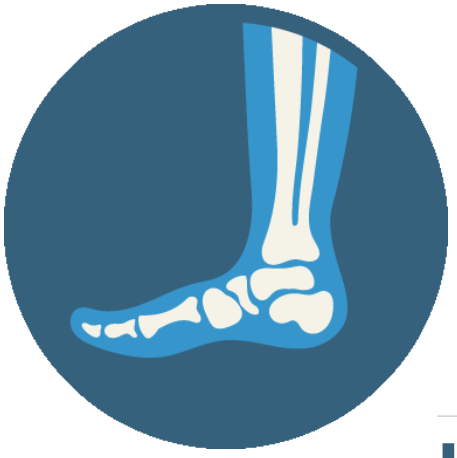
LEONARDO Ärzte für Orthopädie und Traumatologie



HINDFOOT AND MIDFOOT OSTEOARTHRITIS

DEFINITION

The foot consists of 26 bones, all of which form joints with one or more neighboring bones. In principle, any of these joint surfaces can develop degenerative (arthritic) changes. Arthritis refers to the wear and tear of joint cartilage, leading to its complete loss in the end stage. As the bone attempts to adapt to the changed joint condition, bone growths (osteophytes/"bone spurs") often develop over time. As arthritis progresses, the joint becomes increasingly stiff. This process is usually accompanied by fluctuating, load-dependent, painful joint inflammations, sometimes with swelling.

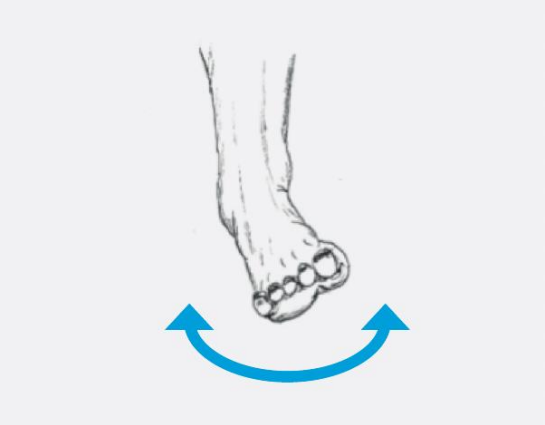
There are multiple causes for osteoarthritis in the foot joints. Arthritis can result from malalignments following fractures and ligament injuries, circulatory disorders of different bones, metabolic diseases (e.g. gout), or rheumatic diseases. Depending on the natural foot shape, overloading of specific foot joints over time can also lead to arthritis in these joints. However, idiopathic arthritis - where no clear cause can be identified - is common.

SYMPTOMS

Most patients complain of pain in the affected joint area, though they may struggle to pinpoint the exact joint. Typical symptoms of arthritis include start-up pain and pain that worsens with or after activity. Occasionally, rest pain may also occur.

The midfoot joints have limited range of motion. Subjectively, this mobility is usually not noticeable. Therefore, arthritis-related restrictions of mobility in the midfoot are often not noticed by patients.

The subtalar joint, the talonavicular joint, and the calcaneocuboid joint primarily enable side-to-side foot movements (Fig. 1). Arthritis in these joints can make walking on uneven terrain noticeably more difficult and painful. Due to the gradual onset of mobility restrictions, the foot may adapt over time, and patients may become accustomed to the altered condition.



