LEONARDO Ärzte für Orthopädie und Traumatologie

HALLUX VALGUS

BUNION / BIG TOE DEFORMITY

DEFINITION

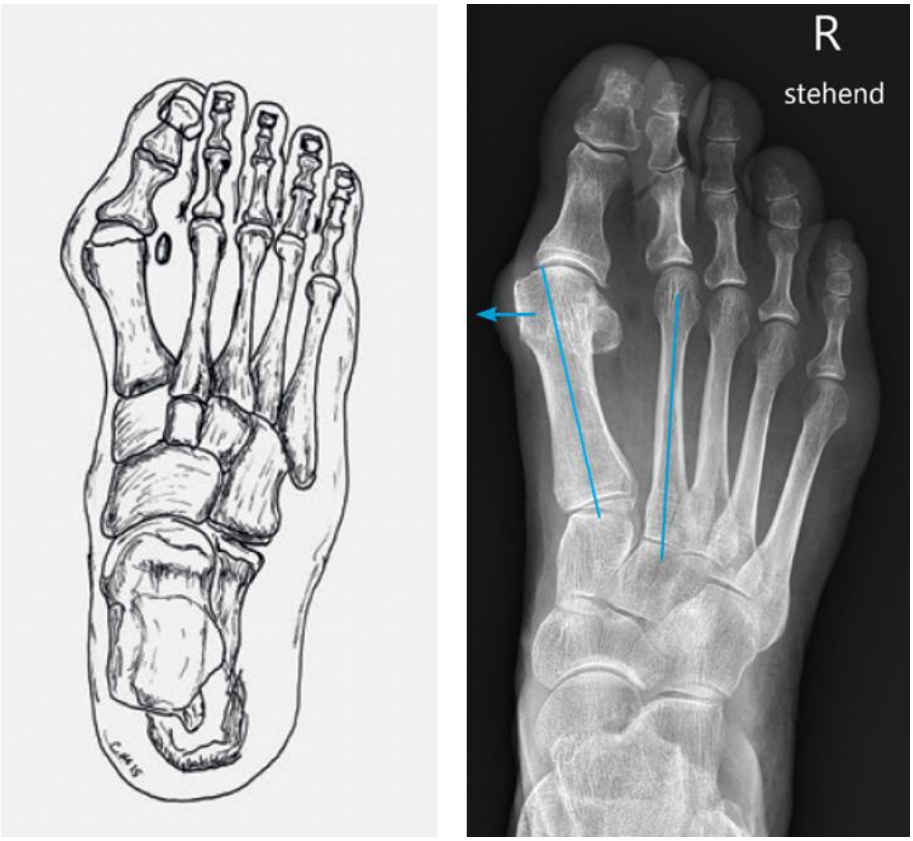
Hallux valgus (bunion) is probably the most common foot problem. The exact cause of this deformity is not entirely clear. The main factors are a hereditary predisposition and connective tissue weakness. This leads to a flattening of the transverse arch of the foot, resulting in a splayfoot and hallux valgus. Wearing tight shoes over many years or other deformities, such as a flatfoot, can further promote the development of hallux valgus.

In this deformity, the first metatarsal bone deviates, causing the big toe to angle inward (Fig. 1). The bony prominence perceived as a “bunion” is not an additional bone growth, but rather the head of the first metatarsal bone.

SYMPTOMS

Most patients notice a deformity. Redness often develops over the “bunion.” Pressure from shoes becomes painful and often leads to the formation of a small bursa over the metatarsal head, which causes additional discomfort. Pressure points or even skin lesions can result from the footwear. Occasional numbness or burning of the big toe is caused by irritation of a cutaneous nerve that runs over the prominent metatarsal head.

Due to the lateral angulation, the big toe loses its supporting function for the foot arch. The pressure exerted on the sole while standing or walking is shifted to the adjacent metatarsal bones. This often leads to painful pressure points and calluses under the heads of the second and third metatarsals. This overload, in turn, weakens the joints of the second and third toes, resulting in hammer toes. This explains the very common combination of hallux valgus and hammer toe deformity.



