

# Navicular Bone Fragments' Effect on Lameness (AAEP 2012)

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Updated: Sunday, February 24, 2013 8:00 AM

Posted: Sunday, February 24, 2013 8:00 AM

Originally published on [TheHorse.com](#)

Although researchers have been studying the equine navicular bone for years, many mysteries still surround it. For instance, advanced imaging techniques give veterinarians a clearer picture than ever of irregularities or damage to the navicular bone, but it's not always evident what such pathologies mean for a horse's soundness. Elizabeth Yorke, DVM, of Yorke Equine Veterinary Services, in Auburn, Ala., and colleagues at Alamo Pintado Equine Medical Center, in Los Olivos, Calif., and Auburn University, recently evaluated the possible association between distal border fragments (bone fragments on the lower border) of the navicular bone and clinical lameness.

Yorke described the research at the 2012 American Association of Equine Practitioners Convention, held Dec 1-5 in Anaheim, Calif. The team hypothesized that horses with distal border fragments of the navicular bone are more likely to be lame and that larger fragment size would result in more severe lameness. To test their hypotheses, they reviewed the records of 453 horses that underwent MRI for lameness of the distal forelimb.

The researchers identified:

- Distal border fragments in 13.25% of horses and 10% of feet.
- In limbs without fragments, a mean lameness score of 1.8 out of 5 (with 5 being most severe); in horses with one or more fragments, a score of 1.57 out of 5.
- In statistical tests, horses with a fragment were *not* more likely to be categorized as lame.
- Mean size of 66.3 mm<sup>3</sup> for fragments at the lateral angle (situated to the outer part of the limb) of the distal border and 41.3 mm<sup>3</sup> for fragments at the medial (toward the horse's midline) angle of the distal border.
- No significant difference in fragment size across lameness grades.

In summary, the team found that limbs with distal border fragments weren't necessarily more lame than limbs without fragments and that fragment size did not dictate lameness severity. Yorke noted that the team found limbs with fragments on both the medial and lateral angles of the distal border of the navicular bone were more likely to be classified as lame.

"While previous research has shown that distal border fragments occur at a higher frequency in horses with navicular syndrome, our study indicates that the simple presence of a fragment is unlikely to be a significant contribution to existing lameness," Yorke said.

"In this study, we evaluated the association of distal border fragments to current lameness, but the contribution to future lameness remains to be clarified," she continued. "The presence of a fragment in a non-lame limb may be an indicator of subclinical degeneration of the navicular bone." In other words, the horse might have existing damage to the navicular bone that's not causing obvious clinical signs.

Yorke believes researchers should conduct further studies to determine if sound horses with distal border fragments are likely to develop lameness. "For example," she concluded, "it would be useful to determine the significance of a distal border fragment found incidentally on a prepurchase examination on the prognosis for future soundness."

Disclaimer: Seek the advice of a qualified veterinarian before proceeding with any diagnosis, treatment, or therapy.