

All Shook Up

When the subject of headshaking was first explored in the April/May 2006 issue of Hoofbeats (All Shook Up - Headshaking Syndrome, Vol 26 No 6), it became immediately obvious that many readers were facing this problem with their horses and desperately searching for answers. Although some may have found answers in that particular article and since moved on, others have been eagerly awaiting the promised Part Two in order to find out more. In the course of our research it became evident that there is also a need for Part Three (Dec /Jan issue) on this very complex subject.



Headshaking Part Two

with Dr Shannon Lee
and Maureen Rogers

Part One on this subject explained that there were two categories of 'headshaker' - those suffering from Headshaking Syndrome and those suffering from one or more other influences that cause head tossing, shaking or nodding behaviour. It discussed Headshaking Syndrome in detail, including how and why the condition is thought to develop and the various treatment options available. Now, in this issue and a future one, the aim is to move on to explore some of the other main health and training issues that can be underlying factors.

Although the three perspectives - dentistry, craniosacral and behavioural - to be presented vary in some respects, all three of the experts consulted agree emphatically on one point; that EVERY potential cause of head shaking, nodding and tossing needs to be thoroughly assessed. It is therefore likely that a number of practitioners (as well as the owner) will need to be involved

Continued



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and to work together to come up with the best possible plan for overcoming the problem. There is little to be gained if a 'headshaker' undergoes a program of behavioural re-training without first having its mouth examined from a dental perspective, assessment to rule out the possibility of an injury to the skull and the fit of its gear checked.

Then, of course, executing the remedial plan for a headshaking case is likely to require time, patience and persistence on everyone's part as, in the majority of cases, there is no 'quick fix'. In fact, the longer a horse has been exhibiting abnormal head movements, the more likely it is to have developed a multi-faceted problem.

Dr Shannon Lee - Dentistry

A veterinarian in private equine dental practice in Victoria, Dr Lee's career has taken him through the eastern states of Australia, New Zealand and the United States where he has worked predominantly in equine practice and has actively pursued a specific interest in equine dentistry. He has also been involved in the post graduate training of veterinarians and advises various organisations and regulatory bodies on current practices in equine dentistry. Further information can be obtained by visiting advancedequinedentistry.com.au.



THE DENTISTRY ASPECT

The types of dental problems that contribute to head shaking or head tossing may relate to the horse's age, in that younger horses (1-6 years) are still erupting adult teeth and, during this process, may show signs associated with pain. Usually, in this age group, any pain being experienced is due either to the shedding of teeth, an impacted tooth or sharp slivers of tooth roots left in the gum after teeth have been shed.

Horses of all ages may exhibit head tossing behaviour due to presence of upper wolf teeth, although this will usually be associated with a bit being in the mouth, or can suffer from fractures to the facial bones - most particularly, the jaw. Also, as mentioned in Part One of this article, equine teeth are innervated by (obtain their nerve supply from) the trigeminal nerve, which branches to supply the upper and lower teeth and the area around them - meaning that pain causing head tossing or shaking may be able to be traced back to this source.

Dentistry Diagnosis
Exposure of the sensitive dentinal tubules within the teeth can cause pain and

Each horse's mouth is individual as to specific space available for the bit, and the fit of the bridle and size of bit selected can be a direct link to head shaking.

Right: These wire cuts under the horse's tongue highlight the need for a thorough examination of those that exhibit head-shaking behaviour.

