Arthritis of the Foot and Ankle

Arthritis is inflammation of one or more of your joints. It can cause pain and stiffness in any joint in the body, and is common in the small joints of the foot and ankle.

There are more than 100 forms of arthritis, many of which affect the foot and ankle. All types can make it difficult to walk and perform activities you enjoy.

Although there is no cure for arthritis, there are many treatment options available to slow the progress of the disease and relieve symptoms. With proper treatment, many people with arthritis are able to manage their pain, remain active, and lead fulfilling lives.

Anatomy

During standing, walking, and running, the foot and ankle provide support, shock absorption, balance, and several other functions that are essential for motion. Three bones make up the ankle joint, primarily enabling up and down movement. There are 28 bones in the foot, and more than 30 joints that allow for a wide range of movement.

In many of these joints the ends of the bones are covered with articular cartilage—a slippery substance that helps the bones glide smoothly over each other during movement. Joints are surrounded by a thin lining called the synovium. The synovium produces a fluid that lubricates the cartilage and reduces friction.

Tough bands of tissue, called ligaments, connect the bones and keep the joints in place. Muscles and tendons also support the joints and provide the strength to make them move.

The major types of arthritis that affect the foot and ankle are osteoarthritis, rheumatoid arthritis, and posttraumatic arthritis.

Osteoarthritis

Osteoarthritis, also known as degenerative or "wear-and-tear" arthritis, is a common problem for many people after they reach middle age, but it may occur in younger people, too.

In osteoarthritis, the cartilage in the joint gradually wears away. As the cartilage wears away, it becomes frayed and rough, and the protective space between the bones decreases. This can result in bone rubbing on bone, and produce painful osteophytes (bone spurs).
In addition to age, other risk factors for osteoarthritis include obesity and family history of the disease.

**Rheumatoid Arthritis**

Rheumatoid arthritis is a chronic disease that can affect multiple joints throughout the body, and often starts in the foot and ankle. It is symmetrical, meaning that it usually affects the same joint on both sides of the body.

Rheumatoid arthritis is an autoimmune disease. This means that the immune system attacks its own tissues. In rheumatoid arthritis, immune cells attack the synovium covering the joint, causing it to swell. Over time, the synovium invades and damages the bone and cartilage, as well as ligaments and tendons, and may cause serious joint deformity and disability.

The exact cause of rheumatoid arthritis is not known. Although it is not an inherited disease, researchers believe that some people have genes that make them more susceptible. There is usually a "trigger," such as an infection or environmental factor, which activates the genes. When the body is exposed to this trigger, the immune system begins to produce substances that attack the joints.

**Posttraumatic Arthritis**

Posttraumatic arthritis can develop after an injury to the foot or ankle. Dislocations and fractures—particularly those that damage the joint surface—are the most common injuries that lead to posttraumatic arthritis. Like osteoarthritis, posttraumatic arthritis causes the cartilage between the joints to wear away. It can develop many years after the initial injury.

An injured joint is about seven times more likely than an uninjured joint to become arthritic, even if the injury is properly treated. In fact, following an injury, your body may actually secrete hormones that stimulate the death of your cartilage cells.

**Symptoms**

The symptoms of arthritis vary depending on which joint is affected. In many cases, an arthritic joint will be painful and inflamed. Generally, the pain develops gradually over time, although sudden onset is also possible. There can be other symptoms, as well, including:

- Pain with motion
- Pain that flares up with vigorous activity
- Tenderness when pressure is applied to the joint
- Joint swelling, warmth, and redness
- Increased pain and swelling in the morning, or after sitting or resting
- Difficulty in walking due to any of the above symptoms

**Doctor Examination**

**Physical Examination**

Your doctor will discuss your overall health and medical history and ask about any medications you may be taking. He or she will examine your foot and ankle for tenderness and swelling and ask questions to understand more about your symptoms. These questions may include:

- When did the pain start?
- Where exactly is the pain? Does it occur in one foot or in both feet?
- When does the pain occur? Is it continuous, or does it come and go?
- Is the pain worse in the morning or at night? Does it get worse when walking or running?

Your doctor will also ask if you have had an injury to your foot or ankle in the past. If so, he or she will discuss your injury, including when it occurred and how it was treated.

Your doctor will also examine your shoes to determine if there is any abnormal or uneven wear and to ensure that they are providing sufficient support for your foot and ankle.

