

Knee Replacement Surgery - A Walk Through...





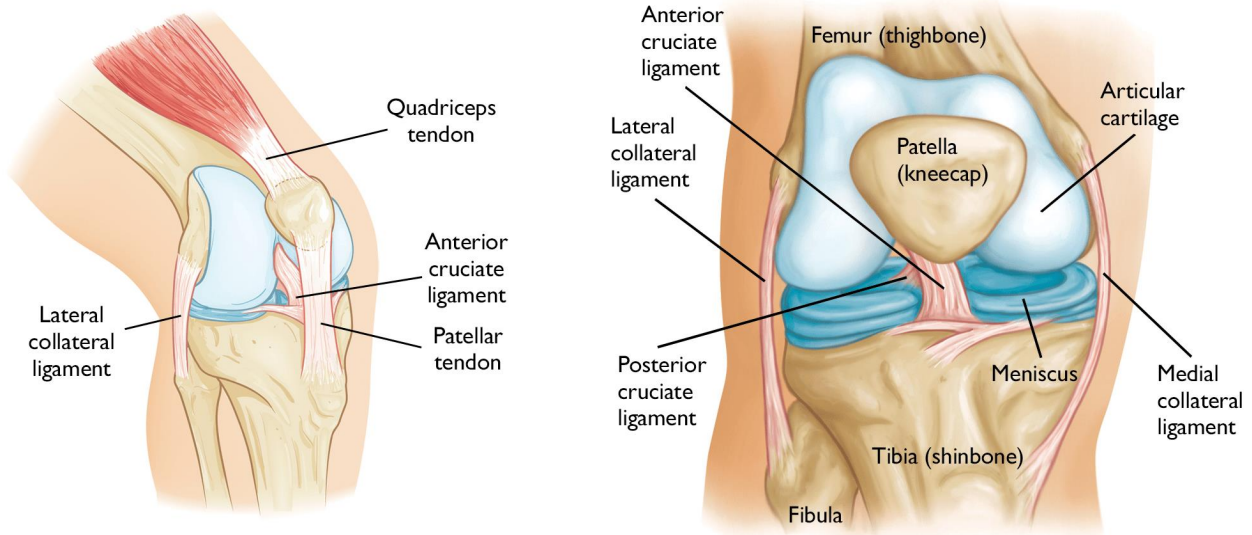
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Hello, I am here to guide you through your knee replacement surgery.

Let's understand a few things before we proceed for the surgery.

Structure of the Knee:



Our knee joint is made up of:

Bones - the femur (thigh bone), the tibia (shin bone), and patella (kneecap) that support the body.

Menisci - soft cartilage between the femur and tibia, serves as a cushion and helps absorb shock during motion.

Ligaments – these are strong bands of tissue that connect bone to bone. They brace the knee and keep it from bending too much. They also help to guide knee motion.

Tendons – these are cords of tissue that attach bones to muscles. They enable the muscles to move the knee.

Muscles - these are bundles of fibres that contract to provide power for movement.

Bursae – these are small sacs of fluid that allow the bones and soft tissues to glide smoothly past each other.

How the Knee Joint Works



Knowing how the knee works can help you understand your knee problem.

The body's biggest joint, the knee, is a marvel of mechanical design. Every day, it absorbs the immense forces placed upon it by body weight and gravity. In addition, the knee bends, extends, and rotates thousands of times daily. To perform all

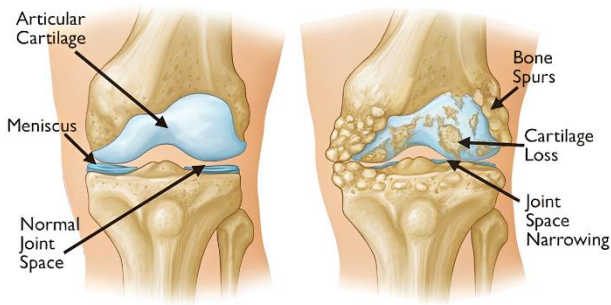
these tasks, the knee joint contains many parts that work together. It is this complex structure that makes the knee easily vulnerable to damage.

Why Do Knee Problems Occur?

Well... common causes are overuse and wear and tear. Overuse means repeatedly placing too much strain on the joint. Wear and tear, which gets worse with age, involves damage brought on by daily use of our knees. Obesity, osteoporosis, trauma / injury, or diseases like rheumatoid arthritis may also cause knee problems, the commonest of which is osteoarthritis.



