

Resource

## Foot Surgery

For most, foot orthotics, medication and good footwear can be enough to manage foot health in RA, but in some cases, surgery may be required, whether it's the removal of painful bunions or more extensive corrective joint surgery.

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The following article contains some images of pre and post-operation photographs, which some readers may find upsetting, but which we have included in order to demonstrate the huge differences that surgery can make.

Introduction:

Sometimes more conservative treatments such as foot orthoses (specialised insoles) and corticosteroid injections are not enough to reduce pain and improve mobility, and in certain cases, people may benefit from seeking an opinion from a foot surgeon. Specialised footwear can be made or fitted to accommodate deformities, but this sometimes confines patients to wearing one or two different pairs of shoes and offers less choice of style than shop-bought footwear. It could be the case that the medication you take for your rheumatoid arthritis is preventing further damage to your joints, but you are still experiencing pain associated with previous episodes of inflammation and joint damage. In these cases, surgery can sometimes help reduce the pain from damaged joints.

Of course, surgery is not always appropriate for everybody, but taking the time to speak to a healthcare professional with specific training and experience of foot surgery can still be a valuable experience. It might be the case that they feel they can help your foot condition by offering you surgical treatment or it could be that they feel that you may benefit more from further conservative care and that surgery is not indicated. Whichever foot specialist you see will have their own opinion of what they can offer you based on training, experience and research. The consultation is an opportunity for both the surgeon and the patient to express their expectations of any intended treatment and come to a mutually agreed plan about how to achieve this. Surgery often helps with the function of the feet, pain reduction and ability to wear more appropriate footwear. A referral to a podiatric surgeon can be made either by your GP or consultant rheumatologist. Initially, the referral would be to discuss the options and potential outcomes of the surgery.

When should you seek a surgical opinion?

It is important to remember that for any kind of surgery to have the best outcomes; it is better to seek an early referral even if it is just for a surgical opinion. Leaving symptoms to worsen can sometimes

mean that a surgeon does not have the same opportunity to help you to achieve a good outcome.

## Do you need surgery?

Every foot and every person is different. Not all feet will benefit from surgery, but this should be something you decide on along with the podiatric surgeon who will discuss your options with you prior to making any firm plans.

Many patients will not need surgery. Patients complaining of pain in a single joint or pain originating from the soft tissue (such as muscular pain) can usually be treated successfully with cortisone injections. These injections may only have a temporary beneficial effect, but they pose less risk to you and your foot than surgery. When combined with the right foot orthosis (specialised insoles usually made by a podiatrist) and the right type of shoe, some injections can be very successful in reducing pain from painful arthritic joints or soft tissue.

## If surgery is required, what might it involve?

This will depend on the type of problem you are having with your foot. Podiatric surgeons try to target specific problems caused by the disease with the appropriate surgery. If you have an isolated soft tissue problem, such as an inflamed bursa (fluid-filled sac) or prominent nodule (firm swelling just below the skin) you may only need relatively simple soft tissue surgery. For severe bone and joint problems bone surgery such as osteotomies (where bones are cut and realigned) or fusions (where joints are cut and 'stuck' together preventing movement, also known as arthrodesis) may be necessary.

## What types of problems can benefit from surgery?

The most common deformities of the forefoot are bunions (Hallux Valgus), and deformities of the small (lesser) toes. Although these are becoming less common as medication used to treat arthritis develops and specialist insoles are prescribed earlier on in the disease, many people still present for foot surgery with forefoot problems.

### Lesser toe deformities:

Common names used to describe problems with the shape of toes include windswept, hammered and clawed toes. These are often treated by osteotomies (breaking the bones and re-setting them in a corrective position to correct deformity), arthroplasties (removing part of the small bones in your toe joints) and fusions of the small joints in your lesser toes. The position of the bones of your foot is obviously important in helping you to wear shoes that you are comfortable with.

### Bunions (hallux valgus):



Correction of bunions via procedures such as the 'Scarf & Akin', where bones are cut and realigned (osteotomies) is very common in the UK. This procedure is very versatile as it enables the surgeon to correct the deformity and shorten or lengthen the 1st metatarsal (the bone just behind the big toe) as well as to lower or increase the pressure under the ball of the foot depending on the presenting symptoms. The picture on the right shows a foot with a bunion before and immediately after surgery (the post-surgery foot appears yellow due to some of the antiseptic wash used in surgery). The big toe joint is repositioned to remove the prominent bunion and preserve motion of your big toe to help you walk. The scar runs along the side of the foot, which makes it less visible.

