Total Ankle Replacement with Patient Specific Instrumentation (PSI)

Advancing: **Life**

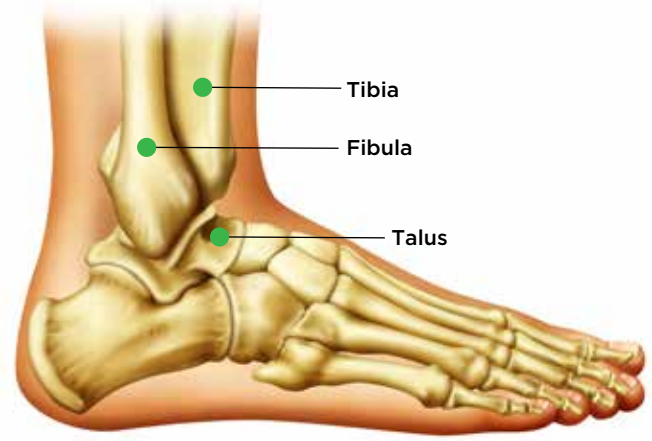
advita ORTHO

Ankle Arthritis

Your Ankle

Your ankle is made up of a variety of bones, ligaments, tendons and cartilage that connect at the junction of your leg and foot. The joint works like a hinge and is responsible for moving your foot up and down.

The tibia, talus and fibula are the bones that construct the ankle joint. Your ligaments border these bones on either side, holding them together to provide stability. Meanwhile, the tendons connect the muscles to the bone and are responsible for the ankle, foot and toe movements. Covering your bones is a smooth substance called cartilage, which acts as a cushion to reduce the friction between your bones as they move. If your cartilage wears down, arthritis can develop and cause loss of motion and pain.



Nearly half of individuals over the age of 60 have foot or ankle arthritis.

Arthritic Ankle

Healthy Ankle

Arthritis

Nearly half of individuals over the age of 60 have foot or ankle arthritis that may not cause symptoms.[1] However, for those suffering from ankle arthritis pain, the most reported causes are:[2]

- **Post-traumatic arthritis** - This is the most common cause of ankle arthritis and is typically caused by physical injuries, such as fractures or dislocations, or associated with a traumatic event, such as a car accident, sports injury or fall.[3] According to the American Academy of Orthopaedic Surgeons, people are seven times more likely to develop arthritis in a joint that has been previously injured.[4]

- **Rheumatoid arthritis** - An autoimmune disease that attacks multiple joints and typically starts in the hands and feet. The lining surrounding your joints swells and becomes inflamed, destroying the cartilage, ligaments and other tissues around it. This could potentially lead to joint deformities and stress fractures.

- **Osteoarthritis** - This is the wearing down of cartilage in the joint. The cartilage can become frayed and rough, and the protective space between the bones is reduced, causing bone-on-bone rubbing and osteophytes. Age is the most common reason for osteoarthritis, but family history and crystalline diseases, such as gout[5] or pseudogout, can also play a role in its development.[6]

For those suffering from symptomatic ankle arthritis, the most reported causes are post-traumatic arthritis.[7]

Treatment Options

At first, your doctor may recommend one of several non-surgical treatment options, such as:

- Over-the-counter pain medications
- Physical therapy
- Orthotic shoes
- Supportive braces
- Corticosteroid injection

Expertise from a foot and ankle specialist can help determine your best treatment option. If non-surgical treatments do not provide relief, your doctor may recommend surgery. Common surgical options include total ankle replacement or ankle fusion.

Surgical Options

Ankle Fusion

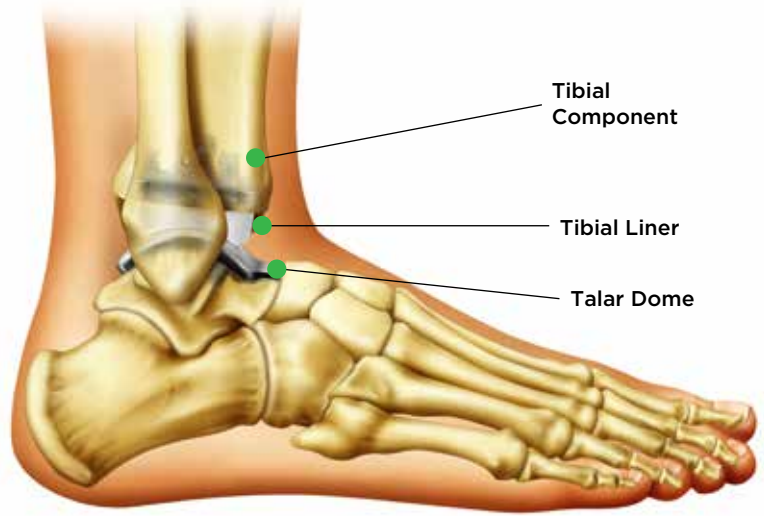
In ankle fusion, the ankle bones are fused together, limiting the motion in the joint.[4] Pins, plates, screws and rods hold the bones together until they are healed and become one bone. The goal of this procedure is to reduce pain from the arthritic joint.

