

# Ankle Arthritis

## Total Ankle Replacement & Fusion

*This information leaflet has been produced to provide our patients with an overview of their condition and what treatments they may expect. However, each person is different and the treatment you are offered will depend on your unique circumstances.*

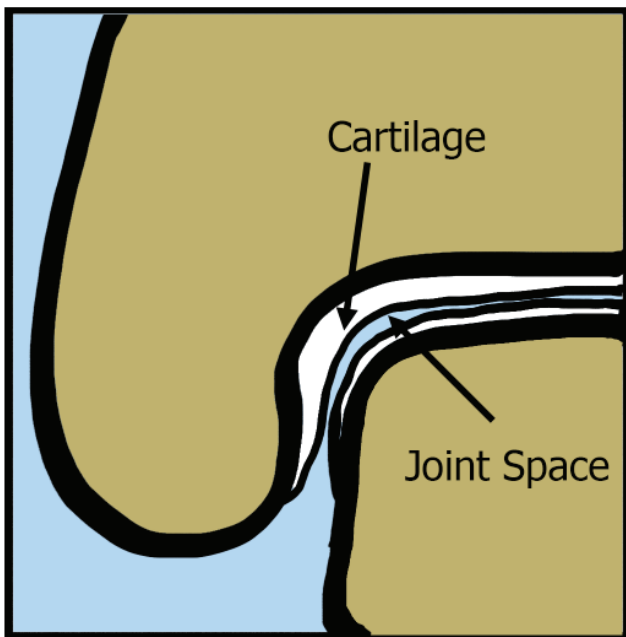


Stanmore  
Foot & Ankle  
Specialists

## What is Ankle Arthritis?

The ankle joint is formed by the lower ends of the tibia and fibula (shin bones) and the talus, also known as the tibiotalar joint. The ankle joint works like a hinge, allowing upwards and downwards movements. Normal joints are lined by a layer of cartilage, which acts as a shock absorber and allows for a smooth gliding motion.

### Healthy Ankle



In osteoarthritis the cartilage becomes damaged and wears away, leaving exposed roughened bone which starts to rub as the joint moves and causes pain. Extra bone grows from the front of the joint (osteophytes), and the joint lining becomes thickened and scarred which results in stiffness. Pain and stiffness are the two main symptoms of ankle arthritis.

### What causes Ankle Arthritis?

Most arthritis of the ankle is called osteoarthritis, sometimes called "wear and tear". Its causes are both primary and secondary. The majority of cases of ankle osteoarthritis are secondary to other injuries or diseases. The most common cause is post-traumatic, which occurs after a

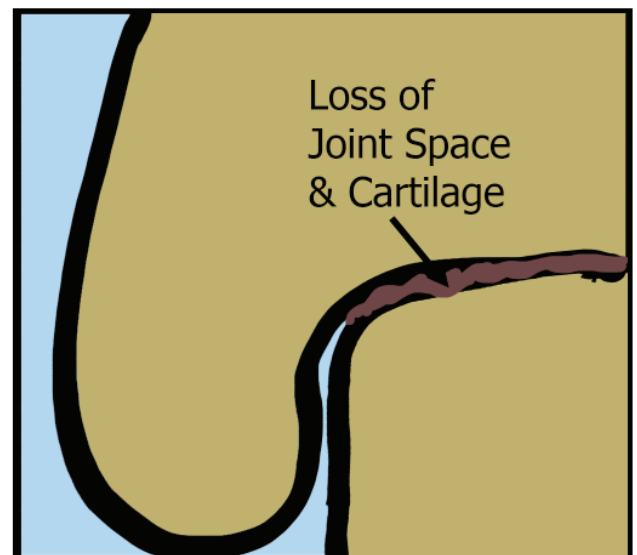
severe sprain or ankle fracture. It can also occur at secondary level as a result of rheumatic conditions such as rheumatoid arthritis or gout.

