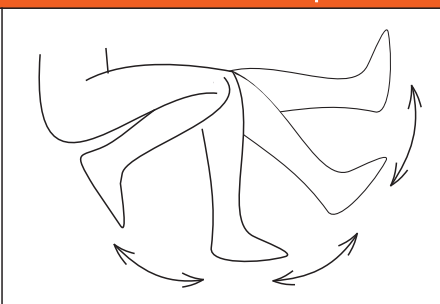
After a conventional implant for Total Knee Replacement, a person can typically walk comfortably and his knee joint will have a good range of motion. However, sitting cross-legged and squatting is not advised. If a person opts for a Hi-Flex knee implant, the range of motion of the knee is better allowing him to sit cross-legged. We would generally suggest

that you do not squat as it is based on individual muscle strength and fitness level. Your doctor will advise you on the activities that you will be able to do comfortably.

After Conventional Total Knee Replacement



After Hi-Flex Total Knee Replacement



## REHABILITATION AND EXERCISE

The initial rehabilitation generally takes 5-7 days during your hospital stay. It is needed for your weak leg and thigh muscles which have not been used because of your knee problem. The surgery can correct the knee problem, but the muscles will remain weak and need to be strengthened through regular exercises. The therapist also focuses on helping to increase the range of motion of knee with bending exercises. Physical therapist along with you will work until you meet the following goals:

## WHAT HAPPENS AFTER I GO HOME?

### Medication:

You will continue to take medicines as prescribed by your doctor.

### Care of the wound:

Keep the incision clean and dry. If there is any swelling, redness or drainage from the incision site, or if you have any pain or fever, report this immediately to your doctor. The stitches are removed at about two weeks after the operation.



### What to expect during your recovery

After surgery, it may take a while before you feel like your normal self. Recovery is different for each person. The following are a few things that you may have after surgery and some ways to manage these feelings.

#### Recovering at home

You may feel extremely tired at first and the muscles and tissues surrounding your new knee will take time to heal.

The exercises your physiotherapist gives you are an important part of your recovery. Its essential you continue with them once you're at home. Your rehabilitation will be monitored by a physiotherapist.

#### How long will it be before I feel normal?

You should be able to stop using your crutches or walking frame and resume normal leisure activities 6 weeks after surgery. However, it may take up to 3 months for pain and swelling to settle down. **It can take up to a year for any leg swelling to disappear.**

**Your new knee will continue to recover for up to 1 years after your operation.** During this time, scar tissue will heal and muscles can be restored by exercise.

#### When can I drive again?

You can resume driving when you can bend your knee enough to get in and out of a car and control the car properly. This is usually around 6 to 8 weeks after your surgery.

#### When can I go back to work?

This depends on your job, but you can usually return to work 6 to 12 weeks after your operation.

#### When can I do housework?

For the first 3 months, you should be able to manage light chores, such as cooking, dusting and washing up. Avoid heavy tasks. Do not stand for long periods as this may cause ankle swelling and avoid stretching up or bending down for the first 6 weeks.

#### How will it affect my sex life?

Your surgeon can advise when you can have sex again. As long as you're careful, it should be fine after 6 to 8 weeks. Avoid vigorous sex and kneeling positions.

### Looking after your new knee

- Continue to take any prescribed painkillers or anti-inflammatories to help manage any pain and swelling
- Use your walking aids but aim to gradually decrease the amount you rely on them as your leg feels stronger
- Keep up your exercises to help prevent stiffness, but do not force your knee do not sit with your legs crossed for the first 6 weeks after your operation
- Do not put a pillow underneath your knee when sleeping as this can result in a permanently bent knee
- Avoid twisting at your knee
- Wear supportive shoes outdoors
- Do not kneel on your operated knee
- Raise your leg when sitting and apply an ice pack (or a bag of frozen peas) wrapped in a tea towel for 20 minutes every 3 or 4 hours to reduce any swelling
- You may not have much of an appetite.
- Your desire for food will slowly return.
- Be sure to drink plenty of liquids to stay hydrated. Try to drink six to eight 8-ounce glasses of liquids each day.
- You may have constipation. This can be caused by taking pain medicine. Learn more about how to manage constipation after surgery.

