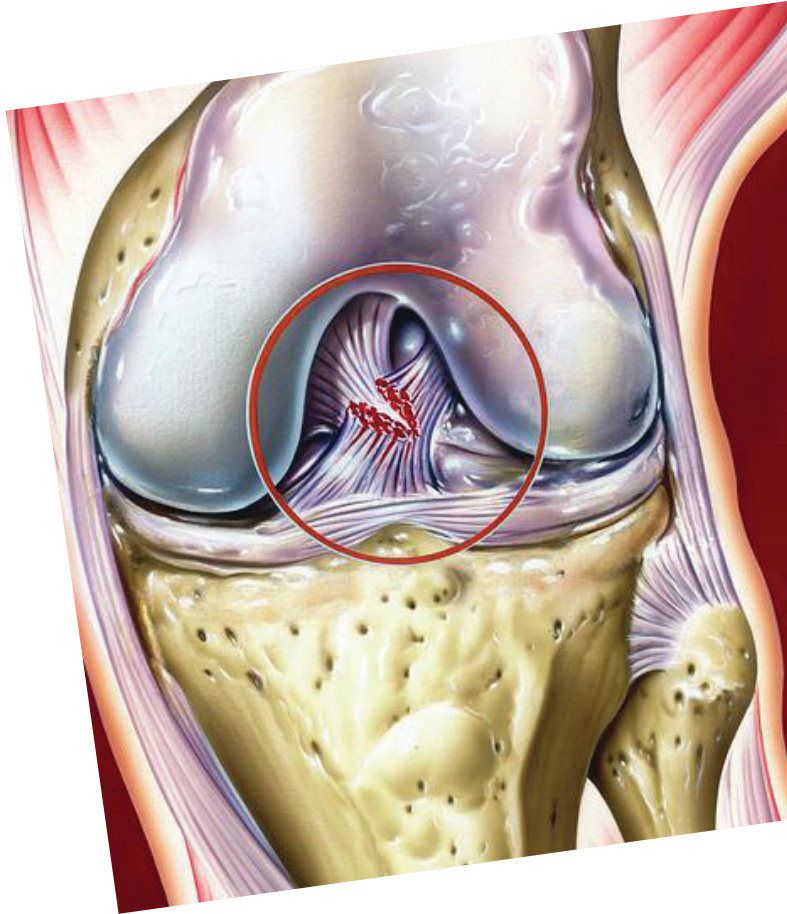



# Anterior Cruciate Ligament Surgery





The Department of Orthopaedics offers specialist medical and surgical treatments on musculoskeletal disorders, joint replacements, foot and ankle disorders, among other trauma injuries. Our consultants and surgeons work closely with sports medicine physicians, physiotherapists, podiatrists and other healthcare professionals to help patients return to their normal activities after surgery.

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# Welcome

This booklet was specially written for you, the patient, to address any concerns you may have about an Anterior Cruciate Ligament reconstruction surgery at Ng Teng Fong General Hospital.

It contains information about what you can do before, during and after your surgery so that your ligament reconstruction is as successful as possible.

# Our Multi-disciplinary Team

It is normal to encounter many staff in the hospital.

They include:

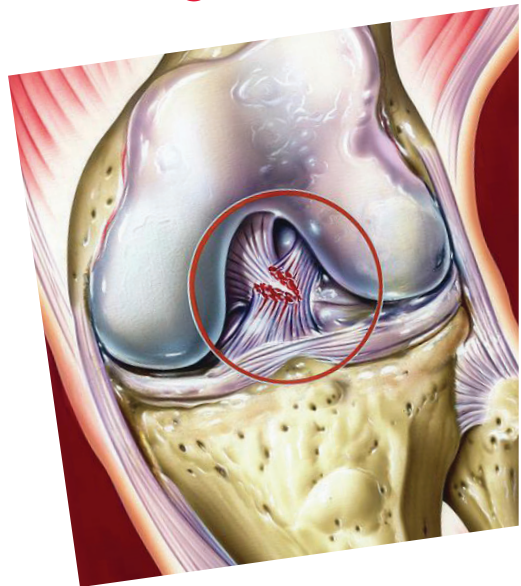
- Orthopaedic doctors
- Anaesthetic doctors
- Nurses
- Physiotherapists
- Occupational therapists
- Theatre and recovery staff
- Radiographers
- Pharmacists

