Performance and Prevention of Equine Stereotypies - a Welfare Perspective

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Introduction

Stereotypical behaviour may be defined as the performance of deliberate, repetitive activities that appear to be without function (McGreevy et al., 1995). There are a variety of different types of stereotypies performed by horses, but those seen more commonly are crib-biting and weaving. Crib-biting is where the horse grasps a solid object with its upper incisors, arches its neck and pulls backwards and upwards (Nicol, 2000). Weaving is a locomotor stereotypy, whereby the horse shifts its weight from side to side, often in conjunction with a lateral head motion (Cooper et al., 2000).

Discussion

Stereotypies have long been considered undesirable, as they are not only aesthetically unattractive (Cooper et al., 2000), but may also cause problems to the animal's physical health (Houpt, 1993). Horses can lose weight from the increased energy expenditure caused by stereotypy performance, and athletic ability may also be compromised (Houpt, 1993). In order to understand the welfare implications of the performance and prevention of equine stereotypies, one must attempt to determine their origin and evolution. In this way one can establish the intrinsic function of the stereotypy to the horse, evaluate whether it is indicative of a compromise to welfare, and subsequently assess the most appropriate method of treatment.

In the study by McBride and Cuddeford (2001), the authors sought to assess the "putative function" of stereotypies and the subsequent impact that various methods of prevention had on the horse's behaviour and welfare. Three groups of four horses were used: one group of known crib-biters, another group of weavers and a third control group. Each group was exposed to different treatments in a randomised sequence. Saline injection; naxolone administration; either a cribbing strap or an anti-weave bar for the respective groups, and both for the control group. Behavioural observations and physiological measurements were taken before and after performance and prevention of the stereotypy, and in response to the naxolone administration. The behaviour was monitored using time-lapse video equipment, and physiological assessments took the form of regular blood tests and heart rate measurements. Both the cribbing strap and anti-weave bar significantly increased plasma cortisol levels in all three groups, indicating that the devices themselves were stressful to the animals, not necessarily the prevention of the behaviour per se. It was also observed that plasma cortisol levels significantly decreased following a bout of stereotypy performance, implying that perhaps both stereotypies have a 'coping' function for horses in sub-optimal environments. This study made it clear that conventional prevention methods may be aversive to horses, and to improve welfare, alternatives should be investigated.

Environmental enrichment is one such alternative. As the prevalence of stereotypical behaviours seems to increase when certain changes are made to the horse's environment (McGreevy et al., 1995), modification of husbandry techniques may be the best way to prevent their performance. This improves the environment so that it no longer compromises the animal's welfare, and allows natural behaviours, rather than stereotypies, to be performed (Waran, 2001). In the wild, horses will spend up to 70% of their time grazing and foraging for food (Mal et al., 1991). Being confined to a stable and feeding mainly on low fibre concentrates tends to decrease the time that horses spend feeding, altering their natural time budget and leaving them frustrated (McGreevy et al., 1995). Motivation to perform these innate behaviours subsequently increases and is channelled into the development of behaviours that satisfy this need within the confined area (Mal et al., 1991). In the study by Henderson and Waran (2001), the effectiveness of using an "Equiball" (a foraging device that dispenses food rewards) to reduce the incidence of stereotypical behaviours in stabled

animals was investigated. Six horses were fed their evening feeds via the device, and their behaviour was monitored using video recording scan sampling (Henderson and Waran, 2001). During enrichment, the incidence of stereotypical behaviour tended to decrease. This may be due to the increased amount of time the horses spent foraging as a result of the 'Equiball', which then lessened the motivation to perform stereotypies. The study showed that treatment of stereotypical behaviour was more effective and more conducive to welfare when directed at the cause of the behaviour, and not simply by preventing the symptoms (Henderson and Waran, 2001). 'Equiball' use allowed the horse to spend more time performing natural behaviours and thus served to improve its welfare (Winskill et al., 1996).

Mills and Davenport (2002) examined another form of environmental enrichment. For the horse in the wild, both visual and tactile social interactions play a major part of life (Houpt, 1995). Deprivation of social contact in the confinement (and often isolation) of the stable may compromise welfare, and can commonly lead to locomotor stereotypies. The motivation to escape to gain social contact is thought to be channelled into the development of these behaviours (Waran, 2001). This study utilised the social behaviour of horses to enrich their environment, allowing them either limited social contact or the perception of it. The aims were achieved by assessing the behaviour of six weavers, each housed for a set period in three different stable designs. The stables consisted of a conventional loose-box; the loose-box design with a mirror attached to one side; and a similar loose-box fitted with a grilled window, allowing the horse a view of its non-weaving neighbour (Mills and Davenport, 2002). Behaviour was observed using 30 second intermittent scan sampling. Results of the study showed that the mirror and the grilled window designs were both effective in reducing the incidence of weaving, implying that the amount of social contact a horse has is important in the development of locomotor stereotypies. By providing horses with limited social contact, their motivation to escape is greatly reduced, and the incidence of weaving decreases. By thus allowing the expression of natural behaviours, animal welfare can be improved.

Conclusion

In conclusion, the optimal method of reducing equine stereotypical behaviour lies in removal of the underlying causal factors via environmental enrichment. A combination of feeding of high fibre diets, using enrichment devices and increasing exercise and social interaction are thought to be the most effective means of achieving this, allowing the horse's natural motivations to be met (Cooper et al., 2000). By some simple modifications to husbandry practices, equine welfare can be radically improved, decreasing the incidence of stereotypical behaviours and hence removing the need for more conventional prevention devices that can cause stress.

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