



# Staple Fixation of Lisfranc Injuries: A Description of a New Technique and Early Clinical Results

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# Disclosures

Christopher O. Bayne , M.D

My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.

Robert Gray, M.D.

My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.

George B. Holmes, Jr. MD:

My disclosure is in the Final AOFAS Program Book. I have a potential conflict with this presentation due to: I have received royalties and consulting fees with respect to the Mini Tightrope(Arthrex).

# Introduction

## Lisfranc Injuries

### Treatment goals

- Anatomic reduction of tarsometatarsal joint,
- Stable fixation to allow for ligamentous healing
- Preservation of articular cartilage of Lisfranc joint
- Maintenance of physiologic Lisfranc joint motion
- Fixation that does not irritate adjacent soft tissues and nerves
- Fixation that resists failure and breakage

# Study Design

Retrospective case series of 8 patients with Lisfranc injuries treated operatively utilizing pneumatic staple fixation between 2004 and 2009

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# Materials and Methods

- 12 consecutive patients with Lisfranc injury (between 2004 and 2009)
- Operative treatment utilizing pneumatic staple fixation
- SMFA and SF-36 questionnaires administered via telephone interview (at minimum 24 mos fu)
- Literature search -all previous studies examining SMFA and SF36 results after operative fixation of Lisfranc injuries identified.
- Questionnaire results from study compared to results found in the literature



# Results

8 patients available for interview at follow-up.

- 4 patients treated with staple fixation alone
- 2 patients treated with combination of staples and mini-suture button
- 1 patient treated with combination of screws and staples
- 1 patient treated with combination of screw, K-wire, staple, and mini suture button

# Results

## Literature search:

- 3 studies utilized the SF-36 questionnaire<sup>1-3</sup>
- 1 study utilized the SMFA questionnaire<sup>1</sup>

( To evaluate functional health and well being in post-operative Lisfranc patients)

# Results

- Patients in staple fixation group scored better in all categories on both the SMFA and SF36 questionnaires

Group	SMFA (mean score)	SF-36 (mean score)
Staple Fixation	11.8	73.8
Literature	17.3	48.6

# Discussion

Better scores may be due to properties of staple fixation:

- May allow for enough rigidity for ligamentous healing
  - Without violating articular surfaces
  - Without limiting all motion
- Staples are low profile
  - Less symptomatic hardware
  - May decrease need for later removal compared to plates

# Conclusion

- This study presents preliminary results of post-operative functional health and well being following technique of staple fixation of Lisfranc injuries.
- Despite the small number of cases, we believe that the functional outcomes are encouraging and warrant further investigation.

## REFERENCES

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