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Ankle Fusion



Arthritis is when the cartilage is damaged or worn away and no longer provides the cushion to allow the smooth motion between the bones. Cartilage is unique in that there is no blood flow that provides nutrition, so that when injured it does not have the ability to repair itself very well, unlike bone. This inability to repair itself is why scientists and surgeons have a very difficult time in trying to restore large cartilage defects in the setting of arthritis. When non-surgical options such as injection, braces, and activity modification have not provided sufficient relief, surgery can be considered. There are two major options that are currently available for ankle arthritis - a fusion/arthrodesis or an ankle replacement. We perform both of these surgeries as the most appropriate option is dependent on many factors and the functional needs of the patient. Both surgeries can provide a significant amount of relief and improved function, and the best one for the patient is individualized and a mutual decision is made on what is best between the patient and the physician.

An ankle fusion is most commonly an outpatient operation and “glues” the two bones together - the talus and the tibia. The goal of the fusion is to make the body connect these two bones that were previously separated by cartilage with solid bone. Normally, two bones are separated by cartilage also known as a joint. Arthritis causes normal cartilage to be worn out and causes painful bone on bone motion in the joint. With fusion, two bones are fused into one bone in order to eliminate any motion/joint as the two bones become one larger bone, resulting in pain relief. However, the major downside of a fusion is the loss of motion of the ankle. The entire foot is not fused, so there remains about 20% of the up and down motion of the entire foot. In patients who have a very stiff ankle, the loss of function is minimal for them as they have not had motion in their ankle for years. For patients who desire predictable pain relief, who have a stiff ankle or very severe deformity (very crooked ankle or bone loss), neuropathy (lack of normal sensation), or poor quality soft tissue (skin) a fusion may be a better option as opposed to a replacement. Patients who have a lot of ankle motion will notice the stiffness after surgery following a fusion.

The fusion can be done through small incisions - arthroscopically in some cases if there is no deformity and good bone quality is noted. In many cases, an open approach is required to ensure the joint is positioned appropriately and the deformity is corrected so that ankle is in a neutral position. The remaining cartilage is removed and bone is “prepared” to get the fusion to heal. Preparation of the bones means that small drill holes and microfractures are made to stimulate bone healing and bone graft is added to maximize the chance of a fusion. A plate and screws are commonly used to hold the bones in the right position and pressed together. Over time the bones will heal - and this is the successful fusion that we hope for. The plate and screws are not actually holding the bone together in the long-term, it is the new bone that has formed between the tibia and the talus, and this is why it can last a lifetime once healed.

Following surgery, a successful fusion occurs in the majority of patients resulting in relief of pain. Patients are able to walk, bike, swim without significant difficulty in most cases. Shoewear has some limitations, but any comfortable athletic shoe and occasionally fashionable shoes for short time periods can be used. Over time, average of 20 years, patients may develop arthritis in the joints surrounding the fusion and some pain can result from this arthritis.