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Shoulder, Foot & Ankle Surgery

Midfoot Sprains and Arthritis

Todd K Gothelf

Foot, Ankle, Shoulder Surgeon



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Midfoot Arthritis

- Arthritis of Tarsometatarsal complex
- Lisfranc Complex
- Major Causes
 - Lisfranc sprain
 - Primary Arthritis
 - Inflammatory Disease



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Lisfranc Injury

- One of the most common athletic foot injuries
- Difficult Diagnosis
- It will see you
- Treatable When detected
- Arthritis Preventable



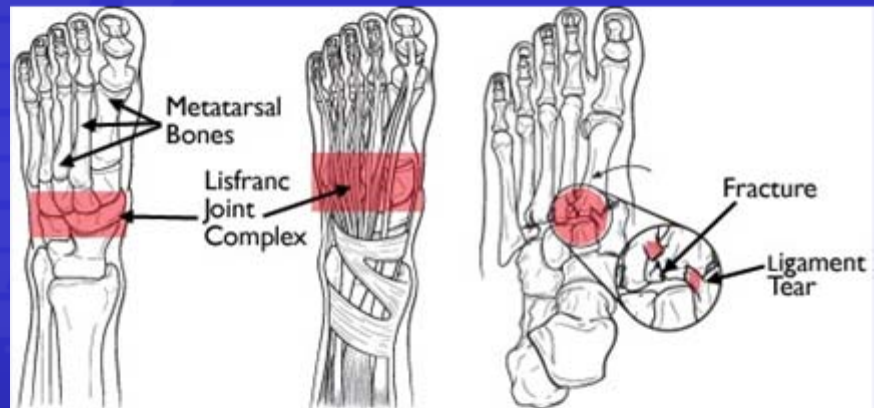
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Lisfranc Joints

- Tarsometatarsal joint complex
- Increased awareness
- Fairly common injury in sports
- Up to 20% overlooked on initial radiographs
- Left untreated, can lead to arthritis, prolonged pain, difficulty returning to sport



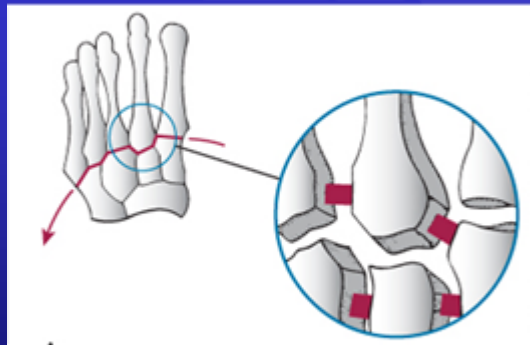
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Jacques Lisfranc

- French Surgeon
- Napolean Era
- Described amputations through midfoot



Jacques Lisfranc de St. Martin

Surgeon

Jacques Lisfranc de St. Martin was a pioneering French surgeon and gynecologist. He pioneered a number of operations including removal of the rectum, lithotomy in women, and amputation of the cervix uteri. Wikipedia

