

Is it coping or is it a vice? Cribbing, weaving and other stereotypic behaviors



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Overview of Presentation

- Definition of stereotypic behavior
- Types of stereotypic behavior observed in horses
- What do we know about stereotypic behavior in horses (review of recent research)
- Strategies for managing stereotypic behavior in horses

Stereotypic behaviors

- Repetitive, invariant, behavior with no obvious goal or function
- Linked to sub-optimal environments
 - Inability to perform highly motivated behavior patterns
 - Inability to escape or avoid stressful/fearful situations
 - Kept in confinement or social isolation
- Used as an indicator of poor welfare



Stereotypic behavior in horses

- Observed in domestic and captive wild horses
- Greater than 13% of domesticated horses in Canada and the UK exhibit stereotypies
- In the past, referred to as “stable vices”
 - We are moving away from this terminology
 - Research is providing evidence that stereotypic behaviors are not simply the result of “boredom”



Stereotypic behavior in horses

- Classification
 - Oral
 - Cribbing
 - Tongue-rolling
 - Wood-chewing?



Stereotypic behavior in horses

- Classification cont’
 - Locomotor
 - Weaving – shifting weight from LF to RF repeatedly
 - Stall-walking, Box-walking – following a repetitious circuit around their stall
 - Head movements (bobbing, tossing, shaking, swinging, nodding)
 - Pawing?



Cribbing and Weaving



Head movements

- Head-shaking
 - Bouts of head tossing accompanied by sneezing or snorting
 - Horse attempts to rub nose on ground, foreleg, nearby objects
 - Often has a physiological component; e.g. sensitivity to sun
 - Subject of recent research, but syndrome not completely understood



Damage caused by stereotypic behaviors

- Horses may lose value
- Sometimes banned from certain boarding facilities
- Cribbing – can cause teeth & gum damage; some evidence supporting an association between cribbing and a specific type of colic
- Weaving – hard on hooves
- Box-walking – can be hard to maintain weight



Owner perceptions of stereotypic behavior

- Cribbing and weaving are recognized as a management and welfare concern
 - Potentially detrimental to horse health
 - Can cause damage to facilities as well
- Many owners attempt to physically prevent stereotypic behavior

Review of literature on equine stereotypies

- Surveys of 12,000 horses: 4% cribbers, 3.3% weavers, 2.2% box-walkers, 12% wood-chewers; classified as redirected behavior (Nicol, 1999)
- Greater prevalence in Thoroughbreds, also in stallions (Lenschner et al., 1998; Bachmann et al., 2003; Albright et al., 2009)
- Epidemiological study- weanlings; 10.5% started cribbing around time of weaning; Feeding, housing, and weaning practices greatly influenced the development of stereotypies (Waters et al., 2002)



Risk factors for developing stereotypic behaviors

- Low levels of social interaction
- High degree of stalling, especially with solid walls
- Little turn-out
- High concentrate, low forage diet
- Some evidence of genetic relationship
- Stressful competitive life may contribute
- Stressful weaning may contribute



Stereotypies and learning

- Hausberger et al., 2007 demonstrated lower learning ability in stereotypic horses
 - Tested ability of horses to perform an instrumental task (opening a chest by raising the lid with their nose)
 - 36/51 stereotypic horses compared to 3/19 non-stereotypic horses were unsuccessful in learning the task
 - Stereotypic horses took longer to perform the task (368 s vs. 220 s for non-stereotypic horses)
 - Stereotypic horses spent less time lying and sleeping than non-stereotypic horses (may hinder attentional processes)



Photo courtesy of Horsetalk.co.nz

Stereotypies and temperament

- Nagy et al., 2010 assessed trainability and other characteristics of crib-biting horses
 - Surveyed owners of 50 crib-biting and 50 control horses
 - Horses of similar age, breed, gender, training level and usage
 - Three main factors identified
 - Anxiety (nervousness, excitability, emotionality, timidity)
 - Affability (friendliness toward people and horses, cooperation, docility)
 - Trainability (concentration, memory, perseverance)
 - Level of anxiety was lower in crib-biting horses
 - Trainability and affability did not differ between crib-biting and control horses

What have we learned from cribbing research?

- Numerous studies have investigated potential biological causes of the behavior
- Brain chemistry and function
 - Endogenous opioids (beta endorphins) (Dodman et al., 1987; Gillham et al., 1994; Lebelt et al., 1998; Pell and McGreevy, 1999)
 - Stress coping hypothesis (reduces stress) (Lebelt et al., 1998; Pell and McGreevy, 1999; McBride and Cuddeford, 2001)
 - Dopamine (McBride and Hemmings, 2005; Parker et al., 2008)



Cribbing frequency in response to feeding

150 S.B. Gillham et al. / Applied Animal Behaviour Science 41 (1994) 147–153

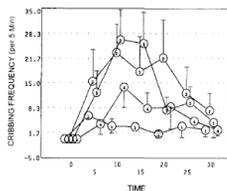
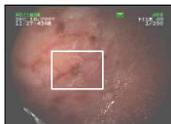


Fig. 1. Mean cribbing behavior (\pm SE) of horses over time during control period and following the consumption of different feeds. Baseline cribbing (1), 5 min after sweet feed (2), 5 min after 16% protein pellets (3), 5 min after alfalfa pellets (4).

Cribbing and gastric discomfort: Is there a link?

- Gastrointestinal irritation
 - In foals:
 - CB associated with gastric ulceration (Nicol et al., 2002)
 - Oral antacid tended to reduce CB duration (Nicol et al., 2002)
 - In mature horses:
 - CB associated with lower basal and post-feeding gastric pH (Lillie et al., 2003)
 - Oral antacid treatment reduced CB frequency (Mills and MacLeod, 2002)
 - CB stimulated salivation (Moxler et al., 2008)
 - CB may be an attempt to alleviate gastric acidity via production of buffering saliva (Nicol 1999)



What have we learned from weaving research?

- Provision of mirrors in the stable and stable designs that provide views of adjacent horses and surrounding fields reduce weaving
 - Weaving may be performed in response to social isolation



Use only glassless/shatterproof mirrors.

- Frequency of weaving increases before feeding
 - Weaving may also be performed in an attempt to cope with frustration associated with meal anticipation

What about wood chewing and pawing?

- May be more “natural” than we think
 - For example:
 - Wood chewing is often seen when horses do not have adequate forage
 - On the range, horses will paw in the snow to find grass or paw the ground in search of water
 - Excessive pawing may result when horse is unintentionally rewarded for performing the behavior
 - Very little research conducted specifically on pawing behavior

Suggestions for preventing development of stereotypic behaviors

- As much turnout time as possible
- As much grazing time as possible
- Social interaction opportunity
- Low stress weaning
- Maximize forage
- Visual horizons – windows, walls with partial grilling, etc.
- Horse toys – may help



Suggestions for managing horses with established stereotypes

- Increased turn out time, social interaction & forage may still help
- Cribbing collars, Cribbing muzzles, anti-weave bars
- Cribbing surgery? – modified laser surgery shows some promising results
- Shock collars? (Punishment or aversion therapy)
- Pharmaceuticals used for OCD?



Physical prevention fails to address the underlying cause and may further reduce equine welfare

Suggestions for managing horses with established stereotypes



Equiball Feeder™ (Henderson and Waran, 2001)

Suggestions for managing horses with established stereotypes

- Contrary to commonly held belief & many older texts, there is little proof that horses learn stereotypic behavior from one another
 - However, they may share a "stressful" environment



Questions???



References and further reading

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