Deformities of the other toes can be corrected by straightening of the toes via fusion of the toe joint/s involved (this procedure is called proximal and distal interphalangeal joint arthrodesis) and lesser metatarsal osteotomies (such as Weil osteotomies) for reduction of forefoot pressure. There are many types of surgical procedure available, and these will be discussed at your consultation with your surgeon.

Soft tissue complications:

Soft tissue complications such as bursae (fluid-filled sacs) or rheumatoid nodules (firm swelling just below the skin) can be removed, but there is a risk of recurrence.

Flatfoot (excessive pronation)



Excessive pronation or 'flat foot' is a common problem that is seen with rheumatoid arthritis. This is characterised by the lowering of the long arch of your foot and is sometimes associated with damage to some of the tendons and ligaments at the side of the ankle. If orthoses, shoes and braces are not enough to settle the pain and pathology associated with these problems, surgery can sometimes help. Like forefoot bone and joint surgery, mid and rearfoot surgery can generally be split into two categories – osteotomies or fusions. Again, osteotomies preserve joints and allow movement, whereas fusions stop painful motion at damaged joints. The picture on the left shows a foot before and after surgery for a painful 'flatfoot' deformity. Notice the lack of an arch in the picture on the left. The patient had osteotomies to the heel and had a severe bunion corrected at the same time. It is common for forefoot and rearfoot deformities to accompany each other, and it is common to have surgery for both. In the picture on the right, the big toe is back in a more 'normal' position, and the long arch of the foot is visible along with the heel.

As stated previously, the tendons around the ankle can become damaged and may need to be repaired. This is often combined with osteotomies of the bones in the mid and/or rearfoot. The picture below shows a side view of a heel bone that has had an osteotomy to reposition it. The white object is a plate that holds the bones in the new position while they heal together in the corrected position. As before, this should stay in the foot forever, unless it irritates in which case it can be removed without losing any correction.



Types of surgery:

Fusion (arthrodesis):



Sometimes, joints are damaged by rheumatoid arthritis (or osteoarthritis) and may benefit from a fusion. A fusion is generally performed to reduce pain. Prior to surgery, the joint may be stiff and painful. Following surgery, the joint is still stiff, but the small amount of motion that was causing pain

to the arthritic joint is gone, and therefore the pain should be significantly reduced. The picture above shows the result of surgery to fuse arthritic joint in the midfoot. The white screws and plates are visible on the x-ray. This particular type of plate is a very stable method of holding the bones together while they heal together to replace the arthritic joint with your bone. After surgery, there is no longer a painful joint there as the fused bones effectively become one. After a period in a cast, the patient can begin gradually getting back to normal and start bearing weight on the foot as advised by the podiatric surgeon at the post-operative review appointments.



Screws are also used in fusion operations. The type of internal fixation used will often depend on the type of surgery and the surgeon's experience of using internal fixation. Occasionally, external fixation is used for stabilising operations. This is like a scaffold frame that has pins that pierce the skin and holds the bones steady while they heal. Each method of stabilising the surgery site has its good points and bad points, and these will be discussed with your podiatric surgeon prior to you making the decision to go ahead with any surgery. The picture above shows a fusion operation to the talonavicular joint (highlighted in yellow on the preoperative x-ray). Notice that the joint line is not present in the post-operative x-ray as the two bones are now joined as one. This patient also had surgery for painful arthritis in the big toe joint.

