

Distal tibial derotation osteotomy

This leaflet is for patients having an operation called a distal tibial derotation osteotomy for hip and/or knee pain, due to an abnormal twist in your shinbone (tibia). It outlines what the surgery entails, including risks and benefits. If you have any questions, please discuss them with your consultant or one of the team.

Shin bone torsion (twisting) and potential problems

Hip and/or knee pain and other symptoms can result from an abnormal twist in your shinbone (tibia). If the twist is very severe, we may consider surgery to reduce the existing twist.

The leg contains two bones: the larger one – tibia, and the smaller one – fibula. The twist in the tibia (torsion) leads to the foot pointing outwards (known as ‘out-toeing’ due to ‘external tibial torsion’) or inwards (known as ‘in-toeing’ due to ‘internal tibial torsion’) – see Figure 1. As you try to keep your foot pointing forward, especially when running, the effort of doing so may cause pain in either your knee and/or hip joints.

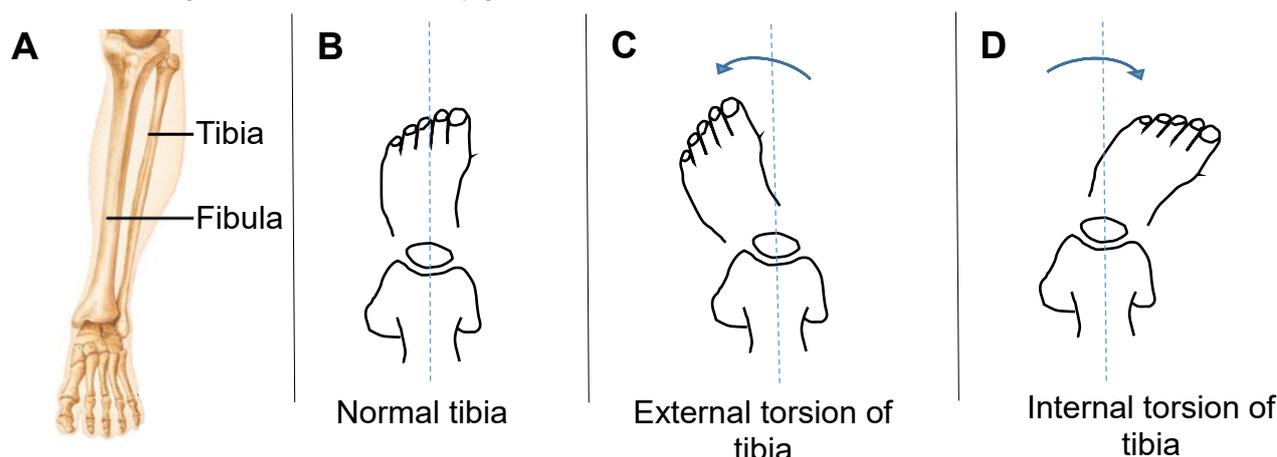


Figure 1. **A.** Diagram of a left leg showing the tibia and fibula. **B.** View of a left leg from above, showing that normally, the foot is pointing forward or lightly out, in relation to the knee. **C.** In external tibial torsion, the foot is pointing outwards (out-toeing). **D.** In internal tibial torsion, the foot is pointing inwards (in-toeing).

What does tibial osteotomy surgery entail?

Correction of the tibial torsion is achieved by performing a tibial osteotomy. A tibial osteotomy involves making a cut (osteotomy) through the lower part of the tibia and fibula, just above the ankle joint (see Figure 2 overleaf). The tibial torsion is then corrected and a plate is secured with screws to hold (stabilise) the bone in place whilst the osteotomy heals. The fibula, although also cut, does not necessarily need to be stabilised with a plate and usually heals without any problems. However, sometimes you may feel clicking at the site of fibula osteotomy. If it is not

painful, this clicking can be ignored. The plate is made of titanium and is very thin, so does not necessarily need to be removed once the bone is fully healed.

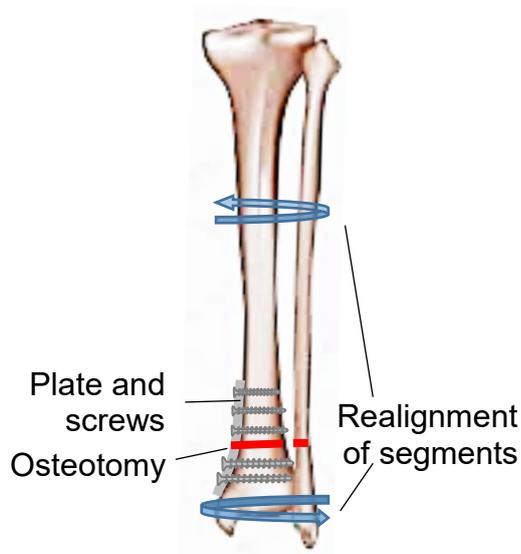


Figure 2. Left tibia with a plate attached. The red line represents the osteotomy site across the bottom end of the tibia and fibula. Once the tibia and fibula are cut, their top ends can be rotated in relation to the bottom ends in order to improve the alignment of the leg. The realigned segments are then held in place with a plate and screws.