**Gait analysis.** During the physical examination, your doctor will closely observe your gait (the way you walk). Pain and joint stiffness will change the way you walk. For example, if you are limping, the way you limp can tell your doctor a lot about the severity and location of your arthritis.

During the gait analysis, your doctor will assess how the bones in your leg and foot line up when you walk, measure your stride, and test the strength of your ankles and feet.

**Tests**

X-rays. These imaging tests provide detailed pictures of dense
This x-ray reveals osteoarthritis in the metatarsophalangeal joint of the big toe. Joint space narrowing (black arrow) and bone spurs (white arrows) can be seen.


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Instruments are thin, your surgeon can use very small incisions (cuts), rather than the larger incision needed for a traditional, open surgery.

Arthroscopic surgery is most effective when pain is due to contact between bone spurs and the arthritis has not yet caused significant narrowing of the joint space between the bones. Arthroscopy can make an arthritic joint deteriorate more rapidly. Removing bone spurs may increase motion in the joint, causing the cartilage to wear away quicker.

Arthrodesis (fusion). Arthrodesis fuses the bones of the joint completely, making one continuous bone out of two or more bones. The goal of the procedure is to reduce pain by eliminating motion in the arthritic joint.

During arthrodesis, the doctor removes the damaged cartilage and then uses pins, plates and screws, or rods to fix the joint in a permanent position. Over time, the bones fuse or grow together, just like two ends of a broken bone grow together as it heals. By removing the joint, the pain disappears.

Arthrodesis is typically quite successful, although there can be complications. In some cases, the joint does not fuse together (nonunion), and the hardware may break. This may happen if you put weight on your foot before the fusion is complete. While the broken hardware does not cause pain, the nonunion of the fusion can lead to pain and swelling. If nonunion occurs, a second operation to place bone graft in the ankle and place new hardware may be needed. However, repeated fusions are not as likely to be successful, so it is best to closely follow your doctor’s guidelines during the recovery period of your original operation.

A small percentage of patients have problems with wound healing, but these problems can usually be addressed by bracing or an additional surgery. In some cases, loss of motion in the ankle after a fusion causes the joints adjacent to the one fused to bear more stress than they did before the surgery. This can lead to arthritis in the adjacent joints years after the surgery.

Total ankle replacement (arthroplasty). In total ankle replacement, your doctor removes the damaged cartilage and bone, and then positions new metal or plastic joint surfaces to restore the function of the joint.

Although total ankle replacement is not as common as total hip or total knee replacement, advances in implant design have made it a viable option for many people.

Ankle replacement is most often recommended for patients who have:

- Advanced arthritis of the ankle
- Arthritis that has destroyed the ankle joint surfaces
- Ankle pain that interferes with daily activities

Ankle replacement relieves the pain of arthritis and offers patients more mobility and movement than fusion. In addition, being able to move the formerly arthritic joint means that less stress is transferred to the adjacent joints. This lessens the chance of developing adjacent joint arthritis.

As in any type of joint replacement, an ankle implant may loosen or fail over the years. If the implant failure is severe, the replaced joint can be exchanged for a new implant — this procedure is called a revision surgery.

Another option is to remove the implant and fuse the joint. This type of fusion is more difficult than when fusion is done as the initial procedure. When the implant is removed, there is space in the bone that must be filled with bone graft to maintain the length of the leg. Because the new bone may not be as strong, the risk of nonunion is greater.
Recovery

In most cases, surgery relieves the pain of arthritis and makes it easier to perform daily activities. Full recovery can take from 4 to 9 months, depending on the severity of your condition before surgery and the complexity of your procedure.

Foot and ankle surgery can be painful. While you should expect to feel some discomfort, advancements in pain control now make it easier for your doctor to manage and relieve pain. Immediately after surgery, you will be given medication for pain relief. If needed, your doctor will provide you with a pain reliever that you can take for a short time while you are home.

Your doctor will most likely apply a cast after surgery to limit movement in your foot and ankle and to prevent nonunion. To reduce swelling, it is important to keep your foot elevated above the level of your heart for 1 to 2 weeks after surgery.

Later in your recovery, your doctor may recommend physical therapy to help you regain strength in your foot or ankle and to restore range of motion.

In most cases, you will be able to resume your daily activities in 3 to 4 months although, for a period of time, you may need to wear supportive shoes or a brace.

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