

Lisfranc injuries: Incidence, mechanisms of injury and predictors of instability, Stodle, et. al. *Foot Ankle Surg*, 2019

DOI: 10.1016/j.fas.2019.06.002

Level of Evidence: 3

Reviewer:

Gavin Glover, DPM, PGY-3
SAVAHCS Podiatric Residency Program – Tucson, AZ

The authors of this study begin by reviewing the incident rate and various diagnostic methods when assessing injuries to the Lisfranc (tarsometatarsal) joint. Mechanisms of action are broken down into high-energy (MVAs, falls from height and crush injuries) or low energy (axial and/or rotational forces with a fixed equinus). Diagnostic modalities include MRI, CT scan, weightbearing radiographs and stress fluoroscopy. At the time of the study, the authors mention a tendency for Lisfranc injuries to be underreported due to being missed 24% of the time with primary radiographs. Because of this, the authors hypothesized that Lisfranc injuries, especially low energy, are more frequent than previously reported & CT scans can help with predicting instability.

This study assessed patients with Lisfranc injuries that were treated at the local level 1 trauma center hospital and local emergency department over a 1-year span. Lisfranc injuries were defined as an injury to the tarsometatarsal joint with avulsion fractures, intra-articular fractures and/or displacement of tarsometatarsal joint. The diagnostic algorithm began with evaluation of non-weightbearing radiographs. Should no displacement be noted, a CT scan was obtained. If the CT scan came back negative for displacement, then the authors chose between either stress fluoroscopy or weight-bearing radiographs. Should all imaging modalities show no evidence of displacement, then patients were treated conservatively. If any imaging modality found displacement of the Lisfranc joint, then patients were taken for surgical intervention.

The authors registered 89 patients for the study with only 54 patients found eligible based on geographic location. These 54 patients resulted in an incident rate of 14/100,000 person; additionally, 22 of the 54 patients were found to have instability, resulting in an unstable incidence rate of 6/100,000 persons-years. Both findings were higher than the incident rate stated in the introduction (1/60,000). Both high-energy & low-energy mechanism of action were found 31% of the time. 84 feet underwent a CT scan, and all findings were consistent with a Lisfranc injury. Joint instability was primarily found utilizing either CT scans or stress fluoroscopy.

The authors do make a point to acknowledge study weaknesses including a smaller patient population, epidemiology uncertainty, and inability to compare stress radiographs to weightbearing radiographs. Despite this, the authors found a higher incidence rate of Lisfranc injuries than previously reported; with low-energy trauma being the most common mechanism of injury. The authors also found CT scans to be successful in increasing diagnostic accuracy of Lisfranc injuries.



ACPM
American College of Podiatric Medicine
Education | Research | Advocacy