In primary osteoarthritis, there is no known cause (other than genetic). You may have other joint problems such as knee, hip or finger osteoarthritis and some of your family members might also have been diagnosed with similar symptoms at a young age.

### Why does my foot still move if the ankle is stiff?

Our feet are made up of 26 bones and more than 33 joints. Therefore, even when the ankle is stiff the other joints can compensate allowing much of the motion to be retained. Most of this compensatory motion takes place in the joints close to the ankle joint. The joint below the ankle (the subtalar joint) is responsible for side-to-side movements, such as that which occurs whilst walking on an uneven surface. The joint in front of the ankle (talonavicular joint) is involved in the twisting movements of the arch of your foot, which again occurs when walking on uneven surfaces.

### Arthritic Ankle



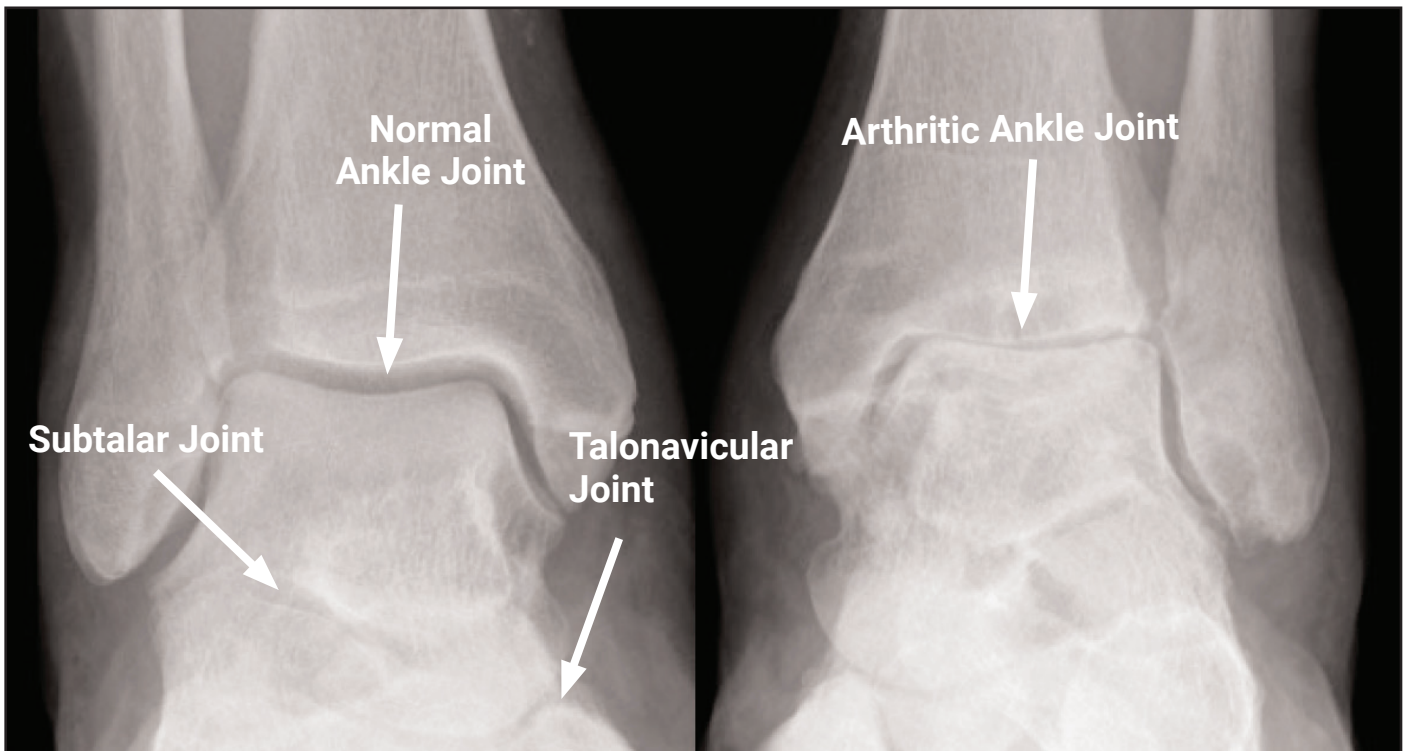
## Diagnosing Ankle Arthritis

Diagnosis is usually made by a specialist orthopaedic foot and ankle surgeon based on a full history of your condition, as well as a careful clinical examination and a series of weight-bearing X-rays.