What is Osteoarthritis?



In osteoarthritis, articular cartilage in the knee wears away. This leads to bones rubbing against each other forming bone spurs.

Causes

- Old age
- Injury, trauma or fractures to the joint
- Increased body weight
- Repetitive overuse
- Joint infection or inflammation
- Connective tissue disorders



Symptoms

The symptoms vary from person to person, and are not always directly proportional to the amount of joint damage.

- You might get **pain**, especially after repeated activity or after a period of inactivity.
- There might be **swelling & stiffness** or you may have a **warm** knee.
- You might feel a **grinding sensation** in your knee.
- You might experience a sudden **catching** in the knee.

Medical Evaluation

Your doctor might ask you history of :

- Symptoms - what are your complaints?
- Pain - where is the pain, how bad is it and when does it occur?
- Past knee problems, your lifestyle, including any sports you play.



He will then do a physical exam to check for:

- Tenderness, swelling, warmth, and bruising.
- To check if the range of motion is limited.
- He might ask you to walk or squat to see how your knee functions.

He might then order a few diagnostic tests:

- X-ray of both the knees – AP and Lateral views.
- MRI or CT scan in some cases.
- Blood tests to check for certain types of arthritis.
- Fluid may be removed from your knee (aspiration) to be analysed.



Treatment for Knee Pain Due to Osteoarthritis

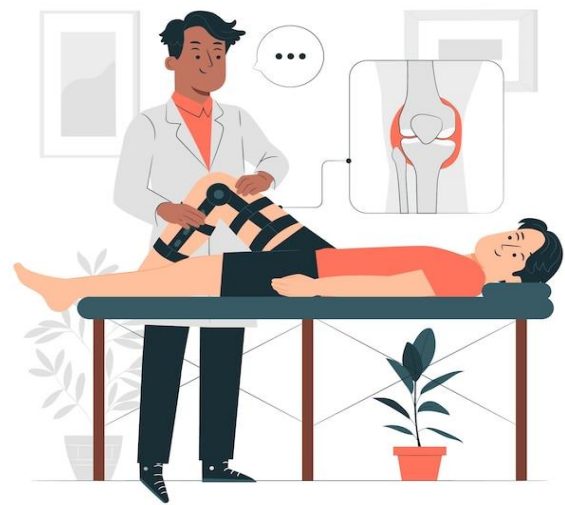
Different treatment modalities in sequence to reduce pain due to osteoarthritis include:

Give Rest

Giving rest to the knee prevents further damage and gives the knee a chance to heal.

Apply Ice

It helps reduce swelling and pain. Wrap cubes of ice with a cloth or in a Ziploc bag and place it on your knee for up to 15-20 minutes every 3-4 hours.



Give Compression

It helps reduce swelling and provides support. Wrap the knee snugly with an elastic bandage, making sure it is not too tight. Don't wear the bandage overnight.

Elevate the Leg

It reduces swelling and pain. Keep the knee raised above the heart level for best results.



Medicines

Medicines may include:

- Short courses of pain killers and anti-inflammatory drugs.
- Centrally acting pain killers like opioid derivatives.
- Ointments for local application.

Physiotherapy



Your doctor might advise physical therapy for your knee, which include:

- **Exercises** to help you regain movement and strength in your knee.
- **Electrical stimulation or ultrasound** to reduce pain and improve healing.
- **Massage** to help fluid drain from the knee.

Intra-articular Injections

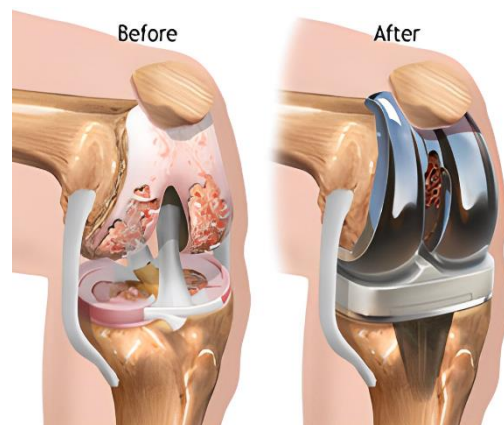
In some people, intra-articular injections may help to reduce the pain. The agents used for this intra-articular injections can include