## What is the Anterior Cruciate Ligament?

The anterior cruciate ligament (ACL) is a tough band of tissue which helps to stabilise the knee joint. It can get torn by a sports-related injury (most common) or from twisting injuries to the knee.

Once torn, the knee becomes unstable and this can lead to:

- A sensation that the knee is “giving way”, particularly during pivoting movements.
- Further damage to other structures in the knee such as the menisci (natural shock absorbers of the knee) and cartilage.
- Higher risk of developing secondary osteoarthritis in the future.



Some patients get better with physiotherapy and may resume their pre-injury sporting and physical activities.

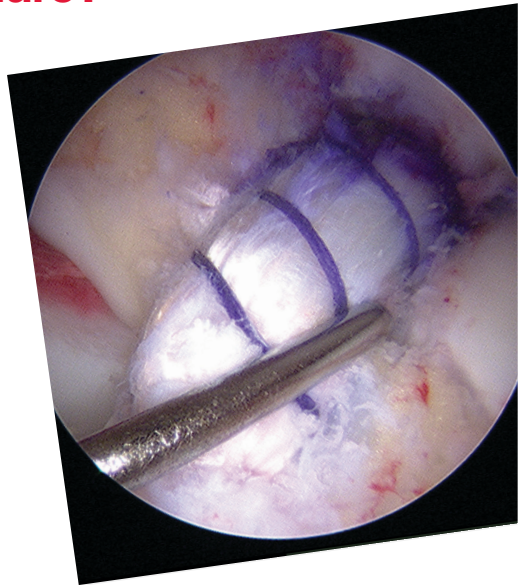
The degree of recovery depends on the severity of the ligament tear, the daily functional demands required of the knee and type of sporting activity undertaken.

Should your knee remain unstable even after physiotherapy, surgery may be required.

## What is an Anterior Cruciate Ligament Reconstruction Procedure?

A tear in the anterior cruciate ligament (ACL) does not usually heal on its own or from stitching the torn ligament ends together. A substitute band of tissue has to be harvested to replace it. This procedure is known as an ACL reconstruction. This band of tissue (called a graft) is usually harvested from the thigh muscle (hamstring tendons) or patella tendon of the same leg. Alternatively, a tendon graft can be used from a donor.

In ACL reconstructive surgery, an arthroscope is used to perform a minimally-invasive keyhole surgery.



During the procedure, bone tunnels are drilled into the femur (thigh) and tibia (shin) bone. A graft is passed through these tunnels inside the knee, tensioned and secured to reconstruct the damaged ACL.

It is not uncommon to have associated tears of the menisci in addition to the ACL injury. These tears can be trimmed or repaired in the same setting.

This procedure may be done as a day surgery or with an overnight stay in the hospital.

## **Benefits**

After full recovery, you should experience greater knee stability, especially with pivoting activities.

You will also have a higher chance of returning to sports at your previous level of performance with an ACL reconstruction.

## **Risks**

The majority of patients recover well after surgery. There are however risks and complications such as:

### **Blood clots**

- Deep Vein Thrombosis (DVT) in the leg
- Pulmonary Embolism (PE) in the lung

Blood clots can occur after any surgery but are more likely to after a major orthopaedic lower limb procedure. They develop in the lower limb veins and cause swelling, pain and increased warmth. If blood clots develop in the lung, it can be life threatening (rare). Typical symptoms of that include shortness of breath, chest pain, and blood in the phlegm. If in doubt, please check with your doctor.

