Equine Injuries
of the neck and forelimb

A neck related issue or a true forelimb lameness? That is the question…

In this article, Equine Physiotherapist Nicky Suckle provides a complete overview of neck and forelimb injury and pain, including common causes and treatment options for the equine.

Neck and forelimb injuries are very common in horses and, often, a neck issue is misdiagnosed as a primary forelimb lameness.

Anatomy of the spine

There are seven cervical vertebrae in a horse, 18 thoracic and six lumbar (sometimes only five), five sacral vertebrae (fused) and approximately 20 caudal vertebrae making up the tail. The whole spine is linked together by a series of muscles and ligaments. Movement of one part of the spine affects the positioning and function of another. The neck is a much more mobile structure when compared to the thoraco-lumbar area. Movement and position of the neck affects the horse’s balance and weight distribution, and influences the abdominal activation and corresponding drive from the hindquarters.

Causes of neck injury and pain include:

- Falls/compressive strains, such as pulling back from a tie up,
- Going over backwards, such as getting the head stuck through fencing,
- TMJ (jaw pain), such as degenerative joint dysfunction, and
- Muscular strains from inappropriate use of training aids, such as poor movement patterns leading to poor abdominal and hindlimb engagement.

A horse will often present with forelimb lameness when there is a lower cervical (neck) issue due to symptoms such as referred neural pain, weakness, muscle spasm or joint stiffness. If a nerve is involved, there may be concomitant pain, weakness or altered sensation or position sense of the forelimb, and this may result in tripping or an altered gait pattern. The lowest cervical vertebrae are hidden by the horse’s scapula shoulder blade) and a common finding on assessment is very restricted scapular movement, and muscular spasm of the muscles around the scapula and the tracheohyoideus muscle (see Figure 1). Often, these horses can be described as having headache symptoms.

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It is also worthy of note that a horse with chronic forelimb lameness will most likely develop compensatory neck stiffness/spasm due to the altered mechanics of the movement. Upper cervical (neck) issues may lead to head shaking, head tilt, problems with mounting and difficulty lowering the neck. A common finding on ultrasound is insertion of the nuchal ligament (inflammation of the strong elastic band-type structure, which runs along the top of the cervical vertebra to the skull). Injury of this ligament has been found in horses which have suffered a whiplash injury or been subjected to excessive amounts of lancing, whilst restricted with draw reins or side reins. These horses could be described as having headache symptoms.

The position of the neck posture is important in its affect of the positioning of the rest of the spine. Research has shown that head carriage position is either too low or too high increased back stiffness and, therefore, reduced hindlimb propulsion and the ability to engage the abdominals, and the result is a dipped/hollow back. Therefore, correct neck and head position is imperative to maintaining a healthy movement pattern and function to prevent spinal dysfunction.

A physiotherapy assessment will involve taking a history of any specific issues and then observation of the movement of the horse as a whole - the symmetry and soundness of movement during gait assessment in a straight line and on a circle. If a neck issue was suspected, a close look at head position, scapular freedom of movement and counter-flexion of the neck on a circle should be closely assessed. If required, a ridden assessment should be done as, quite often, the rider and/or tack causes marked alteration in movement pattern due to rider technique/position/previous injuries and an ill-fitting saddle may cause diaphrasing of the back due to pain. As a result, the abdominals cannot engage, which affects the hindlimb drive due to the loss of flexion in the spine and the ability to step the hindlimb underneath the body, which can lead to an unsteady head, often seen as an apparent lameness. An ill-fitting bridles can cause mouth pain and poll pain and, thus, leads to poor acceptance of the bit.

A hands-on assessment would then commence, assessing the active and passive movements of the TMJ (jaw pain), neck, scapula, general spinal and rib mobility, and limb movement. Muscular and joint palpation and observation of the horse tells a physiotherapist where there is asymmetry, muscle degeneration, muscle wastage, spasm, inflammation or swelling. Upon assessment of the range of motion of the limbs and assessment of muscle length, it is important to note any avoidance or compensatory movements happening elsewhere in the body, usually rotation of the spine or pelvis. This aspect of assessment matches up to the initial gait assessment. The muscles of a horse travel over several joints. Therefore, limb movement has a direct effect on spinal movement and stability, and vice versa.

Treatment of the neck

The aim in the acute stages is to reduce inflammation and pain. Then, once this is achieved, the goal is to restore normal movement pattern and re-establish correct motor patterns and muscle development through the neck, back and hindquarters. Core strengthening (like Pilates in the horse) is paramount to full rehabilitation and future injury prevention. It is essential to note that other compensatory issues elsewhere in the horse should also be addressed. It is also important to involve the rider, trainer and farrier in the management of any dysfunction of the horse.
Treatment examples specific to the neck area include:

- Joint mobilisations, such as soft tissue release of neck/scapula,
- Acupuncture and electrotherapy,
- Ice and corrective farriery,
- Range of motion exercises, such as strengthening/core exercises, and
- Correct exercise for level of rehabilitation/competition, i.e., sport-specific re-training (for both horse and rider).

Nerve paralysis

Direct damage to superficial nerves causes sudden atrophy (wasting) of the muscles. The most common nerve in a horse to be damaged in the forelimb is the suprascapular nerve. This condition is known as ‘Sweeney’. This nerve runs across the front of the scapula and can be injured when a horse runs into an object, falls onto an object or is kicked on the point of the shoulder. Signs and symptoms of this are muscle wasting of the muscles over the scapula and poor stability of the shoulder.

The other common nerve to be injured is the radial nerve, which passes around the humerus (the bone between the scapula and the elbow) and, in this case, the elbow will appear to be dropped and the horse will not be able to move the leg properly, often dragging a toe or swinging the leg outwards to compensate.

Summary

In summary, a thorough assessment of the horse is necessary to plan an appropriate treatment. The most important aspect of a physiotherapy assessment is to observe the movement patterns of a horse during a gait assessment, and during active and passive movements of individual areas of the skeletal and muscular system. Physiotherapists have many varied manual therapy skills to mobilise joints and soft tissue, and they have knowledge in a wide variety of electrotherapy, which is important in the management of pain, inflammation and muscle stimulation. Ultimately, a physiotherapist is a rehabilitation specialist helping to return normal movement patterns, achieve symmetrical posture and flexibility - returning the horse to his optimum function and preventing further recurrence of symptoms.

Nicky Suckle graduated with BSc (Hons) Physiotherapy in 2003 from Glasgow Caledonian University and from the London Veterinary College with a Masters in Veterinary Physiotherapy in 2009. Nicky relocated to Australia in 2010. She currently specialises in musculoskeletal injuries, sports injuries and Pilates in her own clinic, Absolute Health, in Mooloolaba. Contact her on 0466 366 369 or (07) 5478 2333 or go to www.mooloolabaphysiotherapist.com.au for more information.

As a rider and an equine physiotherapist, she understands the necessity for injury prevention, and quick remedial action in the event of injuries and minor niggles. She provides a mobile physiotherapy service for horses and also works from Nicklin Way Veterinary Surgery on the Sunshine Coast, Queensland, treating small animals. Nicky liaises closely with the veterinarians, farriers, trainers, dentists and saddlers to provide a most holistic service. Nicky also offers horse and rider assessment.