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Ankle Fracture Repair (ORIF)

Ankle fractures are a common injury, but not all ankle fractures require surgical fixation. Ankle fractures where crucial ligaments remain uninjured can be treated without surgery in a walking CAM boot. When the ligaments are injured or bones where the ligaments attach to are fractured, it can change the biomechanics of the ankle leading to arthritis which can result in significant future functional impairment. These types of fracture are considered unstable and often require surgical fixation to ensure best functional outcome.

However, not all unstable ankle fractures are surgically repaired in the same manner. There are several different types of ankle fractures which require different surgical fixation methods. Most commonly, the distal part of the fibula (lateral malleolus) is fractured and requires fixation with a plate and multiple screws. On the medial aspect of the ankle, either the bone (medial malleolus) can be fractured or the deltoid ligament can be ruptured. Medial malleolus fracture requires multiple screws or plate and screws. The deltoid ligament is an integral part of the ankle stability and the current literature supports repairing the deltoid ligament at the time of surgery.

More complex injuries to the ankle involve fracture of joint surface known as the articular surface. This is where a CT scan is helpful in providing detailed information regarding morphology of the fracture pattern especially in the tibia. Fixation of these fractures are necessary in order to restore normal anatomy for optimal function. This can be achieved using fracture specific anatomic plates which we have helped design. Ankle fracture variant called maisonneuve injury involves injury to the ankle ligaments on the medial and lateral aspect of the ankle. This type of injury may not appear significant on x rays since there may or may not be a bony fracture, but this type of injury is deceptively difficult to manage. In maisonneuve ankle fracture, all ligaments need to be fixed in order to restore normal anatomy.

Ankle fracture repair surgery is an outpatient surgery which requires you to remain non weight bearing for 2 to 6 wks. After this period, the patient progresses into regular shoes and into regular activities fairly quickly with help from physical therapy. In the short term, mild stiffness and occasional achiness in the ankle is expected. Long-term, post-traumatic ankle arthritis is expected as late sequela depending on the severity of the initial injury.

There are many subtle injuries to the ankle that can be easily missed and your orthopaedic surgeon has to be vigilant about looking for them. With our experience as orthopedic foot and ankle surgeons, we have encountered and repaired almost every type of ankle injuries possible. At Northwestern Memorial Hospital, we have the capability of obtaining weight bearing CT scan for complex ankle injuries which can ultimately change the way an ankle fracture should be surgically fixed. This type of CT scan only takes about five minutes to obtain and can be performed during your office visit which allows for images to be reviewed right away. There are various ways an ankle can be surgically fixed. It has to do with one's

philosophy on how the ankle gets its stability. Through our research and publications, we believe the ankle should be fixed as anatomically as possible with ligament repair and fracture specific fixation methods. This way, the ankle has the best chance at having as normal a function as possible and minimize the chance of ankle arthritis.

Our Published Literature Related to Ankle Fractures

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4. Arthritis Of The Ankle. *Essential Orthopaedics*. (2019) - **Book Chapter**
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6. Revision Total Ankle Replacement. *Reconstructive Foot & Ankle Surgery: Management Of Complications*. (2019) - **Book Chapter**
7. Total Ankle Replacement. *Reconstructive Foot & Ankle Surgery: Management Of Complications*. (2019) - **Book Chapter**
8. The Use Of Bulk Fresh Osteoarticular Allografts In Ankle Reconstruction. *Reconstructive Foot & Ankle Surgery: Management Of Complications*. (2019) - **Book Chapter**
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10. Disorders Of The Foot & Ankle. *Miller's Review Of Orthopaedics*. (2019) - **Book Chapter**
11. Overview Of The Ankle & Foot. *Essential Orthopaedics*. (2019) - **Book Chapter**
12. Biomechanical Analysis Of Instability In Rotational Distal Fibula Fractures (OTA/AO 44-B1) With An Intact Deltoid Ligament. *Journal Of Orthopaedic Trauma*. (2019)
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14. Ankle Fractures: Open Reduction Internal Fixation. *Key Techniques In Orthopedic Surgery*. (2018) - **Book Chapter**
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24. Total Ankle Arthroplasty Versus Ankle Arthrodesis-A Comparison Of Outcomes Over The Last Decade. *Journal Of Orthopaedic Surgery & Research*. (2017)
25. Total Ankle Arthroplasty Versus Ankle Arthrodesis-A Comparison Of Outcomes Over The Last Decade. *Journal Of Orthopaedic Surgery & Research*. (2017)
26. Guest Editorial: Soft Tissue Reconstruction In The Foot & Ankle. *Techniques In Foot & Ankle Surgery*. (2017)
27. A Biomechanical Comparison Study Of A Modern Fibular Nail & Distal Fibular Locking Plate In AO/OTA 44C2 Ankle Fractures. *Journal Of Orthopaedic Surgery & Research*. (2016)
28. A Novel Algorithm For Isolated Weber B Ankle Fractures: A Retrospective Review Of 51 Nonsurgically Treated Patients. *Journal Of The American Academy Of Orthopaedic Surgeons*. (2016)
29. Safety & Outcomes Of Inpatient Compared With Outpatient Surgical Procedures For Ankle Fractures. *Journal Of Bone & Joint Surgery*. (2016)
30. Open Reduction & Internal Fixation Of Ankle Fractures. *Operative Techniques In Foot & Ankle Surgery*. (2016) - **Book Chapter**
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