The metacarpo(tarso)phalangeal joint (MPJ) or fetlock joint is often a source of lameness in sport horses of many different disciplines. However lameness referable to the fetlock region can sometimes be difficult to accurately diagnose. A careful and complete examination of the distal limb of the horse will often indicate the fetlock as a clinical problem. However, a positive distal limb flexion, often thought to be associated with a MPJ problem may actually be due to lameness from elsewhere on the limb. In contrast the clinical examination may not conclusively identify the MPJ as the source of lameness. Confirming the MPJ region as the source of pain is critical to direct imaging of the appropriate area of this region. Placement of local analgesia directly into the MPJ (intra-articular or intra-synovial) often results in a rapid and significant resolution of the lameness of the fetlock joint. However some conditions that affect this joint (particularly in young racehorses in race training) do not respond to intra-articular analgesia but require peri-neural (regional) diagnostic analgesia to resolve the lameness. Regional diagnostic analgesia should be performed in a distal to proximal sequence with the clinician being cognizant that properly placed nerve blocks can anesthetize structures proximal to the site of injection. If the fetlock is considered the source of lameness then intra-articular analgesia of the MPJ should be performed first. If this is negative then analgesia of the digital nerves at the level of the base of the sesamoid nerve block should be then be performed eliminating the distal limb as a source of pain. If this is negative then a low palmar/plantar nerve block to isolate the MC region as the source of the lameness should be performed.

Once the MPJ is determined to be the source of the pain diagnostic imaging is directed to evaluate the bone and soft tissue structures of the joint. As many injuries that occur in the fetlock involve multiple structures careful assessment of both bone and soft tissue structure involvement should be performed. Knowing the specific structure(s) and the severity of injury is critical to appropriately determine the prognosis and appropriately treat the injuries of this area. Radiographic and ultrasonographic (and occasionally nuclear scintigraphy) examinations are routinely utilized to evaluate the MCJ. Radiographic examination and nuclear scintigraphy are considered bone imaging techniques and ultrasonography a soft tissue imaging technique. Each of these imaging techniques has known limitations when assessing the MPJ. When clinical examination and diagnostic analgesia indicates the fetlock joint as the source of pain but these examination techniques provide little definitive results MRI examination is indicated. MRI is now considered the gold standard for imaging the distal limb of the horse providing information about both bone and soft tissue while also demonstrating both pathologic and physiologic changes in tissue.

A recent study from NCSU discussed the findings of 40 horses that had MRI examination of the fetlock region that had been performed over the last 6 years. All horses had been referred for comprehensive lameness evaluation or specifically for MR imaging. Radiographic, ultrasonographic and scintigraphic examinations were not performed in all cases but when done were within normal limits or equivocal with regard to explaining the clinical signs. Twenty-eight horses had fore limb lameness while 12 horses had hind limb lameness. There were 25 geldings, 13 mares and 2 stallions. The breed distribution was representative of the hospital caseload with 22 Warmbloods, 8 Quarter horses, 7 Thoroughbreds, 2 Arabians and a
pony. The disciplines affected were also representative of the hospital population with 18 hunter-jumpers, 11 dressage horses, 3 three-day event horses, 3 racehorses, 2 western pleasure horses, 2 pleasure horses and 1 reining horse. Bilateral abnormalities were found in 11 of 40 horses (28%) horses (7 in fore limbs and 4 in hind limbs) and unilateral abnormalities were found in 29 of 40 (73%) horses (21 in fore limbs and 8 in hind limbs).

The frequency of occurrence of MR lesions was defined as subchondral bone injury (19), straight and/or oblique distal sesamoidean desmitis (13), articular cartilage injury and osteoarthritis (8), suspensory branch desmitis (8), osteochondral fragmentation (7), proximal sesamoid bone injury (7), intersesamoidean desmitis (4), deep digital flexor tendonitis (4), collateral desmitis (3), superficial digital flexor tendonitis (2), enostosis-like lesions of the proximal phalanx or metacarpus (2), desmitis of the palmar annular ligament (1), desmitis of the proximal digital annular ligament (1) and dystrophic calcification of the lateral digital extensor tendon (1). Twenty-five horses had multiple MR abnormalities.

Subchondral bone injury in these nonracehorses was the most common injury and occurred predominantly in the dorsal aspect of the medial condyle (47% of horses). Desmitis of the distal sesamoidean ligaments was the next most common injury (32% of horses) with straight distal sesamoidean ligament (SSL) desmitis being more common than in the oblique distal sesamoidean ligament (7 SSL, 5 OSL & 1 with both). Desmitis of the SSL occurred bilaterally in 2 horses. Osteoarthritis or focal cartilage injuries were the third most common diagnosis in this study (20% of horses). Suspensory branch injury occurred fourth (7 cases/20% of horses). Concurrent soft tissue and osseous injury was found in 13 of 40 horses (32%).

**Discussion**

Diagnostic analgesia of the horses in this study was not reported but is discussed here. Lameness was completely resolved in 25 horses while 13 were significantly improved. As expected intra-articular analgesia improved lameness in 23 out of 26 horses in which it was performed and lameness was significantly improved with a low 4- or 6-point nerve block in 12 horses. However some very confusing results did also occur. In example palmar digital analgesia resulted in significant improvement of lameness in 7 horses and basi-sesamoid analgesia significantly improved lameness in 8 horses. Digital flexor tendon sheath analgesia was performed in 6 horses and lameness improved significantly in 5. Thirteen of 23 horses that improved to intra-articular analgesia had extra-articular soft tissue injuries confirmed with MR examination. Injury to the distal branches of the suspensory ligament (4/7 horses) or distal sesamoidean ligaments (6/9 horses) was abolished with intra-articular analgesia.