What are the aims of this surgery?

- Reduce the twist in the tibia
- Improve hip and/or knee pain
- Improve hip and/or knee function
- Improve overall quality of life and mobility

What are the risks of this surgery?

- Wound or deep infection
- Nerve injury
- Blood loss sometimes requiring blood transfusion
- Osteotomy not healing (non-union)
- Over- and under-correction of the twist (malunion)
- Failure to improve symptoms/dissatisfaction
- Recurrence of symptoms
- Clicking of fibula
- Need for further surgery
- Heart attack
- Chest infection

- Clots in the veins of your legs that may travel to your lungs (Deep vein thrombosis (DVT) and Pulmonary embolism)
- Compartment syndrome – build-up of pressure within and leg, requiring operative decompression

Advice following surgery

Pain relief: Local anaesthetic is used at the end of surgery to numb the pain. It is normal to feel pain come back as the local anaesthetic wears off and you will need to take painkillers regularly to help with this. It is important to take the painkillers as prescribed to keep pain to a minimum and allow mobilisation.

Hospital stay: Your operation can take from 1 to 2 hours, depending on how much work needs to be performed. You will need to stay in hospital overnight or longer following your procedure. The length of your hospital stay may vary, depending your medical history and also on how you are managing to mobilise with help from the physiotherapists.

Mobilisation: Your leg is going to be placed into a plaster cast for two weeks. After your surgery you will be seen by a physiotherapist on the ward. Initially you will require walking aids (i.e. frame or crutches) to help you mobilise. You will also be shown how to safely get up- and down-stairs using your crutches. You will not be allowed to put any weight on your operated leg for a minimum of 2 weeks. Two weeks after surgery, you will be seen in the clinic for X-ray, inspection of the wounds and change of the plaster cast to removable boot. At that point a decision to gradually increase the weight bearing will be made. Because of the reduced mobility, we recommend DVT prophylaxis for a period of up to 4 weeks after surgery.

How long does the osteotomy take to heal? Following discharge from the hospital, you will be seen regularly to monitor bone healing with X-rays. Tibial osteotomy can take 2-4 months to heal. Smoking significantly delays the bone healing, so cut down or stop smoking completely. If at that stage there are no signs of healing, further interventions, including bone marrow injections, ultrasound stimulation and repeat surgery, can be attempted to stimulate the healing.

Range of movement and strengthening exercises: It is important to re-establish the muscle strength and ankle joint movements as soon as possible following your surgery. Ensure that you take pain relief medications about one hour before your exercises. The physiotherapist will advise you on a Home Exercise Programme once you are out of the cast, at which point you should normally be able to start ankle range of movement exercises. You will also be referred for outpatient physiotherapy to ensure on-going progress with walking and exercises. If you have any questions or need any advice about your exercises, please contact the Physiotherapy Department between 9 am – 4 pm Monday to Friday on 0118 322 7811 (Royal Berkshire Hospital) or 0163 5273362 (West Berkshire Hospital)

Self-care: It is important to get back to your normal daily routine as soon as possible after the surgery. Initially on the ward, you will probably need help from the staff with mobilisation and self-care. By the time you go home, you are likely to be independent with normal self-care activities.

Wound care: Your wounds will need to be kept clean and dry. The wound will be looked at two weeks after the surgery when the cast is changed to a boot.

Work: Your return to work will depend on the job you do and the speed of osteotomy healing. It may take up to 6 weeks before you are able to return to an office job, and longer if the job is physical. Your physiotherapist or consultant will be able to provide further advice. An initial sick certificate will be provided by the ward – please ask the nurse before you leave the ward. Subsequent certificates will need to be obtained from your GP if required.

Driving: You should not drive while you are still using crutches. Once you feel you have sufficiently recovered and can perform an emergency stop, you can try to drive on a quiet road. You need to inform your insurance company that you have had an operation and have now recovered prior to returning to driving.

Leisure and sport: Return to sports will be guided by your progress with rehab and the speed of the osteotomy healing. It can take 3-9 months before you are able to return to competitive sports.

Glossary

Tibia – shinbone

Fibula – smaller bone in the leg running alongside the tibia

Torsion – abnormal twist in the bone

External tibial torsion – twist in the tibia leading to the foot pointing outwards (out-toeing)

Internal tibial torsion – twist in the tibia leading to the foot pointing inwards (in-toeing)

Osteotomy – a break created in a bone in order to re-align its parts

Derotation osteotomy – an osteotomy performed to ‘untwist’ a twisted bone

Non-union – failure of osteotomy to heal

Malunion – healing of osteotomy with persistent twist

Contacting us

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Redlands Ward: 0118 322 7484/5

Orthopaedic Outpatient Reception (RBH): 0118 322 8334

Outpatient Physiotherapy Department 0118 322 7811 (Royal Berkshire Hospital) or 01635 273362 (West Berkshire Community Hospital).

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

Tony Andrade / Vitali Goriainov, RBFT Orthopaedics, July 2023

Next review due: July 2025

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