1 Hallux valgus deformity from above (left) and

X-ray showing deviation of the first metatarsal bone (right)

Not every hallux valgus causes pain. There is also no direct correlation between the severity of the deformity and the intensity of the pain. In some cases, even severe deformities may cause no pain at all, while in others, relatively mild deformities can trigger significant discomfort.

EXAMINATION

During the examination, the malalignment of the big toe and potentially other toes is noticeable. It is important to assess these deformities while standing, with the foot bearing weight. Redness, pressure points, corns, and altered callus patterns on the sole may be visible.

A weight-bearing X-ray reveals the extent of the inward deviation of the first metatarsal bone (Fig. 1 right).

TREATMENT

A) NON-SURGICAL

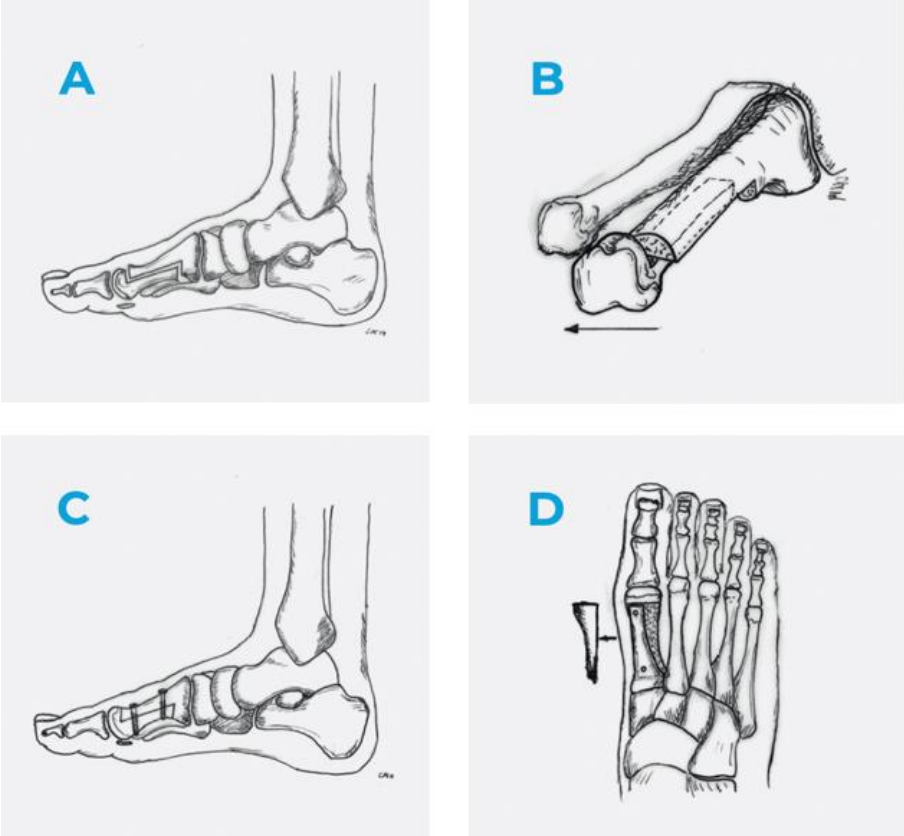
A bunion is not a dangerous condition. Whether surgery is necessary depends solely on the pain level and restricted mobility, making the decision patient dependent. If symptoms are mild or the deformity is purely cosmetic, surgery is not recommended. The extent of the deformity alone is not an indication for surgery. If a previously painless malalignment worsens over time and causes increasing discomfort, surgical correction remains a viable and justified option.

B) SURGICAL

Various surgical techniques are available for correcting a bunion. The common goal is to restore the normal anatomy as accurately as possible. The misaligned metatarsal bone is realigned and stabilized, allowing the big toe to be repositioned correctly and regain its support function. This generally alleviates painful pressure points on the sole.