The X-ray's will usually show a loss of joint space (loss of the lining cartilage), extra bony overgrowths or spurs around the edge of the joint (osteophytes), bone cysts (fluid that gets into microcracks in the joint surface), and in severe cases, bony deformity.

An MRI (magnetic resonance image) or CT (computerised tomography) scan is often required to look for arthritis of the adjacent joints, and to assess the severity of arthritis. Guided injections into one or more joints will help localise the symptoms and see the effect that numbing a joint has on your overall pain.

Injections will often provide good pain relief for the short to mid-term. Blood tests can also be useful for those who have rheumatic conditions such as rheumatoid arthritis or gout.



## When to consider surgery?

The decision to have surgery is based on a number of factors, including:

- Your symptoms are affecting your quality of life, including:
  - daily living activities such as going up and down stairs or walking to the shops
  - your ability to work
  - recreational activities that you enjoy
  - sleep – do you wake at night because of the pain?
- Your response to non-surgical treatments
- Your needs and expectations (it's important that you are clear about these and discuss them with your surgeon)

### Non-surgical treatments

There are many non-surgical treatments that should be tried before ankle surgery. These include:

**Diet** – losing weight will reduce the strain on your ankles.

**Medication** – painkillers such as (paracetamol or ibuprofen) can help reduce pain.

**Exercise** – this helps build the strength of the muscles, which can take the strain off the joint. We understand that exercise can be painful but there are many non-impact activities such as swimming or cycling that can be performed. A physiotherapist can help guide you through these.

**Activity modification** – avoid running, squatting and carrying heavy loads. If your work is strenuous, consider changing your role to a more sedentary one.

**Ankle supports** – for example an ankle brace. There are many varieties to choose and your doctor or physiotherapist can guide you through the best option for you.

**Shoe wear adjustment** – supportive boots, rocker bottom-soled shoes or corrective insoles may help.

**Walking aids** – such as a stick or crutches.

You should only consider surgical treatment if non-surgical measures have failed to control your symptoms, at which point you are considered to have “end-stage ankle arthritis”. Remember, you will always have the final decision on whether to have surgery.

### What are the possible advantages of ankle surgery?

The main advantages of ankle surgery can be:

- Long-lasting pain relief
- Better function and mobility and improved quality of life
- A greater choice of comfortable footwear

### Types of Ankle Surgery

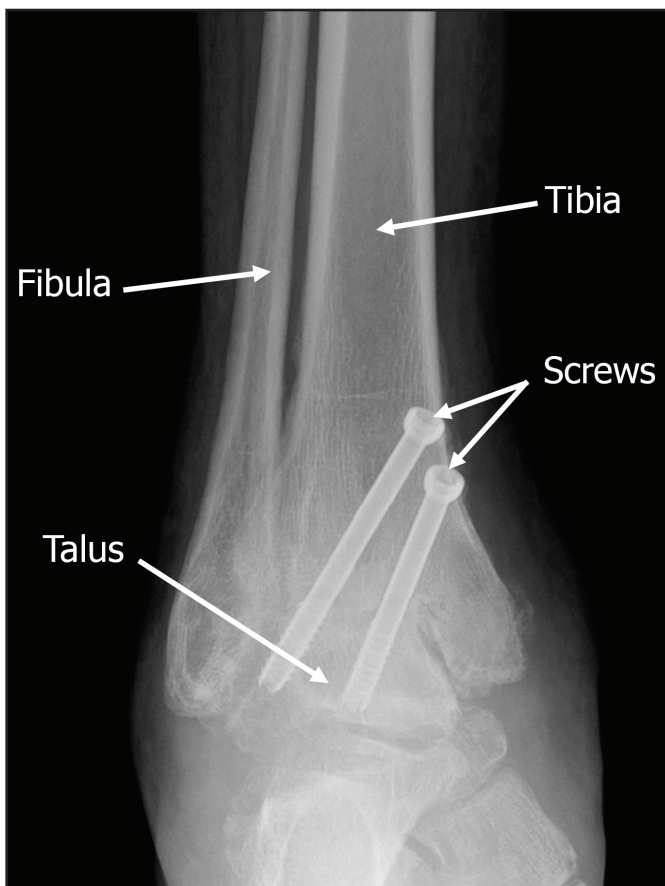
The two main surgical options to treat end-stage ankle arthritis are ankle fusion and ankle replacement.

