OS11 Tibial Shaft Fracture Surgery (Tibial Nailing)

What is a tibial shaft fracture?
A tibial shaft fracture is a break of the tibia (shinbone). Tibial nailing is an operation to fix a broken tibia using a metal rod (see figure 1). The metal rod is called a tibial nail (also called an intramedullary or interlocking nail).

How does a tibial shaft fracture happen?
Road accidents and sport are the cause of most tibial shaft fractures. Sometimes the injury causes the bone to break through the skin. This is known as an open or compound fracture.

What are the benefits of surgery?
The main benefit of surgery is that you will be able to use your leg sooner. Surgery will also make sure your bone heals in a good position.

Are there any alternatives to tibial nailing?
A tibial shaft fracture can be treated using a plaster cast. However, some fractures are difficult to hold in a good position without surgery.
If you have an open fracture, you will almost certainly need an operation. Your surgeon can sometimes fix your tibial shaft fracture with an external fixator or a plate and screws instead of a tibial nail. They will explain why they recommend tibial nailing for your fracture.

What will happen if I decide not to have the operation?
You will have a plaster cast on your leg. You will need regular x-rays to check that the bone is healing in a good position. The plaster cast will need to stay on for at least three to four months. Sometimes fractures do not heal well using a plaster cast. If this happens, you may need an operation.

![Figure 1](A tibial nail inside a broken tibia)

Your surgeon has recommended tibial nailing to treat your broken tibia. However, it is your decision to go ahead with the operation or not. This document will give you information about the benefits and risks to help you make an informed decision.
If you have any questions that this document does not answer, you should ask your surgeon or any member of the healthcare team.
What does the operation involve?
A variety of anaesthetic techniques are possible. Your anaesthetist will discuss the options with you and will recommend the best form of anaesthesia for you. The operation usually takes between an hour and an hour and a half. Your surgeon will make a cut on the front of your knee and push the tibial nail down the inside of the bone. The nail goes across the break and holds it in position. The nail is held in the bone by locking screws that pass through holes in the nail (see figure 1). At the end of the operation, your surgeon will close the skin with stitches or clips.

What should I do about my medication?
You should continue your normal medication unless you are told otherwise. Let your surgeon know if you are on warfarin or clopidogrel. Follow your surgeon’s advice about stopping this medication before the operation. Anti-inflammatory painkillers may stop the fracture healing properly, so it is better not to take these if possible.

What can I do to help make the operation a success?
• Lifestyle changes
If you smoke, try to stop smoking now. Stopping smoking several weeks or more before an operation may reduce your chances of getting complications and will improve your long-term health. Nicotine is known to stop fractures from healing. For help and advice on stopping smoking, go to www.gosmokefree.co.uk. You have a higher chance of developing complications if you are overweight. For advice on maintaining a healthy weight, go to www.eatwell.gov.uk.

What complications can happen?
The healthcare team will try to make your operation as safe as possible. However, complications can happen. Some of these can be serious and can even cause death. You should ask your doctor if there is anything you do not understand. Any numbers which relate to risk are from studies of people who have had this operation. Your doctor may be able to tell you if the risk of a complication is higher or lower for you. The complications fall into three categories.

1 Complications of anaesthesia
Your anaesthetist will be able to discuss with you the possible complications of having an anaesthetic.

2 General complications of any operation
• Pain, which happens with every operation. The healthcare team will try to reduce your pain. They will give you medication to control the pain and it is important that you take it as you are told so you can move about as advised.
• Bleeding during or after surgery.
• Infection in the surgical wound. This usually settles with antibiotics but may occasionally need another operation.
• Unsightly scarring of the skin, although the cuts needed are small.

• Exercise
Regular exercise can reduce the risk of heart disease and other medical conditions, improve how your lungs work, boost your immune system, help you to control your weight and improve your mood. Exercise should help to prepare you for the operation, help with your recovery and improve your long-term health. For information on how exercise can help you, go to www.eidoactive.co.uk. Before you start exercising, you should ask a member of the healthcare team or your GP for advice.
• **Blood clots** in the legs (deep-vein thrombosis), which can occasionally move through the bloodstream to the lungs (pulmonary embolus), making it difficult for you to breathe. Blood clots in the calf are common (risk: 1 in 5). However, most are small and settle on their own without causing any problems. You may be given treatment to reduce the risk of blood clots.