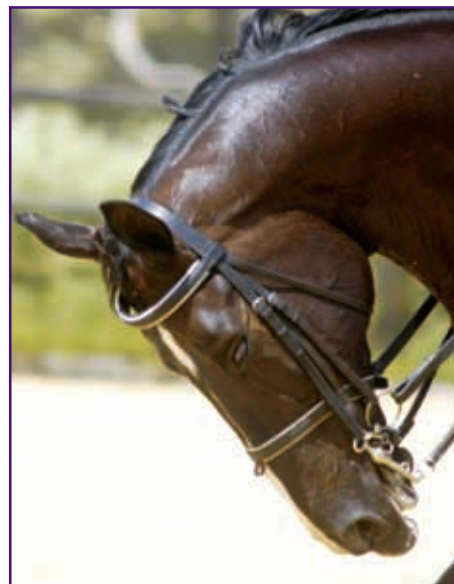


Photo courtesy Dr Shannon Lee

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sensitivity which can be very hard to detect and diagnose, therefore a thorough examination of the mouth ('oral exam') with a quality light source is essential. While doing this, ice cold water may be applied to specific teeth to see what responses (for example, a rapid movement that may indicate pain) can be obtained from the horse. Nerve blocks, performed by a veterinarian, may also be required to confirm if a response is due to nerve pain.

The surfaces of all the teeth should also be closely and thoroughly examined with a dental mirror to detect any abnormalities, and the interior of the mouth carefully assessed for any signs of ulceration to the cheeks and gums. These types of investigations can often reveal conditions that have gone undiagnosed for years, often while the owner of a 'head shaker' has pursued many other time-consuming and costly avenues of treatment to no avail. For example, a recent case at my practice saw a horse that exhibited head shaking behaviour being diagnosed with a 10cm diameter ulcer of its cheek caused by a previous fractured tooth pressing into the gum.

Another frequent cause of head nodding, tossing or shaking behaviour from the dentistry perspective is the presence of foreign bodies - like grass seeds and wire - in the mouth, which, again, can require repeated examinations with a good light source, a mirror and a dental probe to diagnose. Then, of course, the offending item must be removed and treatment to prevent or control infection administered by a veterinarian, along with a period of 'bitless' rest and perhaps a modified diet being prescribed to allow the damaged area to heal.

Finally, spaces (called diastema) can develop between a horse's teeth that then often become packed with trapped feed. This can later ferment, allowing the growth of bacteria which then attack the gum, leading to gum disease (gingivitis) and damage (periodontal disease) to the structures which support the teeth. The sensation a horse experiences from this whole scenario can be likened to the feeling of having food trapped between our own teeth, so it is little wonder that it attempts to get rid of the annoying feeling by shaking or tossing its head.

The good news, however, is that effective treatment exists for gingivitis and periodontal disease. After a thorough assessment and maybe radiographs being taken to determine if the affected tooth or teeth can be saved, the offending feed is removed then a series of burs plus a high speed dental drill used to widen the space to gum level. The area is then flushed with an antibacterial solution and the horse placed on systemic antibiotics. This whole procedure is best done by a veterinarian with specialist skills in dentistry, due to the prescription of

Right: Prevention may be better than a cure for head-shaking. If the impacted incisor caps in this three year old's mouth are not corrected now it could have lifelong problems.

Below: A dental mirror is used to assess the teeth and mouth for any abnormalities.

Below centre: Food trapped between teeth can be a source of annoyance to the horse as well as leading to gum disease and head shaking.

Bottom: This head-shaking horse had multiple cuts including a cut to the gums behind the incisors and a large cut under the tongue, caused by either poor quality feed or a foreign body such as wire.

Photos courtesy Dr Shannon Lee



medication and sedation being a 'vet only' domain.

Equipment Issues

Another potential cause of head shaking is tack - more specifically, the bit and bridle - as few owners take the time to properly assess the fit of these items. Horse's mouths are very individual, especially in terms of the space available to accommodate a bit,

so care must be taken not to use a thick mouthpiece on a horse that has a small oral cavity. Often, owners make the mistake of thinking that 'the thicker the bit, the kinder it is' but horses must be able to have release from pressure and a thick bit in a small mouth may make this impossible.

Another observation from a dentistry perspective that may be made during an examination of a 'head-shaker's' mouth is that it may react specifically to stimulation of the tongue. This can have further implications in terms of the fit of the bit and bridle as, for example, the bit may need to be adjusted higher or lower, a differently shaped bit may have a less irritating influence or a bit made from a different material may create a more palatable and pleasant feeling for the horse - thus lessening the likelihood of head tossing or shaking. Techniques such as riding bitless and lunging in a halter can help to pinpoint whether a headshaking problem is bit and/or tongue related, then it's a process of trial and error to work out the most comfortable and effective bridling solution.