Born: April 2, 1790

Died: May 13, 1847



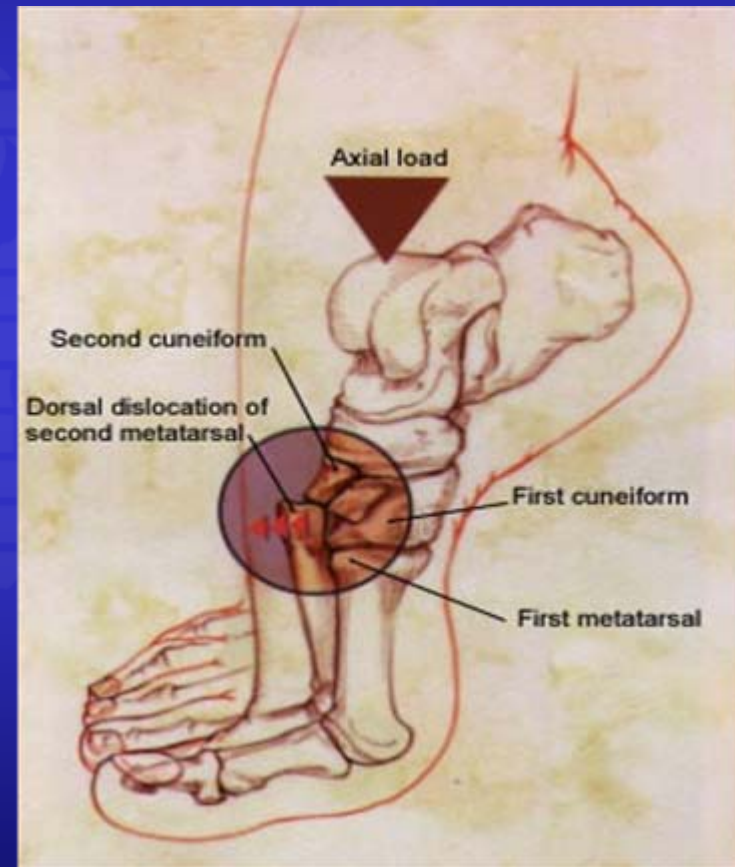
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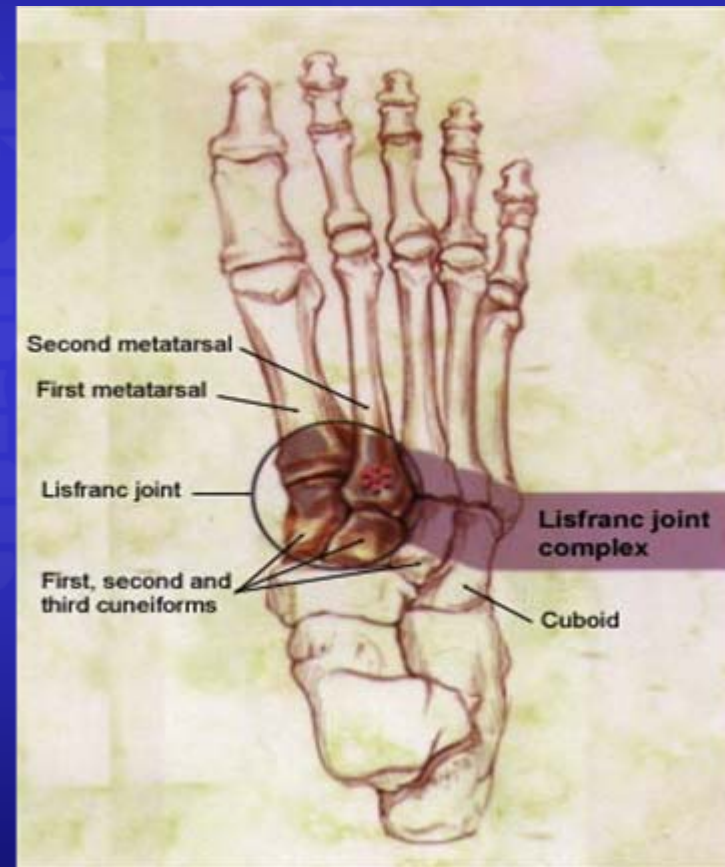
Mechanism of injury

- Direct Injury- Crush to Midfoot
- Indirect Injury- Twisting
- With toes planted
- Ankle in plantar flexion
- Forceful abduction of the midfoot

