

Pes Cavus

(High arched foot)

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.



CAVUS FOOT

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What is a cavus foot deformity?

Most feet have an arch on the inside of the foot. In some people this arch is more pronounced and the foot looks 'more arched'. Up to 1 in 7 people may have a slightly high arched foot, and this arch does not flatten when standing. In some people this is the normal shape of their foot, but in others the deformity can develop over time or be associated with other problems including a 'claw' shape of the toes, a stiff heel, and pain on the outside of the foot and calluses (hard skin). Other deformities may also be present, particularly if associated with a nerve or muscle problem. A cavus foot is not always a problem but if you are getting pain or your foot gets more deformed over time it may need treatment.

What causes a cavus foot deformity?

In some people this is just the normal shape of your foot and may not cause any problems. Some people have a cavus foot which is caused due to imbalances due to a nerve or muscle problems or due to a developmental problem. One of the most common conditions in the UK for cavus foot deformity affecting both feet is Charcot-Marie Tooth disease (CMT). In these situations the problem may get worse over time and be associated with other muscle weakness or spasticity which can affect balance. Other common causes are clubfoot and cerebral palsy.

In some cases when it is just high, the rest of the foot is okay and may not cause much problems. In other cases there is an imbalance in the strengths of your muscles which may cause your foot to deform. Depending on the cause many different muscles may be affected. Sometimes these deformities start off as flexible but may become fixed over time. When this happens the shape of the foot can get worse.





What Symptoms does a cavus foot cause?

Most people with cavus feet which is not associated with neuro-logical problems or club feet will have very few problems. When problems occur, it usually starts with a pain on the outside of the foot or difficulty balancing.

Some symptoms are more serious than others and may require assessment of treatment:

Pain

Pain usually starts on the outside of the foot because of increased pressure. Sometimes pain may be related to nerve damage. However, if your pain is getting worse it may indicate you are getting arthritis.

Problem in only one foot

Most cavus feet effect both feet and are not due to dangerous conditions. However if you start to develop a cavus foot that you haven't had before and it is only in one side, then this needs to be investigated.

Change in foot shape

If your deformity starts to become worse, then it is advisable to seek treatment



Non-Operative Treatment

Treatment for Cavus Foot

Most people with high arched feet do not need surgery, particularly if it is not associated with a nerve or muscle problem. The exact treatment will depend on your symptoms and the severity of your deformity. If you are having symptoms common things which can be tried are:

RICE - Rest, Ice, Elevation, Compression

Resting your foot and reducing the amount you walk can help for acute episodes of pain. This includes refraining from sports and impact activities which you are healing. You can also apply ice to help reduce the inflammation. It is important not to apply ice directly as this can damage your skin. A tubigrip or elasticated support can provide some support and pain relief. Elevating the foot can also help to reduce swelling.

Pain Killers

In the acute setting, pain killers such as non-steroidal anti-inflammatories can help. These can be applied as a gel or cream on the foot or taken as tablets.

Brace or boot

If you are in a lot of pain you may benefit from a short period of time in a special boot or brace for a up to 6 weeks.

Insoles

In the longer term, specially designed insoles can help to balance the foot position, particularly when it is flexible, and take the pressure off your tendon. This can help improve your symptoms and may help stop your deformity from getting worse.

Shoes

It is also important to wear flat shoes which support your foot. Lace-up shoes may help to secure your foot and keep the insoles in place.

Physiotherapy

Physiotherapy is aimed at stretching your achilles tendon, and improving the strength and balance of the muscles in the foot and ankle. It can also help to keep your joints flexible.





Surgery for cavus foot

When might you need surgery?

If the above measures haven't helped, the surgery may be an option. Also if you have a progressive deformity or begin to get arthritis then surgery may be advised.

Benefits of surgery

Surgery aims to:

- Treat the pain associated with a high arched foot deformity
- Correct the deformity
- Stop the deformity from progressing

In order to feel the full benefits from surgery it may take up to a year.

