

## THE EQUINE SPINE: A DIAGNOSTIC CHALLENGE

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### Introduction

The prevalence of back and neck problems in horses varies greatly (from 0.9% to 94%), depending on the specialization or type of practice surveyed. It is worth remembering that the most common reason of presentation of equine spine problems is poor performance and not

overt back or neck pain. The conditions involved can be primary or can result from lameness, ill-fitting tack, or even inadequate schooling. Veterinarians often have difficulties when dealing with horses that have no obvious localized pain or have vague, unspecified lameness. Equine spinal problems and limb lameness are often interrelated. The diagnostic dilemma facing veterinarians is to decide whether the limb or the vertebral column is the primary or initial cause of the horse's clinical problem. Unless the primary cause of the back or pelvic pain is identified and treated, most horses will have recurrent back or sacroiliac joint pain when returned to work. Nonspecific back pain is most likely related to a functional impairment and not a structural disorder. Therefore, many back problems may be related to muscle or joint dysfunction with secondary soft tissue irritation and pain generation.

The purpose of this study is to describe the pathophysiology of neck/back pain, the importance to perform a thorough systematic physical examination and the additive value of working together with a physiotherapist.

### Pathophysiology

Understanding the three-dimensional motion characteristics of the spine is important for clinical evaluation and investigating the pathophysiology of altered motion associated with back pain and spinal disorders.

Together with the biomechanics of the equine spine, a thorough knowledge of the topographical and functional anatomy of the spine is vital. It is important to remember that the horse keeps its back almost rigid, acting as a bridge between the fore and hind quarters. It then transmits power or impulsion from the hind quarters to increase stride length and performance. The equine spine can be likened to a "string and bow" arrangement, where the "bow" is the rigid vertebral column and the "string" incorporates the muscles and ligaments supporting the spine.

Specific spinal malformations tend to predispose to injury through the inherent weakness of the back or "bow." These conditions place extra strain on the "string," which can lead to recurrent soft tissue injuries. Most horses do not have this type of gross deformity, but conformational defects are common. Horses which are short-backed with restricted flexibility of the spine tend to exhibit more vertebral lesions than longer backed animals, which are more prone to muscular or ligamentous strain.

There also seems to be an association between type of back injury and purpose for which the horse is used.

### Physical examination (clinical examination protocol)

The complete clinical examination protocol includes the following:

- \* Clinical history
- \* Examination at rest
  - inspection/ observation
  - static palpation (soft tissue and bony palpation)
  - motion palpation
- \* Examination at exercise
  - in hand
  - lunging exercise
  - ridden or driven exercise
- \* Neurologic examination
- \* Rectal examination
- \* Oral examination
- \* Evaluation of saddle, bridle/ reins, rider
- \* Ancillary clinical tests: haematology and biochemical profiles, local anaesthesia, non-steroidal anti-inflammatory drugs



## History

The value of obtaining a thorough clinical history cannot be underestimated. Details concerning information on management, tack, and performance are essential. There seems to be a correlation between nervous or temperamental animals and the incidence of back and neck pain. A consistent feature of long-standing equine spinal problems is some alteration in behavior or temperament. This might be gradual in onset, and it could be some time before the change can be fully appreciated.

It is common for owners to blame poor competitive ability on a back condition when it is simply due to problems of schooling or riding. The most consistent feature of back problems is loss of performance. There also might be some resentment to putting on a rug or blanket, grooming over the loins and quarters, or having the hind limbs picked up. Some cases show resentment to weight-bearing, with a tendency to collapse behind when ridden. Saddling up might become a problem, particularly when the girth is tightened. Signs at exercise could include hind limb lameness, a loss of enthusiasm for work, an inability to stride out at fast paces, some stiffness in hind limb action, and a loss of suppleness of the neck and back when ridden. Head-shaking and an increased tendency to tail swishing are other occasional features of back problems.

## Examination at rest

The clinical examination at rest needs to be carried out carefully with examination of the whole horse for other causes of lameness and loss of performance.

A good observation is very important to have a good impression of the current clinical status of the horse. Conformation, muscle development, symmetry, spinal alignment, temperament/ behaviour, posture, head carriage are important issues to assess. Pain, muscular tone, motion/ stiffness, motor functioning and general fitness need to be determined during palpation of the complete horse.

### *Examination at exercise*

## In hand

The animal is walked and trotted in a straight line to detect any obvious gait abnormalities. Many horses with chronic back trouble show restricted hind limb

action and a tendency to drag the toes of one or both hind limbs. The horse then is turned in both directions with the intention of making it flex the spine laterally.

## Lunging exercise

The horse is lunged on the hard and soft surface during walk, trot and canter. A session of 10 to 15 minutes lunging provides an opportunity to see any improvement or deterioration in action as the horse warms up.

## Ridden or driven exercise

It is useful to see the horse saddled up and to note if there is any pain or resentment to tightening the girth or when mounting.

At the end of the complete clinical examination, the examiner should have an idea if the horse has a neck or back problem and where the suspected pathology is localized.