THE CRANIOSACRAL PERSPECTIVE

In order to understand head shaking and its causes, it is important to realise that a horse's skull (or cranium) is constantly exposed to more pressures than is any other part of the body. These pressures are predominantly applied by items such as bits, bridles and nosebands - often not fitted properly - or may arise from invasive procedures on the head, such as dental work or trauma, such as a head injury. As a result, there are compressive 'flow-on' effects to the individual bones of the skull, the surrounding soft tissue or muscles and the cranial nerves, which may ultimately contribute to the formation of a head shaking response.

TIGHT AND TENDER

Craniosacral therapy, a gentle and non-invasive technique using extremely light finger pressure, aims to feel and address imbalances in the body of the muscular-skeletal system by acting on what is known

as the craniosacral system - that is, the head, tailbone, spinal cord and spinal dura (the protective sheath surrounding the spinal cord).

When performed on horses that 'headshake', craniosacral therapy focuses on 'opening up' structures in the head that are being 'tightened' by excessive practices creating abnormal compressive forces. An example of this type of force is pressure being applied to the jaw by bit pressure or the muzzle area by a tight noseband, which will usually cause a horse to constantly try to open its mouth. This action tends to lead to increased muscle tension, a change in mastication (chewing) patterns and, ultimately, interference with the normal function of the temporomandibular (TMJ) joint.

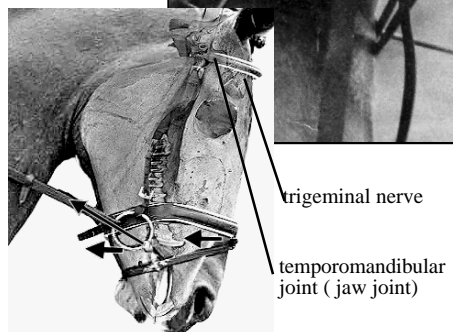
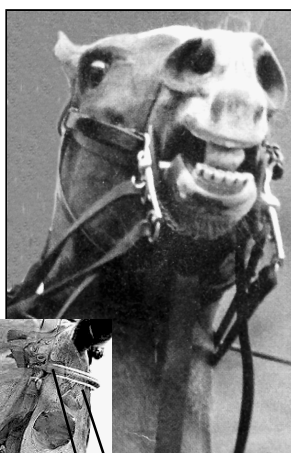
As time goes on in the 'noseband' and bit scenario, the tight muscles associated with the TMJ joint and the bones of the cranium begin to put direct pressures on the temporal bone, where the trigeminal nerve is housed. (As was explained in Part One of this article, irritation to the trigeminal nerve is considered by some to be one of the major causative factors in the whole clinical picture of headshaking). Craniosacral therapists believe that, if the degree of pressure on the temporal bone becomes high enough, trigeminal nerve can become 'pinched' due to tightening of the surrounding tissue - creating a 'burning' type of pain or intermittent 'shooting' of sharp pain in the head. This situation closely equates with how a migraine headache develops and feels in a human but, unfortunately, it isn't easy for a horse to 'pop a pill' or race off to the physio when it feels one coming on! Headshaking, it seems, may simply be one way a horse tries to find relief.

OTHER PRESSURE SOURCES

As pressure is applied incorrectly or to an incorrectly fitted bit via the reins, a horse will close its jaw (mandible) and push against the pressure of the bit - thus shortening and tightening the muscles of mastication (chewing), especially the temporalis and masseter muscles. Similar to what develops from wearing a tight noseband, this muscular imbalance then affects the TMJ joint, which then puts stress on the bones of the cranium and surrounding nerves - potentially causing pain. A tight or poorly fitted bridle creates much the same picture except, on this occasion, the initial pressure is usually applied to the atlantoccipital joint at base of the skull.

