Patient Information: Ankle or TTC Fusion Surgery

Aintree University Hospital NHS
NHS Foundation Trust

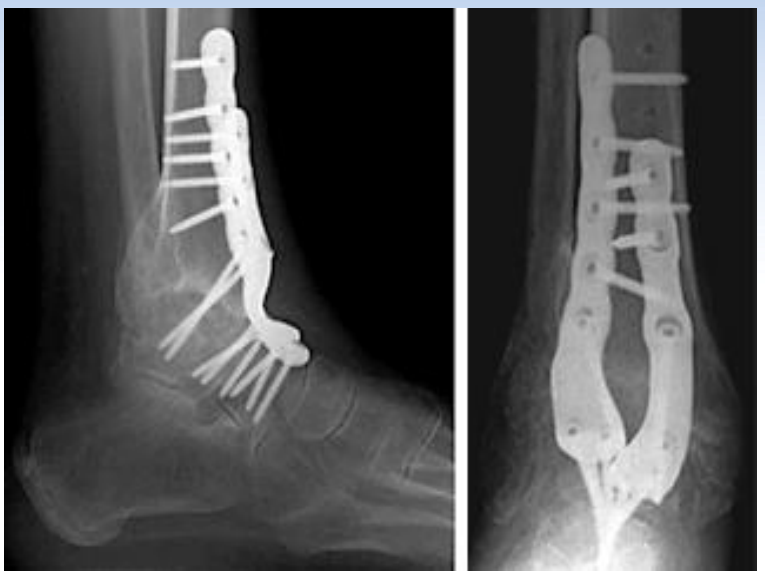
What is ankle arthritis?

Arthritis is an umbrella term for a number of conditions that damage the cartilage in a normal joint. This can occur in any joint of the body although it is more common in joints that you walk on. Almost half of people in their 60s and 70s have arthritis of the foot and/or ankle. The level of symptoms can vary hugely.

There are many different types of arthritis. They can broadly be divided into mechanical or chemical. The most common type, osteoarthritis ('wear and tear arthritis') comes from damage to joint cartilage that comes with age or after injury. Sometimes a traumatic injury will result in arthritis in the injured joint even though the joint received proper medical care at the time of injury.

The cartilage can also be damaged by inflammatory arthritis. Types of these include rheumatoid arthritis, gout, lupus, ankylosing spondylitis, psoriatic arthritis and joint infection.

The result of ankle arthritis is inflammation, redness, swelling and pain in the joint.



* Typical postoperative x-ray after ankle fusion

What is a fusion?

An arthrodesis (another name for fusion or stiffening) is an operation performed to remove a joint and make the two bones either side of that joint into one complete bone. It may be used to treat a joint that is affected by severe arthritis or to correct deformity.

Your body is tricked into treating the joint as it would a broken bone. The joint surface is removed and screws or other metalwork are passed across the joint to maintain the position while bone healing occurs. Bone then grows across the joint, fusing it solid. The aim of this operation is to turn a stiff painful joint into a stiff painless joint. The operation is carried out only when all non-surgical measures have failed to control your pain.

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What are the alternatives?

There are many non-surgical treatments of arthritis. For example:

- Anti-inflammatory and pain medication
- Injections, such as steroids are helpful for symptom control when delaying the need for surgery
- Restricting activity
- Orthoses (braces or insoles)
- Footwear adjustment, such as shoes with cushioning and boots that lace up above the ankle
- Walking aids, such as crutches or a walking stick

In early arthritis and in young patients, other surgical techniques may be preferable. These include arthroscopy (key-hole surgery) and supramalleolar osteotomy (cutting the shin bone and fixing it to realign the ankle).

