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Lisfranc Joint Sprains – CITATION SUMMARY

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The Lisfranc joint, or tarsometatarsal articulation of the foot, is named for Jacques Lisfranc de St. Martin, a field surgeon in Napoleon's army. Lisfranc described an amputation performed through this joint due to the development of gangrene in a soldier's foot after falling off a horse with his foot caught in the stirrup. The 2 major causes of Lisfranc fracture-dislocations and sprains are low-energy, sports-related injuries and high-energy motor vehicle and industrial accidents. In low-energy settings, Lisfranc injuries are caused by a direct blow to the joint or by axial loading with medially or laterally directed rotational forces as in a twisting fall.

The Lisfranc ligament connects the first ray (first metatarsal-medial cuneiform articulation) to the middle and lateral columns of the foot. Injury to this ligament can result in functional instability with loss of longitudinal and transverse arches. Because of its limited mobility, the Lisfranc joint provides a stable axis for rotation, acting as a keystone for plantar flexion and dorsiflexion.

Low-energy Lisfranc injuries are seen more commonly in football players, gymnasts, ballet dancers, and track-and-field athletes. The mechanism of injury for most athletes is axial loading on a hyper-plantarflexed midfoot. These injuries carry a high risk of chronic disability, therefore health professionals should consider the Lisfranc area in patients with foot injuries characterized by marked swelling, tarsometatarsal joint tenderness, midfoot instability, plantar surface ecchymosis, and the inability to bear weight particularly with the foot plantarflexed.

Dancers and gymnasts may sustain an ankle sprain when landing poorly from a jump with a concurrent Lisfranc injury that is overlooked. Delay in the diagnosis and treatment may be associated with residual instability and poor prognosis. However, surgical treatment, despite restoration of anatomical alignment, may result in limitations in functional movement such as plantar flexion.