

Ankle Replacement



While not as common as knee or hip arthritis, the ankle can also develop arthritis. Ankle arthritis affects many patients and can occur after injuries such as ankle fractures. Recent studies have shown that the disability resulting from ankle arthritis is just as debilitating as that from hip or knee arthritis (Glazebrook, 2008). Unlike the hip or knee where joint replacements have had good results, the optimal operative treatment for ankle arthritis has not been as clear.

The traditional treatment for ankle arthritis has been arthrodesis or fusion. In this procedure, an incision is made into the ankle joint and any remaining cartilage on the ends of the bone is removed. The bone surfaces of the talus and tibia (bones that make up the ankle joint) are compressed using screws and/or plates. Some patients can have their fusion done arthroscopically with small incisions and a shorter healing time. A fusion allows the bones of the ankle to heal in a manner similar to the way that the bones in a fracture heal. This procedure eliminates the pain from the joint at the expense of decreased ankle motion. Most patients do reasonably well with ankle fusion, however there are some disadvantages. The ankle joint can become stiff due to the lack of motion. The surrounding joints are forced to bear more of the weight of walking and can have increased motion. With time these surrounding joints can also begin to develop arthritis.

An alternative to an ankle fusion is an ankle joint replacement. In this procedure, the bones of the ankle are resurfaced with metal and plastic similar to a knee replacement. The plastic insert acts as the gliding surface of the joint. There have been many attempts at ankle replacement through the years. In the 1970s-80s, various ankle replacements were done, however the results of these surgeries were poor. Many patients required further surgery and eventual removal of the implants. Such complications led to the eventual abandonment of ankle replacement surgery in the US until a more viable surgery was discovered.

Foot and ankle surgeons in both Europe and the U.S., continued to work on improving ankle replacement procedures and by the late 1990s, one U.S. ankle replacement was approved by the FDA. This replacement implant was called the Agility ankle replacement and was significantly better than the previous ankle replacements. However, there were still many failures of the implant, most notably involving the talus (the lower bone in the ankle joint). Many of these implants became loose and further surgery was required.

Over the last 15 years, more advanced ankle replacements were introduced in Europe and have gradually been approved in the United States. These improved implants more accurately reproduce the anatomy and biomechanics of the ankle which have led to better clinical results following surgery and long-lasting durability. One such implant is the STAR ankle replacement that has been found to have a 95% survival rate of the implant 10 years status-post surgery (Kofoed, 2004).

Today, the third generation of ankle replacements have been introduced. One such implant is the Infinity ankle replacement from Wright Medical that Dr. Zell uses. This ankle replacement can be placed using PROPHECY preoperative navigation. A CT scan of the ankle and x-rays of the leg are obtained and custom cutting blocks are made using 3D printing. These cutting blocks are used during surgery to make precise cuts for the talus and the tibia to allow improved alignment of the ankle replacement.

There have been many studies comparing the results of ankle replacement and ankle fusion surgery. These studies show that pain relief is good following both procedures, however there is improved function after ankle replacement (Saltzman, 2009). While it has been a long time in the making, ankle replacement surgery has finally become a great alternative to ankle fusion in select patients. **To make an appointment with Dr. Zell, please call 443-643-3130.**