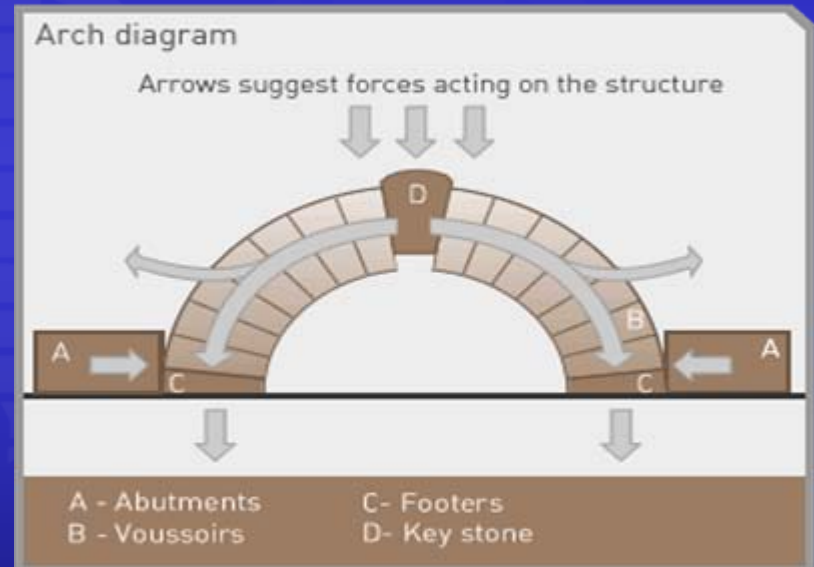
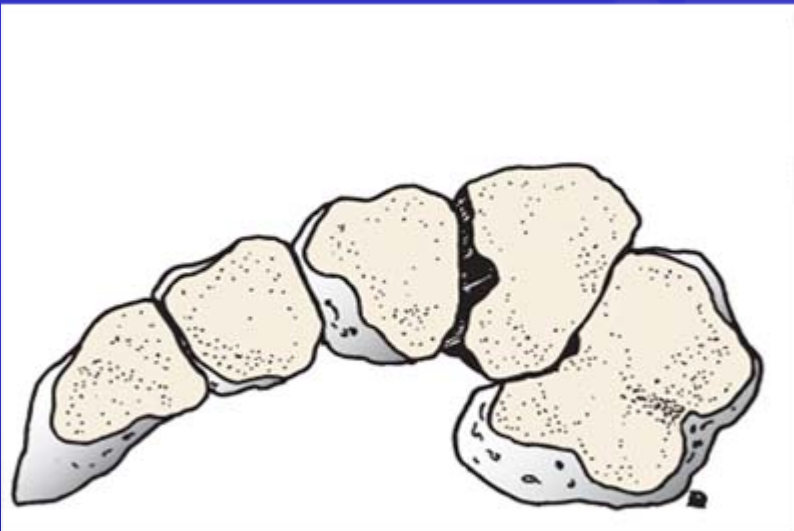


Anatomy

- Medial cuneiform to the second metatarsal.
- Intimately related to one another.
- Bones offer primary stability
- Held together by ligaments.



Anatomy- Roman Arch



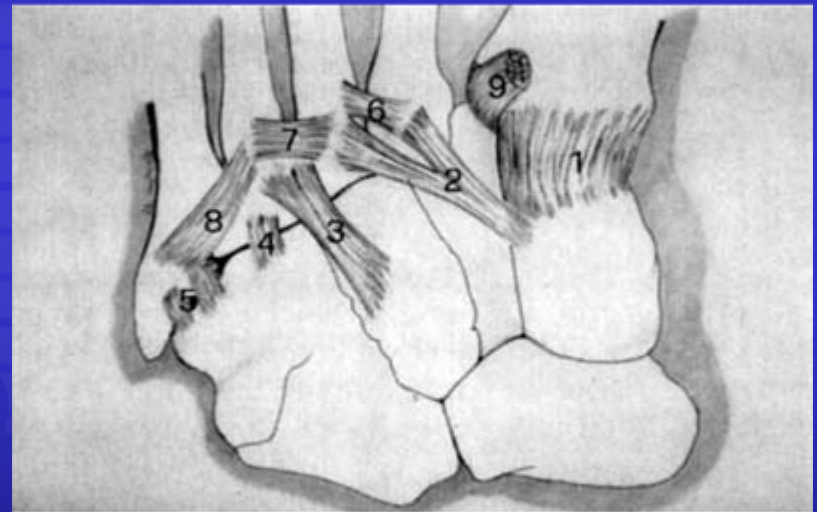
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Anatomy

- Strong plantar ligaments
- Weaker dorsal ligaments.
- Lisfranc ligament
 - 2nd metatarsal base to medial cuneiform
- No attachment metatarsal 1 and 2.



Severe Lisfranc Fracture Dislocation

- High Energy Injury
- Requires Surgical Treatment



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Severe Lisfranc Fracture Dislocation



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Subtle Lisfranc Injury

- Usually sports related
- Can be low energy injury
- Often ligamentous only



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Clinical History

- Mechanism of injury
- Twisting Injury
- Initially often ignored as sprain
- Later Unable to sprint
- Cutting sports cause pain



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Weight bearing Radiographs



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Opposite Side to Compare



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MRI

- Can demonstrate Ligamentous Injury
- Does not prove instability
- A Non weight bearing study
- Stress Test Under Anaesthesia



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CT scan

- Also Non weight bearing
- Does not demonstrate dynamic instability
- Gross widening usually seen on x-rays as well
- Not helpful in subtle sports injury
- More helpful for fractures



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Manipulation Under Anaesthesia