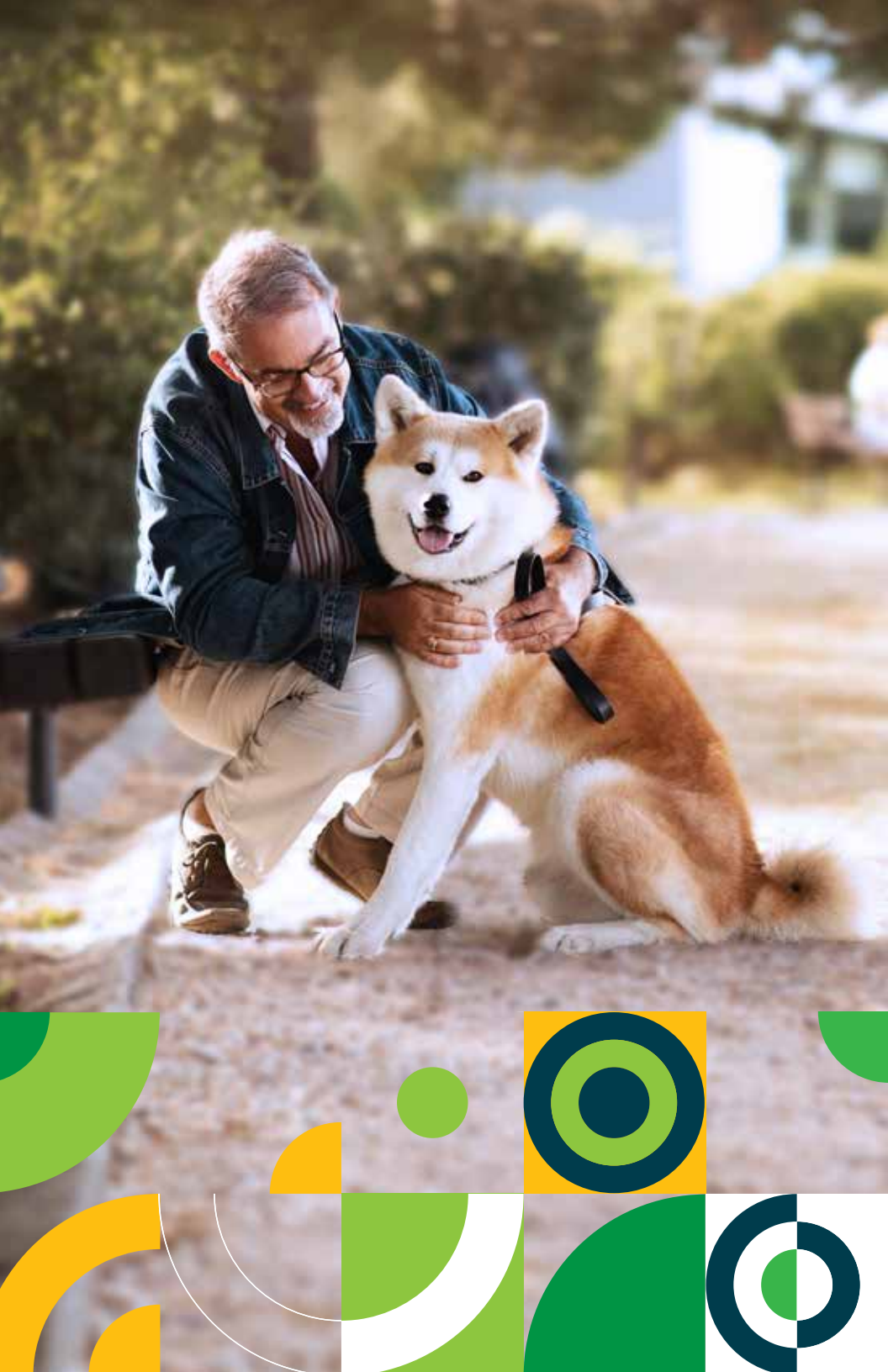
Ankle Replacement

Ankle replacement has been around for more than 30 years, however it didn't gain popularity until the 1990s when technology and instrumentation became more sophisticated.[8] Today, an increasing number of patients in the U.S. undergo this surgery intended to regain motion and reduce pain.[9]

Unlike an ankle fusion, an ankle replacement removes the diseased portions of the bone and cartilage, and replaces them with components that allow movement of the joint. This allows patients to retain more of their natural anatomy and movement while reducing pain.[3,4,10-14]

Ankle replacement continues to advance, and innovations like Patient Specific Instrumentation (PSI) help surgeons pre-plan procedures based on patients' unique anatomies.





