

Dr. Milap S. Patel

Dr. Anish R. Kadakia

LisFranc/Tarsometatarsal Surgery (Repair or Fusion)

Injury to the ligaments and bones of the middle of the foot significantly disrupt the stability of the midfoot. In nearly all cases where the ligaments are torn or the bones that comprise the midfoot are fractured (if the fractures enter the joint) surgery is considered to restore stability and minimize the risk of deformity. Unfortunately, once an injury to the middle of the foot occurs, it may not be possible to restore the patient to the pre-injury level of activity despite a well done surgery. Surgery is broken down into two major categories – reduction and fixation (put the bones back in alignment and hold them in place with screws and/or plates) or a fusion (where the bones are “glued” together with plates and/or screws). In some minor injuries – where there is instability without gross disruption of the joints, we may consider the use of the Internal Brace® to restore the stability of the midfoot without the need for metallic implants. Percutaneous fixation (small incisions) is sometimes considered as well in patients who have minor instability, severe soft tissue trauma, or higher risk of wound complications.

For the majority of patients, either one or two incisions are used to visualize the affected bones and joints in order to realign them back into an anatomic position. For those patients who an ORIF is considered, the fixation is placed (plates/screw or the internal brace) across the bones to hold them in place so that the ligaments scar back down at the anatomic length. Removal of the hardware was routine in the past, however, with the techniques that we employ, in many cases the hardware is not taken out to ensure that long term stability is achieved. If the hardware is removed, the timeline for removal is typically 4-5 months from the surgery to allow the ligament enough time to heal. Despite anatomic reduction and appropriate fixation, the trauma to the cartilage cannot be undone and some patients can still have pain and discomfort and subsequent arthritis. Secondary to the trauma and slight increase in the stiffness of the midfoot, many patients may note increased pressure along the ball of the foot and stiffness of the joints of the toes.

For injuries that are more severe that involve dislocations or fractures that involve the joint a fusion of the joints may be considered. A fusion is where the cartilage that is normally between the two bones is removed and the bone prepared so that two different bones will grow together to become one bone. The reason for considering this option is that in severe/high energy injuries – the ligaments will not be able to heal properly to provide stability and the trauma to cartilage is large enough that arthritis is inevitable. In order to try provide a single surgery that would allow for improved function and minimized pain – a fusion is felt to be the best option in these cases. One or two incisions are used to expose the joints and the cartilage that is remaining is removed. The bones are prepared to allow for bleeding so the a fusion can occur. In many cases bone graft is added to promote a fusion. The joints/bones are realigned and plates, screws, and/or surgical staples are used to hold the bones together until they heal together. A fusion can take up to 6 months to heal solidly. Verification of a fusion is commonly confirmed with both xrays and a weightbearing CT prior to allowing more impact activity. The term fusion has come with bad connotations secondary to the limitation of motion, however, the functional impact of a fusion is very dependent on the function of the joints that are fused. The middle of the foot is primarily designed for stability – to allow

force transfer from the front of the foot to the back of the foot. There is very little mobility in the midfoot and therefore a fusion for this injury can provide significant improvement in pain and function without a significant compromise of the up and down or side to motion. Secondary to the slight increase in the stiffness of the midfoot, many patients may note increased pressure along the ball of the foot and stiffness of the joints of the toes. The hardware that is used can be symptomatic because of the thin skin in this area of the body and the location of the tendons. If the hardware is painful or irritating with footwear – it can be removed after 6 months as long as a solid fusion is noted on CT. Once the bones have healed together the hardware can be removed without any negative mechanical consequence, however given the need for a surgery to take out the hardware, we do not routinely remove hardware unless it is a problem.