1. Osteotomy

The required correction can be achieved by cutting the first metatarsal bone (osteotomy). The severed bones are held in position with 1 or 2 small screws until stable healing occurs. The most common technique we use is the Z-shaped SCARF osteotomy (Fig. 2 A-D). For mild deformities, a V-shaped CHEVRON osteotomy is an alternative. The screws, which become functionally obsolete after 3–4 months, when the bone is healed, are typically left in place as they are not bothersome and biologically harmless. For the first 6 weeks post-operatively, weight-bearing is allowed as tolerated, using a special stiff-soled shoe (Fig. 7), preventing rolling of the foot.



2 SCARF osteotomy

A Osteotomy

B Shifting the bone

C Screw fixation

D Removal of bony overhangs

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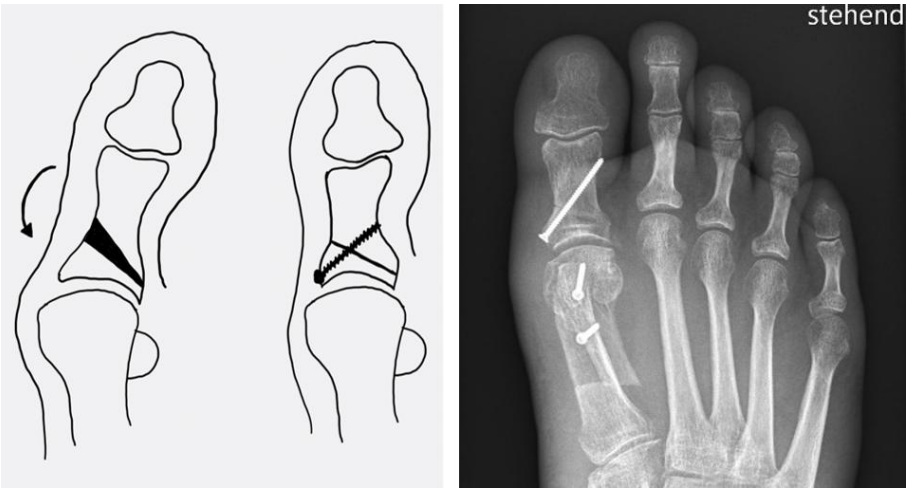
The SCARF or CHEVRON osteotomy is often combined with an AKIN osteotomy (Fig. 3). In this procedure, a wedge-shaped piece of bone is removed from the proximal phalanx of the big toe (closing wedge osteotomy). Fixation is achieved using a small screw.

In rare cases, when the main issue is a painful toe conflict (between the big toe and the adjacent toe), an isolated AKIN osteotomy may be sufficient. However, since no correction is made to the first metatarsal bone, the supporting function is not improved, and the deformity is not completely corrected.



3 Akin osteotomy (left) and

X-ray after Scarf and Akin osteotomy (right)

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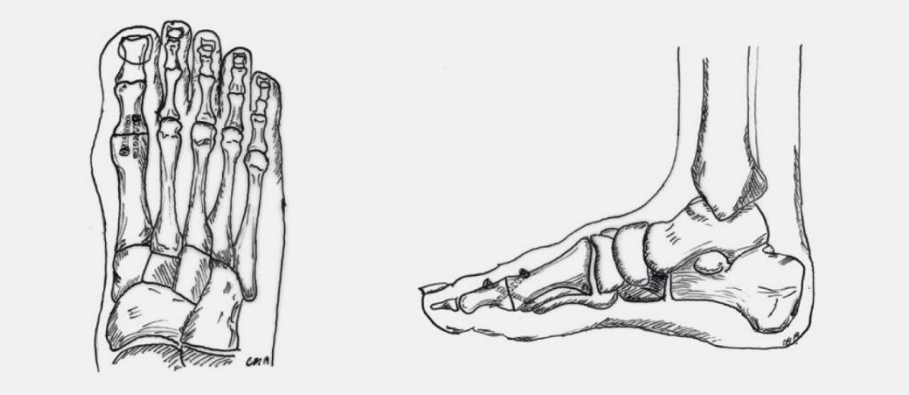
2. Arthrodesis (Fusion)

