# ***SUMMARY AND CONCLUSION***

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Foot and ankle structures bear massive amounts of force during athletic activities and are naturally susceptible to a vast and ever-expanding array of injuries.

The ankle is one of the most frequently injured joints. In order to a better understanding of these lesions, a classification based on the anatomic origin is outlined. In this study, the spectrum of injuries has been classified into : (1) osseous lesions, (2) ligamentous injuries, (3) tendinous lesions, (4) miscellaneous injuries**.**

It is easiest to organize the approach to analyze pathology at the ankle by considering compartmental anatomy. The compartments can simply be divided into the anterior, posterior, lateral, and medial soft tissue compartments.

MR imaging has become the modality of choice in the evaluation of most of these lesions.

Magnetic resonance imaging is playing an increasingly important role in evaluation of the injured foot and ankle. Magnetic resonance imaging allows accurate detection of bony abnormalities, such as stress fractures, and soft-tissue abnormalities, including ligament tears, tendon tears, and tendinopathy. The interpreter of magnetic resonance images should systematically review the

images, noting normal structures and accounting for changes in soft-tissue and bony signal.

After ankle trauma, the patients present with pain so in order to shorten the examination time , we should choose the most beneficial and informative MRI sequences.

When imaging the foot and ankle after an injury, we employ pathology-sensitive and anatomy-specific MR sequences in multiple imaging planes. In most cases, a pathology-sensitive sequence in the form of a T2-weighted sequence with fat suppression or short tau inversion recovery (STIR) is obtained in different planes and anatomic T1-weighted sequences are performed. It is important for one bone marrow-specific sequence, usually T1 weighted, to be obtained without fat suppression.

Short TR-TE T1-weighted images provide the general anatomic information and clearly depict abnormalities related to the marrow space and fat planes.

T2 weighted images utilize relatively long TR and TE and contribute high specificity regarding tendinous pathology. They have poor signal to noise ratio but are essential for soft tissue edema, fluid collection and for characterizing signal intensity alterations within ankle tendons.

The addition of fat suppression technique increased the sensitivity in detection of small amount of fluid contained in small tendinous and ligamentous tear. In comparison to the conventional spin echo imaging, use of fat suppression has been reported to increase the sensitivity for detecting partial tears from 67% to 92% ***(Mirowitz 2003).*** The use of an intermediate TE in FS T2-weighted images has an additional value in demonstrating underlying cartilage lesions.

So according to the clinical suspicion and examination we suggest the following sequences:

- In osseous injuries: T1 WI and fat suppression sequences in any plane.
- In osteochondral lesion of the talus: coronal T1 WI, T2 WI and fat suppression sequences.
- In ligamentous injuries: axial T1 WI, T2 WI and fat suppression and coronal fat suppression sequences.
- In tendinous injuries (except Achilles tendon): axial T1 WI, T2 WI and fat suppression sequences.
- In Achilles tendon injury: sagittal T1 WI and fat suppression sequences.
- In sinus tarsi syndrome: sagittal T1 WI and fat suppression sequences.
- In tarsal tunnel syndrome: T1 WI and fat suppression in any plane.