There is no denying that dental work is essential for a horse's overall well-being and definitely no suggestion from craniosacral therapists that it shouldn't be carried out but, at the same time, these procedures do result in increased pressures being applied to the cranial bones and surrounding muscles. This mainly occurs through the horse 'biting down' on the gag for an extended period of time or via forces generated by the use of hand or power tools.

The sutures, which act like joints, can become 'jammed' by unnatural sources of pressure (right and below) such as the tight noseband, ill-fitting bit or bridle.



If the pressure on the temporal bone becomes high enough, the trigeminal nerve can become 'pinched' - creating pain similar to a 'migraine headache'.

HEAD INJURIES

Head injuries and trauma, whether recent or sustained in the past, can tend to be dismissed or overlooked as a possible source of headshaking, yet craniosacral therapists often focus their treatment in this direction with success. Take the case of Hektor - a Thoroughbred gelding that had been violently head shaking for more than nine years after his condition was first noticed in the spring of 1991. Despite being treated with antihistamines, steroids, chiropractic and acupuncture, he had become unrideable by 2000 - which was when his owners sought assistance from the craniosacral perspective.

Subsequently, it was discovered that Hektor had suffered a head trauma as a young horse, resulting in compression to his right nasal bone, frontal bone, sphenoid and maxilla. To make matters worse, in 1995, he had another head injury in which he lost two front teeth. The combination of both traumatic incidents had also left him with chronic swelling of the tissues that line the inside of the upper airway, which saw him suffering from allergy-like symptoms.

Once craniosacral therapy had been implemented to 'release' the traumatised areas of his skull, Hektor showed significant improvement from the very first session. His treatment continued for eighteen months, during which there was a marked improvement in the frequency and intensity of his headshaking episodes, and he is now head-shaking free although does still benefit from craniosacral treatments.

Hektor's case is a perfect example of a phenomena that is an important principle

for craniosacral work, which is that bone is healthy, living tissue therefore any pressure put on it will affect how it develops and shapes itself. Nowhere in the body is this more relevant than in the skull which, rather one being one solid bone as one might imagine, is actually made up of a number of bony plates separated by sutures, which act like joints. These sutures - especially in horses less than five years of age due the bones still changing shape from growth and tooth eruption and development - allow for a certain degree of movement and some dispersal of impact if a blow to the head is experienced but they can also become 'jammed' by unnatural sources of pressure such as the tight noseband, ill-fitting bit or bridle and dentistry work mentioned above.

PRESSURE IDENTIFICATION

Craniosacral therapy, in itself, can only provide part of the solution to a headshaking problem as, in order for this condition to fully resolve, one must truthfully look at and address all the elements that may have attributed to creating it. It may sound basic but if steps are taken to ensure that bits and bridles fit correctly, nosebands are kept as loose as possible and regular, professional dental work and check ups are carried out, this will lessen the likelihood of headshaking developing in the first place. Looking at every factor in terms of how it might be increasing the amount of pressure and irritation within the head - especially on the skull - plus considering how all these little bits of extra pressure could be adding up to 'one big headache' can be quite enlightening!

Addressing potential imbalances arising from tightness in the soft tissues - such as after intensive dental work or at regular intervals during a rigorous training regime - is equally important to create balance and healthy biomechanics in a horse. If this isn't done, the pressure on the cranial bones and important joints in the head such as the TMJ will continue to build up and any headshaking behaviour to worsen over time.

Part Three, in a future issue, will contain advice on how headshaking develops from a behavioural perspective and what can be done to address this via re-training.

Maureen Rogers - craniosacral

A pioneer in her field, American practitioner Maureen Rogers is the founder of Equine Craniosacral Workshops and travels extensively to teach, lecture and provide private consultations. Her equine clients come from a range of disciplines including eventing, dressage, barrel racing and pleasure riding. She is also the author of internationally published articles and has presented at major equestrian education events such as Equitana Asia Pacific.

