

Implications of restrictive stabling for the welfare of the performance horse

Explores the association between stabling management and the development and expression of behavioural stereotypies in the horse.

By Rebecca Beaumont

Word count: 996

Introduction

Horse owners often stable their horses to avoid risk of paddock-related injury, or to conserve the horses' energy for training (Werhahn *et al.*, 2012). While the size and design of horse stables vary worldwide, horses that are exclusively stabled are recognised as being at greater risk of developing behavioural abnormalities than their pastured counterparts (Rivera *et al.*, 2002). Enclosed stalls restrict natural social and physiological behaviours, encouraging the development of behavioural stereotypies, such as crib-biting, box-walking and wood-chewing (Werhahn *et al.*, 2012; Normando *et al.*, 2011). Stereotypies are repetitive behaviour patterns often adopted by horses as a means of coping with intensive management and subsequent lack of environmental enrichment (Waters *et al.*, 2002; McGreevy, 1997). Crib-biting, the process of drawing air into the oesophagus by resting the upper jaw on a horizontal surface and tensing the ventral neck muscles, often results in tooth wear, chronic jaw pain and tympanic colic (Houpt, 2012; McGreevy, 1997). As such, crib-biting and its causes are significant welfare issues for the horse.

Discussion

Crib-biting is known to be closely associated with feeding large amounts of concentrate feed (Bachmann *et al.*, 2003; Houpt, 2012). More recent research into crib-biting and similar behavioural issues has also shown stabling practices to be a significant influence upon the development of these behaviour patterns (Normando *et al.*, 2011; Werhahn *et al.*, 2012).

Houpt (2012) operantly conditioned horses of mixed sex and breed (n=8) recognised as crib-biters to press a button to access a crib-biting surface and found that the horses were as highly motivated to crib-bite as to eat (Houpt, 2012). The effort of neck-flexing involved in crib-biting was also examined in some horses (n=7) by applying weights to a movable horizontal surface. It was discovered that the repetitive action of crib-biting puts horses at risk of temporohyoid osteoarthritis as 25-30kg of force is exerted on the hyoid apparatus and stylohyoid bone up to hundreds of times per day (Houpt, 2012). Although more horses must be tested to confirm these results, Houpt's research (2012) provides a significant development in the understanding of horse welfare. It is unethical to use anti-cribbing collars on established crib-biters due to the high motivation these horses show to perform the behaviour. As a result, this study underlines the need to prevent cribbing behaviours from ever becoming established (Houpt, 2012).

Horse-management practices vary with the purpose for which the horse is kept. Horses ridden in the English style are significantly more likely to be kept stabled than their Western-style counterparts (Normando *et al.*, 2011). Normando *et al.* (2011) performed an epidemiological exploration into the prevalence of behavioural problems in mixed-breed saddle horses (n=346) and Arabian breed horses (n=101) ridden in either Western or English style. In doing so Normando *et al.* (2011) exposed an association between the expression of stereotypies and restrictive stabling. A horse is considered "restrictively stabled" when it is denied free access to a paddock, or is taken to a paddock for less than six hours per day (Normando *et al.*, 2011). Werhahn *et al.* (2012) explored this concept by comparing the behaviour patterns of horses (n=6) provided with paddock exercise (for two hours each day, alone or in a group) and those with no paddock exercise. By analysing the horses' heart rates over time, the degree of physiological "stress" (periods of low heart-rate variability resulting from sympathetic stimulation) each horse underwent could be monitored (Werhahn *et al.*, 2012). Video footage of the horses' behaviour in training and in the stable, for each of the management styles, was examined and observations of frequency, mean duration and total duration of the behaviours being studied were recorded continuously (Werhahn *et al.*, 2012). The results of the heart rate and video monitoring were then compared, revealing a decrease in heart rate variability and increased restlessness when turnout was denied (Werhahn *et al.*, 2012).

It is recognised that horses kept stabled post-weaning are more likely to develop abnormal behaviours than paddock-kept horses of the same age (Waters *et al.*, 2002). This is echoed in Werhahn *et al.*'s (2012) research, identifying the greatest degree of "stress" in horses denied paddock turnout. Those horses without paddock access show more "occupying" behaviours (investigating bedding and stall equipment), which may

develop into behavioural stereotypies such as crib-biting (Werhahn *et al.*, 2012). Similarly, Normando *et al.* (2011) demonstrated that restrictive stabling is strongly linked to the expression of locomotory stereotypies ($p=0.02$) and has a significant influence on the prevalence of oral stereotypies, including crib-biting, when in conjunction with English-style training. The results of both studies may be expected as restricted paddock exercise and limited access to other horses, seen in standard stabling management, deviates significantly from the horse's natural environment (Normando *et al.*, 2011; Werhahn *et al.*, 2012). Future trials featuring a wider variety of horse breeds and training styles would prove useful in refining the conclusions drawn by the two studies.

By allowing horses free exercise, solitary or in groups, their stable behaviour will accommodate more resting behaviours and fewer "occupational" behaviours (Werhahn *et al.*, 2012). As well as minimising critical health risks by preventing crib-biting behaviours, there may be added benefits to allowing horses paddock access, such as promoting trainability and reducing aggression (Houpt, 2012; Normando *et al.*, 2011; Rivera *et al.*, 2002). Restrictive stabling is a key factor in the development of stereotypies, such as crib-biting, and should be avoided to prevent establishment of crib-biting behaviours with their resultant welfare implications (Normando *et al.*, 2011; Houpt, 2012).

Conclusions

To improve horse welfare, further research must focus on the development of a suitable management program to eliminate behavioural stereotypies. Crib-biting poses a critical risk to horse health, and the removal of potential environmental triggers is essential. Horse owners and managers must strive to provide horses with extended periods of paddock exercise daily, establishing a management routine that more closely resembles the horse's natural environment. By this means stereotypical behaviours will be less likely to develop and the lifelong welfare of the horse will be enhanced.

References

- Bachmann, I., Audigé, L., Stauffacher, M. (2003) Risk factors associated with behavioural disorders of crib-biting, weaving and box-walking in Swiss horses. *Equine Veterinary Journal* 35:2, 158-163.
- Houpt, K.A. (2012) Motivation for cribbing by horses. *Animal Welfare* 21:1, 1-7.
- McGreevy, P.D. (1997) Do stabled horses cope? *Journal of Biological Education* 31:3, 207-211.
- Normando, S., Meers, L., Samuels, W.E., Faustini, M., Ödberg, F.O. (2011) Variables affecting the prevalence of behavioural problems in horses. Can riding style and other management factors be significant? *Applied Animal Behaviour Science*. 113:3-4, 186-198.
- Rivera, E., Benjamin, S., Nielsen, B., Shelle, J., Zanella, A.J. (2002) Behavioural and physiological responses of horses to initial training: the comparison between pastured versus stalled horses. *Applied Animal Behaviour Science* 78:2-4, 235-252.
- Waters, A.J., Nicol, C.J., French, N.P. (2002) Factors influencing the development of stereotypic and redirected behaviours in young horses: findings of a four year prospective epidemiological study. *Equine Veterinary Journal* 34:6, 572-579.
- Werhahn, H., Hessel, E.F., Van den Weghe, H.F.A. (2012) Competition horses housed in single stalls (II): effects of free exercise on the behaviour in the stable, the behaviour during training, and the degree of stress. *Journal of Equine Veterinary Science* 32:1, 22-31.