

LISFRANC INJURIES: FUSION

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CSFS Tampa 2016

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ORIF FUSION

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Introduction

- Uncommon Injuries
- Highly Variable Injuries
 - Trauma
 - Sports
- Associated with other injuries

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Introduction



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Introduction

- “ I always do ORIF, and then I take out my screws
- “ I always do ORIF, but I leave my screws in”
- “I always fuse”

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Impact of Injury

- Diagnosis is missed or delayed in up to 20% of cases
- It's a Lisfranc until proven otherwise



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Impact of Injury

- Diagnosis is missed or delayed in up to 20% of cases
- Litigation

Minnesota Lisfranc Fracture Lawyer


If you have suffered a Lisfranc fracture due to the negligence of another, [contact a Minnesota Lisfranc Fracture Lawyer](#) or call **612-362-0000**. We have years of experience with these cases and have recovered significant amounts for the Lisfranc fracture victims we have represented. We want to help you and will pursue every angle to maximize your compensation.



Do I need an attorney? and if needed, recommend an independent attorney that best fits your needs. We have been helping people that have been injured since 1978 and will do the same for you.

Imaging of Lisfranc Injuries


- Weight Bearing
- Contralateral views
- Stress
- CT/MRI



Closed Reduction

- Urgent if tenting the skin
- Can be blocked by tendons, ligaments, bone
 - Lateral dislocations of 1st MT: Tibialis anterior
 - Peroneus longus tendon
 - Fleck from base of 2nd MT

NO/POOR REDUCTION LESS OF AN ISSUE FOR FUSION



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Operative Treatment

- Options
 - ORIF
 - Primary Arthrodesis
 - Percutaneous pinning/screws

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Results of ORIF

- Outcomes Fair
- Rapid progression of arthrosis
- Need for further procedures



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Results of ORIF

- Good to Fair Results
- Most Important Parameter was Anatomic Reduction

Aritz et al. JBJS 1988
Kuo et al. JBJS 2000
Rajapakse et al. Injury 2006
Teng et al. FAI 2002

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Rationale for Fusion

- **Kuo et al JBJS am 2000**
 - Worse outcomes in primarily ligamentous injuries
- **Komenda et al JBJS am 1996**
 - Significant improvement after midfoot arthrodesis for PTOA
- **Sangeorzan et al FAI 1990**
 - Improved results with early fusion for PTOA midfoot
- **Granberry Surg Gyn Obs 1962**
 - Noted high incidence of PTOA post Lisfranc injury
 - Recommended primary fusion


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Rationale for Fusion

- Medial column of the midfoot functions rigidly during gait for stability
- Lateral column (4th, 5th mts-cuboid) is the mobile midfoot segment
- One operation, one recovery period
- Eliminates need for hardware removal
- Fusion is more forgiving
- Fusion is not time sensitive

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Osseous Stabilizing Structures



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Operative Technique

- Where to start?
 - Medial to lateral
 - Lateral to medial
 - Least to most comminuted
- **My Preference**
 - **Reduce any intercuneiform instability**
 - **Key in the second ray**
 - **1st...3rd then 4th and 5th**

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Inter-cuneiform instability



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Operative Technique

- Incisions



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Operative Technique


- Dissection/Access



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Operative Technique

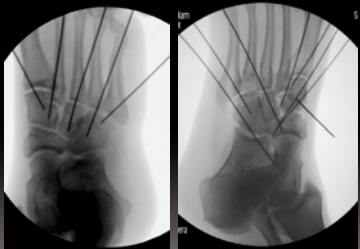


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Operative Technique

- Reduction/Temporary Fixation




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Hardware

- What to use?
 - Screws
 - 3.5mm or 4.0mm cortical
 - Cannulated screws
 - Spanning Plates
 - comminution
 - Suture Bridge?