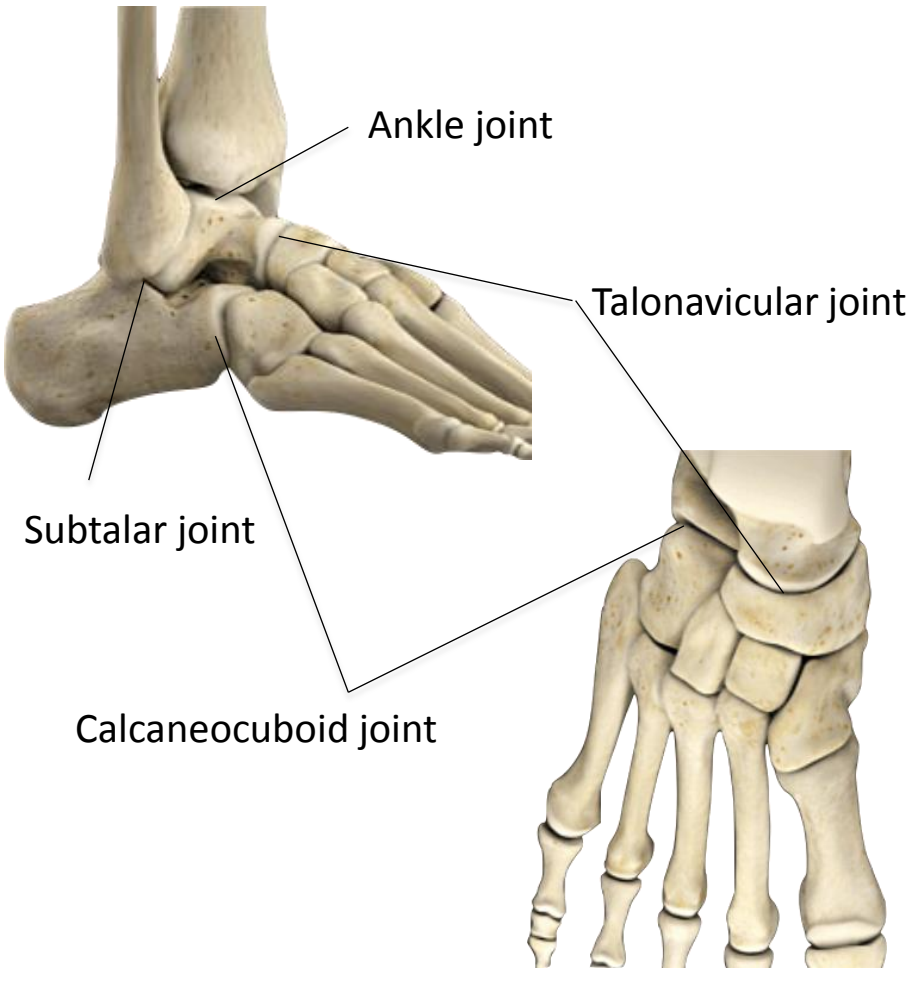
How is the operation performed?

This operation is done under a general anaesthetic with local anaesthetic put in during the operation. This means that there will be an increase in pain when the local anaesthetic wears off up to 12 hours after the operation. The operation takes approximately 2 hours.

An ankle fusion (between the tibia and talus) is done with an incision over the front of the ankle (approximately 15cm). Sometimes it can be done arthroscopically (keyhole). The ankle is then fixed with a combination of screws and plates.

A TTC fusion (tibio-talo-calcaneus fusion; between the tibia, talus and calcaneus) is usually performed through 2-3 incisions around the ankle and side of the foot. It can be fixed with a combination of plates and screws, or a rod that goes inside the bone. The operation takes approximately 2 hours.

Sometimes, in severe arthritis where the foot / ankle position is not normal, the surgeon may need to take bone from another part of your body (or from another source). Your surgeon will discuss the specifics of this with you if it is necessary .



* Diagram of ankle and hindfoot joints

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What can I expect after the operation?

Following your operation you will remain in hospital overnight. When you arrive back on the ward from theatre your leg will be in a back slab (half plaster cast) from toe to knee and elevated to reduce swelling. Your foot should be numb due to the local anaesthetic block, which is given to reduce pain. This will gradually wear off over around 12 hours. It is therefore important to start taking painkillers before it completely wears off (usually before going to bed)

A Physiotherapist will teach you how to walk with crutches without putting the leg to the ground (non weight bearing). You will be non-weight bearing for 2 weeks in this back-slab. At 2 weeks you will have your stitches removed and be put into a full plaster. You will likely continue to need your crutches for the first 6 weeks. If X-Rays taken at 6 weeks show good signs of healing, you will be placed in a walking boot for the following 4-6 weeks. At this point you will be able to begin massaging the scars.

What activities can I do?

You can wiggle your toes as soon as able (which can help prevent blood clots). We will tell you when you can put weight through the foot. You can sometimes return to office work after 6 weeks. For those patients who cannot get into work /do more standing / manual may need 3-5 months off work.

You can drive as long as the ankle is comfortable and you are out of the walking boot. It is imperative that you are safe making an emergency stop, and therefore practicing before embarking on a drive is wise. Return to driving may be possible earlier if the car is automatic and the left ankle has been operated on. More information available at www.dvla.gov.uk
According to the Department of Health flying should be avoided for 8 weeks after surgery. For further information see below: www.nhs.uk/chg/Pages/2615.aspx?CategoryID69

Before the operation your ankle will have been stiff or so painful that you did not use it properly. The aim of the operation is too stiffen your ankle. However you will still have some up and down movement of your foot from other joints in the foot. Usually these joints loosen up with time so that walking looks almost normal.