In cases of severe malalignment of the big toe and/or the first metatarsal bone, as well as in cases with additional joint changes (such as arthritic wear or instability), other corrective techniques may occasionally be used. These include arthrodesis (fusion) of the metatarsophalangeal joint of the big toe (Fig. 4 and 6, left) or the first tarsometatarsal joint (Fig. 5 and 6, right). After surgery, a special stiff soled shoe (Fig. 7) must be worn for 6–8 weeks, with weight-bearing depending on the specific procedure performed. The goal of these techniques is also to restore walking without pain.



4 Fusion of the first metatasophalangeal joint with screws

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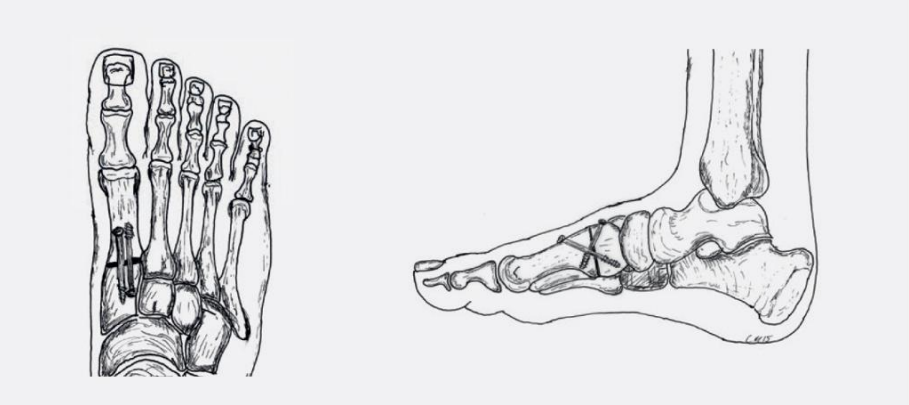
5 Fusion of the first tarso-metatarsal joint (Lapidus) with screws



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6 Fusion of the first metatar-sophalangeal joint with plate and screws (left) and

Fusion of the first tarsomet-atarsal joint with plate and screws and AKIN osteotomy (right)

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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)
- Loss of correction (malunion)
- Over/under correction and renewed malalignment
- Disturbing osteosynthesis material (screws, plates)
- CRPS (Complex Regional Pain Syndrome)
- Residual discomfort

Unfortunately, bunion surgery has an undeserved reputation as a very painful and ineffective procedure. Many patients have heard such reports from their own social circles. In fact, correcting bunion deformity is a demanding surgery that requires a high level of experience. But in skilled hands, it is one of the most successful procedures in foot surgery.

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.

SWELLING AND PAIN MANAGEMENT

Swelling can persist and recur 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

In the first 2 weeks and until the wound is healed, partial weight-bearing is recommended. Then weight-bearing depends on the type of surgery. To protect and facilitate rehabilitation, you have received a special shoe (Fig. 7) which must be worn for six to eight weeks to prevent the foot from rolling. 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.

Full Weight-Bearing

Full weight-bearing is allowed once the rehabilitation plan permits, and pain levels allow. Crutches should still be used initially for stability, especially outside the house.

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7 Stiff soled shoe (left)
Vacopedes (right)

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 at least until full weight-bearing. This can take up to 6–8 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 wearing a special shoe, 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 special shoe back into regular shoes, as they fit. We recommend shoes with a rather firm sole and soft upper material at the beginning. The use of crutches is no longer necessary and can be reduced. Depending on surgery and the individual situation physiotherapy is initialized. Most daily activities can resume after about three 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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