You will be counselled regarding the benefits and risks of both, and your surgeon may discuss some additional procedures that will be needed during the operation. For example, some people may require ligament surgery or tendon lengthening as part of their surgery.

## Ankle Arthrodesis / Fusion

Ankle arthrodesis is an operation which “fuses” or stiffens the ankle joint. It involves removing the surfaces of the damaged ankle joint and fixing the tibia to the talus bone, so that your foot is positioned directly underneath your body and flat to the floor. This procedure can be performed as keyhole surgery (also referred to as arthroscopic surgery) or open surgery. In keyhole surgery a number of small incisions are made, whereas in open surgery a larger incision is made.

The damaged joint surfaces are removed and the bones are held together using screws to maintain the position while bone healing occurs. New bone grows across, creating one bone where there were two, effectively turning a stiff, painful joint into a stiff but pain-free one. This process will take about 12 weeks.



In some circumstances where there is a deformity or where the arthritis affects more than one joint, your surgeon may feel that fusion of more than one joint is necessary. There are lots of surgical options ranging from a tibiotalocalcaneal fusion or a pantalar fusion.

A tibiotalocalcaneal fusion is usually carried out with a rod or a large metal nail inserted into the middle of the shin bone through the heel. The surgery takes between one and two hours and you will have a tourniquet applied around your thigh for the surgery.

When you wake from surgery you will have a below the knee temporary cast, which will later be changed into a full fibreglass cast. You will have to wear the cast for a period of up to 12 weeks. You will need crutches or a frame to help you mobilise during this time.



Dependent on your situation, your surgeon will allow you to bear full weight on your ankle after about four to six weeks. Because your ankle and calf movement is restricted after surgery, it is usually recommended that you have blood thinning medication to prevent blood clots whilst in the cast and to use an anti-embolism stocking.

## What can I expect after an Ankle Fusion?

After the plaster cast is removed, you will be offered a pneumatic boot and be encouraged to ease yourself back into wearing normal shoes over the next two to four weeks.

A common concern of patients is the level of mobility they will be left with following surgery. Ankle arthrodesis removes movement in the ankle joint alone but the up and down movement of the foot is still possible. Nearly 50% of the up and down foot movement occurs in the other joints that are still mobile and they often become more mobile to compensate.

**Walking:** In most cases, walking will return towards normal movement, so that others may not be able to notice that you have had an ankle arthrodesis. If you walked with a limp prior to surgery because of pain, after the surgery your walking is likely to improve. A limp might be noticeable when walking quickly with longer strides.

**Sports:** Most patients with successful ankle arthrodesis treatment are able to return to walking, hiking without a limp, and participate in sports such as cycling, swimming and golf. Although more vigorous activities such as squash, tennis or football are possible after an ankle arthrodesis, these activities put a lot of stress across the adjacent joints, so are best avoided where possible.

Ankle arthrodesis provides excellent-pain relief and good functional outcomes, it has a greater than 90% success rate.