- Hyaluronic acid, a synthetic joint lubricating fluid which helps in relieving knee pain in moderate osteoarthritis cases
- PRP, a component made from your own blood, which has potentially healing efficacy, which heals lesions in mild to moderate osteoarthritis cases
- Steroids, to relieve pain temporarily

Surgical Treatment

If non-surgical treatment options fail, your doctor may prescribe you knee procedures, to relieve the symptoms, which include:

- **High Tibial Osteotomy** - if there are alignment issues with the joint.
- **Uni Knee Replacement (Microplasty)**
- if the arthritis is in one compartment.
- **Total Knee Replacement** – if the arthritis is in both the compartments of the knee joint.



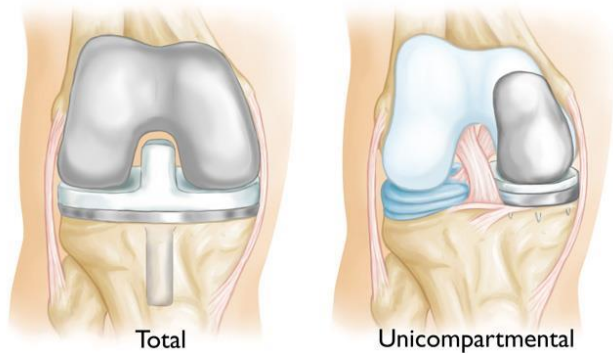
Uni Knee Joint Replacement

In unicompartmental knee replacement (also called partial knee replacement), only a portion of the knee is resurfaced.

This procedure is an alternative to total knee replacement for patients whose disease is limited to just one area of the knee.

Advantages

- quicker recovery
- less pain after surgery
- less blood loss
- lower risk of infection and blood clots
- because the bone, cartilage, and ligaments in the healthy parts of the knee are preserved, many patients report that a unicompartmental knee replacement feels more natural than a total knee replacement.
- a unicompartmental knee may also bend better.



Disadvantages

- requirement for revision total knee replacement at later stage

Candidates for uni knee replacement

To be a candidate for unicompartmental knee replacement, your arthritis must be limited to one compartment of your knee.

If you have any of the following characteristics, you may not be eligible for the procedure:

- Inflammatory arthritis
- Significant knee stiffness
- Ligament damage

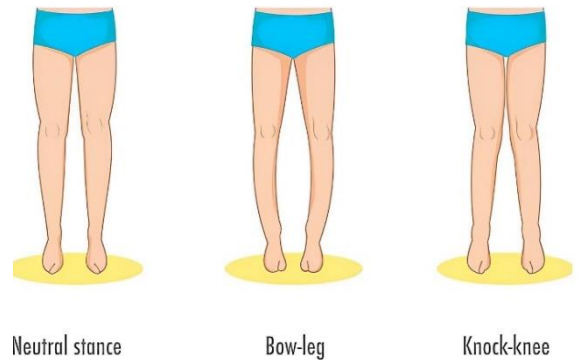
You can discuss with your doctor if you fit for this type of surgery.

Total Knee Joint Replacement

Total knee replacement is a surgical procedure in which the worn out or damaged surfaces of the knee joint are removed and replaced with artificial parts to relieve pain and restore the alignment and function of your knee. It is a safe and effective procedure to relieve pain, correct leg deformity, and help you resume your normal activities of daily living.

Indications

- If you have severe osteoarthritis of the knee.
- If you have severe knee pain which limits your daily activities (such as walking, getting up from a chair or climbing stairs).
- Failure to obtain pain relief from medications, injections, physical therapy, or conservative treatments.
- If you have a bow-legged or knock-knee deformity.



Single Knee vs Bilateral Knee Replacement



Based on the amount of osteoarthritis in your knees, your doctor will suggest you to get replacement done in single or both knees.

Though bilateral knee replacement is a common practice in India, **we highly recommend to get only one knee replacement done at a time** followed by the other knee replacement after a minimum of **6 weeks**.

