

# High Tibial Osteotomy (HTO) surgery for osteoarthritis of the knee

## Orthopaedic Surgery

### Information for Patients

Produced: April 2025

Review: April 2028

Leaflet number: 1606 Version: 1

This booklet will give you advice and guidance to help you recover from your high tibial osteotomy surgery.

## What is a high tibial osteotomy (HTO)?

HTO is a procedure to line up the knee joint. During surgery we cut the bone just below the knee joint. We open a small wedge (like a door hinge). We make an opening until the desired alignment of the leg is reached. We put in a plate and screw it to the bone. This shifts your body weight away from the damaged part of the knee. We shift your body weight to the healthier part of your knee. By 'unloading' the damaged part of the knee, your knee pain and disability is improved.

## Why am I being offered this surgery?

A healthy knee joint is covered in a layer of cartilage. This gives a smooth and low friction surface that cushions the joint. Healthy cartilage absorbs stress and allows the bones to glide across each other smoothly. In osteoarthritis, this smooth lining thins, roughens and is permanently damaged. This causes symptoms of joint pain, swelling and stiffness. Patients experience a reduced quality of life as they struggle with daily activities like walking, standing, sitting and sleeping. They often cannot work due to the disability. Osteoarthritis is the leading cause of disability worldwide. Nearly 1 in 5 people over 45 years in the UK will get treatment for osteoarthritis of the knee joint.

**Health information and support is available at [www.nhs.uk](http://www.nhs.uk)  
or call 111 for non-emergency medical advice**

Visit [www.leicestershospitals.nhs.uk](http://www.leicestershospitals.nhs.uk) for maps and information about visiting Leicester's Hospitals  
To give feedback about this information sheet, contact [InformationForPatients@uhl-tr.nhs.uk](mailto:InformationForPatients@uhl-tr.nhs.uk)

## What are the benefits of surgery?

HTO can permanently align the lower leg that is thought to cause the pain from osteoarthritis. This surgery will try to reduce or get rid of the pain. The surgery will avoid the need for a knee replacement in around 9 out of 10 patients for 5 years and in 8 to 9 out of 10 patients for 10 years after the operation. Many younger patients go on to keep an active lifestyle for many years. Some even return to manual work, running or sport.

## What are the risks of surgery?

Sometimes you can get complications. The team taking care of you is trained to deal with them. Here are the main risks of the surgery:

- **Infection:** An infection can happen in your wound . We give antibiotics during the surgery to reduce this risk.
- **Bleeding:** We will do everything to reduce bleeding during your surgery. But bleeding can still happen after surgery. If there is a lot of bleeding, medical staff will take proper action. If this happens you may need to have a blood transfusion.
- **Nerve or vessel damage:** We will look for any damage to nerves or blood vessels and repair them where needed. Nerve damage can often take longer to recover and may need more surgery. The area around the wound may feel numb for sometime. This may improve over time. In some cases it may be permanent.
- **Thrombosis:** A clot of blood (thrombosis) can happen in the deep veins of your leg. This is called deep vein thrombosis (DVT). In some cases, DVT can be serious because blood clots in your veins can break loose, travel through your bloodstream and cause a blockage in your lungs (pulmonary embolism). This can happen after surgery. It happens because of lying in one position for a long time or not being as active as you normally are. It is important to get out of bed and move around as soon as you can after your surgery. We may prescribe you medication to reduce the risk of a blood clot.
- **Stiffness:** You must do exercises to reduce this risk. The joint can sometimes still feel stiff.
- **Swelling:** Post-operative swelling can last for several months after the surgery. You must rest, exercise and walk to help improve this symptom.
- **Need for more surgery:** You may need to get another surgery to remove the plate and screws if they are causing you problems.
- **Delayed healing or non Union:** In a small number of cases the bone does not heal or takes longer than we would normally expect. You are more of a risk if you are a smoker as this affects the healing process greatly. If the bone fails to heal properly, you will need to have more surgery to your knee.

## Why can I not have a knee replacement surgery?

During knee replacement surgery, the diseased part of the knee is physically removed and replaced with an artificial implant made from metal and plastic.

Recent research suggests that it is best to delay knee replacement surgery by 5 to 10 years in patients under the age of 60 years. This is because it is not as successful in this age group.

Patients under 60 years tend to be active and are still usually working. This higher activity level in younger patients results in the metal/plastic joint of the knee replacement wearing out much more quickly. This means that the artificial joint has to be replaced and sometimes many times. Patients will then have to go through more complex repeat surgeries each time. In young, active, working age patients, it is best to delay knee replacement surgery as long as possible, and other treatments should be used instead.

Sometimes knee replacement surgery can be unavoidable if the osteoarthritis affects the whole knee joint, despite your age. In your case the osteoarthritis only affects the inner half of the knee. We have offered you the option of HTO to help avoid the need for knee replacement surgery.

## What about the recovery from this surgery?

- Most patients will have an overnight stay in hospital after the surgery. We will discharge you home with crutches.
- Depending on how the surgery is performed, You may or may not be allowed to bear weight through the leg. Your surgeon will advise you about this. You will need the crutches to help you walk around at the start.
- It is normal for your leg to be swollen after the surgery and for you to have some discomfort or pain around the surgery site and scar. We will give you some painkillers to take home.
- Your GP will remove any stitches or staples that you have at 2 weeks.
- We will see you at the outpatient clinic around 6 to 8 weeks after the surgery to have some x-rays.
- Your mobility will gradually improve over the first 4 to 6 weeks after your surgery.
- We will refer you to a physiotherapy during the recovery stage to help you with your rehabilitation. It may take you up to 3 to 4 months to fully recover from the surgery.

