

The horse's neck - A Classic Design

The weight of the head and neck of a horse is around 10% of that of its bodyweight, say 60kg in a 600kg horse. Consider what it would be like to hold up 60kg, 24 hours a day, 7 days a week, without something underneath the weight to support it?

To enable them to hold up that weight horses have been designed with solid jointed

components -vertebrae, and a sling arrangement of muscles and ligaments.

The Vertebrae:

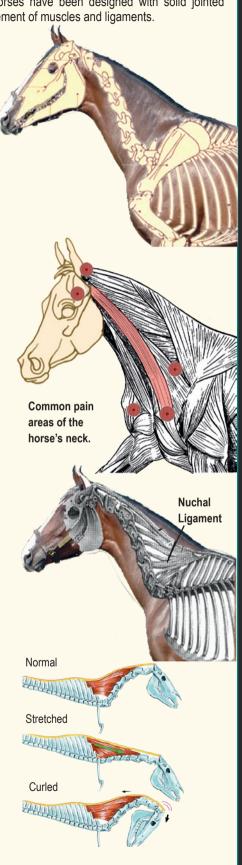
Like all mammals, including man and giraffe, the horse has seven cervical or neck vertebrae. The vertebrae in general share two articular process joints with the vertebra below, and two with the one above. In between the vertebrae for most is an intervertebral disc, a pad which cushions the load the neck takes. The first vertebra articulates with the skull and the last with the first vertebra of the thorax or chest. The type of movement of each vertebra varies through the neck, though it is similar from the third through to the sixth vertebra.

The Muscles:

The head and neck combination is also supported by an intricate set of muscles that extend between the vertebrae and between the neck and chest. These muscles lift, lower and side-bend the neck.

The Ligaments:

The main ligament is the Nuchal Ligament. At a normal walk the elastic recoil of the main (Nuchal) ligament provides up to 60% of the energy required to raise the head and neck, 32% at a trot and gallop. An anxious horse risks being tired out because it does not relax and let the recoil happen. Starting at the back of the skull the ligament is composed of two parts; a) a band like portion that ends at the wither but is continuous with the supraspinous ligament, so effectively extends along the tips of the spinal vertebrae all the way to the pelvic region; b) the sheet like portion anchors each of the neck vertebra to the band like portion and to the vertebrae of the wither. In a fashion the nuchal ligament acts like a strong rope that strings up the head and neck, allowing the head to be used by the horse as a very crafty counterweight, effectively supporting the weight of the horse's thorax in certain postures (sadly used improperly but effectively in Rollkur).





It's a Pain In the Neck continued...

The causes of poll trouble are numerous. At Spinal Vet the most common appear to be a crooked neck foundation - where the vertebral building blocks of the spine are set up in a crooked fashion, such as with a twist of the pelvis or a wither spine that is predominantly locked up on one side (both of which can be associated with birth trauma and falls in the majority of instances). Rebalance the sacro-iliac joint function and free up the wither (and secondary lower neck trouble) and the poll is usually easily freed up, with symptoms abating quickly. Appropriate, gentle chiropractic adjustment usually sees the tightness and tenderness change almost instantaneously.

Using a carrot to ask the horse to flex its head and neck towards each hip and then down between its front legs will show any stiffness. Commonly horses have one side on which they are more flexible, though some are quite stiff both sides.



The second most common cause of poll trouble is jaw and dental problems. Pain from the joint of the jaw (temperomandibular or TMJ joint) appears to radiate up towards the first vertebra of the neck and tighten the muscles around it, with compromised nerves and nerve function being the consequence. Settle the TMJ dysfunction and its cause (imbalanced or sore teeth, bit soreness etc) and the poll is usually easy to settle also.

Just as common as poll trouble is lower neck stiffness, local muscle tension and tenderness. Arthritis of the joints of the vertebrae of the lower neck is very common as is highlighted by bone scans (nuclear scintigraphy) regularly showing up a 'hot' area around the joints between the 6th and 7th cervical vertebrae. These 'hot' spots are apparent from a few years of age. Running ones' hands firmly down the lower neck, front

and rear of the shoulder will frequently reveal tight and tender muscles, sometimes severely so.

Often when there are lower neck restrictions, audible cracking or clunking is noticed when horses turn their head quickly to one side. Sadly this clunking does not mean a neck problem has been fixed, just that part of the problem has been temporarily relieved.

