

Back Problems in Horses: Understanding a Mysterious Part of Equine Anatomy

While back pain is poorly understood in human medicine, equine back pain is even more difficult to comprehend, diagnose and treat. We start with an animal who can't tell us where or how it is experiencing pain. This animal is so massive that we only have access to the very "shallow" layers by touch, radiography and most other diagnostic equipment. The spine is buried up to a foot deep in heavy muscle and tough connective tissues sheets. Now introduce tack, the trainer's and rider's interpretations of the problem, and the placebo effect – and we are faced with a difficult and confusing problem to solve.

COMMON SIGNS OF EQUINE BACK PAIN

Signs of equine back pain are usually subtle and are often confused with those caused by other problems, including behavioral issues. Some horses are more sensitive to back pain than others or respond differently to it and show more obvious signs. The most common signs I hear associated with back pain are:

- Some reduction in performance, in whatever discipline the horse is engaged in. This can be difficult to separate from rider, trainer and horseability and performance, and from low-grade lameness.
- Behavioral problems such as rearing or bucking. This can be challenging to differentiate from that caused by training and riding problems.
- Rider or trainer report of apparent soreness to touch or pressure on the back. Responses to back pressure and manipulation differ among horses and interpretation differs between examiners. Just because a horse reacts

does not necessarily mean that it is experiencing significant back pain.

- Resistance to saddling, or trouble shoeing. Again, the challenge here is to separate true back soreness from behavioral and training problems or other physical problems.

EQUINE BACK ANATOMY & FUNCTION

The most important thing to know about the anatomy of the equine back is that it is very complicated. There are hundreds of joint surfaces and small stabilizing ligaments. There are massive muscles and thick ligaments that attach adjacent vertebrae to one another, to the skull, and the vertebral column to the limbs. There are multiple, intersecting sheets of extremely tough and thick connective tissue surrounding the spine. Nerve roots exit from the spinal cord through small spaces between and in the vertebrae and course between the sliding planes of connective tissues. Vertebrae have spines of bone that project upward or outward and to which the back muscles attach. Only the very tips of these spines can be felt along the horse's back. The spinal cord is located far deeper in the back than most horse people think.

The vertebrae (the individual back bones) are essentially cube-shaped bones separated by joints. There are four distinct regions of the equine back, each of which have uniquely shaped bones and joints and different ranges of motion. In each region, unique vertebral design, joint design and support and muscle attachment allows for more or less flexibility side to side, up and down and in rotation. The basic form and function of the equine back is critical information in understanding back pain and the causes of and treatments for that pain. Desirable back conformation is also very important for an animal that is expected to perform athletically with the weight of a rider on its back.

DIAGNOSIS OF BACK PAIN

Veterinary examination of the equine back is difficult. The muscles are so heavy and thick that it is impossible to evaluate the deeper structures that might be involved simply by feel. That said, a thorough physical examination (at rest and in movement) is still the cornerstone of diagnosis. When I evaluate a horse for back pain, I do the following:

- I first look at the whole horse and evaluate the general conformation and symmetry of the back.
- I palpate accessible muscles, ligaments and bony prominences and evaluate them for normal tone, shape, size, symmetry, and pain depending on the structures examined.
- I evaluate different regions of the back for motion on several planes and gauge the response to attempted manipulation.
- I attempt to rule out lameness that might underlie the back soreness. I do this by examining the limbs and seeing the horse in motion.
- In many cases, I evaluate movement both with and without a rider.
- Finally, if I feel it is indicated, I may evaluate tack fit.

ADDITIONAL DIAGNOSTICS

Depending on the circumstance and my findings during a thorough clinical exam, I recommend diagnostics that may provide additional information helpful to reaching a definitive diagnosis:

- I often take radiographs of the neck and withers. Quality images of the spine of the neck to the withers can be obtained with today's x-ray generators and digital technology.
- The vertebral column through the barrel and loin of the

horse can only be imaged with the most powerful radiographic equipment not available to most veterinarians. If your veterinarian does not offer this capability, they can usually refer you to a facility that does.

