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Total Ankle Replacement Solutions for End-stage Ankle Arthritis

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Ankle Arthritis by the Numbers

- 9 to 1 ratio of knee to ankle arthritis cases are diagnosed each year.
- 50,000 cases per year of end-stage ankle arthritis are diagnosed
- Last year, there were about 4,000 ankle joint implantations performed in the US. This figure will likely triple over the next several years.

Ankle Joint Arthritis Overview

In the past, ankle fusion was the gold standard technique for the treatment of end-stage arthritis of the ankle joint. While the idea of ankle joint replacement has been around for many years, the initial devices and implantation techniques were extremely flawed and eventually abandoned.

In more recent years, however, ankle joint replacement has come a long way and is now considered to be a very good alternative to ankle joint fusions. This is primarily due to both the increased knowledge and understanding of how the ankle joint functions and the advancement of technology. Six years ago, there was only one option for ankle joint replacement that was FDA approved, the DePuy Agility ankle. Now, there are several new devices that have come to the market, each offering a unique advantage or improvement. There are several more designs being developed, including one that I have designed and patented myself.

Another indication that ankle joint replacement is becoming a more acceptable treatment of end-stage ankle arthritis is the fact that many insurances are now creating policies that include coverage for them.

Many recent studies have demonstrated that although ankle joint replacement surgery still has a higher risk for complication compared to ankle fusion, patient satisfaction rates remain higher in the replacement groups. On average, most ankle joint replacement patients are able to do low impact exercise activities such as walking, golfing, hiking, cycling, swimming, and downhill skiing.

While ankle joint replacement is increasing in popularity, not every patient is a good candidate. A careful evaluation must be done in order to determine if you are a good

S.T.A.R. Ankle

The Small Bone Innovations (SBI) S.T.A.R. Ankle was the first (and currently the only) mobile bearing ankle joint replacement available in the US markets. The STAR was FDA approved in 2009. The mobile bearing component allows for a more natural motion between the tibial and talus. It is also considered to be a lesser invasive implant with minimal bone resection compared to some of the other designs on the market.

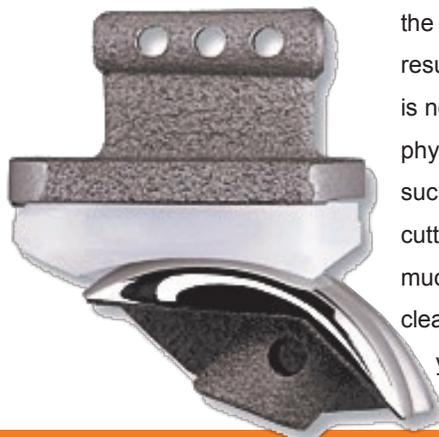
Salto Talaris Total Ankle

The Tornier Salto Talaris implant was introduced to the US market in 2007. It was developed in Europe as a mobile bearing, however, the US version of this implant is actually a fixed bearing, meaning the white bearing seen below is actually fixed to the tibial plate that sits above it. The Salto Talaris is also considered to be minimalistic in regards to the amount of bone resected for implantation.



a good candidate. Also, in many cases, other reconstructive surgical procedures may need to be performed in order to prepare the foot and ankle for an ankle joint replacement.

While the current literature discusses who the ideal candidate is for an ankle joint replacement, each patient's health history, deformity, and medical condition must be carefully be reviewed by an experienced ankle joint replacement surgeon to determine if they are a good candidate for surgery. As with any mechanical device, an ankle joint replacement is subject to wear and tear over time. This could mean that despite having a successful



ankle joint replacement, one may need to have a "fine-tuning" procedure done to their ankle several years after their initial replacement in order to ensure the proper function of the joint replacement.

The key to any successful ankle joint replacement is not only dependent on good technique of the surgeon, but also the selection of the best implant to suit the patient's needs. Each device presented has unique strengths and weaknesses. Each patient must be assessed independently in order to determine which device would lead to the most optimal result. Once implanted, the patient must also have a realistic expectation of the types of activities that they can resume, as the joint replacement is not capable of withstanding high physically demanding activities such as running, jumping, or cutting and can fail if put under too much stress. While there is no clear definition in age criteria, the younger a patient is, the more their ankle joint replacement

The S.T.A.R. Ankle

The first FDA approved mobile bearing ankle replacement. Designed to give a more natural motion at the ankle joint.

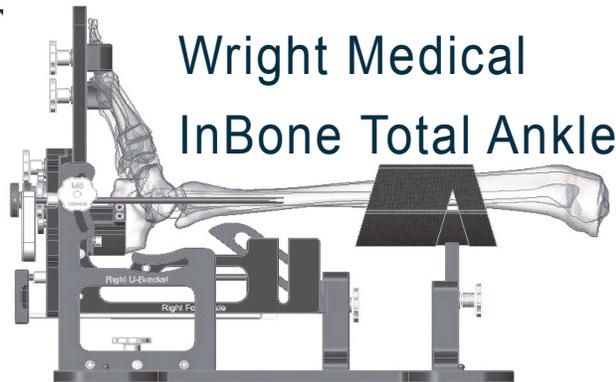
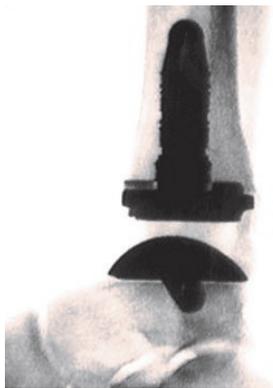
will be exposed to wear and tear over time. This could lead to multiple revision surgeries and potentially increase the risk of complications over the life of the implant.