- Under general anaesthetic
- With intra-operative image
- Demonstrate dynamic instability



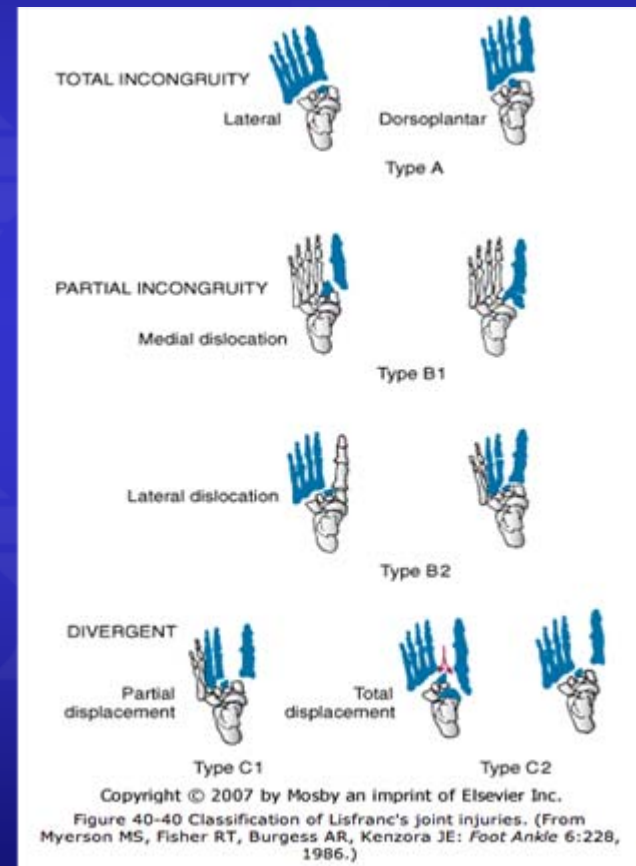
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Classifications

- Many different patterns
- 1-2 interspace most common
- Must look at cuneiforms, other TMT joints



Other patterns of Lisfranc Injuries



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Surgical Fixation



- Stabilise cuneiforms
- Stabilise medial cuneiform to 2nd metatarsal
- Open incision
- Restore anatomy perfectly



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My Surgical Treatment

- Open Incision
- Visualise reduction in two planes
- Solid screws
- Locking plates to avoid joint destruction
- All hardware removed at 6 months.



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Return to Sport

- Little Proven in literature
- Avoid late diastasis
- Looked at return to full sport
- Return to training up to 24 weeks, playing up to 31 weeks
- Bony injuries taking longer

Journal of Bone & Joint Surgery, British Volume

www.bjjprocs.boneandjoint.org.uk

J Bone Joint Surg Br 2012 vol. 94-B no. SUPP XLIII 68

RETURN TO TRAINING AND PLAYING
FOLLOWING ACUTE LISFRANC INJURY IN ELITE
PROFESSIONAL SOCCER AND RUGBY PLAYERS

R.S. Deol, A. Roche and J.D.F. Calder



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Delayed Lisfranc

- Less than 6 weeks-
Surgery
- Greater than six weeks
 - Healing of ligaments
already established
- Subtle displacement
 - Initial non-operative
 - Arch support orthotic
 - Can settle down
- Fusion if no better 6-12
months