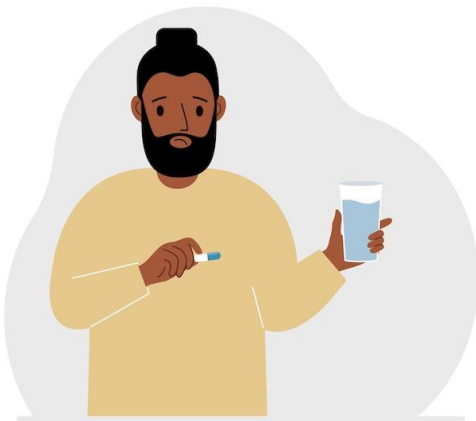
This is to reduce the potential risks of **deep vein thrombosis** due to extra pain and resultant immobility in bilateral knee replacements.

You can discuss your plan of action with your doctor.

What Are the Pre Op Preparations?

Exercises Make You Strong

You should do physiotherapy for 2-4 weeks before the surgery. This will help to strengthen your thigh muscles and help post-operative recovery. (This is optional but highly recommended.)



Prepare the Joint With Oral Medications

Tab Nucoxia P and Tab Pregason M 75mg are to be taken at night for 10 days prior to surgery help reduce inflammation and promote healing (optional).

Fitness Required

You will need to get pre-operative work up and physical fitness for spinal anaesthesia from a physician.

Diet Modifications

- Blood thinners (if ongoing) need to be stopped for at least 3 days prior to the surgery as per the guidance of your physician.
- Have a light diet 24 hours prior to surgery.
- Start a liquid diet on the evening prior to surgery.
- Take Tab Cremalax 10 mg on the night prior to surgery.
- Stop taking any food or water 6 hours prior to scheduled time of surgery.



Prepare Your Body

- Take a bath with Betadine scrub before admission.
- Wash your hair with shampoo. (This is because you might not be able to take a shower or wash hair for next 2 weeks to avoid soaking the surgical dressing.)

Prepare Your Surroundings for Your Recovery

- For several weeks after the procedure, you might need to use crutches or a walker, so arrange for them before your surgery.
- Make sure you have someone to ride you home from the hospital and help with everyday tasks, such as cooking, bathing and doing laundry for next 2 weeks.
- To make **your home safer** and easier to navigate during recovery, consider doing the following:



In Living Room / Bedroom

- Create a living space on one floor, since climbing stairs can be difficult.
- Secure stairway handrails.
- Get a stable chair with a firm seat cushion and back, and a footstool to elevate your leg.
- Remove loose rugs and cords from your living space to prevent falls.
- Use nightlights in the bedroom and bathroom.



In Bathroom

- Arrange for a toilet seat riser with arms, if you have a low toilet.
- Place non-slip bath mats in the bathroom.
- Install safety bars or a secure handrail in your bathroom.

- Once the stitches are removed and you are allowed to shower. Using a shower chair can help reduce the risk of falling by allowing you to sit and rest.

Before Coming to the Hospital for Surgery

- Bring all of your blood reports, x-rays, MRI's, etc on the day of your admission.
- Do not bring any valuables to the hospital.
- Shower with betadine scrub wash at home on the night before surgery.
- Washing your hair with shampoo on the night before surgery is recommended.



Type of Anaesthesia

During this surgery, you will be given spinal anaesthesia. This entails receiving an injection in your lower back with a small needle... Don't worry, it won't hurt a lot. And yes, you will be awake throughout the surgery.

Operative Steps of the Surgery

Your surgery will be done by a M.I.C.R.O plasty technique of knee replacement

- In this, after giving anaesthesia, your surgeon will clean the area and then make an incision on the skin over the affected knee to expose the knee joint.
- The damaged portions are cut at appropriate angles using specialized instruments.
- A trial of femur and tibia components of different sizes are inserted and checked for stability and knee movements.
- Once the perfect size is found, the final femur and the tibia components are fixed with bone cement to form the new knee joint.
- With the new components in place, the knee joint is tested through its range of motion.
- The entire joint is then irrigated and cleaned with a sterile solution. The incision is carefully closed, drains are inserted and a sterile dressing is placed over the incision.



The advantage of this M.I.C.R.O plasty technique over traditional technique of knee replacement is:

- No cutting of muscles
- Preservation of ligaments, hence natural knee like feeling
- Minimal soft tissue injury
- Fast recovery
- Reduced need for physiotherapy



What Implant Is Used in This Surgery?



Mainly there are 2 types of implants – metal and ceramic

- Usually metal implants are used, which are made of titanium, cobalt and chromium alloy (e.g. Johnson & Johnson)
- Ceramic implants are made of titanium niobium nitride or oxidised zirconium (e.g. Maxx gold)
- You can also choose Indian implant (e.g. Meril destiknee)

Duration of Surgery

It usually takes **1.5 to 2 hours** from getting into the OT to coming back out. Yup... that's it. In fact, the actual duration of surgery is only around **40 minutes**.