## Are there any major risks with an ankle arthrodesis?

Later in this information sheet we discuss the risks of ankle surgery in general, which is very important to read. The specific risks of ankle arthrodesis tend to relate to problems with bone healing and the transfer of stress to the adjacent joints.

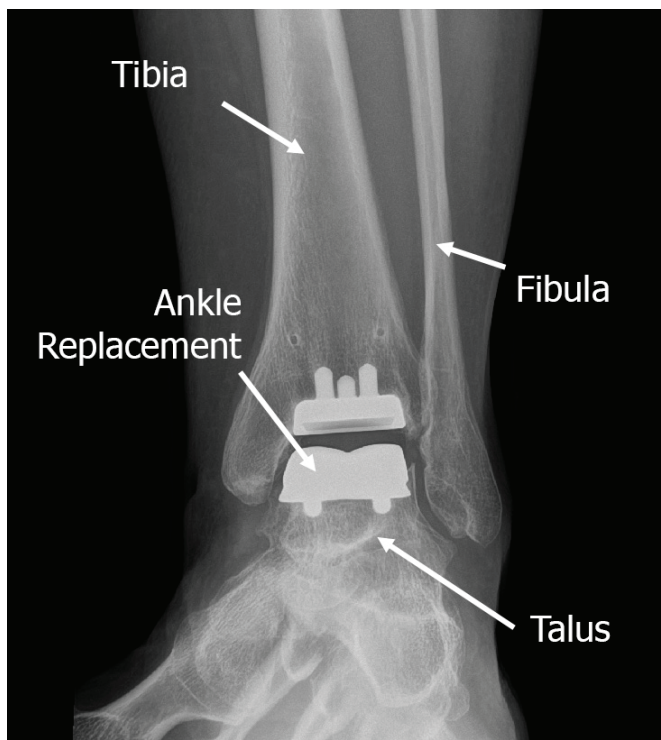
- Research has shown that 5 to 10% of fusions do not heal in the exact position intended. This may either be due to the fact that the position was not achieved at the time of surgery, or that the bones have shifted while in plaster. This does not usually cause any major problems but further surgery may occasionally be required to correct this.
- As the ankle joint stiffens, more stresses will be taken by adjacent joints which are at risk of wearing with time (adjacent-joint arthritis). X-ray features of adjacent joint arthritis are common after 20 years, but not all patients will require treatment for this.
- Sometimes screws used in the ankle surgery become prominent under the skin. If this happens, they can be removed but only about 1 in 10 patients needs the screws to be taken out. If screws do need removing, we usually advise this to take place at least a year after surgery so the bones are strong and have had time to heal completely.

## Total Ankle Replacement

Total ankle replacement is an operation that removes the arthritic surfaces of the ankle joint and then resurfaces the ends of the tibia and talus with metal components. A plastic spacer is inserted in between the joint which allows a gliding motion that is similar to the native ankle.

The metal components are fixed into bones using pegs or stems and have a special coating to encourage the patient's bone to grow into them.

The plastic component is made of ultrahigh molecular weight polyethylene (hard wearing plastic). In some designs, the plastic moves freely backwards and forwards between both the tibial and talar components during ankle motion. In some ankle replacements the plastic is fixed to the tibial component, and this is known as a two-component or fixed bearing ankle replacement. Currently, consultants do not know whether a fixed bearing or mobile bearing implant is better for total ankle replacements. The choice of implant should be discussed with your surgeon.



An ankle replacement is performed through an incision over the front of the ankle. The surgery takes between one and two hours and you will have a tourniquet applied around your thigh for the surgery.



When you wake from surgery you will have a below knee temporary cast, which will later be changed into a full fibreglass cast. You will have to wear the cast for six weeks, and then you will wear a pneumatic boot which will be worn for a further six weeks. You are likely to need crutches or a walking frame to help you move around. Depending on your situation, your surgeon may allow you to bear full weight on your ankle after two weeks of using these aids.

