

Recent Developments in Research Exploring the Influence of Conspecifics on the Behaviour of Stabled Horses

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Introduction

It is known that housing conditions contribute to the development of abnormal behaviours and stereotypies, such as crib-biting/wind-sucking, weaving and box-walking, in stabled horses (Cooper & Albertosa, 2005). Unfavourable environments that decrease welfare can cause or increase stereotypies, defined as repetitive behaviours induced by frustration, repeated attempts to cope and/or CNS dysfunction (Mason *et al.*, 2007). The association of stereotypic behaviour with tooth wear, weight loss, weak condition, gastric ulceration and colic indicates the importance of preventing stereotypies (McBride & Long, 2001; Waters *et al.*, 2002; Archer *et al.*, 2004). Horses are gregarious animals, and confrontations with or isolation from conspecifics can greatly compromise their welfare (Lansade *et al.*, 2008). It is hoped that investigating the influence of conspecifics on stereotypy development may help to improve management practices, reducing stereotypy incidence and improving horse health and welfare.

Discussion

A study by Nagy *et al.* (2008) investigated the risk factors for stereotypic behaviour, by surveying 287 horse owners about the housing, management conditions, stereotypies and problematic behaviour performed by individual horses and visible surrounding conspecifics. Crib-biting/wind-sucking, wood-chewing, weaving and box-walking were dependent variables in five models, and the variable "stereotypies in general" was derived from the occurrence of any of these abnormal behaviours. In the final multivariate models, the presence of a stereotypic neighbour increased the odds of crib-biting/wind-sucking, weaving and "stereotypies in general" in other horses. (It is possible that some of the surveyed horse owners intentionally housed horses displaying stereotypies together and away from other horses, which would have influenced these results.) Observational learning, or copying from other horses, has been shown as an unlikely mechanism for stereotypy development (Lindberg *et al.*, 1999). However, the constant movement and sound produced by stereotypic horses may induce stereotypic behaviour in sensitive conspecifics, as stereotypies are more common during environmental disturbances or during increases in general horse activity (Cooper *et al.*, 2000). Nagy *et al.* (2008) also found that aggressive horses increased the odds of weaving in neighbours. This link is less well understood, although Waters *et al.* (2002) showed that foals of dominant (usually more aggressive) mares are more likely to develop abnormal behaviours. Further studies of the effect of neighbours on horses and stereotypic behaviour development are required before these identified risk factors can be regarded as causal factors, and appropriate management recommendations can be made. It is likely that such recommendations would advise against isolating stereotypic or aggressive horses, given that social isolation can enhance stress and may reinforce stereotypic behaviour (McBride & Long, 2001).

Ninomiya *et al.* (2007) built on previous studies that showed increased visual contact among stabled horses is associated with decreased risk of abnormal behaviours (McGreevy *et al.*, 1995a). Ninomiya *et al.* (2007) assessed the effects of an open window with conspecifics in view on the welfare of stabled horses, using positive and negative behavioural indicators. Six male Thoroughbreds were housed in loose boxes with windows overlooking a paddock. Their behaviour was observed using focal and instantaneous sampling when the window was closed, open to the paddock but with no horses within view (OW condition), and open with two Thoroughbreds within view but not within reach (OWH condition). The study found that the horses in the OWH condition spent significantly less time investigating bedding, an appetitive behaviour known to increase with frustration (Hughes & Duncan, 1988). Combined with increased looking by stabled horses when conspecifics were in view, this indicates that

social visual interactions between conspecifics and stabled horses enrich the stable environment, resolving frustration in stabled horses. Those in the OW and OWH conditions did not perform abnormal behaviours, a finding supported by Cooper *et al.* (2000), who concluded that increased visual horizons, particularly with opportunities to view or interact with conspecifics, significantly reduced established stereotypies in stabled horses. This study indicates that increasing social visual interactions among stabled horses can improve their welfare and reduce the incidence of stereotypic behaviours. However, further studies investigating the effects of visual interactions on larger sample groups involving horses of different ages, sexes and breeds are required to validate these results.

The housing of young horses either individually or with conspecifics also influences the development of stereotypies. Increased visual and/or tactile contact between horses has been shown to reduce the incidence of abnormal behaviours in many studies, including Cooper *et al.* (2000) and the previously described Ninomiya *et al.* (2007). Visser *et al.* (2008) examined the effect of two different housing systems on the stress responses in young horses stabled for the first time. Two-year-old Dutch warmbloods (n=36) were housed for 12 weeks, 18 individually and 18 in paired housing. During the sampling period the horses were turned out when their bedding was renewed. Direct behavioural observations, conducted by continuous recording and scan sampling, showed that the individually housed horses were significantly more prone to displaying stress-related behaviours, such as neighing, pawing, nibbling and snorting, than the pair-housed. Each housed pair of horses occupied an 48m² box, compared to 10.25m² for the single-housed horses. This reduced box space combined with a lack of exercise may have contributed to the increased frequency of aberrant behaviours in individually housed horses, since behaviours, including pawing, may relate to motivation to exercise (Dellmeier, 1989).

The study found that abnormal behaviours and stereotypies were performed by 67% of the individually housed and none of the pair-housed horses, indicating that sudden isolated stabling is stressful for naive young horses. Evidently, these horses should be housed in pairs to reduce stress and maximise welfare. This idea is supported by Bachmann *et al.* (2003), who concluded that allowing tactile contact between horses can prevent stereotypy development and expression. However, caution is advised, as increasing social contact among stabled horses can allow agonistic social interactions and behavioural problems, as seen in the previously described study by Nagy *et al.* (2008).

Conclusion

Recent studies have reaffirmed that conspecifics significantly influence the behaviour of stabled horses; with neighbour behaviour, visual interactions and housing conditions all found to affect the prevalence of stereotypies. These findings may enable changes that will help prevent the emergence of stereotypies and thus improve horse welfare.

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