• **Difficulty passing urine.** You may need a catheter (tube) in your bladder for a day or two.

### 3 Specific complications of this operation

• **Compartment syndrome,** where the calf muscles swell and get tight (risk: 1 in 60). If this happens, you may need another operation to make a cut in your leg to relieve the pressure.

• **Infection in the bone,** which is a serious problem that interferes with healing (risk: 1 in 40). The risk is higher if you had an open fracture. If you get an infection, you will often need further surgery.

• **Breaking of the tibial nail or the locking screws** after a few months (risk: 1 in 14). Usually only the locking screws are affected, which is rarely a problem. If the tibial nail breaks before the fracture has healed, you will need another operation to replace it.

• **Delayed union,** where the fracture does not heal in a normal period of time (risk 1 in 17). If this happens, you may need another operation to remove one of the locking screws or to replace the tibial nail.

• **Malunion,** where the fracture heals slightly out of position (risk: 1 in 50). Usually this problem does not affect how the leg works or cause any long-term problems.

• **Discomfort in the front of the knee** (risk: 1 in 2). Any pain or discomfort is usually mild and is only a problem if your job involves kneeling. The pain may improve if the tibial nail is removed once the fracture is fully healed.

### How soon will I recover?

• **In hospital**

After the operation you will be transferred to the recovery area and then to the ward. At first, you will need to keep your leg lifted up. You will be given painkillers to help relieve any pain.
Your physiotherapist will help you to start walking again using crutches. They will give you exercises to stop your joints becoming stiff. Your surgeon will let you know how much weight you can put on your leg.
You should be able to go home after three to four days. However, your doctor may recommend that you stay a little longer.
If you are worried about anything, in hospital or at home, ask a member of the healthcare team. They should be able to reassure you or identify and treat any complications.

• **Returning to normal activities**

You will need to go to the fracture clinic for x-rays to check that the fracture is healing properly.
Once the fracture is healing well, your surgeon will let you put more weight on your leg. It usually takes between three and six months for a tibial fracture to heal.
Your surgeon, physiotherapist and occupational therapist will tell you when you can return to normal activities.
Regular exercise should help you to return to normal activities as soon as possible.
Before you start exercising, you should ask a member of the healthcare team or your GP for advice.
Do not drive until you are confident about controlling your vehicle and always check with your doctor and insurance company first.
• The future

Most people make a good recovery after surgery and return to their normal activities.
It is usual to get occasional aching at the site of the fracture, particularly if the weather is cold. Nobody knows the reason for this and it also happens to people who are treated using a plaster cast.
If you have discomfort at the front of your knee, you may decide to have another operation to have the tibial nail removed. You will need to wait up to eighteen months after your first operation before the bone is strong enough. If you do have the nail removed, there is a risk that you will have another fracture in the same place (risk: 1 in 100). You should use crutches for a few weeks after the nail is removed to reduce this risk.
About 1 in 12 people will develop mild arthritis in their ankle. This is a result of the injury itself and they do not usually need any treatment.

Summary

Some tibial shaft fractures heal well in a plaster cast. However, tibial nailing will help you to get back to your normal activities sooner and will also make sure your fracture heals in a good position.
Surgery is usually safe and effective. However, complications can happen. You need to know about them to help you to make an informed decision about surgery. Knowing about them will also help to detect and treat any problems early.

Further information

• NHS smoking helpline on 0800 169 0 169 and at www.gosmokefree.co.uk
• www.eatwell.gov.uk – for advice on maintaining a healthy weight
• www.eidoactive.co.uk – for information on how exercise can help you
• www.aboutmyhealth.org - for support and information you can trust
• American Academy of Orthopaedic Surgeons at www.aaos.org
• NHS Direct on 0845 46 47 (0845 606 46 47 - textphone)
• www.eidohealthcare.com