## Things to do to help my recovery:

### PRICE guidelines:

- **Protect:** Use of elbow crutches as pain allows.
- **Rest:** When resting your leg, make sure your knee is straight. Do not rest the back of your knee over a pillow.
- **Ice:** Apply ice for 20 minutes to reduce swelling. Always place ice pack over a damp cloth to protect your skin from an ice burn.
- **Compression:** You will have a compression bandage. This is removed after 24 hours. Follow advice from your nursing staff.
- **Elevation:** To control your swelling, elevate your leg (toes above your nose) for 30 minutes. Make sure your whole leg is supported with 3 or 4 pillows from your heel downwards. Lie back on your bed. Repeat this 3 times a day.

### Going up and down stairs:

We will help you practice going up and down the stairs at the hospital. This is to make sure that you are safe at home. The physiotherapy team will show you the easiest and safest way of doing this.

#### Going upstairs:

1. If there is a banister or handrail make sure you use it.
2. Carry your crutches/ walking stick in one hand as shown by the physiotherapy team.
3. Step up with leg you have not had a surgery on.
4. Then bring your operated leg onto the same step.
5. Bring your crutches or sticks onto the same step.

#### Going downstairs:

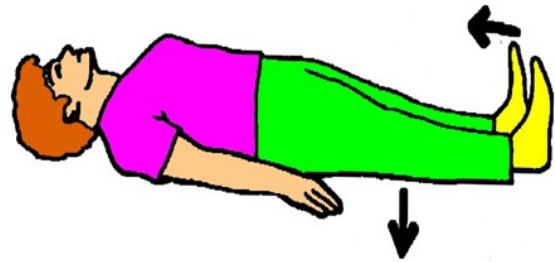
1. If there is a banister or handrail make sure you use it.
2. Carry your crutches/ walking stick in one hand as shown by the physiotherapy team.
3. Put your crutches or sticks down to the next step.
4. Step down with your operated leg first.
5. Bring the leg you have not had the surgery on down to the same step.

## Exercises:

Exercises play a key part in your rehabilitation. You should try to do the following exercises 2 to 3 times a day, repeating each one 10 times. We will show you them in hospital and help you to practice them. You should do them at home. You may want to start practicing these before you come into hospital.

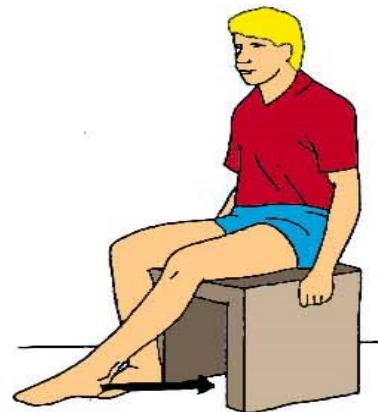
### Exercise 1:

1. Lay with your legs straight.
2. Bend your ankles and push your knees down firmly against the bed.
3. Hold for 5 seconds then relax.
4. Repeat 10 times.



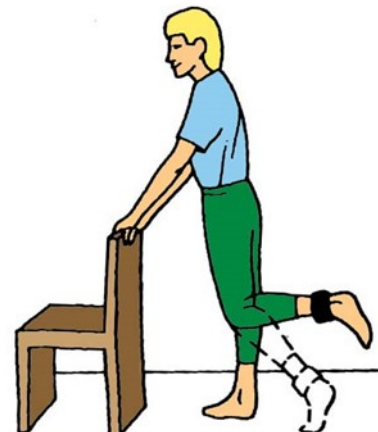
### Exercise 2:

1. Sit on a chair with your feet on the floor.
2. Bend your knee as much as possible.
3. Repeat 10 times.



### Exercise 3:

1. Stand holding onto a support and bring one leg slightly backwards.
2. Bend your knee and lift your foot off the floor.
3. Hold for 5 seconds then relax.
4. Repeat 10 times.



## Where can I find more information?

UK Knee Osteotomy Register

[www.ukkor.co.uk](http://www.ukkor.co.uk)

Look under 'Information for patients'

With your consent, your name and email may be added to this national register for long term follow up if you do have the surgery. You will get questionnaires (around 1 a year) through email that help us gather long term data about the surgery. The register is designed to monitor how long the surgery has lasted and collect patient reported outcome scores (PROMS). The knowledge gained from such data will help us see any potential problems with the operation, and how to help others having this surgery.

## Contact Details:

Please contact the ward you were discharged from if you have any questions:

Ward 14: 0116 258 4112 or 0116 258 4413

Ward 16: 0116 258 8335 or 0116 258 8336

Ward 18: 0116 258 4147 or 0116 258 4148

اگر آپ کو یہ معلومات کسی اور زبان میں درکار ہیں، تو براہ کرم مندرجہ ذیل نمبر پر ٹیلی فون کریں۔  
على هذه المعلومات بلغة أخرى، الرجاء الاتصال على رقم الهاتف الذي يظهر في الأسفل  
જો તમને અન્ય ભાષામાં આ માહિતી જોઈતી હોય, તો નીચે આપેલ નંબર પર કૃપા કરી ટેલિફોન કરો

ਜੇ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਹੇਠਾਂ ਦਿੱਤੇ ਗਏ ਨੰਬਰ 'ਤੇ ਟੈਲੀਫੋਨ ਕਰੋ।  
Aby uzyskać informacje w innym języku, proszę zadzwonić pod podany niżej numer telefonu

If you would like this information in another language or format such as EasyRead or Braille, please telephone 0116 250 2959 or email [equality@uhl-tr.nhs.uk](mailto:equality@uhl-tr.nhs.uk)