WHAT HAPPENS IN

Ankle Replacement Surgery?

Patients will undergo anesthesia or a nerve block and can expect to be in the operating room between two and three hours. The surgeon will make an incision, the diseased portions of the bone and cartilage are removed, and the metal and plastic implant components are implanted. Once the implants are inserted, the incision is closed and a splint or cast is applied.

Post-Surgery Procedure

A majority of patients can return to partial weight-bearing activities three weeks after surgery, and all patients by six weeks. Activities like golf may be resumed between three and four months after surgery and full recovery may take as long as six months with continuous improvement for the next two years. Your doctor will decide if physical therapy is right for you and what restrictions may apply.

Every patient recovery experience is unique, so be sure to talk with your doctor about your progress.

The Vantage® Total Ankle

The Vantage® Total Ankle was created by a team of engineers and global surgeon leaders who are passionate about getting patients back to what they love.

Shape

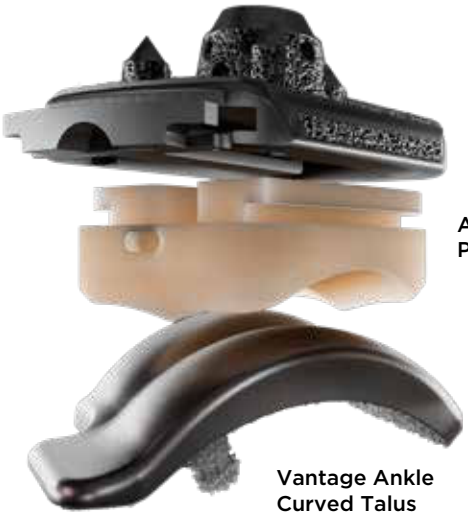
The Vantage Ankle is designed with the latest advances in total ankle research to mimic the patient's ankle shape and support natural movement.[15]

Designed to Respect Your Natural Anatomy[15]

Your ankle moves in complex ways. Ligaments, tendons and bones all seamlessly work together to create fluid movement. The Vantage Ankle was designed to cater to your natural motion and keep as much of your natural bone as possible.

The Vantage Total Ankle System has several options your surgeon may elect to use for your surgery, based on your bone quality.

Vantage Ankle 3D Tibia



Activit-E Vitamin E
Polyethylene

Vantage Ankle
Curved Talus

Vantage Ankle 3D+ Tibia

Activit-E Vitamin E
Polyethylene

Vantage Ankle
Flat Cut Talus

Patient Specific Instrumentation for Ankle Replacement

Patient Specific Instrumentation, or PSI, helps surgeons to pre-plan your total ankle replacement surgery with the goal of having the best outcome for your surgery.

Using your CT scan, the Vantage® Ankle PSI tibia (shinbone) and talar (ankle bone) cutting guides are 3D printed and custom made based on your unique anatomy. During your surgery, your surgeon will use these special guides to ensure your implant is placed according to their pre-operative plan.

The Vantage Ankle PSI is manufactured by 3D Systems, Inc., and distributed only in the U.S. by Advita Ortho.

Summary

This brochure is not intended to replace the experience and counsel of your physician. Surgery is one of the most important decisions you will make. Total ankle replacement has allowed many people to return to more active lifestyles. Your doctor will help you decide if it's the right choice for you.

With any surgery, there are potential risks, and results will vary depending on the patient. Joint replacement surgery is not for everyone. Check with your physician to determine if you are a candidate for joint replacement surgery. Your physician will consider the risks and benefits associated with this procedure, as well as individual factors, such as the cause of your condition, age, height, weight and activity level.

At Advita Ortho, we don't innovate for innovation's sake. We innovate to enhance human life. Our intelligent orthopedic solutions help people live healthier, more active lives — allowing them to regain their mobility and their freedom. By utilizing new technologies in revolutionary ways, dreaming up game-changing solutions and empowering surgeons to achieve greater success, we are working to restore function and reignite possibility. Because to us, orthopedics is about more than advancing technology. It's about advancing life itself.

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