

## Cortical Screw Fixation as an Alternative to Kirschner Wire Fixation for Temporary Lateral Column Stabilization in Displaced Lisfranc Joint Fracture-Dislocations

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**Purpose:** The tarsometatarsal joint complex, or Lisfranc joint, stabilizes the midfoot arch via three columns. Injuries ranging from purely ligamentous to multidirectionally unstable midfoot fracture-dislocations are anatomically fixed to minimize long-term sequelae including posttraumatic arthritis, pes planus deformity, and chronic pain. Lateral column disruption is commonly treated with temporary Kirschner wire (K-wire) fixation, maintaining alignment during healing and allowing resumption of physiologic motion after hardware removal. More unstable fracture patterns may require temporary cortical screw fixation to maintain adequate reduction. We evaluated the efficacy of temporary lateral column screw fixation compared to K-wire fixation for Lisfranc fracture-dislocation treatment.

**Methods:** This retrospective cohort study reviewed 45 patients over 14 years who underwent Lisfranc fracture-dislocation fixation at a Level I trauma center. All patients underwent medial and middle column fixation; 31 underwent lateral column fixation. 26 patients remained after excluding those without electronic records or follow-up. The primary outcome was radiographic lateral column healing before and after hardware removal; secondary outcomes included pain, ambulation, and return to normal shoe wear.

**Results:** Twenty patients were male, with mean age 41 years. Thirteen patients underwent cortical screw fixation and twelve K-wire fixation. One had both implants. 24 patients underwent lateral column hardware removal; all had radiographic evidence of bony healing before hardware removal. The cortical screw cohort had significantly longer mean time to hardware removal ( $P = 0.002$ ). The K-wire cohort had significantly more disuse osteopenia ( $P = 0.045$ ) and postoperative pain ( $P = 0.019$ ).

**Conclusion:** Clinical and radiographic outcomes of unstable Lisfranc fracture-dislocation treatment support temporary lateral column screw fixation as an alternate technique.



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