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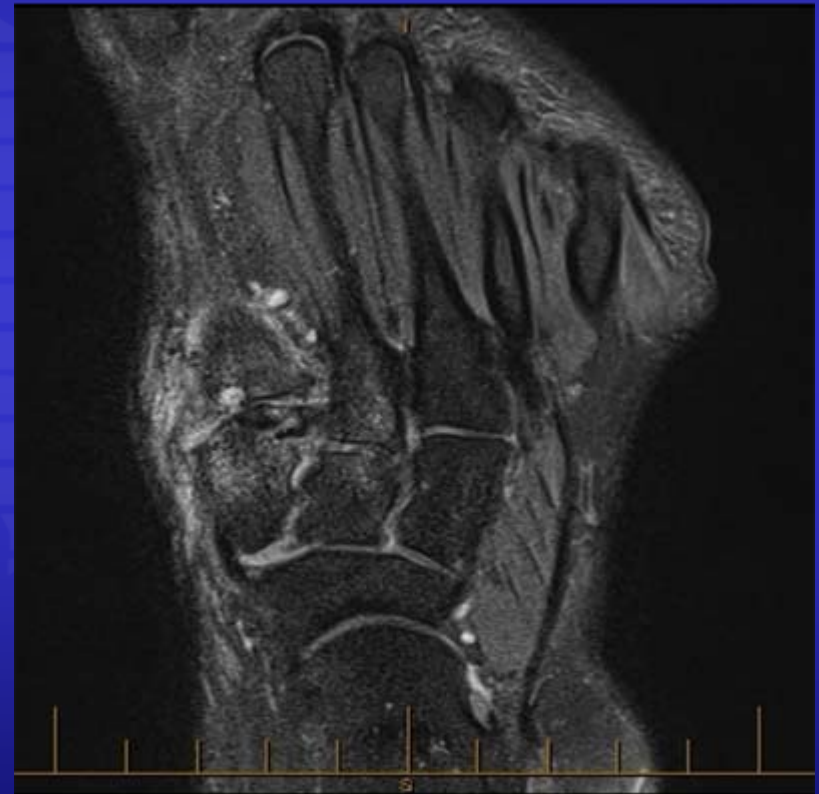


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Delayed Lisfranc

- Large Displacement
- Arthritis of TMT joints
 - Not detected on x-rays
 - Assess on MRI
- Unlikely to do well with Fixation alone as ligaments already healed



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Delayed Lisfranc

- Fusion of Lisfranc joints
- First three only
- 1,2,3 TMT joints non-essential
 - Rigid medial column
- Return to sport reasonable after healing



Midfoot Arthritis

- Midfoot Abduction
- Loss of Arch
- Pain Arthritis



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Midfoot Arthritis

- Treatment options
- Nonop
 - Custom Shoes
 - Pedorthist
 - Pain Management



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Midfoot Arthritis

- Surgical Treatment
- Correct Midfoot abduction
- Restore Arch
- Fusion
- NWB 6 weeks



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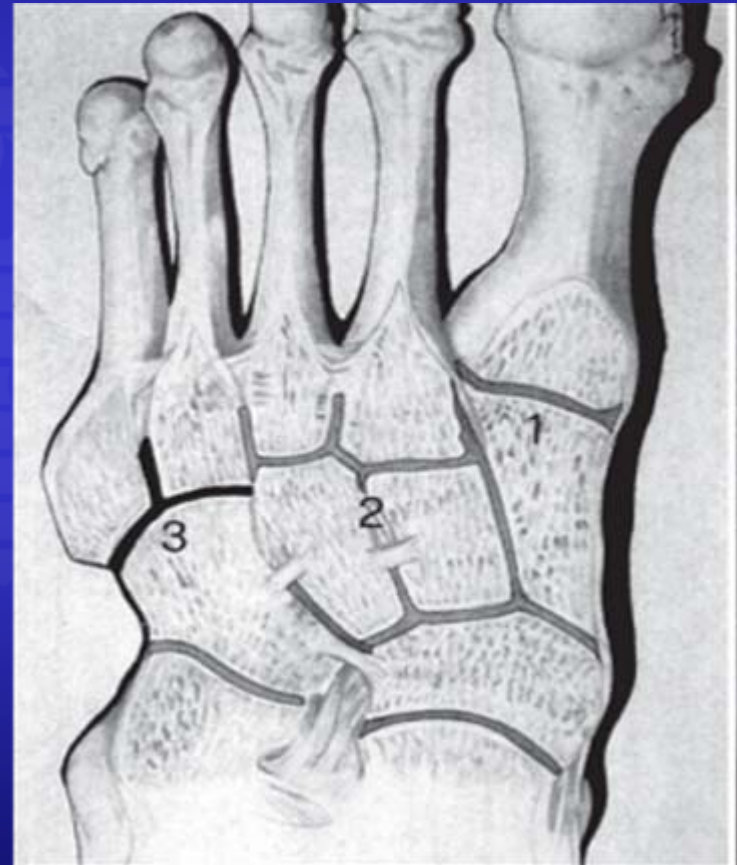
Summary

- Main Cause of Midfoot arthritis
Lisfranc injury
- Treatable if detected early
- Late detection or arthritis- Orthoses or Midfoot Fusion



Summary

- High Suspicion for Lisfranc injury
- Weight bearing x-rays
- Examination under anaesthesia
- Operative fixation
- Return to sport no earlier than 6 months



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Thank You



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