For more information related to the steps of surgery, scan this QR code

Care After Surgery in the Hospital

Movement and Positioning

- You will be shifted to the ward immediately after surgery (if your vital parameters permit).
- You will have to remain lying down on the back for a few hours after surgery. After that, you will be allowed to sit in the bed.
- The lower limbs might be numb for **8 to 12 hours** after surgery due to anaesthesia, after which, return of sensations and power of that limb can be expected.
- For pain relief and decreasing discomfort, keep a pillow **below the ankle** of the operated limb.
- Movement at the toes and ankle should be started immediately after regaining sensations in your feet.



Diet

- You will be allowed to take sips of water **4 hours** after surgery.
- A soft diet shall be allowed after **12 hours**.
- A full diet will be allowed after 24 hours after which, there are **no dietary restrictions**.

Knee Care

- A drain will be kept through the surgical site for about 24 hours post-surgery and will be removed as per surgeon's decision during dressing on next day.

Knee Physical Therapy

- A long knee brace will be advised to be worn. You will be helped to stand and then walk in presence of the doctor and physical therapist, 12 hours post-surgery.
- Toilet training (how to sit on and get up from a toilet seat) will be done after 24 hours post-surgery.

Discharge From the Hospital

- On the 3rd or 4th day, you will be discharged if everything goes smoothly.
- You will need someone to drive you home after surgery. We can also provide ambulance services to drop you home, in case you need transportation. Please contact our ward coordinator.
- Oral medicines will include antibiotics for 2 weeks, pain killers and supportive meds. This will be explained at the time of discharge.
- The next follow up will be by tele-medicine with one of our doctors after 7 days of discharge. This is when we'll check up on you to see how you've settled at home, how you're managing your pain and other medicines, and how the exercises are going.
- The surgeon will meet you in the OPD after 2 weeks. For that, you can take an appointment on 9924343111.



After Surgery Care at Home

Managing Pain After Surgery

After orthopaedic surgery, your doctors and nurses will make every effort to control your pain. While you should expect to feel some discomfort, there are several options available to your doctor to manage and relieve pain.



- **Icing**

Ice pack application around the operative site mainly after exercise may help decreasing the pain. Avoid soakage of the dressing during ice application by putting the ice in a zip-lock bag and avoiding direct icing over the operative site.

Place it on the sides of your operated knee for about 15 - 20 minutes every few hours for your first three to five days.

Once you've gotten past this phase, you can use a heat pack or other heat device which can be soothing.

- **Medications**

Medications can help you feel more comfortable, allowing you to start moving sooner, get your strength back more quickly, and recover from surgery faster.

Medicines should be taken 1 hour prior to doing exercise to aid doing exercise easily.

- **Non-steroidal anti-inflammatory drugs (NSAIDs)** reduce swelling and soreness and are often used alone for mild to moderate pain. To manage the moderate to severe pain after surgery, NSAIDs are often used in combination with opioids.



- **Opioids** are effective medicines used for moderate to severe pain.

When taken as prescribed, they can be especially effective for managing short-term pain after surgery.

- **Positioning**

Keeping a pillow below the ankle of the operated limb may provide cushion and decrease discomfort. Take care not to keep the pillow directly under the knee, as this would cause flexion at the knee joint for the whole night and cause problems with how far you will be able to extend the joint in future.

A Helping Hand



- The person driving you home or another person should stay with you for the first night at least and help make you feel more comfortable, prepare your meals and help with other things.

- You may want to have them check up on you daily for the first week home to help

with daily tasks and see if you need anything.

- Having someone assist you will help you avoid knee pain and ensure you adhere to post-operative instructions and rehabilitation restrictions.

How to Dress After Knee Surgery

- In the early phase of your recovery, you should wear loose-fitting clothing you can easily put on and that fit over the dressing.
- Men can wear a lungi or loose pajama for initial days after surgery for ease of care of the dressing.



- Women can wear a gown or a long skirt for initial days after surgery.
- Properly fitting footwear are important to prevent falls.

