A step in the right direction

Lisfranc Surgery

What is the Lisfranc?
The Lisfranc is a ligament of the foot that runs between two bones called the medial cuneiform and the second metatarsal. The name comes from French surgeon Jacques Lisfranc de St. Martin (1790-1847), who was the first physician to describe injuries to this ligament.

What is Lisfranc surgery?
Tearing of the Lisfranc ligament can lead to instability and disruption of the joints in the middle of the foot. The goal of surgery is to restore normal alignment to the foot. Whether the injury results in a subtle malalignment of the bones or a more obvious dislocation of joints, the surgery is intended to put the bones back into their original position.

What signs indicate surgery may be needed?
Surgery for a Lisfranc injury is indicated when there is significant displacement of the midfoot joints with instability. Most commonly this displacement is identified on X-ray. CT and MRI scans can also be helpful in diagnosis. Surgery is needed to realign and stabilize the joints. Some injuries may require a patient to have a fusion of the joints, which encourages the bones to grow together in the areas of damaged cartilage.

When should I avoid surgery?
You do not need surgery for a Lisfranc injury if you have a sprain of the ligaments of the foot that do not create instability. Such injuries typically require you to restrict activity and use a boot or cast for as long as six or eight weeks. Other reasons not to have surgery include significant soft tissue swelling, severe peripheral vascular disease or fracture due to nerve dysfunction, which can be seen with diabetics (Charcot foot). You should speak with your orthopaedic foot and ankle surgeon prior to Lisfranc surgery if you have these conditions.

General Details of Procedure
This typically is outpatient surgery with the patient going home the same day. General anesthesia is used. A nerve block is also often used to help control pain after the surgery. A tourniquet usually is used to reduce bleeding. Most patients will require at least one incision on the top of the foot. A second incision may be needed depending on the severity of the injury.

Specific Techniques
The first incision is typically made on the top of the foot in a line between the big toe and second toes. The tissues are then carefully moved to minimize risk of injury to tendons or nerve structures. The joints are realigned and held in position temporarily with wires. The orthopaedic surgeon will commonly start by realigning the first metatarsal and then proceed to the second. An X-ray machine is used in the operating room to verify that the alignment of the joints has been corrected. A second incision is often necessary for more severe injuries. This second incision is typically made on the top of the foot but more toward the little toe side.

A series of screws or plates will be used to help hold the bones in place. These screws and plates are placed beneath the skin. One of the screws often placed is known as a "home run" screw. It runs between two bones called the medial cuneiform and the second metatarsal. This screw mimics the path of the injured Lisfranc ligaments (see Figure 1). Some injuries require wires to be left in place. These wires are left partly exposed outside of the skin.

A fusion surgery involves a similar overall technique. The main difference is that the cartilage is removed from the joint surfaces prior to inserting plates or screws. The goal is to make the bones grow together to make one mass of bone (see Figure 2).

What happens after surgery?
The patient is placed into a non-weightbearing splint immediately after surgery. This protects the bones and incisions. The patient should elevate the foot as much as possible to help reduce swelling and pain. Pain will typically be controlled with pain pills.

The patient will return to clinic approximately two weeks after surgery for suture removal. At this point a cast or boot is placed. No weightbearing is allowed until the six- to eight-week point after surgery. A walking cast or boot is then used for another four to six weeks. If pins were used to hold the fourth and fifth metatarsals in place, they are removed in the clinic six to eight weeks after surgery.

Patients are typically able to wean out of the boot and into an athletic shoe by 10 to 12 weeks. They will typically benefit from a more rigid shoe with an arch support insert to help reduce stresses through the middle of the foot. Physical therapy may be prescribed for strengthening and improvement in function. It can take longer than one year for full recovery.

Potential Complications
There are complications that can occur with any surgery. These include the risks associated with anesthesia, infection, and bleeding or blood clots.

With this surgery there is a nerve that runs very close to the site of the incision. This nerve can be injured, which can result in numbness. If numbness occurs it typically is not painful and the foot recovers with time. Another common problem after a Lisfranc injury is the development of post-traumatic arthritis in the joints of the middle of the foot. This is due to degeneration of cartilage in the area of the injured joints. This can lead to pain and stiffness in the middle part of the foot.

**Frequently Asked Questions**

**Will the plates and/or screws stay in my foot forever?**
The hardware that is placed during surgery is sometimes removed four to six months after surgery. Hardware placed for a fusion is typically not removed unless the hardware is bothersome.

**Should I have my recently injured foot simply realigned, or do I need it fused?**
This is a debated topic among orthopaedic foot and ankle specialists. A patient will typically do well with realignment of the bones for “simple” Lisfranc injuries. More substantial injuries that result in obvious displacement of the joints or fracture involving the joint surfaces may be better treated with a fusion. Other factors to consider include a patient’s age and any existing foot arthritis. Your surgeon will discuss your treatment options to try and find the best solution for your problem.

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**Treatments of the Midfoot**
- Fifth Metatarsal Fracture Surgery
- Flatfoot Surgical Correction
- Flexor Digitorum Longus (FDL) Tendon Transfer to Posterior Tibial Tendon
- Foot Drop Treatment (Tendon Transfer)
- Foot Fracture Surgery
- Lapidus for Hallux Valgus
- Lesser Metatarsal Shortening Osteotomy
- Lisfranc Surgery
- Midfoot Fusion
- Naviculocuneiform Fusion
- Posterior Tibial Tendon Transfer to the Dorsum of the Foot
- Second Metatarsal Shortening Osteotomy
- Triple Arthrodesis

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Figure 2: X-ray of a patient who had surgery to fuse the bones of her foot. A decision was made to realign and fuse the joints in proper position with the help of plates and screws. The arrow points to the area of bone that is now fused at the Lisfranc joint.