### WHEN DO I COME FOR CHECK UP?

Your first return appointment will be 2 weeks after the date of surgery for removal of stitches. Second appointment will be after 1 month, at which time you will be examined and have X-rays done. Subsequent appointments will be given based on your progress.

## HOW DO I TAKE CARE OF MY KNEES AFTER THE OPERATION?

Your knee replacement should give you years of service. You can protect it by taking a few simple steps:

**Watch for and prevent infection:** Because your new knee is sensitive to infection, you must be diligent about preventing infection. If you suspect infection of any kind, contact your doctor right away.

**Follow-up care:** Your regular follow-up visits will ensure the long term success of your operation. Often, follow-up X-rays will confirm proper placement and alignment of the artificial joint.

**Weight control:** Keeping your weight under control. This will reduce the amount of pressure and stress on your new knee. Avoid high impact sports and participate regularly in low impact activities to strengthen your new knees and get the exercise you need to stay fit.

Do not attempt to squat or sit cross legged after conventional knee replacement.

## SHOULD I HAVE A TOTAL KNEE REPLACEMENT?

Total Knee Replacement is an elective operation. The decision to have the operation is yours. The surgeon may recommend the operation, but your decision must be based upon you weighing the benefits of the operation against the risks. All your questions should have been answered before you decide to have the operation.

**If you still have any queries, please do not hesitate to contact us at:  
Delhi Institute of Trauma & Orthopaedics,  
Sant Parmanand Hospital,  
18 Sham Nath Marg, Civil Lines, Delhi – 110 054.**

## TESTIMONIALS



We had three surgeries at Parmanand hospital and all 3 experiences have been great. Right from the treating doctors and surgeons to the nursing staff and the support staff especially the ward boys/ ladies have been prompt and very helpful. Pain management to patient care are very good and praiseworthy.

Thank you for your care

**Dr. Naresh Vaid, 72 years (Aug 2019)**



Kudos to Dr. Shekhar Agarwal & his team for an amazing experience. The surgery & post care was flawless. Excellent Nursing & Doctor team. Rooms were very clean and well maintained.

Thanks so much for everything.

**Mrs. Usha Paul 68 years (Nov 2019)**



A very pleasant and comfortable experience. As for Dr. Shekhar Agarwal – I don't think I could have gone to anyone better! He is the best!!!

**Ms. Kiran Segal, 74 years (Sep 2019)**

## THE KNEE CLUB

The Knee Club was created by Dr. Shekhar Agarwal for his patients and their families so that they can convene together and share their new lives after knee replacement. More than 500 members are now part of this club. This year the members celebrated Holi together.



## DR. SHEKHAR AGARWAL



As Chief Surgeon, Dr. Shekhar Agarwal's super specialty is Joint Replacement surgery. His skill as a surgeon, extensive global experience in this field and continuing academic interests have been instrumental in transforming DITO into one of the top Joint Replacement Institutions in India. Currently, he does more than 1,000 joint replacements per year including Total Knee, Total Hip, Revision Knee, Revision Hip, Elbow and Shoulder replacements. Dr. Shekhar Agarwal has been President of Delhi Orthopaedic Association. His clinical acumen and prowess are well recognized in India & abroad. He is also a visiting Professor at the Tamil Nadu Dr. MGR Medical University.

## THE DITO TEAM SPECIALITY UNITS

**Joint Replacement Unit :** Dr. Shekhar Agarwal, Dr. Simon Thomas, Dr. Anuj Jain  
Dr. Nikhil Verma

**Arthroscopy & Sports Medicine :** Dr. Shekhar Srivastav, Dr. Harjoban Singh

**Spine Surgery Unit :** Dr. Amit Sridhar

**Paediatric Orthopaedics :** Dr. Nargesh Agarwal

**Hand Surgery :** Dr. Abhishek Sharma



**" Team Performing Knee Replacement Surgery"**

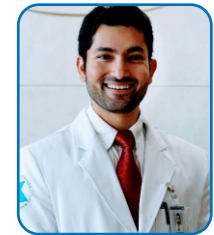
## JOINT REPLACEMENT TEAM



**Dr. Simon Thomas**



**Dr. Anuj Jain**



**Dr. Nikhil Verma**



*Healing Hand*