Surgical Incision Care

- It is best to avoid showering till sutures are removed. You can use alcohol body wipes to clean your body.
- In case of absolute need for showering, you can place a towel above the surgical site while showering and take care not to soak the wound. Using a hand-held showerhead helps keep water away from your knee and makes showering easier. Immediately dry the dressing with a towel in case it gets wet while showering.
- The next dressing is usually required directly after the removal of the stitches after 2 weeks. In case the dressing comes off earlier or gets soaked, contact our emergency number **9924343344** for requesting the home care nurse to do the dressing. (Please note - this would have a small charge for home care service.)
- After your doctor removes your stitches, he will allow you to rinse the wound within a day or so.

Movement After Surgery

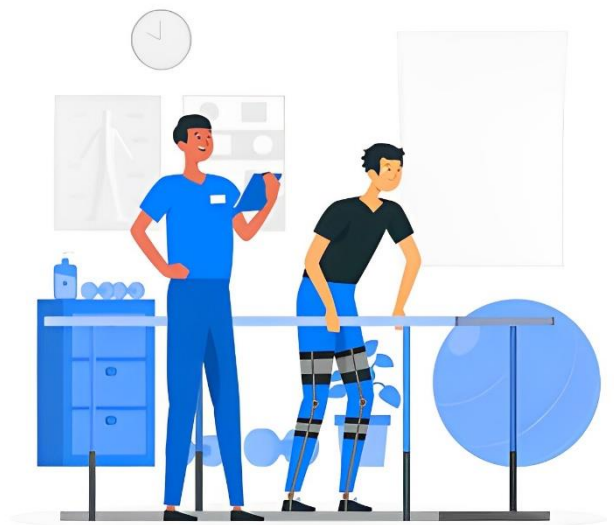
- Use a walker for moving about in your house after surgery for initial few weeks.
- Once you are confident in balancing yourself, you can use a cane for next few weeks.
- Care should be taken at home to prevent tripping over objects.
- Travelling in public vehicles is allowed at the end of 4 weeks of surgery.
- Long distance travelling is allowed after 6 weeks.



Rehabilitation After Surgery

Start the exercises as soon as you are able. You can begin them in the recovery room shortly after surgery. You may feel uncomfortable at first, but these exercises will help speed up your recovery and actually diminish your post-operative pain.

- Ankle pumping exercises of both legs should be started immediately after regaining sensations in lower limb.
- Standing and then walking with support usually is done 12 hrs post-surgery.
- Toilet training will be done 24 hrs post-surgery.
- On discharge, physio for knee strengthening has to be done at home. We provide free home physiotherapy (for Simandhar City and ATPL patients) for 2 weeks by our Physical Therapy Team.
- At the end of 2 weeks, once the surgeon examines you, additional exercises may be allowed.
- At the end of 3 months, you can expect to have full range of motion of your joint.
- Squatting on floor should ideally be avoided lifelong to prevent wear and tear of joint.
- Use of a DVT pump in the operated limb at night will help aid blood circulation during sleep and decrease chances of getting deep vein thrombosis. Contact the ward coordinator on discharge for obtaining the DVT pump on rent.



Risks and complications:

- Knee stiffness
- Infection
- Blood clots (deep vein thrombosis)
- Nerve and blood vessel damage
- Ligament injuries
- Patella (knee cap) dislocation
- Plastic liner wears out
- Loosening of the implant



Self Assessment

I am doing well	I feel worse	I feel in danger
<ul style="list-style-type: none"> - Pain is manageable with medications - Dressing is clean and dry, no signs of soakage with blood or pus - Eating and drinking well - Bowel movement, urine and sleep normal 	<ul style="list-style-type: none"> - Pain not controlled with medications - Dressing soaked with pus or blood - Fever $\geq 101^{\circ}\text{F}$ - Numbness/ swelling in the operated limb - Redness, swelling, pain in either calf - Difficulty in eating or sleeping 	<ul style="list-style-type: none"> - Difficulty in breathing - Not able to bear weight due to extreme pain - Altered sensorium
<p>Continue your recovery</p>	<p>Contact our emergency number</p>	<p>Reach emergency room immediately</p>



In case you experience any of the **yellow or the red points** during the course of your recovery, please call on **9924343344** for medical assistance

We are privileged to have the opportunity to serve you and we will do our best to live up to your expectations.

JAI SAT CHIT ANAND

For more information about our hospital and the services available, visit our website -

www.ambahealthcentre.com