Lower neck arthritis and associated problems in particular have been shown to be one of the causes of foreleg lameness and stumbling with the forelegs, as well as coordination and other hindleg gait irregularity.

This lower neck and shoulder tightness, like that of the poll, is very commonly associated with dysfunction of the wither spine, dysfunction which often causes wither and girth pain.



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Above: The horse's reaction will often show the tight and tender muscles as hands are run firmly down the lower neck, front and rear of the shoulder.

Right: Not all horses will accept and enjoy their polls being touched. Those with tight and tender polls will often be called 'ear shy', as they resist any handling of this area, are not comfortable with the bridling process or neck rugs near their ears. Many also have a tendency to pull back badly when tied up. Appropriate, gentle chiropractic adjustment usually sees the tightness and tenderness change almost instantaneously.



This dysfunction can frequently be traced back to common birth trauma, trauma which is normally exacerbated by the numerous falls a horse has over its lifetime. Rider skills, rider – horse communication, hoof tenderness, bitting and dental problems also play a significant part, as do saddle fitting problems.

One reasonably common cause of neck problems in lower neck or shoulder tightness is neck soreness from injections. Too often injections are given on top of or very close to the vertebrae of the neck, causing acute pain and neck stiffness. Many horses go off their food and need to be fed high off the ground - so they do not need to stretch the neck - until the neck soreness settles down. Sometimes the result is a nasty abscess, with high costs involved







It's a Pain In the Neck continued... with it being resolved, as well as a lot of suffering for the horse.

Not all neck related problems covered are from the above, there are many others, such as Wobbler disease, some Headshakers, Atlantoaxial malformation, and others such as vertebral cancer, bone infection and vertebral fractures, with most of these problems being rare compared to the common issues covered in this article.

DIAGNOSIS OF NECK PROBLEMS.

The common poll and lower neck problems discussed are principally caused by upsets in the functional neurological control of the neck, so are best determined by palpation of the individual vertebral joint and associated muscle function. This assessment is predominantly the domain of qualified veterinary chiropractic and osteopathic practitioners. Regular veterinary examination tends to be less specific and more of a global range of mobility testing. In more affected horses radiological, ultrasonographic,

myelographic and bone scan examinations of the neck may be performed by veterinarians to reveal the presence of vertebral abnormalities, fractures, articular process arthritis, abscesses, bone infection and spinal cord compression. In the future it is likely Magnetic Resonance Imaging (MRI) will become a useful tool for the diagnosis of the more serious neck abnormalities.

TREATMENT OF THAT PAIN IN THE NECK.

Common functional problems of the neck respond particularly well to a combination of very specific Veterinary Chiropractic, Osteopathic and Acupuncture treatment. These treatments go as deep in the nervous system as most practitioners can go. Massage, Bowen, Acupressure, Stretching and related therapies all can be quite helpful. Heavy-handed 'cracking' type manipulation of the neck often injures the arthritic joints of the neck, sometimes causing the horse ongoing pain, especially if such procedures are repeated.

Along with local treatment there must be attention to issues that are the primary causes of the neck problems, just as much as the

Right: The safe area for intramuscular injections is much smaller than most people realise. Too often horse owners inject too low and dangerously close to the vertebrae of the neck, or too high and inject into the fat within the nuchal ligament.

Below: Home exercises include bringing the horse's head around to the hip, on both sides to maintain neck mobility.



neck problem itself. Thus bitting, dental, jaw, foot soreness, wither, saddle fit, rider, core strength and sacro-iliac issues must be addressed.

INJECTION SITE

HOME EXERCISES

Doing routine neck stretches at home with the horse helps maintain neck mobility and joint health. Basic neck stretches are easy. Routine ones should include encouraging the horse to bend around to its hip bone on

each side and down between the front legs at the ground level. The first side-bends and rotates the poll and neck, the second stretches out the top-line and base of the neck. The wither can especially be helped by the handler standing with their back to the horse and having the horse bend outward and around their body. This particular exercise encourages side-bending of the neck and wither. All these stretches help to mobilise the vertebrae and open up the vertebral joints. Usually a treat such as a carrot is used to entice the horse to bend. Ideally the stretches, which are repeated twice, should be held for 10-20 seconds, and are initially best done once a day for at least a fortnight. As a long term routine, these exercises can be done at least twice a week.

The bottom line is that neck stiffness and soreness is common in horses but does not have to remain that way. For the sake of the horse, the development of an ongoing partnership is suggested and professional help should be sought and attention paid to the other factors that may affect the function of the neck.