Patients function is normally much improved as , although they may have lost some movement, the majority of the pain has normally gone. The only activities that are specifically a lot more difficult are ones that require a lot of ankle movement (eg running, ballroom dancing etc). However usually these will not have been possible before the operation

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Most patients with a successful arthrodesis (fusion) are able to, for example, walk without a limp, cycle and play golf.

The foot and ankle will normally be swollen for around 6 months after the operation. Some patients can have permanent swelling. In this case whatever swelling present after 1 year will usually be permanent

Work, Driving and Flying:

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You can drive as long as the ankle is comfortable and you are out of the walking boot. It is imperative that you are safe making an emergency stop, and therefore practicing before embarking on a drive is wise. Return to driving may be possible earlier if the car is automatic and the left ankle has been operated on. More information available at www.dvla.gov.uk

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What are the more common risks of surgery?

Infection – About 1-2% of patients will have a wound that is slow to heal. The rate of superficial infection within our department is 1%, the majority of which will respond to oral antibiotics. The risk of deep infection is around 1 in 200.

Metal work problems – Metal work rarely fails, however some screws can become prominent as the swelling resolves and can require their removal if they are troublesome.

Thrombosis – The risk of getting a clot in your leg following ankle ligament surgery is small. Some patients may be at an increased risk. Your surgeon will advise on clot prevention therapy to yourself based on any noted risks. We advise that you drink plenty of water and move around as much as is sensible to reduce the chances of a clot.

Please be aware of symptoms of thrombosis, including:

- Significant swelling – you will have some swelling due to the nature of the surgery.
- Increasing calf tenderness.
- Heat and redness.
- Shortness of breath or chest pain when breathing in.

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If any concerns regarding these, please seek medical attention urgently

Ongoing pain

Some patients will have permanent pain after any operation. Usually this as at a low level, especially compared to before the operation. Sometimes it can be more severe. Usually a cause and treatment can be given for it but this is not always the case

Nonunion (bone does not heal) – The nonunion rate increases with the complexity of the operation. In the literature subtalar joints have a nonunion rate of 0-20%. Ankle fusions have a nonunion rate of 2-35%. Tibio-talo-calcaneal fusions report a nonunion rate up to 10-45%.

Factors that can increase nonunion include SMOKING, diabetes, rheumatoid disease and steroid use. We encourage all smoking to cease prior to surgery as this can increase complications over 16 times.

Malunion – approximately 5-10% of fusions may heal in a not ideal position. This is usually doesn't cause symptoms, but rarely may require further surgery.

Nerve / blood vessel injury – Loss of feeling /altered feeling on top or sides of the foot can happen due to the nerves be stretched or damaged during the operation. Sometimes the scars can be sensitive / painful after the operation if nerve fibres grow into them.

Fracture – Fracture can occur during or after the operation, although this is rare.

Arthritis in other joints – The fusion of one joint increases the workload of other joints in the foot. This can cause these joints to wear out over time. The chance of this happening is usually low (around 3 in 100 of it causing problems)

Complex regional pain syndrome - Some patients develop nerve pain due to the nerves working in a not normal way after the operation. This can happen after any injury /operation. Usually this settles with simple treatment but can occasionally be long-term (probably less than 1 in 100). Some research has shown this can be reduced by taking normal over the counter Vitamin C a few days before the operation.

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Further Information

The figures for complications given in this leaflet have been taken from the most up to date publications on this subject (as of October 2014).
Other reading:

- The British Orthopaedic Foot Surgery Society web site is available at: http://www.bofas.org.uk/PatientInformation.aspx (accessed May 2014).
- Mirmiran, R et.al. Retrospective analysis of the rate and interval to union for joint arthrodesis for foot and ankle. J Foot Ankle Surg 2014;53:420-425.
- The foot and ankle hyperbook: www.foothyperbook.com (accessed May 2014).
- Mann, R. Coughlin, M. and Saltzman, C. Surgery of the Foot and Ankle 8th edition, Elsevier, Philadelphia. 2008
- Myerson, M. Foot and Ankle Disorders. Saunders, Philadelphia. 2000

What if I need to contact someone?

Fracture Clinic –
Tel: 0151 529 2554 (Monday – Friday)
Please leave a message on the answer machine stating your name and contact number and a member of staff will return your call.

Ward 17a – (always open for advice)
Tel: 0151 529 3511

If you require a special edition of this leaflet

This leaflet is available in large print, Braille, on audio tape or disk and in other languages on request. Please contact:

Tel No: 0151 529 2906

Email: interpretationandtranslation @aintree.nhs.uk

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