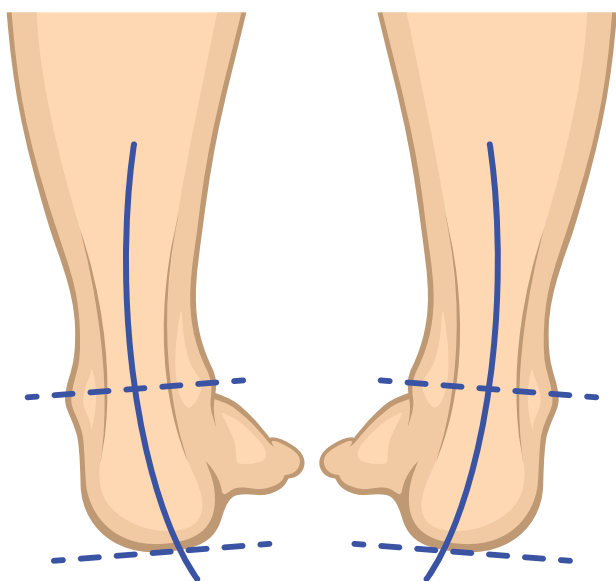
Depending on the cause of your cavus foot your balance and risk of falls may or may not improve – it is less likely to improve if you have weakness elsewhere in your body or poor sensation as there are many other factors involved in these cases. Despite this you may still find an overall benefit from surgery.

What does the procedure involve?

There are many different procedures which may be done for treating high arched feet. These range from:

- Transferring tendons/muscles to remove deforming forces and create more useful, balancing forces
- Correction of the deformity by realigning your foot
- Fusing bones in your foot together to treat the deformity and arthritis

The exact procedure will be discussed with you by your surgeon, but in general one or more cuts are made around your foot and ankle. The bones and joints are shifted to balance the foot. The bones are put together and held in place with either screws or screws and a plate. You may also need to have tendons moved around to help balance your foot. Other devices and implants may also be used to support the operation and your toes may also need to be corrected. After the operation the skin is closed and you will be placed into a cast. You will not be allowed to put weight through your leg for about 4 to 6 weeks.



What are the risks of the procedure?

- All operations have risks
- Any medical conditions you already have may become worse due to the operation.
- Some risks may be rarer but more relevant to you. It is important to discuss with your surgeon your particular circumstances.

Common Risks (Occur in up to 5 out of 100 procedures)

Pain

For most operations, you will be given a local anaesthetic block to reduce pain, but you may still have some pain or discomfort. Usually, this can be controlled with simple pain management tablets.

Swelling

Feet tend to swell up because of gravity, and this can last for some months.

Scarring

Any type of surgery will leave a scar, sometime this can be painful or sensitive.

Minor wound redness

With all operations there is a risk of infection. Sometimes the wound edges can become a bit red or may not fully heal. In some cases you may require antibiotics to get this to settle. Risks are higher if you have diabetes, if you smoke, or if you are on medication which alters your immune system (eg steroids or rheumatoid medication).

Numbness

After surgery you may have some numbness or tingling around the scar. This is because small nerves to the skin may have been cut. This usually recovers with time, but sometimes may be permanent.

Prominent metalwork

In some cases the screws or plates can be felt under the skin, requiring a second procedure to remove them once the bones are healed.



Problematic weight distribution

Because foot and ankle surgery shifts the balance of weight across the foot, pain can appear in areas of the foot that previously did not have pain. Most cases settle with physiotherapy and management with insoles, but further surgery might be necessary.

Delayed bone healing

This may occur in operations where the bone is cut or fused. Some people heal slower than others and those who smoke are at a greater risk of this occurring. You may have to have restricted weight bearing for longer or in some cases, where the bones don't appear to be healing, require further surgery.

Less Common Risks (occur in up to 1 in 100 procedures)

Blood clots

Because you will not be allowed to walk immediately after the surgery blood clots can occur and can lead to swelling of the leg (deep vein thrombosis) or chest pain (pulmonary embolism).

Non-union

This is when the bones do not heal to one another. Factors that have been shown to prevent bone healing include smoking, vitamin D deficiency, thyroid disease and diabetes.

