Outcomes of Lisfranc Injuries in an Active Duty Military Population
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Introduction/Purpose: Traumatic injuries to the tarsometatarsal or Lisfranc joints can be complex problems associated with long-term pain, disability, and deformity. Most current literature advises early open reduction and internal fixation (ORIF) for acute Lisfranc injuries and reserves arthrodesis for chronic injuries, isolated ligamentous injuries, or salvage procedures. There is also a reported association between delayed diagnosis or missed injuries and poor outcomes. The purpose of this study was to evaluate the association between time from injury to treatment and method of fixation with outcome.

Methods: A retrospective review of 171 non-battle related closed tarsometatarsal dislocations and fracture dislocations was conducted of patients identified using the Department of Defense Trauma Registry and Military Health System Mart from 2009-2014 searching by CPT codes. Demographic information, injury characteristics, treatment course, and physical evaluation board results were examined. Return to duty was defined as a patient returning to full duty and passing their service specific physical fitness test. We excluded polytrauma patients, battle injuries, deep infections requiring surgical debridement, those with pre-existing duty limiting conditions, those who separated from the military for unrelated reasons prior to completing their rehabilitation and those with incomplete data.

Results: Overall of 107 patients 69% returned to full active duty, 4% returned to limited duty with permanent duty restrictions and 27% underwent a medical evaluation board and were ultimately discharged from service. The ORIF group consisted of 80 patients; the average time from injury to fixation was 2.5 weeks and 63% returned to full duty, 6% returned on permanent profile. Of the arthrodesis group 20 underwent primary arthrodesis with an average time from injury of 15.4 weeks and a return to duty rate of 80%. Seventy-one percent of patients who underwent arthrodesis as a salvage procedure for failed ORIF or post-traumatic osteoarthritis (PTOA) underwent a medical evaluation board and were discharged from service.

Conclusion: This represents one of the largest cohorts in the literature and redemonstrates that tarsometatarsal dislocations and fracture-dislocations are serious injuries that can lead to permanent disability. The data also demonstrates very low return to duty rates in those who underwent salvage arthrodesis reinforcing the importance of initial anatomic reduction and the poor outcomes of PTOA. Most notably it demonstrates higher return to duty rates among patients who underwent primary arthrodesis despite the inclusion of more missed/chronic injuries when compared to ORIF. This suggests that primary arthrodesis may be a viable option in a young and active population despite later treatment.