

## *A Peek Inside The Equine Foot: The Value of Digital Radiography for Hoof Balance*

By Heather Hilgartner, DVM

Wouldn't it be nice if your veterinarian and farrier had X-ray vision, and could see exactly what was going on within your horse's foot with a single glance? There are many indicators of hoof balance, soundness, and general hoof health that can be assessed from outside the foot. However, digital radiography (DR) offers additional insight about balance, alignment, and disease within the hoof capsule. Improper balance of the foot leads to abnormal forces on the bones and soft tissue structures, which can potentially lead to injury. Routine radiographic imaging of the foot can be utilized to guide in trimming, shoeing, injury prevention, and treatment of injury, whether your goal is to keep your horse healthy and happy at pasture, or to facilitate optimal performance of a competitive equine athlete.

### **What is Digital Radiography?**

Put simply, an X-Ray beam is directed from a tube, through the field of interest, in this case, the foot, onto a plate. Information from the plate is sent to a computer with a monitor that displays the image within seconds. DR is superior to conventional radiography, which requires manual development of films. DR is less time and labor intensive than conventional radiography, and allows for immediate image adjustment to visualize and evaluate bone and soft tissue structures. Many veterinarians carry DR units on their trucks and/or have access to one in the clinic setting.

### **My horse isn't lame. Why would I want radiographs?**

Most of us are familiar with DR as a hallmark diagnostic tool in the veterinary lameness workup. It is important, however, to keep in mind that radiographic

changes within the foot can occur with or without lameness. Establishing baseline digital radiographs of your horse can be of great value in identifying problems before they cause lameness and to serve for future reference. Maintaining proper hoof balance through trimming and shoeing is relatively noninvasive and can save you money in the long run in comparison to diagnosing and treating an injury after it has occurred.

### **What can I expect?**

- Your horse's feet will be placed on wooden blocks.
- Everyone present will wear protective lead gowns.
- Images will be obtained.
- The veterinarian will examine the radiographs and discuss the findings with you.
- Our clinic offers veterinarian-farrier consultations, and is happy to work as a team with your farrier to develop a plan to keep your horse's feet in balance. All of your horse's radiographs are archived for at least 7 years, so they can be accessed and compared to future films at any time.

### **What can your veterinarian see with DR?**

- Alignment of the bones of the pastern and foot. For example, the presence of a "broken back" or "broken forward" hoof-pastern-axis can be identified. A "broken back" hoof-pastern-axis occurs when the pastern angle is steeper, or more upright than the dorsal hoof wall. "Broken forward" conformation occurs when the dorsal hoof wall angle is steeper than the pastern angle.
- Angles within the foot can be measured, including the dorsal hoof wall, dorsal third phalanx or "coffin bone", and the palmar angle of the third phalanx.

- Medial-lateral balance, center of balance, toe length, sole depth, and dorsal hoof wall thickness can be measured.

- Signs consistent with acute or chronic disease, including, but not limited to, pedal osteitis, laminitis or "founder", navicular syndrome, some soft tissue injuries, and osteoarthritis can be assessed.

- Degenerative changes that are not "normal", but often occur in horses as they age, can be monitored. These changes may or may not cause lameness.

In summary, DR of the foot can offer valuable information about the current status of your horse's foot balance. Like knowing your horse's baseline temperature, pulse, and respiration, foot radiographs can prove very useful to veterinarians and farriers alike to guide in treatment and prevention of disease stemming from the foot. The foot is the foundation of the horse. Where does your horse "stand" in terms of hoof health?

Contact Brandon Equine Medical Center at 813-643-7177 or email [info@brandonequine.com](mailto:info@brandonequine.com) with any questions regarding this topic.

This article originally appeared in Horse & Pony magazine in October 2012 and was updated in May 2014. It is reprinted with their permission.