

# **A discussion of stereotypic behaviour in horses, its management, and welfare implications**

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## **Introduction**

Stereotypic behaviours are invariant and repetitive behaviour patterns that seemingly have no goal or function, and which tend to develop in captive animals (Waters et al. 2002). Crib-biting and weaving are common stereotypic behaviours in horses. Crib-biting involves the horse grasping a fixed object with its incisor teeth, and engulfing air with an audible grunt. Weaving is an obvious lateral swaying of the head, neck, forequarters, and sometimes hindquarters. (McGreevy et al. 1995). Misconceptions of these behaviours by horse owners, and current management techniques have the potential to exacerbate these behaviours, and contribute to diminished welfare (Marsden 2002, McBride & Cuddeford 2001, McBride & Long 2001).

## **Discussion**

Stereotypies affect animals of all ages and disciplines (Marsden 2002). Roughly 8% of horses exhibit some form of stereotypy, however in racing stables this figure soars to around 30% (Marsden 2002, Water et al. 2002). Stereotypic behaviours are thought to develop as a means of coping with a sub-optimal environment, and therefore their development may be indicative of reduced welfare (Waters et al. 2002).

The underlying causes of stereotypies are discussed in Marsden's (2002) paper, a summary of recent advances in stereotypic behaviour research. Stress and frustration are the main causes, however genetic predisposition is another major factor. It is estimated that 40% of horses are predisposed, and the prevalence of stereotypies within these families is between 13 and 67%, compared to 1 to 26% in non-predisposed families (Marsden 2002). Management factors associated with stereotypic behaviours relate to feeding and housing practices, and social contact (McBride & Long 2001, McGreevy et al. 1995.). It must be noted however, that stereotypic behaviour can become a habit that is performed in situations completely removed from the original cause (Waters et al. 2002).

In relation to feeding practices, horses fed on high concentrate diets are much more likely to develop stereotypies than those on high forage diets (McGreevy et al. 1995, Waters et al. 2002). Forages increase eating time, and provides horses with a more stimulating environment, and less time to perform stereotypies. Foraging enrichment was studied by Henderson and Waran (2001) and Goodwin et al. (2002). Henderson and Waran (2001) aimed to provide stereotypic horses with foraging enrichment in the form of a device called an Equiball™. The Equiball™ is a cylindrical device designed to give small food rewards as it is pushed around the floor by the horse (Henderson & Waran 2001). The Equiball™ reduced stereotypic behaviour, and worked particularly well on straw bedding. It was concluded that straw bedding should be used, as horses are more motivated to search for food in straw than other bedding types (Henderson & Waran 2001). Goodwin et al. (2002) aimed to determine the effect that provision of multiple forages has on the performance of stereotypic behaviour. Several replicated trials were conducted in which single and multiple forages were provided in identical stables. In the multiple forage stable, a preferred food type was identified, and to determine whether multiple forages were more enriching, the horses were then fed their favourite food in a single forage stable. Stereotypic behaviour was less in the multiple forage stable, and the study concluded that multiple forages do reduce stereotypic behaviour performance (at least in the short term). Although useful, this study included only 12 horses, and there was significant result variation. In light of this research, high concentrate diets of horses may be altered to improve welfare through the provision of multiple forages.

Enrichment of a stabled environment is a successful strategy for decreasing stereotypic behaviour. Improved social contact decreases stereotypic behaviour, and this may include greater horse-horse contact, human-horse contact, or placing a companion animal in the

stable (McBride & Cuddeford 2001, McBride & Long 2001). Placing mirrors in the stables of weavers significantly reduces this abnormal behaviour. The mirror is believed to mimic visual contact with conspecifics and provide environmental distraction (McAfee et al. 2002). One of the most effective management strategies for reducing stereotypic behaviour is to increase turnout time. This encourages social contact, and also increases the amounts of time spent eating (Marsden 2002).

Misconceptions of stereotypic behaviours have resulted in 74% of owners actively attempting to prevent these behaviours, and many imposing specific management practices on affected horses. A study by McBride and Long in 2001 identified misconceptions, owner perceptions, and welfare implications. It was conducted as a telephone questionnaire directed at managers of racing stables, riding schools, and competition establishments. Common misconceptions were that crib-biting is copied and that it causes ill thrift. There is little evidence that crib-biting is a copied behaviour, although it is the main reason given for isolating crib-biters. Isolation only exacerbates their distress (Marsden 2002, McBride & Long 2002). Crib-biting may however cause colic, and it does wear down the upper incisors which in severe cases may inhibit grazing, and cause weight loss (Marsden 2002).

Attempts to prevent equine stereotypies may be of welfare concern, especially if the behaviours constitute a coping response. McBride and Cuddeford's 2001 study assessed the putative function of these behaviours, and thereby tested the 'coping hypothesis' in order to determine the welfare implications of preventing stereotypic behaviours. The method involved measuring behavioural and physiological parameters such as cortisol and endorphin levels. Although the sample size was limited, an important finding was that plasma cortisol levels were significantly lower after a bout of stereotypy compared to before. Cortisol levels are indicators of stress, and therefore stereotypic behaviours are calming, and do help deal with a stressful environment (McBride & Cuddeford 2001). Devices which physically prevent the performance of stereotypic behaviours such as crib-straps and anti-weave bars block the coping mechanism, thereby placing affected horses in continual stress (Henderson & Waran 2001, McBride & Long 2001). These devices do, however, elicit a stress response in control horses, and therefore the devices and not the physical prevention of the behaviour may be stressful. To further support this theory, preventing crib-biting by removing surfaces on which the behaviour can be performed has no effect on plasma cortisol levels (McBride & Cuddeford 2001). Instead of physically preventing stereotypies causal factors should be identified and addressed.

## Conclusion

In conclusion, recent advances have been made in regard to understanding the causes and motivations behind stereotypic behaviour, and this progress should result in improvements in the management of all stabled horses, and particularly of affected horses. Misconceptions of owners regarding stereotypic behaviours are of welfare concern, and greater dispersal of knowledge is required in order to change management of affected horses. Current techniques such as social isolation, anti-crib collars, and anti-weave bars are detrimental to welfare and are causing significant distress.

## References

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