1 Side-to-side mobility in normal subtalar and talonavicular joint

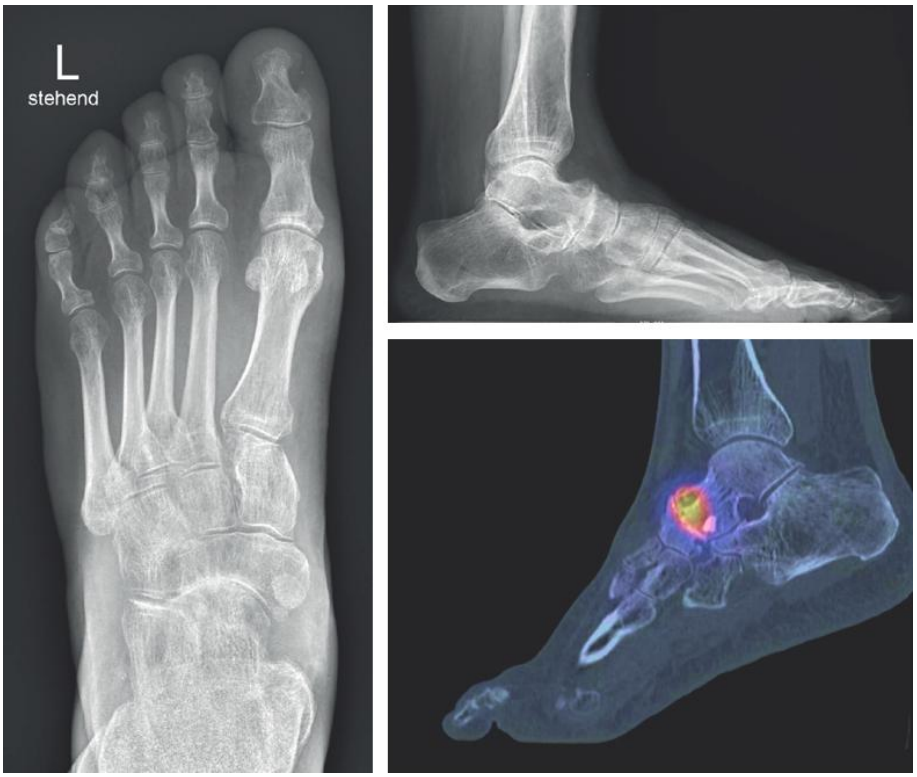
EXAMINATION

The examination can reveal a swollen joint with palpable bony thickening and occasionally diffuse redness. Movement is painful and, depending on the joint, noticeably restricted. Normal foot rolling when walking barefoot is often impaired. On uneven terrain, patients may feel insecure. Due to pain, gait may change, leading to limping and potential altered loading throughout the leg, causing pain in the knee, hip, or even lower back.

Besides clinical examination, imaging is necessary. X-rays help assess the location and severity of arthritis, including joint space narrowing, cyst formation, and bony spurs (osteophytes). However, due to complex anatomical structures, not all joints can be clearly visualized. Therefore, additional imaging such as SPECT-CT, MRI, or weight-bearing CT scans are often performed to better assess joint changes and arthritis activity.

DIAGNOSTIC INJECTION TEST

Sometimes before initiating further treatment for arthritic joints, we perform an injection into the affected joint under X-ray guidance to ensure accuracy. This injection test can confirm the suspected diagnosis of symptomatic arthritis. It also helps predict the potential benefits of surgery. Depending on the situation, a local anesthetic with or without corticosteroids is used.



2 X-ray and SPECT CT documenting osteoarthritis at the talonavicular joint

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TREATMENT

A) NON-SURGICAL

Arthritis is not dangerous, and treatment is based on symptoms rather than X-ray findings. Conservative treatments can be attempted depending on the severity of symptoms. While these treatments do not eliminate arthritis, they often help reduce pain. Physiotherapy can improve gait and relieve joint load through muscle strengthening. Pain relief may be achieved with pain patches, creams, or short-term use of painkillers.

We are cautious about prescribing insoles, as they can sometimes worsen or shift pain depending on the location of the arthritis. Insoles that significantly alter foot positioning may cause discomfort in other leg joints. However, a shoe with a stiff sole and built-in rocker bottom can alleviate symptoms by reducing joint movement. Suitable shoes include Anova medical, Xelero, and certain athletic shoes (Fig. 3). Good foot support is essential.

3 Shoes with rather stiff soles and built-in rocker bottom (e.g. Anova medical, Xelero, Hoka)

In some cases, corticosteroid injections into the joint under X-ray guidance may be beneficial.

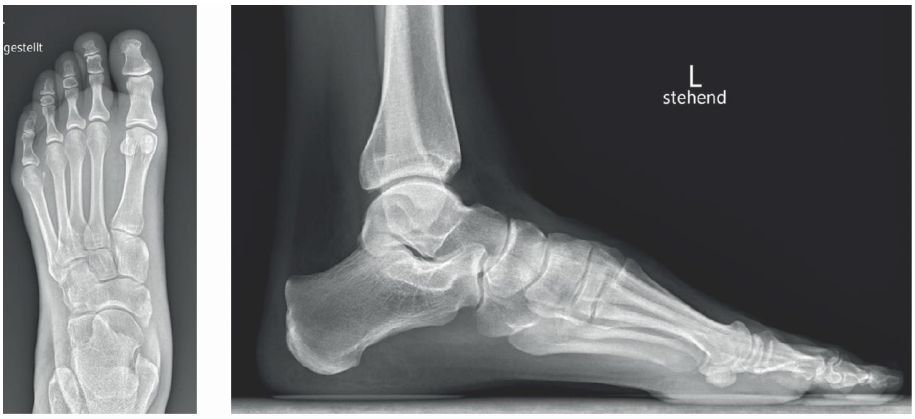
B) SURGICAL

If severe pain persists despite conservative treatment, surgery may be necessary. In the hindfoot and midfoot, we typically perform joint fusion (arthrodesis) of the affected joint. Most of these joints have naturally limited range of motion, which is further reduced by arthritis until spontaneous fusion occurs. Therefore, the change of mobility after fusion surgery is usually hardly noticeable to patients. Additionally, neighboring joints can compensate for lost mobility. However, we are cautious with fusion surgery in certain joints (e.g., on the lateral foot) due to limited compensatory options.

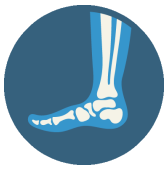
In arthrodesis (fusion surgery), the joint is exposed, remaining cartilage is removed, and the underlying bone is debrided and prepared.

