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New gear approved - equine throat support device known as the Cornell Collar®

The Cornell Collar® is a device developed for use in racehorses to prevent dorsal displacement of the soft palate during running, and has been approved for use nationally in thoroughbred racing by the National Chairmen of Stewards Advisory Group after consultation with the Australian Racing Board's National Equine Integrity & Welfare Advisory Group.

Dorsal displacement of the soft palate is a recognised condition of racehorses, causing upper airway obstruction and poor performance. The correct term is actually intermittent dorsal displacement of the soft palate (IDDSP) as affected horses are asymptomatic at rest and only show exercise intolerance during high-speed exercise.

The exact aetiology of IDDSP appears to be multi-factorial. Causative factors include intrinsic factors affecting the nasopharynx such as upper respiratory tract inflammation, entrapment of the epiglottis by the aryepiglottic fold, hypoplasia of the epiglottis, and lesions such as palatal and subepiglottic masses or cyst. Extrinsic factors causing IDDSP are related to musculature weakening, immaturity or disease leading to caudal and ventral retraction of the larynx.

Predisposing factors to IDDSP that occur during exercise include horses that get their tongue over the bit, tongue retraction, swallowing, mouth opening and flexing of the poll to name a few. It's quite likely that many of these associated factors occur concurrently or as a result of IDDSP, rather than as direct causes.

The diagnosis of IDDSP is frequently made based on the horse's history of making a noise (although about 20% are silent displacers) during exercise, and reduced performance. Standing endoscopy alone is rarely diagnostic but can be useful in identifying characteristic changes in the upper airway often associated with IDDSP.

Such changes may include a flaccid or short epiglottis (epiglottic hypoplasia), easily induced displacement of the soft palate and difficulty in replacing it, thickening of the soft palate and ulceration of its caudal free margin, and subepiglottic mass. A definitive diagnosis may only be made during upper airway video-endoscopy of the horse while it is exercising on a high speed treadmill. However, even under these conditions, not all horses will displace their soft palate and the diagnosis can only be based on history.

Numerous treatments have been devised for IDDSP. These include tying the horse's tongue forward and down so it cannot retract caudally or get it over the bit (a tongue tie), use of a cross-over nose band to prevent the horse from opening its mouth during racing, resection of the caudal free margin of the soft palate (staphylectomy), resection of the ventral respiratory muscles of the larynx (sternothyrohyoid myectomy), resection of the tendon of insertion of the sternothyroid muscle onto the thyroid cartilage (sternothyroideus tenotomy), laser cautery of the soft palate to stiffen the free margin, and augmentation of the epiglottis to increase its length and rigidity.

Other treatments include antibiotic and anti-inflammatory therapy to treat any upper airway infection and inflammation. The overall success rate reported for these treatments is approximately 60% - and that includes spelling the horse!

