

The effect of two different housing conditions on the welfare of young horses stabled for the first time

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Abstract

The effect of stabling for the first time on the behaviour and welfare of young and naïve horses has not yet been studied in detail. In this study we examined the effect of two typical housing systems on their subsequent behavioural and physiological responses upon first time stabling. Thirty-six 2-year-old Dutch warmbloods, 18 geldings and 18 mares were included in the study. Half of the horses were stabled in individual stables (10.5 m²) and the other half in pair housing (48 m² for two horses). The study lasted 12 weeks. At the end of the study the physiological and temperamental responses of the horses on the different treatments was tested using a CRF challenge test (to test the HPA-axis function) and a Novel Object test (to test temperamental differences) respectively. Especially in the first week after stabling pair housed horses spent more time eating whereas individually housed horses spent more time either standing vigilant or sleeping. Stress-related behaviours like neighing, pawing, nibbling and snorting were all displayed significantly more frequently in the individually housed horses ($P < 0.01$). At the end of the study 67% of the individually housed horses was seen performing one or more stereotypies ($P < 0.01$). The cortisol response and ACTH response on the CRF challenge test were lower for horses in the individually housed boxes. It is suggested that this depression in socially isolated animals is caused by a desensitisation of the HPA axis in response to stress-induced elevations in ACTH and cortisol. In general there was no effect of the treatment on the reactivity of the horses during the Novel Object test. However, there were significant relations between the responses of horses in the Novel Object test and in the stable environment. It is concluded that sudden isolated stabling is stressful to young and naïve horses, resulting in a high prevalence of stereotypies and abnormal behaviours. This study also provided some support for the notion that social stress in horses may be associated with a blunted adrenocortical response to CRF challenge. The finding that responses of horses to a behavioural test are correlated with home environment behaviours suggests that individual horses exhibit consistent

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behavioural traits across different contexts, and opens the possibility of using behavioural tests in horses to predict more general underlying behavioural characteristics.

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1. Introduction

Feral horses are social herd animals which are free-roaming and pasture-grazing. In their natural environment they have to adapt to environmental changes and challenges for their survival. Compared to their feral relatives, the diversity of behaviours observed in stabled horses has been dramatically altered due to the confining nature of the husbandry systems (Flannigan and Stookey, 2002). The equine industry often ignores the biological need of the horse to adapt to its environment, and sometimes ‘human standards’ are applied to assess quality of daily husbandry methods. Nevertheless there is growing awareness that the way we manage, house and feed horses is suboptimal for this species. Confinement, controlled exercise regimes, social isolation and restricted feeding regimes may all contribute to the development of abnormal behaviour patterns and stereotypies, like weaving, box walking, cribbing and wind sucking (McGreevy et al., 1995a; Cooper and Mason, 1998; Nicol, 1999). Recent studies suggest that the performing of stereotypic behaviour might be a beneficial adaptation for the animal within an ‘abnormal’ (e.g. unnatural) situation (Cooper and Albertosa, 2005), and, therefore may represent an indicator of a present or past reduced welfare state of the animal. A likely pathogenesis of stereotypic behaviour is that animals generally develop the stereotypy in times of ‘trauma’ although they often do not discontinue the abnormal behaviour once the traumatic situation has been resolved.

In several countries the quantitative impact of abnormal behaviours on the horse population has been assessed by means of surveys. These surveys have found prevalence of horses showing stereotypic behaviours between 5 and 15% of the populations studied (e.g. McGreevy et al., 1995b; Luescher et al., 1998) and up to 35% for abnormal behaviour patterns (Waters et al., 2002).

It is generally accepted that husbandry practices have a significant effect on the development of abnormal behaviour patterns and stereotypies in stabled horses (Houpt and McDonell, 1993; Simpson, 1998). In order to improve the welfare state of individually housed horses some countries have made recommendations for stable sizes. In Denmark, for example, the stable area (in m²) is recommended to measure at least twice the height at the withers squared, and the shortest side of the stable should be at least 1.5 times the height at the withers (1.6 m horse: 10.2 m × 5.7 m). In the United Kingdom the British Horse Society recommends a box size of 3.6 m × 3.6 m for ‘horses’ (Raaybymagle and Ladewig, 2004).

Other than box size, restricted possibilities to interfere with their conspecifics are thought to contribute to the development of stereotypies. Several studies of feral and pasture-kept animals have highlighted the importance of interspecific social contacts, exercise and lengthy grazing times (Crowell-Davis et al., 1985; Houpt et al., 1986; Van Dierendonck et al., 1996).

Confinement and social isolation restrict horses in movement and behavioural options, reduce environmental stimulation (Kiley-Worthington, 1990; Mills and Clarke, 2002) and may cause elevated levels of stress (Mal et al., 1991a,b). The effects of long- or even short-term isolation and confinement can lead to abnormal behaviour, increased heart rate, vocalizations, defecation, and feeding disturbances (Kiley-Worthington, 1990; Bagshaw et al., 1994).

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