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NEBRASKA EQUINE VETERINARY CLINIC

Integrative Therapies for the Prevention and Treatment of Lameness

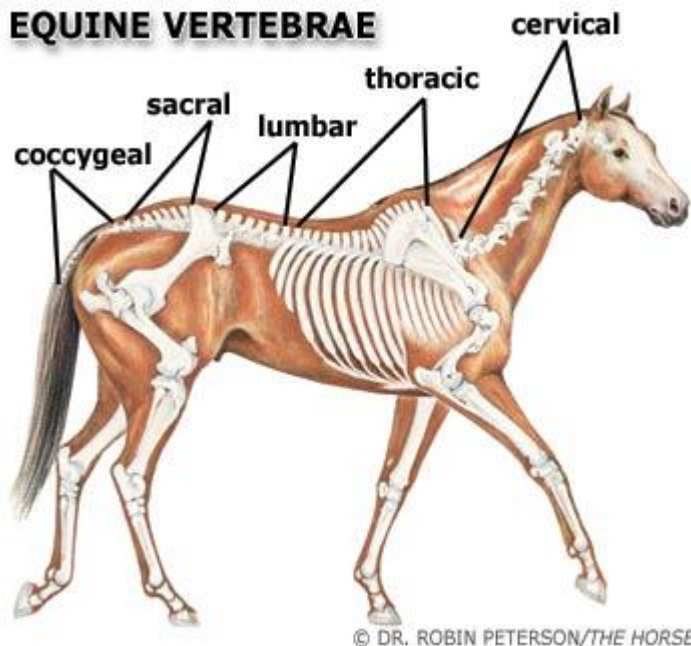
Over the last few newsletters, we have presented a series of articles pertaining to lameness diagnosis and treatment. This article will continue with this theme, explaining how chiropractic and acupuncture can be valuable modalities for the prevention and treatment of lameness in horses when integrated appropriately with traditional therapy.

Chiropractic Care

Chiropractic is a manual therapy that is used to identify areas of restricted joint motion and then adjust them to restore normal range of motion. In order to understand how chiropractic care can benefit horses, we must first have an understanding of the anatomy of the equine spine and supporting structures.

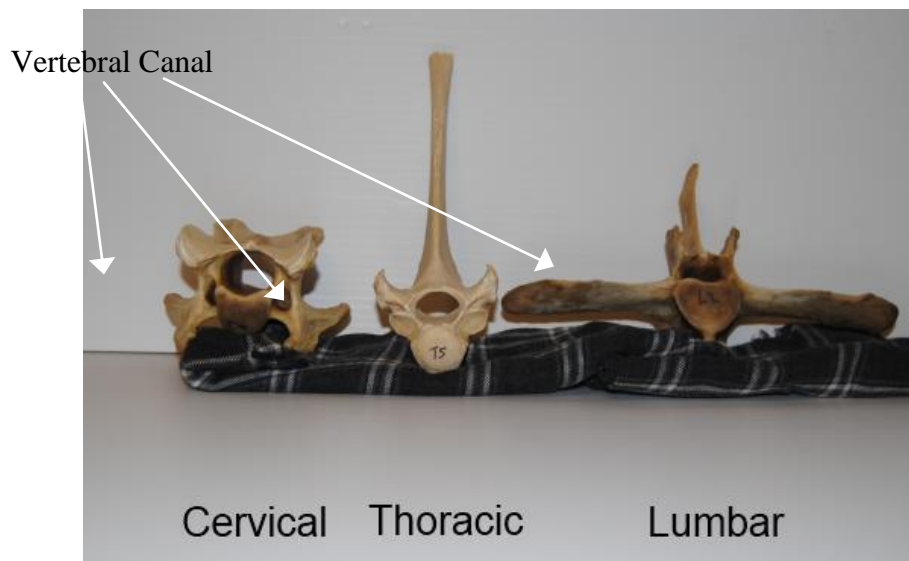
Anatomy of the Spine

The horse's spine is divided into 5 segments, which consist of 7 cervical, 18 thoracic, 6 lumbar, 5 sacral, and a variable number of coccygeal vertebrae.

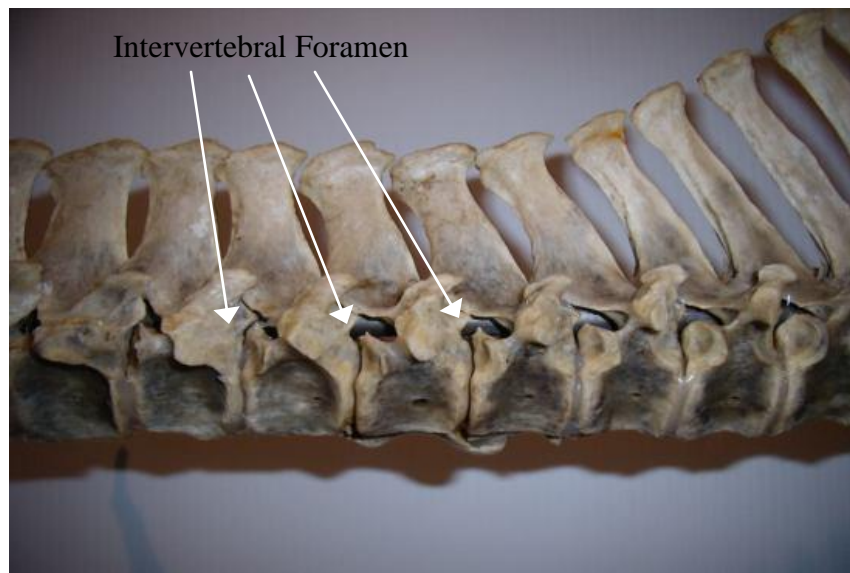


The vertebrae of each segment have different shapes, processes, and orientations to allow for different types of movement of the vertebral column, including flexion-extension, axial rotation, and lateral flexion. The amount of movement between any two vertebrae is small, but when all of these small movements are added together, it creates immense flexibility of the entire spine as it works together. If movement of one area of the spine is restricted, another area of the body must compensate for this reduced movement, putting a greater amount of stress on the area that is making the compensation.