One of the main reasons for a cast after this surgery relates to the healing of the wound. The blood supply to the skin at the front of the ankle will be poor and healing is sometimes slowed. If the condition of your skin is a concern or if you have had more complicated surgery, you may be advised to non-weight bear for up to six weeks after surgery.

Because of your immobility it's usually recommended that you take blood-thinning medication to prevent blood clots whilst in a cast.

## What can I expect after total ankle replacement?

At 12 weeks after your boot is removed you will be able to wear normal shoes. On occasion, your surgeon may recommend you wear your walking boot for a little longer.

Whilst ankle replacements do not usually restore entirely normal movement, in most cases the range of motion after a replacement is better than before. A small number will continue to experience stiffness due to scarring of the soft tissues. It's important that you discuss the likely range of motion you should expect with your surgeon before having your surgery, as this helps set your expectations.

**Walking:** In most cases, walking will be reasonably normal, to the point that others may not even realise you've had an ankle replacement. If you walked with a limp prior to surgery because of pain, after the surgery your walking is likely to improve. When walking quickly you might have a slight limp.

**Sports:** You should be able to return to long walks, hiking, and sports such as cycling, swimming and golf. Whilst patients have returned to more vigorous activities such as squash, tennis or jogging, it's probably not advisable as this will put a lot of stress across the replaced joint which is likely to wear quicker.

Total ankle replacement provides excellent pain relief and good overall function. The surgery has a 90% success rate as measured by patient satisfaction in the short term.

## Are there any major risks with an ankle replacement?

- The main risk of ankle replacements is that they are still a relatively new procedure and so the long-term risks are generally unknown.
- Evidence to date suggests ankle replacements are not yet as reliable as hip or knee replacements. Ankle replacements fail at a rate of 1-1.5% per year, which means that approximately 85-90% will still be in place 10 years after surgery. The most common reason for an ankle replacement to fail is the loosening of the metal components. This might be accompanied by cysts that have formed due to wear of the plastic component.
- If the ankle does wear out, becomes loose or "fails", then it can be removed and revised. Revision can either be to carry out another ankle replacement or a conversion to an ankle arthrodesis (fusion). An arthrodesis following ankle replacement can be slightly more challenging than a normal primary fusion.
- In up to 10% of patients with ankle replacement there remains some pain in the ankle, which is not easily explainable as the X-ray of the ankle look fine. In some cases, these symptoms disappear after 12 to 18 months, while others will continue to have pain and require either reoperation or revision surgery.

## Which type of surgery is more suitable for me?

The choice between ankle replacement and ankle arthrodesis usually comes down to your personal preference. However, in some cases, your surgeon would recommend one treatment over the other.

### When is a replacement more suitable than an arthrodesis?

In cases where there is significant arthritis affecting several joints in the foot or there has been fusion of joints performed previously, the preserved movement afforded by an ankle replacement is a real advantage. We are beginning to see that patients with replacement seem to function better than those with ankle arthrodesis. This is often the case in patients suffering from rheumatoid arthritis.

### When is an arthrodesis more suitable than a replacement?

- If you are younger than 50 years old – most surgeons would recommend an ankle arthrodesis and not a replacement as the long-term results of replacement are unknown.
- If you have deformity or instability – an ankle replacement is usually not recommended and arthrodesis preferred.
- If you have muscle weakness or neurological disease – where the muscles are weak or lack control, for example in certain neuromuscular conditions or polio, an ankle replacement is not recommended and an arthrodesis is recommended.



## General Risks of Ankle Surgery

There is no such thing as surgery without risk, but if you're generally healthy the risk of a serious complication from an operation is very small. The general risks mainly relate to having an anaesthetic such as allergic reactions or heart or lung problems.

