LEONARDO Ärzte für Orthopädie und Traumatologie

CHRONIC INSTABILITY OF THE ANKLE JOINT

LIGAMENT INJURIES

PERONEAL TENDO-LESIONS

DEFINITION

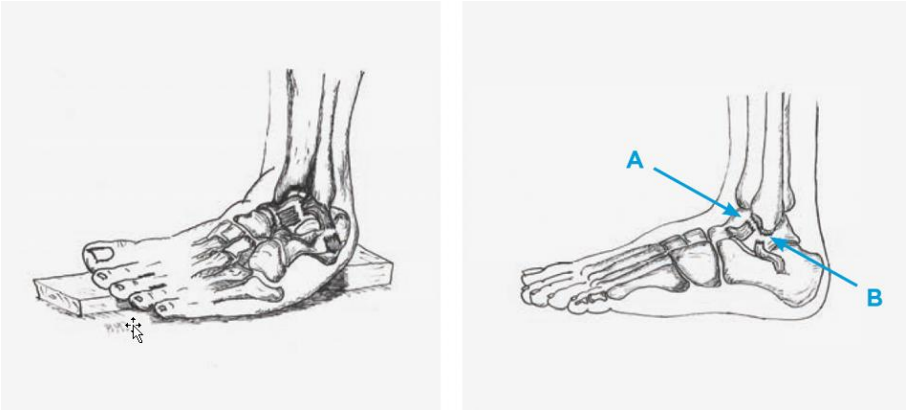
Ligament injuries of the ankle joint (ankle sprains) are among the most common injuries in everyday life. In most cases, the ligaments of the outer ankle (lateral malleolus) are affected. More rarely, the ligaments of the inner ankle (medial malleolus) can also be injured.

The injury mechanism is usually a twisting of the foot (Fig. 1 left), which leads to overstretching or tearing of the capsule and ligaments on the lateral ankle (Fig. 1 right).

1 Typical outward twisting (left) and the two most frequently affected ligaments (right)

A = Anterior talofibular ligament (ATFL)

B = Calcaneofibular ligament (CFL)



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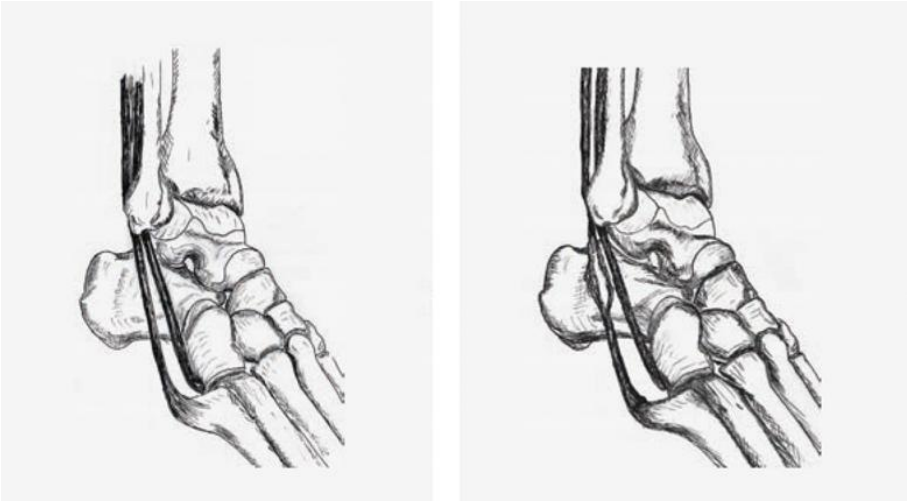
The two ligaments most commonly affected by injury are the anterior talofibular ligament (Fig. 1, A) and the calcaneofibular ligament (Fig. 1, B). Generally, these ligaments heal with non-surgical treatment (bracing and physiotherapy). However, in some cases, chronic instability persists. Despite healing, the ligaments may remain too loose, and the passive joint stabilizers may fail.

Sometimes, an additional injury to the tendons occurs, particularly to the two tendons running behind the lateral malleolus (peroneal tendons, Fig. 2 left). These injuries are usually longitudinal tears (Fig. 2 right), and over time, the tendon may become increasingly frayed. In such cases, the active stabilizers of the joint fail. The absence of passive and/or active stabilizers can lead to a feeling of instability and recurrent twisting of the ankle.

2 Peroneal tendons (left) and Longitudinal tear in the short peroneal tendon (right)



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Peroneal tendons can also suffer damage due to wear and tear without any prior accident (so-called degenerative peroneal tendon lesions). Chronic overuse can cause tendon splitting.

A high-arched foot predisposes individuals to such degenerative peroneal tendon lesions. Additionally, injuries to the outer ankle ligaments are more common with this foot type. In high-arched feet, the hindfoot axis is unfavorable because the heel is positioned too far inward, similar to a bow-legged position in the knee.

SYMPTOMS

In acute ligament injuries, pain, swelling, and bruising (hematoma) occur after twisting the ankle. Depending on the severity, the foot may still bear weight to some extent or not at all.

Despite proper treatment of an acute ligament injury, some patients continue to experience symptoms six months or later. The primary complaint is a feeling of instability and gait insecurity, especially on uneven ground. Some patients also report weakness, pain, swelling, or a sensation of impingement.

In peroneal tendon lesions without trauma (degenerative peroneal tendon lesions), pain and swelling are common, while the feeling of instability is less pronounced.

