

Influence of housing on young horse behaviour, development and subsequent welfare

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Introduction

Many housing systems for husbandry restrict space, foraging ability and access to conspecifics (Christensen et al., 2002). In essence, they do not permit animals to perform natural behaviours and contribute to the development of abnormal or stereotypic behaviour. Stereotypies are repetitive and invariant behaviour patterns that are functionless. They develop in captive animals housed in inadequate environmental conditions and can cause health problems (Heleski et al., 2002). Past studies (Mason, 1991) show that stereotypies, namely cribbing, box-walking and weaving are indicative of reduced welfare in that they act as a 'coping mechanism' to allow the horse to deal with a stressful environment. Animals in the early stages of life are greatly influenced by their environment and certain conditions may compromise behavioural development and negatively impact on trainability (Mason, 1991). Heleski et al. (2002) report on behavioural observations demonstrated by stall-housed and paddock-housed weanlings. This essay examines these findings in addition to articles by Waters et al. (2002) and Rivera et al. (2002).

Discussion

According to a study by Heleski et al. (2002) involving twelve Quarter Horse weanlings, the development of aberrant behaviour has important implications for animal welfare. The aim of this study was to monitor behavioural and physiological stress markers in horses weaned individually in solid-sided box stalls versus group-housed in paddocks. In the experiment, the 12 weanlings, average age 4.5 months, were assigned to one of the two housing treatments above and monitored for 56 days. A time-budget recording sheet with behaviours was used to record observations. The results showed that the time-budgets of the two treatment groups differed significantly. Aberrant behaviours of licking, biting or kicking the wall, pawing repeatedly and bucking/rearing bouts were observed more frequently in stalled weanlings.

A significant finding of Heleski et al (2002) was the tendency of stalled weanlings to spend significant amounts of time lying down, with stalled weanlings spending 21.2% of their time lying compared with 3.0% in paddocked horses. One could imply that the stalled weanlings lay down more out of "boredom" and a lack of opportunity to carry out other normal behaviours and that lying more than usual is a welfare concern. A concurrent study by Bell et al (2002) reported that the comparative lack of weight bearing time performed by boxed weanlings contributed to lower bone density than observed in paddocked weanlings and therefore is a significant welfare issue.

Essentially, this study by Heleski et al. (2002) highlights problems involved with accurately assessing welfare state, in that if an animal loses weight, has poor health status or high stress hormone profiles then poor welfare is likely. Assessing 'optimal' welfare is more complex. However, the paddocked weanlings displayed normal behaviours such as social interaction. This freedom from aberrant behaviours indicates they had better welfare than the stalled, single-housed weanlings. Further investigation into the potential for aberrant behaviours to progress into stereotypies was limited by turning the weanlings out at the conclusion of the study.

The objectives of a second study by Waters et al. (2002) were to focus on factors influencing the development of abnormal behaviour in young Thoroughbreds and part-Thoroughbreds. In a four-year study designed to identify the management factors responsible for the onset of abnormal behaviour, 225 horses, recruited as foals, were observed during preweaning, weaning and two to four months post weaning. The outcome of interest was the time of onset of stereotypic and re-directed behaviours, such as wood-chewing. Postweaning information was obtained from owners via telephone and horses were randomly visited every six months.

The results showed that abnormal behaviour affected an unexpectedly high 35% of the study population compared with previous studies that have estimated it to be 5 -10% (McGreevy, 2003). Crib-biting was initiated by 10% at twenty weeks and wood chewing by 30% at thirty weeks. Rates were higher for barned and stabled horses than paddocked. Bivariable and multivariable analysis indicated that horses box or barn-weaned were at significantly greater risk of developing behavioural problems than horses weaned using more extensive techniques.

The study revealed that behavioural problems developed in 27% of the Thoroughbred population, where management practices are directed towards rapid growth and development and box- or barn-weaning is usual. Abrupt traditional box weaning methods considerably increase the risk of developing abnormal behaviour, increase stress levels and thus are indicative of less than optimal welfare. The results obtained were limited by the reliability of information obtained from owners and their ability to accurately identify and report on aberrant behaviours in the post-weaning period. The difference in management practices such as feeding and housing across the studfarms meant the horses in the study were not all subjected to the same conditions and may have caused inconsistency in the results.

Rivera et al. (2002) investigated the impact of housing on the ability of horses to acclimatize more readily to initial training. The aim was to determine if housing conditions affected behavioural and physiological measures in horses subjected to standardised training procedures. To achieve these aims, 16 Arabian yearlings were assigned to three different treatment groups: six each to pasture or stall with training and a control group of four with no training.

A significant finding of Rivera et al. (2002) was that the stalled horses required more time to complete the training procedure, requiring an average of 26.4 minutes per session compared with 19.7 for the paddocked group and also failed to habituate as easily. Overall, the stabled horses exhibited a number of negative behaviour responses including, frequently extending their head and neck upwards and bucking and jumping more during training. Physiologically, plasma cortisol levels and heart rate were measured throughout the study but results did not indicate a significant difference in stress levels between the groups.

In terms of implications for animal welfare, the results of this in-depth study suggest that young horses should be paddocked or provided with enriched stabling environments, ideally with access to pasture, to improve their behaviour and physiological well-being. Findings indicate that providing horses with social interaction with conspecifics and space to release excess energy, by paddock group-housing rather than single-housing in stables ultimately increases trainability. This is a significant for the Thoroughbred Racing industry where young horses are mainly stalled and are tend to be difficult to train. The extent to which the results apply to all horses is limited by use of a single breed and variation in initial handling and experiences of horses prior to the study. The short time-span of a month is not long enough to assess long-term behavioural differences.

Conclusion

It is clear that there are many factors that cause behavioural problems in horses, with the above studies indicating that housing is a major one. Welfare in this area is not well researched or documented. The studies discussed above were conducted to enhance knowledge regarding behaviour and welfare of horses in different housing conditions. The results of these studies highlight the need to modify housing of weanlings and young horses to reduce stress, limit the development of abnormal behaviours, improve trainability and enhance their general welfare status.

References

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