- I often use ultrasound to visualize the soft tissues of the back, but it too has limitations. Ultrasound is not good for visualizing deep structures and can only image the surface of bone. Ultrasound can be used on the skin over the back to image areas of swelling or soreness and the normal soft tissue structures of the accessible parts of the back. It also can be used trans-rectally to view the underside of the vertebrae that can be reached that way. Ultrasound is being used more and more to diagnose problems of the back.
- Nuclear scintigraphy or bone scan can be a very useful way to find areas of increased bone turnover (and thus injury) in the back. This diagnostic is not offered by many veterinary practices due to the cost of the equipment and the regulation imposed on users, but it is available at many larger referral practices and universities. *See Subtle or Hard to Diagnose Equine Lameness: What Horse Owner's Should Know for more information.*
- Practitioners of chiropractic and acupuncture tend to focus a great deal on the back. These practitioners use specific techniques to help define and treat problem areas. There is controversy regarding the effectiveness of these alternative therapies in horses. In my experience, the ability of these modalities to help a situation is all about the practitioner. I generally prefer to refer my clients to practitioners that are also equine veterinarians. I feel that these practitioners are more likely to have a solid medical background and understanding of equine anatomy and

physiology.

PRIMARY & SECONDARY CAUSES

Primary back pain can result from lesions of the skin, muscle, connective tissue, nerves, joints and bones of the back. These are usually a result of some traumatic injury – either an individual injury or chronic wear and tear. Poor tack fit can contribute to or cause these problems. Poor riding can cause or worsen problems. Different types of primary back problems affect horses of different types, from different disciplines, and of different conformation.

Secondary back pain or soreness is a result of an underlying lameness, or back soreness somewhere else resulting in a change in movement. Hind limb lameness, especially hock pain, is frequently associated with back pain but any lameness can result in secondary back pain. The back and limbs are linked in anatomy and function. If a horse is not moving symmetrically and freely for any reason, soreness and asymmetry will often develop in the back.

POOR SADDLE & TACK FIT

The main concern of good saddle fit is that the force bearing surfaces of the saddle conform well to the horse's back and evenly distribute the weight of the rider. There should not be focal areas of pressure anywhere. The saddle should be level, front to back, and sit in such a position that it favors the free movement of the horse and reduces discomfort. A saddle that fits correctly should put the rider in a position where he or she is balanced, not thrown forward or backward.

I often use this commonly described analysis when looking at a horse and rider: Look at the horse and rider from the side.

If the horse is removed from the image, the question is whether the rider would be able to balance on the ground given where their feet are located. If not, there may be a saddle problem (or rider positioning problem) that could be

contributing to back pain. In addition, improperly adjusted or fitting bridles and poor riding can cause a horse to resist the bit and raise the head high, which causes the horse to flatten or hollow its back. This counteracts the correct physics of the horse's back, reducing performance and potentially leading to back soreness.

TREATMENT FOR EQUINE BACK PROBLEMS

If a diagnosis can be reached, treatment may involve addressing the primary contributing factors like conformation and suitability for the present use, underlying lameness, tack fit and rider technique and position. Veterinary treatments for back pain depend on the specific nature of the injury and may involve combinations of the use of rest, change in use, anti-inflammatory drugs, muscle relaxants, direct injection of affected muscles, ligaments and joints, therapeutic ultrasound, pulsed shock wave therapy, physical therapy, massage, application of heat and cold, chiropractic, acupuncture, and many others, often used in combination.

Even with advanced technology and imaging, and dozens of available treatment approaches, the equine back will likely remain something of a mystery for a long time. Proper treatment should always start with every attempt being made at a diagnosis. Is this primary back soreness or is it secondary to an underlying low-grade lameness? Is there a behavioral component?

While many lay practitioners may have a single perspective that has some value, your equine veterinarian is still the one who is trained to put the whole picture of your horse's health in perspective. They can help you coordinate your approach towards better understanding the equine back.

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