Malunion

This is when the bones do not heal in the desired position. Sometimes this can cause discomfort and rubbing on shoes. Rarely, another procedure may be required to correct this.

Implant loosening

Any implants used can loosen on occasion. Although the cause can be unknown, it can be related to infection, rejection of the implant or failure of bones to join.

Overcorrection

The correction involves balancing the bones and soft tissues. Sometimes the deformity can be overcorrected. This complication often requires further surgery.

Recurrence of deformity

Correcting a deformity involves balancing the foot and ankle. Sometimes, the balancing fails. If this happens, further surgery may be required.

Rare risks

(occur in less than 1 in a 100 procedures)

Deep infection

Although every precaution is taken to prevent infection, it can still happen. If the infection does not settle with antibiotics, you may need a further operation to remove any metal and clear the infection.

Intraoperative fracture or broken metalwork

Rarely a fracture may occur during surgery or a metal pin or screw could break. The surgeon will act in your best interests at the time of surgery to give you the best outcome.

Complex regional pain syndrome

This is where the "fight or flight" nerves that supply the foot become over active and this can cause swelling, stiffness, pain, and colour and temperature changes to the foot. Treatment involves physiotherapy and other treatments and it could take several months to improve.

Nerve injury

If a larger nerve supplying the toe / foot becomes damaged or caught in scar tissue, it could lead to ongoing pain, numbness and tingling. Such damage is usually temporary and the sensation returns over some time, but it can be permanent.

Tendon injury

During the operation, a tendon may be injured or can become caught in the scar leading to reduced movement. Rarely this requires further surgery.

Blood vessel damage

If the blood supply to a toe is damaged it could lead to part or all of the toe becoming permanently damaged. In severe cases, the damaged parts of the toe may need to be removed.

Rupture

On occasion, the tendon procedure can result in the tendon being weak and rupturing. This may require treatment in a cast/boot or even surgery.

Compartment Syndrome

This is a rare condition where the muscles in either the lower leg or foot swell. If this did occur it is very painful and would likely require emergency treatment. The most common cause is a tight cast which would need to be removed, however if this did not resolve the problem surgery would be required.

Amputation

Although extremely rare, loss of limb can result from surgery especially if deep infection or blood vessel injury occurs. The risk for this complication is increased in diabetics and smokers.

Death

Whilst this is extremely rare for foot and ankle surgery, it can occur especially if there are pre-existing medical conditions.

Before & After Surgery

What happens before the procedure?

Before the operation you will need to have a pre-admission assessment to ensure that you are medically fit for surgery. You also need to consider a number of other practical points to prepare yourself for surgery:

- Can someone help you carry out basic every day tasks such as preparing food and food shopping?
- If you have stairs, how will you get up and down them? Do you have sturdy hand rails? If your toilet is downstairs, would it be easier to have your bed downstairs until you have recovered and are able to negotiate the stairs safely?
- Will you be able to manage crutches, or will you need to hire a wheelchair or a knee scooter?
- If you plan on taking a shower you will need to be able to get in and out of a bath safely and will need to keep your cast dry – there are a number of covers which are specially designed for casts that you can buy in shops or online.
- Do you have special pain management needs?

Some of these will be discussed with you in pre-assessment and you may also need to be assessed by a physiotherapist or occupational therapist if you have any concerns about coping at home after the procedure. The better prepared you are the smoother the whole process will be and the less time you will need to spend in hospital.

On the day of surgery

Surgery for cavus foot usually requires at least an overnight stay and you may need to stay up to 2 nights. You will need to bring with you a bag with essential toiletries, phone / tablet / laptop chargers, and other clothing items you may need for your stay.

You will also need to have a sturdy shoe for your other foot to make sure you can mobilise normally. If you have orthotics or braces for your other side, or other walking aids, please make sure you bring these with you.

On the day of surgery you will first be admitted onto the ward. You will see a number of members from the nursing team, and also the surgical and anaesthetic teams. You will have been told when you could last eat and drink and it is important that you do not eat or drink after the times that have been told to you.