The Surgical Procedure

Total ankle replacement is performed in an in-patient setting at Riverview Hospital in Noblesville, IN. Your age, medical conditions, whether you live locally or at a distance, as well as several other factors usually determines how long you may need to stay in the hospital. Typically a 36 – 48 hour stay is routine.

Each patient's health history, deformity, and medical condition must be carefully be reviewed.

The procedure is performed in the operating room under general anesthetic. The procedure typically takes less than 2.5 hours to perform. Sometimes added procedures accompany the total ankle replacement such as lengthening of a tight calf muscle, hardware removal, or fixation of weak bone.



Wright Medical InBone Total Ankle

After Surgery

Dr. Perler will see you at the hospital each day until you are ready to be discharged home. During your hospital stay we will control your pain and to teach you to walk with crutches or a walker while not bearing weight on the ankle. Physical therapy is performed twice daily to make sure you can safely ambulate non-weight bearing at the time of discharge. Your ankle is usually immobilized for four to six weeks in a cast. You will not be able to bear weight during the first two or three weeks and will need to use crutches, a walker, or a roll-a-bout. The cast immobilization is typically utilized to promote wound healing and to protect your wounds.

Sutures are removed at week three and a new cast is placed. You are then allowed to bear full weight in this cast. At six weeks following surgery the cast is removed and you are placed in a Cam-boot walker and allowed to start ankle motion exercises. At this time, physical therapy is begun. Further follow-up after the six-week visit depends upon individual patients. Usually a six month visit and a yearly visit are recommended to check on motion and to ensure no other problems are developing.

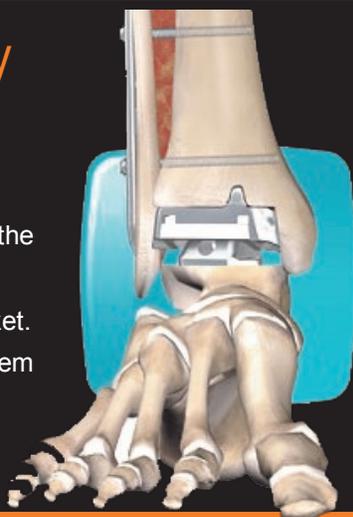
Miscellaneous Information

It should also be noted that several new ankle implant

designs are due out over the next few years. Dr. Perler is committed to being able to provide you access to all of the implants that are available, as long as they continue to demonstrate good outcomes. As with any surgery, this technique must be approved by your insurance to assure proper coverage. The world of ankle replacement, at this point in time, is dynamic and exciting. There are newer and better options available now for ankle arthritis than have ever been in the past. If you have ankle arthritis or think you have ankle arthritis it may be time to see what options you have for pain relief.

DePuy Agility Total Ankle

The Agility Total Ankle is the oldest implant design available in the U.S. market. It is a locked bearing system that requires a larger



resection of bone than the "newer" systems. It also requires the temporary use of an external fixation system for implantation, as well as the need to fuse the fibula to the tibia for optimal results. Revision of this system can be more difficult than the other designs now available.

The InBone Total Ankle

The InBone Total Ankle was designed from the ground up as a modular system that allows the surgeon the flexibility to custom build the device based on the individual patient's anatomy. It is an intramedullary (within the bone) system that consists of a locked bearing and utilizes a specialized guidance jig allowing for accurate placement when using Wright Medical's unique leg positioning device. It is also perhaps the best device for a total ankle joint revision procedure currently on the market.

OnLine Videos

Go to www.adamperler.com in order to review information regarding the implants and to watch instructional videos for each of the implants that are available. The videos are listed under the Patient Education tab. Make sure you write down any questions that you may have before your appointment so Dr. Perler can review them with you during your workup. Also, there are a lot of other resources listed there for your education about your potential ankle joint replacement.





Training Highlights

- Board certified in Foot and Reconstructive Rearfoot and Ankle Surgery (ABPS)
- Fellow of the American College of Foot and Ankle Surgeons (FACFAS)
- Fellow of the Association of Extremity Nerve Surgeons (FAENS)
- Fellowship in Advanced Deformity Correction of the Lower Extremity with External Fixation—Kurgan, Russia
- Fellowship AO Lower Extremity Orthopedic Trauma —MHH, Hannover, Germany
- Peripheral Nerve Surgery Training — Union Memorial Hospital, Baltimore, MD
- Tornier **Salto Talaris Total Ankle** Training—Indianapolis, IN
- Wright Medical **InBone Total Ankle** Training—Indianapolis, IN
- Wright **Medical Prophecy Total Ankle** Training—Columbus, Ohio
- SBI **S.T.A.R. Total Ankle** Training—San Francisco, CA & Indianapolis, IN
- Developer of the **PEARL™** total ankle joint replacement system
- Total Ankle Replacement product development team—Biomet Orthopedics

The key to life is motion!



foot & ankle

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