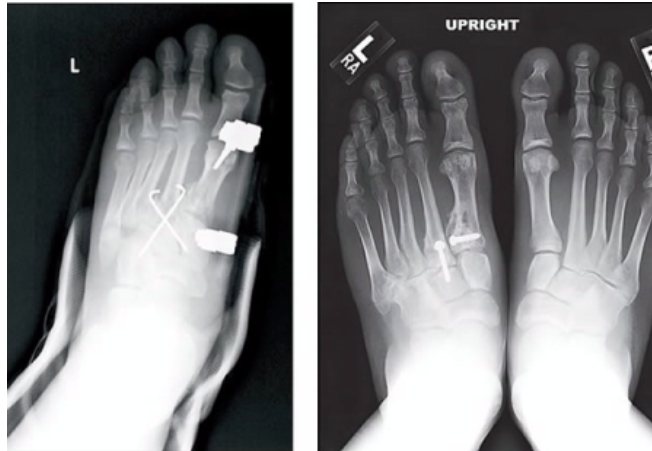


# The Lisfranc Injury: Fixing the Feeble Foot



Firefighter Jerry Salmeron's foot trauma is technically known as a Lisfranc fracture. It is a complex and often misdiagnosed foot injury requiring immediate diagnosis and treatment if normal foot function is to be preserved. About one in 55,000 people present with a Lisfranc fracture annually, also making it one of the more rare foot afflictions. Lisfranc joint fractures, dislocations and sprains are often the result of a high-energy force. In Jerry's case, it was a fall from a significant height. Other causes can include motor vehicle accidents, industrial accidents, heavy objects falling on the foot or athletic trauma.

## THE LISFRANC JOINT

A field surgeon in Napoleon's army known as Jacques Lisfranc de St. Martin (1790-1847) was serving on the Russian front and wrote about an amputation procedure he witnessed. It is said that the procedure was used to treat forefoot gangrene caused by frostbite and that the procedure was also used on the foot of a horseman who fell from his horse, leaving his foot trapped in the stirrup. Lisfranc observed that the amputation was performed by cutting along a series of joints rather than through bone. This distinct area of the foot eventually became known as the Lisfranc joint. The amputation procedure is rarely used today, and the term "Lisfranc" is now used to describe a whole host of trauma injuries, from sprains to complete disruptions, to this particular area of the foot. The Lisfranc joint is actually the point where the metatarsal bones (the long bones leading up to the toes) and the tarsal bones (the bones in the arch) actually connect. More commonly, this is known as the midfoot region.

## ACCURATE DIAGNOSIS & SYMPTOMS

As many as 20 percent of Lisfranc injuries are misdiagnosed and are often mistaken for severe sprains. Diagnosing the injury properly is extremely important, and physical examination, X-rays, as well as other imaging tools (such as magnetic resonance imaging or computed tomography) may be necessary to fully evaluate the injury. Most patients with a Lisfranc injury will have significant swelling of the foot and pain in the midfoot region when palpated or when weight is placed on the area. There may also be bruising or blistering along the arch as well as bruising on the top of the foot. An abnormal widening of the foot can also occur.

## TREATING A LISFRANC INJURY

"In Jerry's case, because his injury was so obvious and severe, he required surgery," says David Friscia, MD of Desert Orthopedic Center on the campus of Eisenhower Medical Center. "During the first surgery we essentially pushed the bones back into position and realigned them. Then we put temporary pins in to hold everything together, which reduced the pressure on the skin. After all the swelling receded and some healing had taken place, we performed a second surgery, placing permanent pins and screws to stabilize his bones on a more permanent basis." In addition to surgical treatment, Jerry's foot required immobilization. He was fitted with a cast and used crutches to prevent bearing weight on the foot. Common problems associated with Lisfranc injuries include pronounced atrophy and weakness of the calf muscles, restricted flexibility of the Achilles tendon, foot and ankle swelling, as well as loss of balance. Lisfranc injuries may also require oral medications, ice and elevation, and physical therapy. Physical therapy varies for each patient, but foot exercises to build strength and help restore full motion are an important component of a full recovery.

## BEING A "GOOD PATIENT"

Both Jerry and Gary Galton stressed the need to heed doctor's orders and conscientiously follow their after care regimens for their very different foot injuries. "Both of these patients are stellar examples of people who followed directions and took the time to heal in order to achieve the best outcomes," says Dr. Friscia. "I wish all patients took their health this seriously. If you don't let an injury like a Lisfranc heal properly, it can really cause difficulties the rest of your life. Jerry and Gary dedicated themselves to the processes of icing and elevating, staying off their feet, and physical therapy, and it made a tremendous difference. They are each almost back to 100 percent today because of their consistency."

## COMPLICATIONS

There are complications that can result from a Lisfranc injury. Pressure build-up within the tissues of the foot, known as compartment syndrome, may require surgery to prevent damage to tissues, blood vessels and muscles. Long-term problems associated with Lisfranc injuries may include arthritis or foot alignment issues, which could require additional treatment.