SUMMARY & CONCLUSION

MRI is crucial in identifying the specific structures that are injured and the severity of such athletic injuries to the elbow. The ligamentous, osseous, musculotendinous, and neural structures of the elbow are at risk for various injuries in overhead athletes. These injuries can be the result of a single traumatic event or repetitive microtrauma. The combination of valgus and extension overload during overhead activities results in tensile forces along the medial stabilising structures with compression on the lateral compartment and shear stress posteriorly. The combination of tensile forces and shear forces can result in collateral ligament tears, tendinopathies, nerve injuries, posterior impingement, and or stress fractures.

MR multiplanar capabilities and superior tissue contrast afford detailed evaluation of complex anatomy. Proper coil selection, pulse sequence parameters, and patient positioning enhance the ability of MR imaging to demonstrate subtle injuries. MRI should be the imaging modality of choice for the patient with complex sports – related elbow pain.

MR imaging is a highly valuable in the evaluation of subtle injuries to the ligaments and the regional osseous and soft tissue structures, including those not easily

visualized at surgery. The primary ligamentous stabilizers of the elbow are the A-MCL and LUCL. Pathology of the MCL, encompassing acute and chronic injury, as well as the associated findings of posteromedial impingement, is often a difficult clinical diagnosis to establish, and MR imaging can be helpful in distinguishing ligamentous from tendinous or cartilaginous injury. Similarly, the LUCL is well evaluated on MR imaging and in the presence of pathology, the diagnosis of posterolateral rotatory instability can also be made. MR imaging is useful in the evaluation of children with elbow pain, or traumatic dislocation as it can demonstrate physeal as well as ligamentous and osseous injuries.

An understanding of the muscle and tendon pathology about the elbow can be challenging because of the numerous structures arising from and attaching to the osseous structures of this articulation. Familiarity with the complex muscle and tendon anatomy of this joint and with commonly encountered pathology occurring in these structures facilitates diagnostic accuracy as well as injury characterization. In the classification of elbow tendon and muscle injuries, one should keep in mind that the vast majority of injuries are related to repetitive microtrauma rather than a single posttraumatic event. Furthermore, associated findings commonly encountered with tendon and

muscle injuries can prove important in treatment planning, and can offer insight into mechanism of injury. Finally, MR imaging can prove instrumental in distinguishing between valid differential considerations based on physical examination findings and in providing specific information regarding a known injury.

MR imaging is a useful modality for diagnosing compressive neuropathies at the elbow. The most typical finding is denervation muscle edema and atrophy. Morphologic and signal alterations of the affected nerves also may be detected. This review outlines the essential MRI values in analyzing factors that must be considered in injuries in the sporting elbow and provides details of some of the conditions that are encountered.