The bones are then fixed in the desired position using screws, plates, or staples, and deformities can be corrected. In some cases, bone grafts are used to bridge defects and support healing. This internal fixation allows the bones to grow together over the following weeks. After surgery, immobilization in a cast or special shoe (Fig. 5) is required for 6–8 weeks. During this period, it is essential to maintain partial weight-bearing. Weight-bearing is then gradually increased, often with a protective shoe. Most patients can wear regular shoes after 2–3 months. Only after 3-6 months full assessment is possible, whether an adjustment of the shoes or special insoles are necessary.

One consequence of fusion is that neighboring joints may take over some movement. This increased load can cause temporary discomfort or instability, which physiotherapy can manage. However, over several years, this increased stress may lead to osteoarthritis in adjacent joints. Therefore, we assess the condition of neighboring joints before fusion surgery to incorporate any existing damage into surgical planning.



4 Dorsal and lateral X-rays of the foot



RISKS AND COMPLICATIONS

All surgeries carry certain risks. Complications may arise during or after surgery, potentially delaying healing or requiring further intervention. These may include:

- Wound healing issues
- Infections
- Vascular injuries, postoperative bleeding, bruising (hematoma), blood loss
- Nerve damage
- Thrombosis, pulmonary embolism
- Pseudarthrosis (lack of bone healing, nonunion) and loss of correction (malunion)
- Renewed malalignment, Osteoarthritis in adjacent joints
- Fracture
- Disturbing osteosynthesis material (screws, plate, staples)
- CRPS (Complex Regional Pain Syndrome)
- Residual discomfort

FOLLOW-UP TREATMENT

Surgery is only one part of the treatment. Proper post-operative care is crucial for a successful recovery. Upon discharge, patients receive detailed rehabilitation guidelines.

DRESSING AND WOUND CARE

Patients are instructed on proper wound care during hospitalization. Until the wound is completely dry, dressings should be changed daily, and no ointments or powders should be applied until the stitches are removed. Disinfection is not necessary. Always remove the entire dressing when changing. The new dressing must be dry and must not slip.

Once dry, a simple adhesive plaster is sufficient. An elastic bandage can protect and cushion the operated area somewhat. This also reduces the swelling that still exists. If there are concerns about wound healing, you should contact your family doctor or us directly.

Stitches are usually removed about two weeks after surgery. This is usually done by the family doctor. If you receive a cast, there is no need to change dressings. The stitches can be removed as part of a cast change. If the cast pinches or no longer sits properly, it has to be renewed.

SWELLING AND PAIN MANAGEMENT

Swelling can persist for weeks, sometimes up to twelve months. Elevating the leg is the most effective way to reduce swelling. This is especially important in the first 2-3 weeks after surgery. Short periods of getting up and moving around several times a day (walking, less standing) are recommended. If swelling and pain occur, the leg should be elevated.

However, despite these measures, pain in the operated foot can occur in the first days and weeks after the operation. Painkillers prescribed by us or the family doctor can be taken if necessary.

WEIGHT-BEARING

After fusion surgery it is essential to maintain partial weight-bearing during the first 6-8 weeks and wear a Vacoped boot, Vacopedes shoe or cast (Fig. 5) consistently. Initially, patients should minimize standing to avoid excessive swelling and bleeding.

Partial Weight-Bearing

Partial weight-bearing allows the foot to bear about 15-25 kg, roughly the weight of the leg itself and requires the use of crutches at all times. Physiotherapists provide training to ensure proper crutch use, including stair navigation.

5 Vacoped, Vacopedes, closed cast (Medicast)

5

PERSONAL HYGIENE

While stitches are still in place, typically for the first two weeks, the foot should be covered with a plastic bag when showering. Once stitches are removed and the wound is dry and closed, exposure to water is permitted.

THROMBOSIS PROPHYLAXIS

Thrombosis prevention begins during hospitalization and depending on the surgery generally must be continued at home. In most cases, Fragmin 5000 IU injections are used once daily. Patients receive instructions on self-administration. If self-injection is difficult, oral medication such as Rivaroxaban may be an alternative after suture removal and consulting your family doctor. Depending on individual risks, prevention continues until full weight-bearing without a cast or boot is possible, which typically takes six to eight weeks.

WORK ABILITY

Rest is essential in the first two weeks post-surgery. The duration of work incapacity depends on the type of surgery and physical job demands. A temporary lighter-duty work arrangement may allow earlier return. The initial sick leave is an estimate, and extensions can be arranged if needed. Therefore, please contact your family doctor or us. If recovery progresses well, patients may return to work earlier.

DRIVING, TRANSPORTATION

Resumption of driving depends on the surgery type, affected foot, and vehicle transmission type. Driving is not allowed while weight-bearing is restricted or while using crutches or a Vacoped boot/cast, except for left-foot surgery with an automatic car. If in doubt, patients are advised to avoid driving.

FOLLOW-UP

A follow-up with the surgeon occurs six to eight weeks after surgery. At this stage, patients usually transition out of the Vacoped boot or cast and reduce crutch use. Depending on surgery, sometimes a special shoe is still necessary. Admission to physiotherapy is crucial. Most daily activities can resume after about three to four months. Return to sports should be gradual to prevent overuse injuries after the sports break. Sport-specific timelines should be discussed with your physiotherapist or doctor.

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