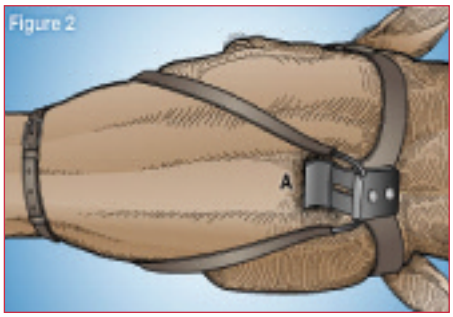
THE CORNELL COLLAR®

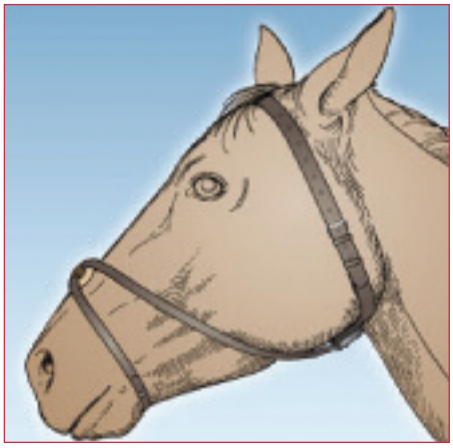
Recently, researchers at Cornell University's College of Veterinary Medicine in the USA have shown that dysfunction of the thyrohyoid muscle (a thin paired muscle that arises from the lamina of the thyroid cartilage and inserts on the thyrohyoid bone of the hyoid apparatus) does lead to IDDSP (Equine Vet Journal 2003 May;35(3):258-63). Following on from this, the same researchers have developed an external throat support device known as the Cornell Collar® (shown in figures 1 and 2 below). The collar comprises a lifting mechanism that fits up between the jaws of the horse, supported by a leather strap passing in front of the ears and pulled forward by a cross-over nose band.

The lifting mechanism lies immediately behind the basihyoid bone (see figure 2), supporting the thyrohyoideus muscle and preventing the larynx from retracting backwards. This aims to prevent the palate from displacing. It is noteworthy that the collar is only of true benefit to horses that suffer from IDDSP and not other upper airway problems.

FIGURE 1: The Cornell collar (approved TSDII model) correctly fitted under the bridle

FIGURE 2: The Cornell collar (without bridle) demonstrating the lifting mechanism sitting correctly behind the basihyoid (A) bone between the jaws





Treadmill studies have shown the Cornell Collar® to be over 90% effective in preventing DDSP (Veterinary Surgery, 32 (5), 2003 p.500 ACVS Symposium abstracts) and appears to be more effective than any other treatment so far developed for the condition. In contrast, the tongue-tie that is widely used as a treatment for IDDSP has been shown to be ineffective in preventing palate displacement (Equine Vet J Suppl. 2002 Sep;(34):430-3).

Some people also consider the appearance of the tongue-tie is unsightly and many horses to do not tolerate having their tongue tied tightly, which has the potential to cause harm. In testing of the Cornell Collar® in the USA, both in thoroughbreds and standardbreds, no adverse effects of the collar have been reported to date.

AUSTRALIAN PERSPECTIVE

The Cornell Collar® is approved by the Australian Harness Racing Council for use in all states in Australia (the collar is on the national unorthodox gear list) and has been approved for use nationally in thoroughbred racing by the National Chairmen of Stewards Advisory Group after consultation with the Australian Racing Board's National Equine Integrity & Welfare Advisory Group.

Since the collar is only of benefit to horses that suffer from IDDSP and not other upper airway problems, it is important that horses trialling and racing in the collar have had a prior veterinary examination, including at least an upper airway endoscopic examination, to confirm the diagnosis and/or rule out other upper airway problems such as laryngeal hemiplegia.

The Cornell collar model available and approved for thoroughbred racing is the TSDII. It has extra cheek straps for incorporating the bit and reins so that it becomes part of the horse's bridle.

CONDITIONS FOR THE USE OF THE CORNELL COLLAR IN THOROUGHBRED RACING (NSW)

- The trainer must submit to the Stewards a letter from a registered veterinarian stating that the use of the Cornell Collar is justified and appropriate in the given horse;
- The horse must compete in a barrier trial wearing the Cornell Collar, to the satisfaction of the Stewards, before being permitted to race in the gear, with prior notice being given to the Stewards of the intention to trial the gear;
- That notification to use the gear (gear change) be made to the Trainers Service Centre by the appointed time for gear changes prior to racing;
- The gear will be subject to inspection by the Stewards and/or official veterinarian on raceday to ensure that it is properly fitted;
- A further gear change must be lodged should the trainer seek to remove the gear;
- Only the original Vet-Aire Cornell Collar™ is approved for use in such a fashion.

In Australia, the Cornell collar is available through Dr David Murphy at Murdoch University. He can be contacted at vetaireaustralia@bigpond.com or by calling 0404 007 674. Further information on the "Cornell collar" is available at www.vet-aire.com