To minimise the risk of blood clots, we encourage early mobilisation on the same day after your surgery or the day after. This helps to maintain the blood circulation in your legs. You may be given elasticated stockings, compression calf pumps or medication to reduce the risk of blood clots.

Any past history of blood clots should be brought to the attention of your surgeon before surgery.

## **Joint Infection**

To reduce the risk of infection, surgery is carried out under strict sterile conditions with antibiotics administered intravenously. Please notify your surgeon and anaesthetist if you are allergic to any antibiotics or medication.

Despite these measures, there is still a small risk of joint infection developing. Superficial infections may be treated with antibiotics and surgery if indicated. If the infection is severe, further surgeries (which may include the removal of implants) may be recommended.

## **Nerve and Vascular Injury**

You may feel some numbness near the surgical site. This may persist but does not normally cause problems.

Rarely, the larger nerves may be damaged and cause permanent weakness, altered sensation and pain in the lower limb. Major vascular injury is rare for knee surgeries.

## **Revision (Re-do) Surgery**

There can be many reasons for a revision surgery. A common reason is a torn ACL graft. If this is necessary, your surgeon will discuss the details with you.



## **Persistent Pain**

Some patients encounter residual discomfort even after a successful surgery but this will not usually affect day-to-day activities. Rarely, patients develop complex regional pain syndromes which cause pain, swelling, skin changes and stiffness. This is uncommon.

## **Stiffness**

Early mobilisation and individualised exercises are recommended by the physiotherapy team to improve rehabilitation and maximise your chances of returning to an excellent range of motion.

## **Medical Problems**

You will be thoroughly assessed by our doctors before surgery , with any risks explained to you in detail. Such risks include heart attacks, strokes and lung problems such as pneumonia. They are rarely life threatening.

# **Before Surgery**

## **At the Outpatient Orthopaedic Clinic**

Your orthopaedic surgeon and you have decided that an ACL reconstruction is suitable. The risks of this procedure will be explained before your written consent is obtained.

You will then be referred to the Pre-operative Assessment Clinic and for pre-operative education and physiotherapy before the surgery.

## **At the Preoperative Assessment Clinic**

Here, your fitness for surgery will be assessed by our anaesthetic team and any pre-operative investigations may be arranged as necessary.

Occasionally referrals to other medical specialties may be required.

## Pre-operative Education and Physiotherapy

Before your surgery, a physiotherapist will meet and show you some exercises you can do before and after surgery. He/she may also discuss with you minor home adjustments to aid in your home care after surgery.

We strongly advise you to attend physiotherapy before surgery to improve the range of motion of your knee. This prevents excessive loss of strength and flexibility in your knee after surgery.

## Preparing Your Home After Surgery and Identifying A Caregiver

A safe home environment is crucial in helping you recover after surgery. The following home modifications may be helpful:

- Arrange or remove furniture to provide a clear and wide enough path in your home.
- Keep floor surfaces dry and use non-slip mats.
- Tie up loose electrical cables and cords to avoid tripping over them.
- Ensure your home is well-lit. Use night lights between your bedroom and bathroom.
- Check that you can get up from the toilet seat (do not use a squatting toilet), chair with an arm rest, and bed.
- Inform the physiotherapy and occupational therapy teams if you need to use stairs at home.
- Identify a caregiver to help you with daily activities, such as household chores and showers, for the first 1 to 2 weeks after surgery.



## **Your Health Matters**

Eating healthily before and after surgery promotes healing and recovery. It is important to maintain a healthy body weight.

Stop smoking before surgery as smoking increases your risk of complications during and after surgery.

Stay active. Do the exercises recommended to you by your physiotherapist. They will help you maintain muscle strength and joint flexibility which will be helpful for your rehabilitation after surgery.

If you develop a cold or experience health changes closer to your surgery, please inform the orthopaedic team.

