

## LisFranc Injuries / Midfoot Injuries



The midfoot consists of the bones and ligaments in the middle of the foot, that connects the forefoot (toes) to the hindfoot (heel bones). The term Lisfranc refers to one of Napoleon's surgeons that described an amputation through this portion of the foot. The primary function of the midfoot is to provide stability and to be a rigid platform for transferring force from the ankle to the foot. When the ligaments and/or bones of the midfoot are injured, this results in a loss of stability to the foot, that can result in pain and worsening deformity (flatfoot). Injury to the midfoot can occur from a low-energy occurrence such as a trip and fall, where they may not be any fractures or deformity, to severe injuries that involve multiple bones and ligaments requiring emergency treatment. The goal of treatment is to maintain and restore the stability of the midfoot when this injury occurs.

The injury can occur from multiple different mechanisms ranging from low energy falls (missing a step, injury during sports (soccer/football) or high energy injuries such as falls from height and car accidents. In the cases of low energy injuries, the location of the pain is important to understand if the injury is consistent with a Lisfranc/Midfoot injury. Pain in the middle of the foot, bruising along the bottom of foot, difficulty putting weight on the foot, severe swelling are symptoms that are consistent with a more severe

injury than a simple sprain. The physical exam will demonstrate bruising along the bottom of the foot, pain along the bones in the middle of the foot, and in some cases - pain with motion of the bones of the foot (metatarsals). Difficulty putting weight on the foot is also concerning for a more severe injury. X-rays are reviewed to determine the presence of any fractures. If no fractures are seen, then the next step is to obtain x-rays that are weight bearing. The importance of weightbearing x-rays is to determine if there is any damage to the ligaments of the foot, by examining the position of the bones compared to the uninjured foot. In some cases further imaging with a CT scan or MRI may be ordered.

Most injuries to the midfoot/Lisfranc joint do require surgery to reduce and stabilize the middle of the foot to minimize the risk of arthritis, pain and deformity. In some cases, if there is damage primarily to the ligaments and not the bones or if the joints are damaged heavily then the middle of the foot may require a fusion. If the damage is not severe, then the bones may be put back in place and stabilized. Stabilizing of the joints of the middle of the foot can consist of using screws or a combination of plates and screws. In some minor cases, ligamentous reconstruction with a device called the internal brace may be used. A fusion is where the cartilage is removed and bone graft may be additionally used to “glue” the bones together - so that they become one block of bone. The benefit of this is that the midfoot is stable and if the fusion heals, will stay stable for life. A concern that many patients have is that a fusion will eliminate the motion between the joints, however, in the case of the midfoot, the primary function is stability, not motion, so there very little effect on mobility.