Specific complications following surgery:

**Swelling** – all patients will experience swelling following ankle arthrodesis or replacement, the worst of which will take a few months to settle. During the early phase of recovery, you will be encouraged to elevate your leg to control this. It's worth noting that swelling will take up to one year to resolve completely after surgery. Each person heals at differing rates. Physiotherapists can help with exercises and other advice.

**Bleeding** – all wounds bleed after surgery, but rarely is it excessive enough to cause wound problems or require further surgery.

**Painful scar** – any type of surgery will leave a scar. Some people develop thicker, larger scars than others (keloid). Occasionally this can cause pain and irritation, so if you suspect you are prone to scar problems please discuss this with your surgeon prior to surgery.

**Infection** – superficial wound infection (redness around the wound) occurs in up to 5% of cases. Minor infections usually clear up with a course of antibiotics. Much rarer deep infections (<1%) is where the metalwork or bone is infected. More serious infections may require further surgery.

**Nerve injury** – numbness or tingling at the surgical site is common and usually temporary. If a larger nerve is injured (which occurs in up to 1.5% of cases) it can result in permanent numbness and possible shooting pains, requiring medication or further specialist input. In some rare cases, sympathetic nerves (also known as fight or flight nerves) flare up after surgery and cause temperature and colour changes to the skin. This is known as CRPS (complex regional pain syndrome) and can take up to 12 to 18 months to settle.

**Problems with bone fusion** – occasionally after an arthrodesis, the bones fail to unite (heal) and in the case of a replacement, the bones may not knit onto the implant. If you smoke, your risk of such a complication is greatly increased. ***It is essential that you stop smoking before surgery and refrain from smoking until all bones have healed. You will be advised against surgery if you smoke, as the risk of complications is much higher.***

**Blood clots** – deep vein thrombosis (DVT) is uncommon (less than 1%) and pulmonary embolus (PE) is very rare (less than 0.5%) but they occur due to blood clots. We do everything to minimise these risks, but they can occur and can be serious. A DVT can lead to prolonged swelling of the limb with possibly a PE leading to chest problems. If you experience worsening or severe pain, massive swelling, worsening numbness or pins and needles you should raise this with your surgeon or General Practitioner.

## How should I prepare for surgery?

Prior to your operation, your surgeon will take a detailed history and perform a full examination of your lower limbs. You will require some investigations, which might include blood tests and imaging. Your specialist will then discuss all of the various options for managing any arthritis symptoms with you, including alternative treatments, potential complications and the likely recovery timelines, and also what support you will need during your recovery. If you have any dental problems it's advisable to have a dental check up and get any problems dealt with well before your operation. There's a risk of infection if bacteria from dental problems get into your bloodstream.

### Pre-admission clinic

Pre-admission screening is important to ensure you are fit for surgery. All of the appropriate pre-operative tests and investigations required by the surgeon and anaesthetist are carried out. These may include a blood test, ECG (tracing of your heart rate and rhythm), a nose swab and a urine test. At pre-assessment, we discuss whether you should stop taking any of your medications or alterations to the timings that you take them, the timings of your operation, and when you should stop eating and drinking before the surgery.

If you are going to have a total ankle replacement you will be asked for permission (consent) to have your details recorded on the **National Joint Registry**, which captures details of every ankle replacement implanted in England and Wales and helps to track performance.

Prior to surgery, you'll be asked to **sign a consent form** that gives your surgeon permission to carry out the surgery. It's important to ask any questions you may still have at this stage. Ask the doctor, nurse or therapist to explain anything you don't understand.

### What happens before and during my operation?

Ankle surgery requires one to two nights stay in hospital. We will discuss the proposed length of stay with you before you are admitted so that you can plan for discharge and to make sure your home is ready.

On the day of your surgery you will meet various members of the team, including a physiotherapist who will carry out your pre-surgery assessment.

Please ensure that you have a flat, sturdy shoe to wear on the un-operated foot following surgery. If you use a walking stick or crutches, please ensure you bring these with you.