EXAMINATION

The diagnosis of an acute ligament injury is typically made through clinical examination. Swelling and tenderness in the outer ankle area are classic findings. Depending on the pain level, stability can be assessed. X-rays are usually sufficient in the acute phase to rule out bone injuries.

In chronic instability, stability can typically be well assessed by comparing both sides. Even months after the initial injury, the ligaments remain, though they may have healed in the wrong position or slightly elongated, causing instability. This is primarily detected through clinical examination and may not always be visible on MRI. Additionally, the tendons can be palpated and evaluated for function. Joint mobility can be assessed, and signs of scar impingement may be present. If instability persists after six months, an MRI is usually recommended to rule out accompanying injuries such as cartilage damage.

TREATMENT

A) NON-SURGICAL

The vast majority of ligament injuries can be treated conservatively, without surgery. In acute injuries, stabilization is achieved primarily with an ankle brace (e.g., ASO brace, Fig. 3 left), allowing the ligaments to heal in the correct position. This brace must be worn day and night for six weeks to prevent movements that strain the injured ligaments. Physiotherapy helps retrain balance and strengthen muscles to prevent recurrent twisting.

Even in chronic instability, conservative therapy can be attempted first, especially if physiotherapy has not yet been tried. Balance training and strengthening the ankle-stabilizing muscles are crucial. In some cases, wearing a lighter brace (e.g., Malleotrain S, Fig. 3 right) or taping can be helpful for certain activities.

3 ASO brace (left) and Malleotrain S bandage (right)

3

Degenerative peroneal tendon lesions are also initially treated non-surgically. The associated muscles are often tense and need physiotherapeutic release before strengthening exercises can be performed. Balance training is also included to improve coordination. A temporary ankle brace can help, particularly if swelling is present. While degenerative tendon changes do not disappear, the goal of conservative therapy is to achieve pain relief and good function. A commitment of 3-6 months to conservative treatment is worthwhile.

B) SURGICAL

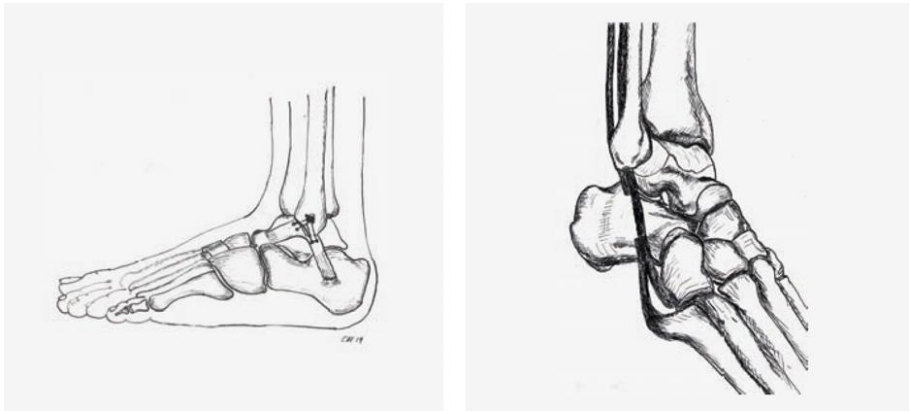
Surgery is a reasonable option if conservative treatment is unsuccessful. Depending on the injury pattern and severity, different procedures may be considered:

1. Arthroscopy (Joint Scoping):
Arthroscopy is useful when the situation is unclear and an internal examination of the joint is needed. Instability can be studied dynamically. Cartilage damage can be assessed, and impinging scars and adhesions can be removed.

2. Ligament reconstruction:
The lateral ligaments are most often damaged, occasionally also the medial ligaments. A skin incision above the outer or inner ankle shows the remaining ligaments. The bone is well refreshed at the actual insertion point of the ligaments and an anchor is inserted. The remains of the ligaments are now fixed and tightened to this anchor with threads (Fig. 4 left). Postoperatively, immobilization in a Vacoped or cast is required for six weeks (Fig. 5) to prevent early loosening of the ligaments.

3. Tendon reconstruction/suture:
If tendon injury is suspected, the tendons are surgically examined. Through an incision above the outer ankle, the short and long peroneal tendons can be seen. Depending on the extent of damage, torn sections may be removed or sutured. If most of the tendon is damaged, the two peroneal tendons may be stitched together (tenodesis, Fig. 4 right) to restore strength. Postoperatively, immobilization in a Vacoped (Fig. 5 left) is necessary for six weeks.

4. Calcaneal Osteotomy (Heel Bone Correction):
If the hindfoot axis is unfavorable, the heel can be repositioned outward to reduce strain on the repaired tendons and ligaments. In order to keep the corrected heel bone in its new position, it is fixed with a screw or clamp. Postoperatively, immobilization is carried out in a vacoped or plaster cast (Fig. 5) for six weeks and the foot may only be partially loaded.



4 Sutures with an anchor tensioning the Ligaments (left) and

Tenodesis of the peroneal tendons (right)

4

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
- Renewed instability, renewed tendon rupture
- Pseudarthrosis (lack of bone healing), loss of correction
- Disturbing osteosynthesis or suture material
- 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.

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 ankle 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. A Vacoped boot or cast (Fig. 5) must be worn for the first six weeks. 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.

5 Vacoped (left) and lower leg cast (Medicast, right)

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 at least 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 or 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. Continued physiotherapy is crucial. 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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