## **Your Hospital Stay**

### **Day of Admission and Duration of Hospital Stay**

You will be asked to come to the hospital on the day of your surgery (unless otherwise advised). To prevent delays, please arrive on time.

At the hospital, your vital signs will be taken and these include your heart rate, blood pressure, body temperature and oxygen saturation. The anaesthetic and orthopaedic team will discuss the proposed anaesthetic and surgery with you respectively. You will have the opportunity to clarify any questions you may have.

### **The Anaesthetic**

Surgery is usually performed under general anaesthetic.

You will be unconscious and have your breathing assisted or controlled. The breathing tube placed in your airway (mouth/throat) will be removed after surgery.

In some cases, a nerve block (an injection of local anaesthetic near the nerves around the knee) may be used to reduce pain after surgery. They can last up to 24 hours.

## **Surgery and Recovery**

Surgery will last approximately 2 to 3 hours. After surgery, you will be transferred to the recovery ward, where you will be monitored before being transferred back to the wards. The ACL procedure may be done as a day surgery or with an overnight stay in the hospital.

After surgery, pain relief in the form of tablets and/or injections will be administered to you. You may need to wear a knee brace to protect a meniscal tear while it heals. Unless otherwise advised by your doctor, you should be able to walk with the aid of crutches immediately after surgery.



## **At Home**

### **Follow-up and Wound Care**

The orthopaedic team will schedule a follow-up appointment for you at the outpatient clinic. Skin stitches or staples used during surgery will be removed 2 weeks later. Sometimes absorbable stitches are used which do not need to be removed.

Do not allow water to come in contact with your wound until 2 weeks after your surgery. Do not scratch or pick at your wound. If you notice a large amount of fluid draining from the wound and the dressing soaks through despite repeated changes, please inform the orthopaedic team.

### **Post-discharge Rehabilitation**

You will have to attend regular follow-up and physiotherapy after surgery. This is important in regaining muscle strength and improving the range of your knee's movement and control.

Full recovery and return to sports may take up to 12 months.

# Frequently Asked Questions

## **How long will I be in the hospital?**

You will be discharged from the hospital on the same day after surgery or on the day after.

## **How long will the surgery take?**

The surgery will take approximately 2 to 3 hours from the time you arrive at operating room to the time you are moved to the Post Anesthetic Care Unit (PACU), also known as the recovery room. Depending on your recovery, it may take a couple of hours more before you are moved to the wards.

## **What should I do if I am not feeling well before surgery?**

Please inform our hospital. You may need to be reassessed and have your surgery rescheduled.

## **Will I experience pain after surgery?**

Analgesia (painkillers) will be administered to you to help you cope with the normal post-operative pain and swelling. With rehabilitation, this pain and swelling will subside. On the day of discharge, oral analgesics (painkiller) will be given to you to take at home.

Most patients experience resolution of pain and swelling after 6 weeks.

## **How much weight can I put on my operated leg after surgery?**

For ACL reconstructions without meniscal repairs and unless otherwise advised, you can put your full body weight (as tolerated) on the operated knee immediately after surgery.

Limitations may apply if you had meniscal repairs or cartilage procedures performed.

## **When can I bathe or shower?**

You can bathe/shower normally once the stitches/staples are removed 2 weeks after surgery and when your doctor is satisfied with the healing of your wound.

In the meantime, avoid getting your wound wet and take sponge baths instead. You may find a bath chair useful. Be careful of wet and slippery surfaces in the bathroom, and take care when you get in and out of a shower. Your knee's muscle strength and coordination may not have fully recovered.

### **Will I be able to kneel after surgery?**

Do not kneel on the operated knee until 3 to 6 months after your surgery. This is to give your wound time to fully heal.

Always check the ground before you kneel. As you may still be experiencing numbness around the skin, you may end up kneeling on sharp objects without realising it.

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

Your doctor will discuss your recovery plan in detail with you and advise you accordingly.

In general, patients can return to light deskbound work within a few weeks after ACL reconstruction. If additional meniscus or cartilage procedures were performed, a longer recovery is to be expected.