Differing shapes of equine vertebrae



The vertebral column houses the spinal cord, which runs through the vertebral canal. Nerves branch from the spinal cord and exit the vertebral column through the spaces between the vertebrae called intervertebral foramina. These nerves go to all of the horse's muscles and organs to control movement and all bodily functions.



The vertebral column is supported by a variety of muscles and ligaments, which are of utmost importance, because they provide stability and allow for movement of the vertebrae.

Chiropractic Adjustments

Now that we have an understanding of the anatomy of the spine and its supporting structures, we can understand why chiropractic adjustments are of vital importance in promoting proper biomechanics and optimal healing.

Restricted motion between two adjacent vertebrae can cause muscle and ligament tightness and localized swelling and inflammation. Reduced mobility can result in stiffness, tension, pain, and even organ dysfunction. Swelling and inflammation of the soft tissues surrounding the spine can cause irritation of the nerve branches and altered nervous system transmission, reducing the body's ability to heal injuries.

When an area of restricted motion is identified, an adjustment is made by applying a quick, precise thrust at a specific angle in order to restore proper movement of the joint, and in turn, relieve soft tissue pain and inflammation and restore proper nerve transmission. Chiropractic adjustments are made within the normal range of motion of the joint, so they are generally safe and well tolerated by most horses.

Chiropractic and Lameness

Regular chiropractic care can help to prevent lameness and slow the progression of degenerative conditions by promoting proper biomechanics, so that undue stress is not placed on tendons, joints, and ligaments in the limbs.

When a lameness condition is identified, chiropractic care can help injuries heal properly by ensuring proper nerve transmission to the area that is injured. It is important to remember that chiropractic should be used in conjunction with a proper diagnosis and traditional treatment.

Chiropractic can also be used to help diagnose a lameness that is difficult to identify. If a horse is lame, but is compensating for the lameness in its spine, it can be difficult to identify which limb the horse is lame in. If the horse is adjusted, and the spinal compensations are removed, sometimes the lameness can more easily be localized to a particular limb, aiding in diagnosis.

Indications for chiropractic evaluation and adjustment:

- Part of a general wellness plan
- Reduced performance
- Back, neck, or sacroiliac pain
- Reduced neck, back, or poll flexibility
- Negative changes in behavior or attitude
- Abnormal gait, shortened stride or lameness in conjunction with a traditional lameness evaluation and treatment protocol
- Lameness evident only when being ridden
- Inability or difficulty in taking a lead
- Resistance or stiffness when moving in one direction
- Bucking
- Refusing jumps
- Pain and stiffness when moving or being touched or groomed
- Difficulty or inability to collect
- Resents tightening of cinch or girth
- Muscle mass asymmetry
- Pelvic asymmetry
- Changes in posture

In summary, regular chiropractic care can improve overall health and performance by promoting proper function of the musculoskeletal and nervous systems. Adjusting areas of restricted motion leads to proper nerve transmission, improved biomechanical movement, reduced pain and soft tissue inflammation, and improved healing.

Acupuncture

Acupuncture involves placing a needle into a specific point on the body in order to modulate the nervous system. The nervous system controls the entire body, so acupuncture can be used to treat a variety of conditions. Acupuncture needles send a normal stimulus to the nervous system, acting as a reset switch to restore normal function. While acupuncture has local effects near the specific needle insertion points, it primarily affects the central nervous system, which in turn impacts the musculoskeletal, hormonal, cardiovascular and autonomic nervous systems for a global effect on the body. Acupuncture is an integrative therapy that should always be used in conjunction with a proper diagnosis and treatment plan.

Acupuncture points are located where nerve bundles emerge from or penetrate fascia, bone, or muscle; at neuromuscular attachments; at sites of nerve bifurcation; in close proximity to major blood vessels; surrounded by small nerve bundles; or in muscle trigger points.

The benefits of acupuncture in the treatment of lameness include controlling pain and speeding healing time. When a needle is inserted, it causes local microtrauma, neurovascular reactions, and neurotransmitter release. It sends signals *to* the brain and spinal cord and stimulates responses *from* the brain and spinal cord. Local tissue effects include capillary dilation which improves blood flow, immune activation, release of proteins and neurotransmitters, muscle relaxation, activation of tissue repair. Effects on the entire body include reduced inflammation, increased serotonin levels, pain control, release of endogenous opioids (pain relieving substances), improved circulation via dilation of blood vessels, and pain inhibition through the gate theory, which means that if a normal signal is sent to the spinal cord (needle insertion), it will interrupt and reduce the pain signal being perceived.

Acupuncture can be used to aid in the healing of injuries, to relieve pain in acute or chronic lameness conditions, or to enhance performance in a sound horse by relieving pain and releasing trigger points and tension in sore muscles.