

Christina Perez
Zoology 567 – Topic Summary

Horse (*Equus caballus*) Stereotypic Stall Weaving Behavior

In their wild habitat, horses socialize with conspecifics and live together in herds while grazing and eating for approximately 50-70% of their time; only a small portion of their time is designated for other activities such as lying down (Bulens et al., 2012). In contrast, domesticated horses in stalls are limited in their time grazing in open fields, therefore impeding natural behavior (Bulens et al. 2012). These limited grazing opportunities and low fiber intake has been strongly associated with the development of stereotypic behavior (Stanley et al., 2015). Stabled horses commonly perform stereotypies, defined as repetitive behavioral patterns that serve no apparent function, which are used to evaluate past or present welfare (Mason, 1991b). A prevalent horse stereotypy is that of stall weaving, wherein a horse shifts its weight by swaying its head and neck from one side to the other (Cooper et al., 2000). Stall weaving behavior can have many underlying causes for its development such as sub-optimal environmental conditions, reduced foraging opportunities, low fiber intake and lack of social interaction. For this reason, studies focus on the manipulation of these factors and observe the effect on the frequency of stereotypic behavior exhibited through behavioral scan and focal animal sampling of weaver horses. A portion of the research is dedicated to determining which factors influence stereotypic development while the remaining investigations focus on generating mitigation strategies.

Many studies involving stereotypic behavior in horses have become increasingly focused on understanding developmental influences of stereotypic behavior occurrence within an animal's lifetime. In 1998, a survey of 769 horses was conducted to evaluate the significance of both individual and stable-level factors on the development of stereotypies. It discovered that individual risk factors associated with stall weaving behavior include age, breed and sex wherein weaving was more prevalent in older, thoroughbred stallions; stable-level factors yielded insignificant results on stereotypic behavior (Luescher et al., 1998). Building upon that, a four-year study administered on 225 thoroughbred and part-thoroughbred foals aimed to determine which developmental factors lead to stereotypic behavior occurrence. This revealed that foals of dominant mares and foals weaned within the confinement of a stall or barn, were more likely to exhibit stall weaving behavior at 60 weeks of development (Waters et al., 2002). Another study surveyed 312 horses to further explore stable management impact on stereotypic behavior prevalence in different stables of Prince Edward Island. Weaver prevalence was determined to be more likely with increased age and number of hours worked per week (Christie et al., 2006).

As for mitigation strategies for stereotypies, many solutions have been engineered. In 2000, it was proposed that changes in stall design could decrease stereotypic prevalence by increasing social interaction. Horses were placed in different stall designs and their behavior was consequently observed. Stalls with a front half-door and open side panel into the adjacent stall, as well as an all-four open wall concept, design proved to significantly decrease stereotypic occurrence (Cooper et al., 2000). Similarly, another study used mirrors to minimize social isolation in horses and demonstrated a corresponding reduction in stereotypic frequency. Horses were exposed to mirrors within the stall for a period of five weeks and behavioral observations were recorded before and throughout their exposure (McAfee et al., 2002). Additional techniques such as the inclusion of commercial items (Bulens et al., 2012) and tongue-activated fiber liquid

dispensers (Stanley et al., 2015) were investigated and resulted insignificant in reducing stereotypies.

Through reviewing these studies, questions arise regarding the evolution of stall weaving behavior in the equine phylogeny and its heritability and provide areas of future research within the fields. For example, it is still necessary to fully understand the nature of stereotypic behavior development in horses and the extent to which environmental, social and biotic factors influence its appearance (Mason, 1991a). Furthermore, the theory that such stable vice prevalence is an accurate measure of an animal's current welfare must be debunked as it can lead to premature administration of pharmacological and surgical interventions (Cooper and Mason, 1998). Stereotypies should be treated and mitigated according to their individual underlying problem through less costly methods such as the addition of the mirror, modified stall design or foraging behavioral tools.

The complete bibliography of the ten reviewed articles is provided below:

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