You will have an arrow / mark put on the leg by your surgeon and you will sign a consent form confirming you agree to surgery. You will also have the opportunity ask any further questions to the surgeon or anaesthetist.

When it is time for your surgery you will be taken down to theatre and there you will be given an anaesthetic (the type of anaesthetic will be discussed with you beforehand). Most flat foot surgery is done with a nerve block in addition to the anaesthetic to help with post-operative pain control. After surgery you will be taken to a recovery room and when you are fully awake you will go back to your ward.

On the ward you will be given pain killers and other medication you require, including injections or tablets to help prevent blood clots. The next day you will be seen by physiotherapists to help you mobilise and you will be reviewed by a member of the surgical team. One you are fit to go home any pain killers, blood clot preventers and other medication will be sorted out for you and you will be discharged if it is safe to do so.

After your surgery

You will have a number of appointments to be made for you after your surgery. The following are rough guidelines, but every case will be different and you may be given specific instructions according to the exact procedure you have had. If you have had fusions then you may be in cast for longer.

For the first 2 weeks it is very important that you keep walking around to a minimum and keep your leg elevated. It needs to ideally be above or at the level of your heart (or as close as possible) for 23 hours a day. This means that every hour you can get up for about 5 minutes to get food / drink, or go to the toilet / shower, etc. This may mean that you need to keep your leg elevated on pillows in bed or on a stool when sitting. Keeping it elevated is important to reduced swelling, reduce pain and let the wound heal well. You are encouraged to move your toes to keep the circulation going and you will be given blood thinning injections or tablets to use for 6 weeks.



You will then usually be seen at around 2 weeks. The temporary cast will be removed and your wounds inspected. If appropriate the stitches will be removed / trimmed and you are placed into another, full cast. At this stage you should still keep your weight off your foot, but you can usually move around a bit more.

At 6 weeks after your surgery you are seen in clinic and the cast is removed and you will have x-rays. If all looks well you can usually go into a removable boot which you may need for the next 4 to 6 weeks. You may also begin some gentle physiotherapy at this stage depending on your progress.

At 3 months if all is well you can begin to mobilise freely and go into your normal shoes. At this stage you will likely need a new insole to support the foot that has been repaired. It does however take about 6 months to a year for you to recover fully from this operation.

Things to look out for

When at home there are a few things you should look out for. You should contact the surgical team if you have any of the following problems:

- Increasing swelling
- Cast which starts to feel tight
- Pain which is getting worse
- Pins and needles

If you are unable to contact the surgical team, or for example it is out of hours and your symptoms are getting worse you **should go to your local emergency department**. You should also go to your emergency department or call an ambulance if you have any of the following symptoms as they may indicate potentially serious problems:

- Chest pain
- Sudden shortness of breath
- Severe progressive pain despite elevation
- Severe swelling of your leg/thigh
- You become hot, clammy and dizzy

Getting back to normal

Once again, these are rough guidelines and your particular situation may differ. In general:

Work

If your job is mostly sitting you may be able to return to work 4 weeks following your surgery providing you can get to work safely and you can keep your leg elevated. If your job involves walking or standing, then this may take longer, perhaps up to 8 weeks, or even longer if you have had a fusion.

Walking

Most people should be able to walk without aids about 3 months following surgery, but it may take some time to build up your walking distance and this will depend on how well you walked before the surgery.

Shoes

It can take a number of months for the swelling to fully settle after surgery. It is normal to have swelling by the end of the day for up to 6 months or sometimes more following surgery. By 6 months most patients can go back into most of their normal footwear.

Driving

If you have an automatic car and have had left foot surgery, you can normally drive 2 weeks after your surgery, providing you are driving short distances and you can get in and out of the car safely. Otherwise it may take at least 3 months to be able to drive safely. In order to be able to drive you need to be able to safely perform an emergency stop. It is your responsibility to inform your insurance company about the operation you have had to ensure your insurance remains valid.

Sport

This will depend on the exact operation you have had and what sport you are trying to participate in. Generally you can get back to low impact sports by about 6 months following your surgery.



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