### **When can I drive?**

You may resume driving after a minimum of 6 weeks after surgery. You must also demonstrate the ability to manage full control of the car including the ability to emergency brake before returning to the roads.

### **When should I call my doctor?**

- When you develop a fever (over 38°C).
- When your knee suddenly becomes very painful.
- When you experience pain in your calf or chest.
- When your surgical wounds get red, swollen and/or persistently draining fluid.

**Notes:**

## For more information

### Ng Teng Fong General Hospital and Jurong Community Hospital

1 Jurong East St 21, Singapore 609606

[www.ntfgh.com.sg](http://www.ntfgh.com.sg) | [www.jch.com.sg](http://www.jch.com.sg)

### Clinic opening hours

Monday – Friday: 8.30am – 5.30pm

Saturday: 8.30am – 12.30pm (Selected clinics only\*)

Dental Clinic: Monday – Thursday: 8.00am – 5.30pm, Friday: 8.00am – 5.00pm

*\*Please refer to our websites for more details.*

### General enquiries & appointments

General enquiries line: 6908 2222 (24-hr)

Fax: 6716 5500 | Email: [contactus@nuhs.edu.sg](mailto:contactus@nuhs.edu.sg)

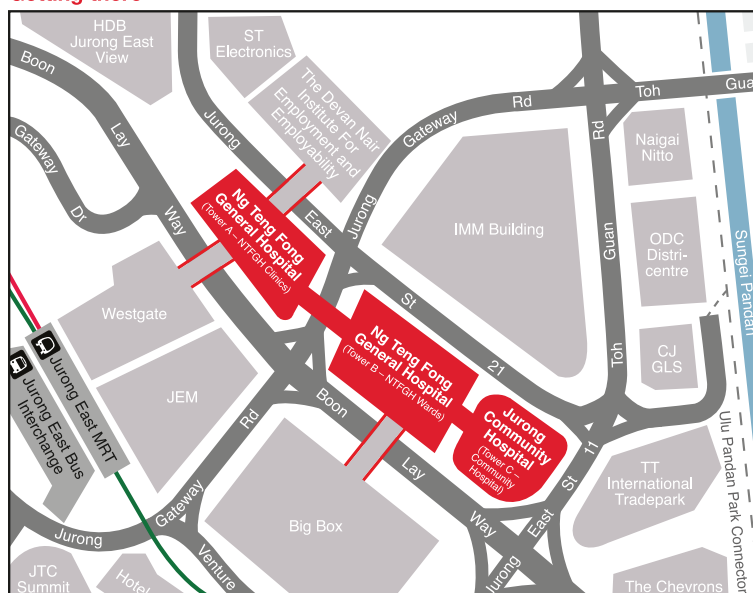
Appointment line: 6908 2222 (Monday – Friday: 8.00am – 5.30pm, Saturday: 8.00am – 12.30pm)

Fax: 6716 2200 | Email: [appointment@nuhs.edu.sg](mailto:appointment@nuhs.edu.sg)

Dental appointment line: 6716 2233 (Monday – Friday: 8.00am – 5.30pm)

Fax: 6716 2200 | Email: [JHCampus\\_Dental@nuhs.edu.sg](mailto:JHCampus_Dental@nuhs.edu.sg)

## Getting there



### By train

Alight at Jurong East MRT Station

### By bus

#### Jurong East Bus Interchange

41, 49, 51, 52, 66, 66B, 78, 78A, 79, 79A, 97, 97E, 98, 98M, 105, 143, 143M, 160, 160A, 160M, 183, 183B, 197, 333, 334, 335, 506

#### Along Boon Lay Way

49, 99, 333, Private bus service 625, 990

### Disclaimer:

The information in this brochure is meant for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek your doctor's advice before starting any treatment or if you have any questions related to your health, physical fitness or medical condition. Information is accurate at the time of printing.