### Use of anaesthetic

Prior to the surgery you will meet the anaesthetist who will be responsible for your anaesthetic.

Anaesthetic is a drug that's used during surgery to stop you feeling pain. The type of anaesthetic used will depend on the type of operation you're having, your personal preference and your general health. You should talk to your surgeon or anaesthetist if you have any worries.

## Types of Anaesthetic

In most cases you can have the choice of either a general or spinal anaesthetic.

A **spinal anaesthetic** will only make your legs and lower legs numb. It's given by an injection of local anaesthetic into the spine.

A **general anaesthetic** will affect your whole body and will make you lose consciousness, or put you 'to sleep'.

A regional local anaesthetic block will leave your operated leg feeling numb below the knee. This can last up to 36 hrs. This numb feeling can be slightly disconcerting, but the rationale is that when this wears off, and the feeling returns, the worst of your surgical pain will have settled. Despite this, when the block wears off you should expect to experience some pain.

We encourage you to take the simple pain killers we'll provide you with for 72 hours, starting before the anaesthetic block wears off.

You will also be given anti-sickness pills as required.

## After the operation

When you awake from your surgery, your foot will to be elevated either on pillows or a special frame. The nursing team will provide painkillers and anti-sickness medication should you need it.

The day after surgery your physiotherapist will teach you how to use crutches or a walking frame and help you to mobilise around the ward, ensuring that you are confident and safe. They will teach you how to ascend and descend stairs safely, and advise on any modifications you may need for your return home.

## When can I go home?

In general, you can be discharged once your pain is well controlled, you are safe to mobilise yourself and your home is ready for you to return to. This will be planned prior to the surgery.

Your first outpatient appointment will usually be two weeks following your surgery for wound check and removal of sutures and plaster change.



## Getting back to normal

Whilst the pain from your arthritis should resolve quite quickly, swelling and function may take longer to recover. It will take at least a year before you are completely satisfied with your ankle and all of the swelling has settled. As a general rule, you can expect to be “good” at six months and “right” after one year.

You can make a number of simple preparations before the operation such as choosing clothes that are easy to put on, stocking up the freezer and arranging for any extra help. These steps will make it easier for you to manage when you get home.

You are likely to need help with transport, as you will have to attend hospital regularly to see your surgeon and therapist. Make sure that you do not have any major commitments, including long-haul travel, for at least three months after surgery.

Keeping up with your exercises will make a big difference to your recovery time, especially for your upper body and unaffected limb. Once you have come out of your cast, you can start to build up your levels of activity, but you will still need to elevate the limb regularly in order to manage your swelling.

### Walking

Once you are out of your cast or boot, you should be able to walk, but this should be built up slowly. We advise you to wear comfortable, well fitting, supportive shoes or boots.

### Going up and down stairs

When going upstairs put the unoperated foot on the stairs first, followed by the operated foot. When going downstairs you should put your operated leg first.

### Sleeping

When you have a cast on you may find it more comfortable to pad the bed with extra pillows. This will prevent the cast from digging into the other leg whilst sleeping.

It's helpful if you can elevate the leg on a pillow during the first two weeks after surgery, but it is not necessary after this. Once the cast is off, you can sleep in any position without concern.

### Returning to work

If you have an office or sedentary type of employment and there are provisions for you to elevate the affected limb, you may return to work four weeks following your surgery.

However, if your employment is physically demanding and usually involves long periods on your feet, then it's advisable to refrain from work for up to six months. You should discuss this with your surgeon or your GP prior to surgery.

### Driving

If your surgery is on the left side and you drive an automatic car, you can usually drive four weeks after your operation. If your surgery is on the right side or the car is a manual, then you are usually advised to wait for two weeks after the cast or boot has been removed before returning to drive.

You must be able to perform an emergency stop safely and it's your responsibility to check this. Your insurance company must be notified regarding the type of operation that you have undergone to ensure that your cover is valid.



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