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Hardware

- Screws

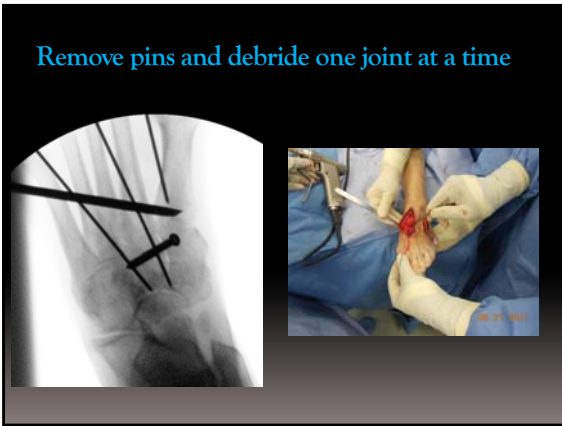


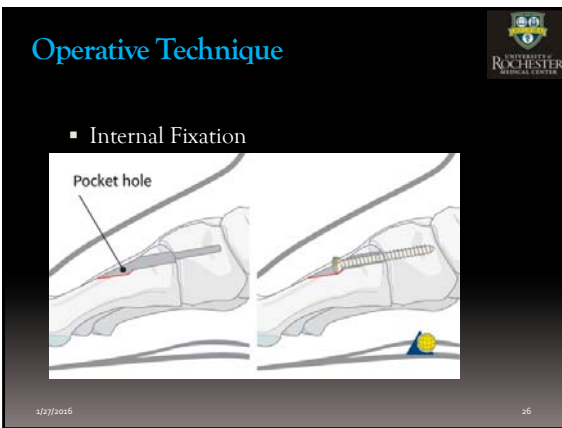
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Fuse but Add Plates

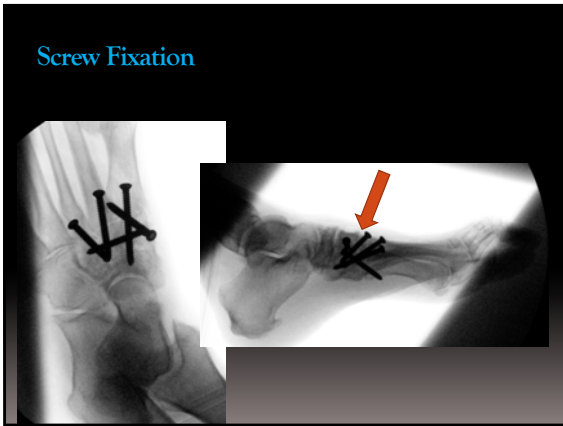


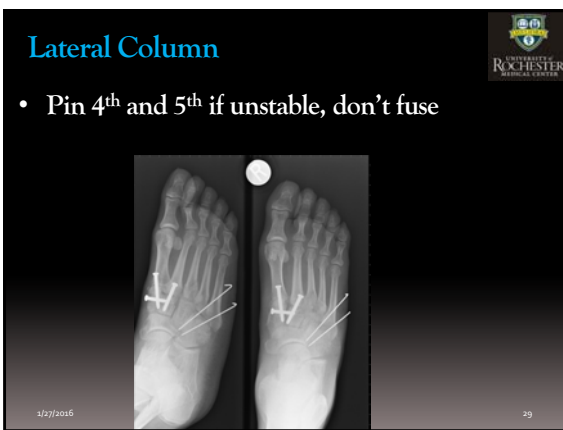
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Post-Op

- NWB Short leg cast X 6-8 weeks
- Remove K wires at 4 weeks
- Boot, gradual WB over next 2-4 weeks
- PT or HEP

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Complications

- Pain/neuritis
- Wound Problems
 - Should be less than ORIF
- Post-Traumatic Arthritis? - NO!
- **Nonunion**



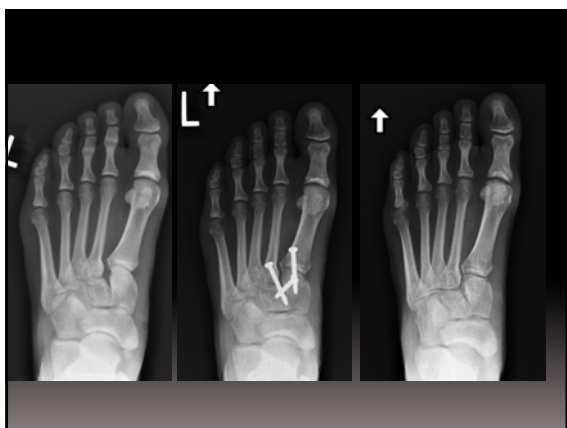
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Primary Arthrodesis(PA) vs ORIF

- **Mulier et al FAI 2002**
 - Advocated for partial primary arthrodesis for medial column
- **Ly & Coetzee JBJS 2006**
 - Randomized prospective study, improved results in PA vs ORIF for ligamentous injuries
- **Henning et al FAI 2009**
 - Less secondary procedures and trends towards better outcomes in PA vs ORIF

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My Experience

ORIF PRIMARY FUSION

- Low Energy
- Young
- Agility Athletes

- High Energy
- Older, Low Demand
- BMI Champions
- Work Comp


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Benefits of Primary Surgery

1. Avoids late arthrosis
2. Avoids need for removal of hardware
3. One surgery, one recovery period


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Summary

- Complex Injuries with potential for poor outcomes
- Do not miss subtle injuries
- Listen to the soft tissues
- Goal of fixation → Stable plantigrade foot

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Thank You

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