



# ANKLE FUSION (ANKLE ARTHRODESIS) SEARCH

## WHAT IS ANKLE FUSION SURGERY?

The goal of an ankle fusion (also known as ankle arthrodesis) is to relieve pain and maintain or improve function for patients with **ankle arthritis**. Ankle arthritis occurs when there is a break down of the cartilage that covers the ends of the bones that form the ankle joint. Moving the arthritic ankle tends to make the pain worse.

In ankle fusion surgery, the ankle bones are fused together and become one bone as they heal. This eliminates the joint motion and reduces pain coming from the arthritic joint.

An alternative to ankle fusion surgery is a **total ankle replacement**. Your **foot and ankle orthopaedic surgeon** has expertise in both procedures and will work with you to determine the surgery that best fits your lifestyle and treatment goals.

## Earle's Story - Ankle Fusion

## Nancy's Story - Total Ankle Replacement

### Diagnosis

Patients may be candidates for ankle fusion surgery if they have severe ankle arthritis and non-surgical treatments have failed. Many patients may find relief from the pain associated with ankle arthritis using:

- Anti-inflammatory medication (such as ibuprofen)
- Injections of steroids into the ankle joint
- Modification or limitations of activity
- Walking aids (such as canes)
- Specialty braces that stabilize the ankle and restrict its movement
- Cushioned and specially contoured shoes

These treatments do not reverse ankle arthritis. In many patients they may temporarily or permanently provide relief from pain. If these measures fail to provide adequate pain relief or maintain function, you may be a candidate for ankle fusion. You should discuss your options with your **foot and ankle orthopaedic surgeon**.

Patients should avoid ankle fusion if they have:

- Insufficient quantity or quality of bone for fusion
- Poor blood supply to the ankle
- Severely impaired nerve function
- Medical conditions that increase the risk of anesthetic
- Severe deformity of the limb

## Treatment

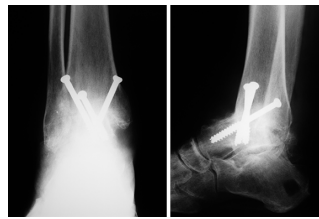
Patients are asleep or sedated in the operating room during the procedure. Your surgeon will make incisions in and around the ankle to access the joint. They will remove any remaining cartilage within the ankle joint so there is contact between the bony surfaces. The ankle is held in position with metal **hardware**. This allows the bones to heal together.

### Specific Technique

Ankle fusion may be performed through an incision on the outside of the ankle or the front of the ankle. Sometimes ankle fusion can be performed through a minimally invasive technique in which a camera and tools are placed into the joint. This is known as **arthroscopic surgery**.

Sometimes a bone graft may be used to aid in fusion. This graft may be taken from the pelvis, heel bone, or just below the knee. After your surgeon accesses the joint, they will use tools to scrape away remaining cartilage and prepare the joint surface for fusion. Screws or screws and plates may be used to hold the ankle in the correct position. If you are having your **subtalar joint** fused at the same time, a nail or rod may be used to hold the joints in position. Hardware may be placed through the incision used to access the ankle joint and/or through small poke holes. In rare cases, pins and bars outside the skin are used to hold the ankle in position.

Your surgeon will use X-rays during surgery to check the alignment of the joint and the placement of hardware. The choice of approach



X-rays of a patient who had an ankle fusion with three screws across the ankle joint.



X-rays of a patient who had an ankle fusion performed with a plate and screws.

and hardware depends on a patient's specific anatomy and condition, and the surgeon's preference.

Incisions are closed with sutures or staples. Patients are often placed in splints or plastic boots to protect the ankle fusion.

## Recovery

Immediately after surgery it is important to keep the fused ankle elevated to minimize swelling. Ideally this means keeping the ankle above the heart by lying down or sitting in a reclined position. Pain medication is provided for this short period of time.

It will take at least 6-8 weeks for the tibia and talus bones to be fused sufficiently for you to begin putting weight on your operative leg. It may take as long as 10-12 weeks. Patients typically use crutches, walkers, wheelchairs, or knee scooters to navigate their daily lives **without putting weight on one leg**. Preparation with a physical therapist prior to surgery may be advisable. It is helpful to have someone on hand to help with basic tasks and activities at home, especially during the first two weeks. You may need to make temporary changes to your home, such as adding ramps to navigate stairs, transferring your bed to ground level, and adding aids such as shower chairs, commodes, and railings.

Non-absorbable stitches or staples typically are removed 10-14 days after surgery. Gentle physical therapy to keep the other joints in the foot supple may begin at this time. X-rays may be taken to check that alignment has not changed. During the first few weeks after surgery, swelling and pain will increase when the foot is below the heart for extended periods of time. Mild amounts of swelling and pain when the foot is below the heart for long periods of time may persist for months, but will improve over time.

After you have clearance from your surgeon, you can slowly begin placing weight on your ankle using a walking boot. X-rays may be obtained to confirm that the ankle is fusing well. Physical therapy will aid in this

transition. After 10-12 weeks, the ankle fusion typically is sturdy enough to allow walking out of the plastic boot and a gradual return to more vigorous activity.

## Risks and Complications

All surgeries come with possible complications, including the risks associated with anesthesia, infection, damage to nerves and blood vessels, and bleeding or blood clots.

A specific risk associated with ankle fusion is nonunion, or failure of the ankle bones to fuse together. The ankle bones successfully fuse in more than 90% of operations, so the risk is relatively low. If nonunion does occur, a second operation to place bone graft in the ankle and place new hardware may be needed.

Loss of motion in the ankle after a fusion causes the other joints in the foot to bear more stress than they did prior to the surgery. This can lead to an increased rate of arthritis in those other joints. This typically takes several years to develop and may or may not be symptomatic.

## Will I lose all motion in my foot?

The ankle joint is responsible for the majority of up-and-down motion. Ankle fusion decreases this movement, but the movement of the subtalar joint and the other joints of the foot remains. This allows the heel to move from side to side and the middle of the foot to move up and down. A fused ankle typically does not result in a fully rigid foot. Ankle fusion does change how a person walks; however, with proper shoes most patients do not limp.

## Are there activities I should avoid with an ankle fusion?

Once the ankle has fused, it is quite durable. Many patients work physically demanding jobs, walk long distances, hike, cycle, and ski on fused ankles. The fused ankle will never function exactly like a normal ankle, however. Patients are encouraged to discuss specific hopes for return to activity with their **foot and ankle orthopaedic surgeon**. Running and similar activities are not recommended.

## Do I need to have the plates or screws removed?

No. Occasionally the plates and screws may be **removed** if they are close to the skin and cause irritation. They may also need to be removed if an infection develops. Otherwise hardware is not typically removed. There is usually not enough hardware in place to set off metal detectors.

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