Your Horse's Health
Veterinary Medicine with
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Overview of Ringbone in Horses

Figure 1. Note the smooth borders of the bones along the front of the Pastern Joint of this normal horse.

The pastern joint, also known as the proximal interphalangeal joint, is a relatively common source of lameness in horses (Figure 1). Degenerative joint disease/arthritis of this joint is commonly referred to as high ringbone. Low ringbone refers to the same type of degenerative joint disease of the coffin joint and is much less common. Horses afflicted with high ringbone are difficult to keep sound. The area is similar to the lower hock joints in that it is a "high-load/low motion" joint, meaning the joint is subjected to a lot of pressure but undergoes very little movement. Unlike the lower hock joints, the pastern joint does not respond consistently to intra-articular injections.

The diagnosis of high ringbone is based on localizing the source of the lameness to the pastern joint with nerve and/or joint blocks. Lameness can be classified as minor and only apparent with extreme exercise or severe enough to cause lameness at a walk. Radiographs and ultrasound are useful in confirming the diagnosis and determining the severity of the disease. Radiographically you see new bony growth along the front and the sides of the joint (figure 2).

Figure 2. Compare the new bony growth along the front of this arthritic pastern joint to the normal one in figure 1.

These bony prominences can sometimes be seen and felt prior to radiographs during the physical examination. If the disease was traumatic in origin, ultrasound can be particularly useful in identifying any concurrent soft-tissue injuries complicating the prognosis. A complete series of radiographs is necessary to determine the severity of the disease as the sides of the joint can only be seen on oblique views. Quarter Horses are predisposed to ringbone due to the rotational forces they exert on their lower limbs during the sudden stopping and turning common in Western Performance. Treatment of ringbone can be divided into medical and surgical options. Medical management of ringbone is aimed at slowing down the progression of cartilage degeneration and reducing pain and inflammation associated with the condition. Helping to "ease the breakover" of the foot will decrease the forces subjected to the front of the joint and can be accomplished by a farrier "squaring" the toe and "rolling" the shoe.

Like any lameness condition, there are many ways to shoe for the same problem. Anti-inflammatories like Phenylbutazone ("bute") are used to decrease inflammation associated with acute flare-ups of the condition and to manage horses on a long-term basis. Many horses with ringbone can be sound enough for light use by giving bute before and after exercise. Oral joint supplements alone are unlikely to be sufficient to provide relief but are thought by some to slow down the progression of the disease. More aggressive joint supplementation would include Legend? and/or Adequan?. Legend is an intra-venous form of hyaluronic acid which is important in lubrication of joints and is an essential component of joint fluid. Some horses with ringbone will be sound enough for athletic use with Legend therapy alone. Adequan is an intra-muscular injection and is thought to delay the progression of cartilage degeneration. Injecting the pastern joint is not rewarding as consistently as some other joints but should be attempted to evaluate an individual horse's response. There is tremendous variability with regards to how long an individual horse will respond to pastern joint injections.

If controlling the disease with anti-inflammatories, shoeing changes and joint therapy is not sufficient to allow pain free performance, surgically fusing the joint may be the only option to provide pain free performance. While this procedure involves a major surgery, it offers the possibility of complete return to work and relief from pain for many horses. Research has shown that 2 out of 3 horses with ringbone of the forelimbs and greater than 4 out of 5 horses with hindlimbs affected will be sound enough for athletic use with surgical fusion. This joint is fused with a combination of plates and screws (Figure 3). Typically horses are maintained in a cast for several weeks, then a bandage and stall rest for several months prior to returning to full work.

Figure 3. Horse with a surgically fused pastern joint.

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As with any lameness condition, your veterinarian and farrier need to work together to provide your horse with the highest level of soundness possible and to help you determine the best course of action for your particular horse.

Tim G. Eastman DVM, DACVS, MPVM was raised in Monterey County California where his family had deep roots in the local horse industry. Like many veterinarians, he decided to become an equine veterinarian at a very young age. He obtained a degree in Animal Science at Cal Poly San Luis Obispo and a business minor. He also obtained a doctorate in Veterinary Medicine from the University of California at Davis in 1996' as well as a Master's Degree in Preventative Veterinary Medicine. He performed a one year internship at Littleton Large Animal Clinic in Littleton Colorado and then a 3 year surgical residency at Texas A&M University in College Station Texas . He met his wife, Alexandra (Alex) in veterinary school and got married during his surgical residency. They now work together as co-owners of Steinbeck Country Equine Clinic in Salinas California.