



NEBRASKA EQUINE VETERINARY CLINIC

10261 County Road P38A ~ OMAHA, NE 68142

PHONE: 402-533-1151 ~ FAX: 402-533-1159

Email: office@nebraskaequine.com

**Michael J. Black D.V.M.**

**Michael P. Thomassen D.V.M.**

**Kimberly N. Conover D.V.M.**

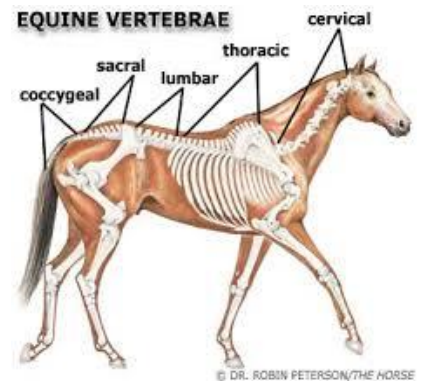
## Acupuncture for Back Pain in Horses

By: Kim Conover, DVM

Back pain is a common cause of poor performance in horses. Symptoms of back pain include pain on palpation of the muscles or bony structures, change in behavior such as bucking or refusing jumps, reluctance to take a certain lead, resenting grooming or saddling, and lameness or gait abnormalities that cannot be attributed to the limbs.

### Sources of back pain

The back is comprised of a complex network of bones, tendons, ligaments, muscles, and nerves that all must work together to coordinate movement of the spine as a whole. There are 23-24 thoracic and lumbar vertebrae and the joints between them, 18 ribs, the spinal cord running through the vertebral canal, nerves exiting the foramina between vertebrae, and numerous tendons, ligaments, and muscles that support and move the spine. Any of these structures may be a source of pain, or there may be a combination of contributing factors.

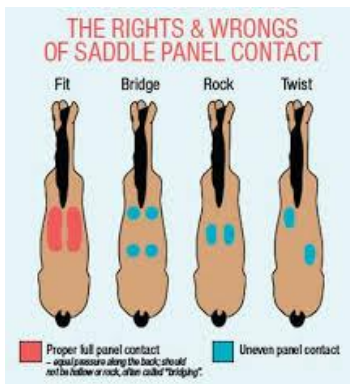


### Causes of back pain

The first step in addressing back soreness should be a thorough investigation into the underlying cause. Possible reasons for back pain include:

- Compensation for limb lameness
- Injury to bones, tendons, ligaments, or muscles of the back
- Degenerative conditions, such as arthritis of the vertebral facet joints
- Conformation
- Poor saddle fit
- Referred pain from internal organs

Horses commonly develop back soreness secondary to lower limb lameness. For instance, a horse that has front foot soreness due to navicular disease will compensate by shifting its weight backward and therefore put more stress on its thoracic and lumbar back muscles. A horse with hindlimb lameness such as hock arthritis will respond by tensing lumbar muscles to keep stress off of the hindlimb. In many of these cases, if the underlying lameness is treated, the back pain will eventually resolve as well. However, a percentage of these horses will remain back sore even after the lameness is improved and it is important to address both the cause of the lameness and the secondary back pain.



Saddle fit should always be evaluated in a horse with back soreness. Ill-fitting saddles can bruise, pinch, or rub underlying tissue. A horse's musculature can change significantly with fitness level, so a horse's saddle needs can change from the beginning of a training program when a horse is out of shape and muscles have atrophied compared to the same horse in fit condition with well developed musculature.

A less common source of back pain could be referred pain from internal organs. Similar to a person who experiences back pain due to kidney stones, horses can manifest pain coming from internal organs in their back and body wall. Each segment of the spinal cord has nerves that innervate internal organs as well as nerves that innervate the muscles of the body

wall, which is a possible explanation for why people and animals experience this type of referred pain. A physical exam and other diagnostics may be warranted to rule out medical conditions such as gastric ulcers.

Although back pain is sometimes secondary to another condition, there are many primary causes also. Horses that are out of shape entering a training program can develop primary back muscle soreness. Other causes include injuries to the muscles, tendons, ligaments, or bones supporting the spinal cord, or degenerative conditions such as arthritis or spondylosis of the vertebrae. Whether primary or secondary, back pain should never be overlooked. As muscles tense and tighten over time, they can remain painful even after the initiating cause has been resolved. Muscle restriction can lead to decreased range of motion of the joints in the spine, leading to a cycle of poor mobility and painful, tense muscles. Acupuncture is one of the most effective treatments we have available for addressing back soreness.

## What is acupuncture?

Acupuncture is the placement of needles into a specific point on the body in order to have an impact on the nervous system. Acupuncture points are located at locations where nerve bundles emerge from or penetrate connective tissue, bone, or muscle; nerve-muscle junctions; sites of nerve connections; in close proximity to major blood vessels surrounded by small nerve bundles; and tight bands of painful, contracted muscle.

## How does acupuncture relieve pain?

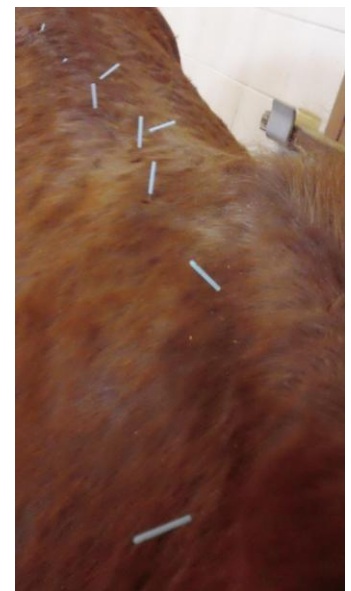
Acupuncture mechanisms of action are present at 3 different levels:

### 1. Locally at the site of needle insertion

When an acupuncture needle is inserted through the skin and rotated, the local tissue responds the same as if there were trauma or an injury to that area. Blood vessels dilate to improve blood flow, a local immune response is activated, and a nerve stimulus is sent to the spinal cord.

### 2. Spinal cord segment that sends and receives signals to the site of needle placement

When an acupuncture needle is inserted through the skin, an impulse is sent to the spinal cord. This impulse inhibits transmission of pain signals leaving that same segment of spinal cord, In other words, when the spinal cord recognizes the presence of the needle in the tissue, it shuts down some of the neurons that perceive and process pain, resulting in pain relief.



### 3. Brainstem that receives and processes the signals from the spinal cord

The spinal cord and brain then respond by inducing production of the body's own pharmacy of pain relievers, such as opioids, serotonin, and endorphins to name a few. These substances can remain elevated in a patient for up to 48 hours after an acupuncture treatment, lengthening the benefits of pain relief from an acupuncture treatment.

### How does acupuncture help to relax painful muscles?

When an acupuncture needle is placed in a myofascial trigger point, or a tight band of painful muscle, the muscle responds by contracting around the needle, followed by a gradual relaxation and increased bloodflow. Acupuncture achieves the combined goals of relaxing tense muscles and relieving the source of pain. It is common to see excellent results in 3-4 initial treatment sessions.

Additional modalities that can be integrated into a treatment plan for back soreness include chiropractic manipulation, anti-inflammatory medications either systemically or injected locally, massage, stretching exercises, rehab and physical therapy exercises, and extracorporeal shockwave therapy.