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

How does a femoral shaft fracture happen?
Road accidents and sport are the cause of most femoral shaft fractures. You can lose up to a litre of blood into the thigh muscle at the time of the injury. 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 benefits of surgery are that you will only need a short stay in hospital and 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 femoral nailing?
A femoral shaft fracture can be treated in traction (using a heavy weight fixed to the leg to pull the bones into position until they heal). 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 femoral shaft fracture with an external fixator or a plate and screws instead of a femoral nail. They will explain why they recommend femoral nailing for your fracture.

Figure 1
A femoral nail inside a broken femur

Your surgeon has recommended femoral nailing to treat your broken femur. 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 will happen if I decide not to have the operation?

You will have your leg in traction. You will need to stay in hospital for at least six weeks. Staying in bed for such a long time can lead to complications such as blood clots, chest infection and pressure sores. After a number of weeks, your leg may be put into a large plaster cast (called a hip spica) or a special brace. The fracture will take about three to six months to heal. You will need physiotherapy to learn to walk again because your muscles will have become weak after spending such a long time in bed.

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 push the femoral nail down the inside of the bone, either through a cut on the side of the hip or on the front of the knee. 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.

• 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.

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
2 General complications of any operation
3 Specific complications of this operation
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 quite small.
• Blood clots in the legs (deep-vein thrombosis) (risk: 1 in 3), which can occasionally move through the bloodstream to the lungs (pulmonary embolus), making it difficult for you to breathe. However, most blood clots 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
• Nerve injury (risk: 1 in 11). When traction is used during the operation to pull the fracture into position, the pudendal nerve in the groin can be damaged. This can cause numbness in the groin. For men, it can sometimes cause problems having an erection. The nerve usually recovers in a few weeks.
• Compartment syndrome, where the thigh muscles swell and get tight (risk: 1 in 75). If this happens, you may need another operation to make a cut in your leg to relieve the pressure.
• Fat embolism, where tiny particles of fat from bone marrow and blood block blood vessels in the lungs (risk: 1 in 25). If this happens, your lungs will stop working properly. You may need oxygen or, occasionally, intensive-care treatment.
• Infection in the bone, which is a serious problem that interferes with healing (risk: 1 in 100). The risk is higher if you had an open fracture. If you get an infection, you will often need further surgery.
• Breaking of the femoral nail or the locking screws after a few months (risk: 1 in 40). This usually affects only the locking screws, which is rarely a problem. If the femoral 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 20). If this happens, you may need another operation to remove one of the locking screws or to replace the femoral nail.
• Malunion, where the position of the femoral nail causes a slight twist in the leg (risk: 1 in 5). This does not usually cause any problems.
• Heterotopic ossification, where small areas of bone form in the muscles near the top of the femur (risk: 1 in 4). This does not usually cause any problems.
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 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 five 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 femoral shaft 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 traction. If you get aching because of the femoral nail itself (risk: 1 in 7), you may decide to have another operation to have the femoral 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. You should use crutches for a few weeks after the nail is removed to reduce this risk. Sometimes the heads of the locking screws that are at the top end of the femur cause discomfort (risk: 1 in 10). If this is a problem, you can have a small operation to remove them.

Summary
Femoral nailing is almost always the best treatment for a femoral shaft fracture. Compared with treatment by traction, you will spend a much shorter time in hospital and will get back to your normal activities sooner. 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 0169 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 6064647 - textphone)
- www.eidohealthcare.com

Acknowledgements
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Local information
You can get information locally from the Patient Advice and Liaison Service (PALS) on 02380 798 498 or email PALS@suht.swest.nhs.uk.
You can also contact:

Tell us how useful you found this document at www.patientfeedback.org

This document is intended for information purposes only and should not replace advice that your relevant health professional would give you.

OS12
Issued December 2007
Expires end of December 2008

www.rcsed.ac.uk