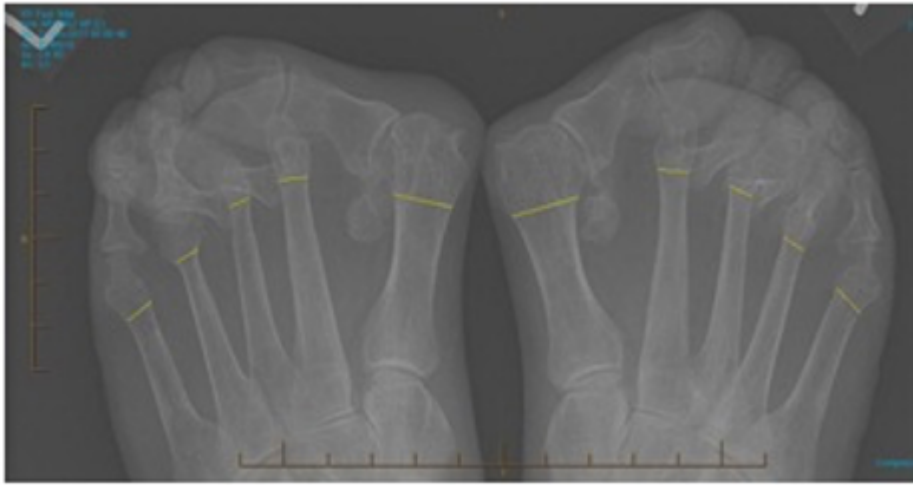
Sometimes more extensive surgery needs to be performed to the rearfoot. This can involve fusing several diseased joints (Mäenpää et al. 2001). In most cases, this can be successful in reducing pain and deformity, but you might need other surgery to your forefoot at the same time or insoles and shoes after surgery as well. Sometimes the surrounding joints can become arthritic as time goes by. This has pros and cons, and you should consider these carefully prior to electing to have surgery.

Surgery such as fusion of the big toe joint may require the use of internal fixation. Often these are screws that are buried deep inside the bones that usually stay in your foot forever. The picture below shows a picture of a big toe joint being fused during an operation. The podiatric surgeon often uses a special x-ray machine during the operation to make sure that the surgery is as exact as possible. You can see the two crossed screws used to hold the bones together to stop painful movement.



#### Removal of the metatarsal heads and realignment (osteotomy)

Over many years the standard approach for severe rheumatoid forefoot deformity has involved both the removal of the metatarsal heads (ends of the long bones in the foot that make a joint with your toes) to relieve the pressure underneath the forefoot and also realign the lesser toe deformities, with or without arthrodesis (fusion) of the 1st metatarsophalangeal (big toe) joint.



The picture above is an x-ray of the feet of a person who has advanced foot deformities associated with rheumatoid arthritis. The yellow lines indicate the area that the podiatric surgeon cuts to remove the ends of the bones (metatarsal heads) when reconstructing the forefoot.



The picture above shows the type of forefoot deformities that can sometimes occur in advanced disease, although thankfully, this level of deformity is much rarer these days as treatments for arthritis have greatly improved. The picture illustrates the immediate result of this type of operation on the forefoot. The pins in the toes are used to stabilise the position while the foot heals. They are removed after a number of weeks following surgery. It's important to note that for people diagnosed since the advent of biologics and a more aggressive treatment regimen, these types of foot/toe deformities are less likely to be seen in RA as there is less chance of joint damage.

These 'forefoot reconstructions' have been seen as a reliable procedure for correction of severe deformity, which is particularly associated with extensive erosive disease of the metatarsophalangeal



joint and destruction of bone. The long term results can be cosmetically less satisfactory as the lesser toes often fail to stay absolutely straight under the strain of everyday activities. Sometimes further surgery is needed to straighten the toes if they significantly deviate again.

## Conclusion

There are general and specific risks associated with all surgery to the foot and ankle, and surgery does not always work. These will be discussed with the podiatric surgeon prior to you making the decision to go ahead with surgery. When appropriate, surgery has a strong chance of making the painful, arthritic foot much better but this should be considered carefully and performed by someone who has specific knowledge, training and experience of foot and ankle surgery.

Earlier treatment of rheumatoid arthritis involves Disease Modifying Anti-rheumatic Drugs and Biologic therapies. The traditional approach of operating on rheumatoid patients once the joint disease has become aggressive and non-surgical therapy has failed to relieve the pain should become less common. We are therefore likely to see patients being referred more for 'corrective' surgery rather than salvaging a critical situation, thus preserving the joints.

## Glossary

Osteotomy: Cutting and realigning of bones

Arthrodesis (Fusion): Cutting the bones and 'sticking' them together, preventing movement

Arthroplasty: removing and remodelling often damaged parts of bone from a joint

Distal: away from the ankle

Proximal: nearer to the ankle

Hallux valgus: Bunions

Orthoses: Specialised insoles usually made by a podiatrist

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The decision to have surgery is understandably a very difficult one to make. All types of surgery carry risks to the individual and will require a recovery time. However, there can also be a lot of benefits to surgery, such as reducing pain and improving mobility.