Equine behaviour and vices

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**Suggested Personal & Professional Development (PPD)*

BEHAVIOUR & VICES

Stereotypies are defined as repetitive behaviours with no obvious goal and function (Clegg et al, 2008). These undesirable behaviours are also known as 'vices'. Stereotypies have never been observed in free-ranging feral horses but are reported in more than 15 per cent of domesticated horses. In dressage, eventing and endurance horses, the percentage of prevalence for stereotypic behaviours is 32.5, 30.8, and 19.5 respectively (McGreevy et al, 1995).

Stereotypies have also been described in a variety of other species in captivity. Examples include vacuum chewing and bar biting in sows, tongue rolling in cattle, and object licking in giraffes. Behavioural indicators of welfare are often the earliest signs that can be found to indicate suboptimal conditions. It is widely accepted that stereotypic behaviours are linked to poor welfare.

Equine ethology

Domestic horses share many behavioural traits and motivations with their wild ancestors. In a natural environment, horses spend a large proportion of their time foraging. It has been estimated that they take more than 10,000 strides per day following a natural feeding pattern. As grazers of poor quality roughage, they can eat for approximately two-thirds of their time (16-20 hours per day). They are also highly social; living in large herds to lessen their risk from predators. Mutual grooming, food sharing and play reinforce social relationships within the herd.

These motivations are key to the understanding of equine behaviour. The use of horses for pleasure and competition results in management that does not always allow for these behavioural motivations and may explain the presence of stereotypies in domestic equines (Hothersall and Casey, 2012).

Types of stereotypy

Stereotypic behaviours are usually categorised into three different areas; oral, locomotor, and other. The oral behaviours relate to a horse using its mouth or teeth in a repetitive way, while locomotor behaviours relate to movement of the horse. Crib-biting, weaving and box-walking are considered the most prevalent stereotypies in equines (Sarrafchi and Blokhuis, 2013).

Crib-biting

Crib-biting is defined as grasping a fixed horizontal object with the incisor teeth while contracting the ventral neck muscles and pulling backwards. Horses may or may not also draw in air. It is one of the most prevalent stereotypic behaviours in horses with a prevalence of 2.40-8.30 per cent in Europe and Canada (McGreevy et al, 1995).

Poor performance, abnormal wear of the incisor teeth, weight loss, and colic resulting from epiploic foramen entrapment have all been described as results of crib-biting. Affected horses have also been found to produce smaller quantities of saliva than non-stereotypic horses, with the difference being negated by crib-biting.

It has been reported that horses prevented from crib-biting increase their ingestion of hay (McGreevy and Nicol, 1998). These findings – along with research showing that crib-biting horses have altered gut transit time (McGreevy and Nicol 1998) and suffer an increased risk of gastric ulceration – demonstrate a possible digestive function for this stereotypy (Daniels et al, 2019).

Wind-sucking

Wind-sucking is defined as opening the mouth, bending the neck and contracting the ventral neck muscles to pull air into the oesophagus, without the horse grasping any solid objects with its teeth. Wind-sucking often occurs together with crib-biting. The prevalence of wind-sucking has a prevalence of 3.80 per cent for non-racing horses in North America.

Weaving

Weaving occurs when the horse swings its head and neck from side to side and shifts its weight from one foreleg to the other while standing in the same place. Weaving may lead to musculoskeletal problems, poor performance, and reduced condition of the horse. Weaving occurs most

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frequently just before feeding (Clegg et al, 2008) and seems to represent anticipation of an exciting or stressful event combined with frustration at being unable to leave the confined area. The mean percentage prevalence of weaving behaviour is 3.25 per cent.

Box-walking

Walking around the stable in a repeated pattern, irregular directions, or a figure-of-eight shaped track are signs of box-walking. This may be associated with loss of condition and poor performance. This stereotypic behaviour also makes it difficult to keep bedding clean. The prevalence of box-walking was 2.20 per cent in a study of 13 populations.

Causation

Stereotypic behaviours can develop when the animal is deprived of carrying out patterns of behaviour that it is intrinsically motivated to perform. Thus, the main causes of stereotypies in domestic horses are generally attributed to feeding practices, limited social contact, and lack of locomotion because of restrictive stable environment (Litva et al, 2010).

Reduced feeding time owing to the use of concentrates (starch-rich, cereal-based feeds) that provide the nutritional requirements of the domestic horse quickly is considered one contributory factor. They are consumed in a short period, however, the horse's psychological need for foraging over many hours per day may still exist.

Development of stereotypic behaviour has been associated with the lack of social contact in several species, such as primates, laboratory birds, captive parrots and stabled horses. Current housing conditions of domestic horses often limit social interactions (Cooper and Mason, 1998).

It has been reported that locomotion stereotypies – including weaving and box-walking – are more frequently observed in response to the confinement of the stable environment, inadequate physical exercise, and motivation for social contact (McGreevy et al, 1995). Thus, increasing turnout and the opportunity for social interaction among stable-mates may reduce the incidence of stereotypic behaviour (Cooper and Mason, 1998).

Prevention

It is generally accepted that preventing stereotypies from developing is more effective than attempting to stop them once they have been established.

Physical prevention

Physical preventions are the most frequent treatment for different forms of equine stereotypies; however, they are not considered to be in the best interest of the horse (Cooper and Mason, 1998).

Crib-biting may be prevented through the use of a cribbing strap and collar. When the horse tries to arch its neck, the strap tightens around the pharynx. Other physical

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preventive methods to stop crib-biting include removal of cribbing surface, spreading unpleasant tasting substances onto the cribbing surface, muzzles, or application of electric wire and fences. Physical means could be used to prevent episodes of colic, however, none of these practices are successful in addressing the underlying cause and, in some cases, impose serious welfare issues.

V-shaped anti-weaving bars placed over the stable door are used to stop the weaving behaviour. These do not address the cause and may increase the horse's frustration. Horses often continue to weave further back inside the stable or toss their head up and down (head tossing), therefore this method is not successful.

Box-walking is rarely prevented because the immobilisation of the horse within a stable environment is impractical.

Surgical and pharmaceutical approaches

In the past, surgical procedures have been described for the treatment of oral stereotypies, for example, Forsell's technique involving removal of part of the sternomandibularis muscle in the treatment of crib-biting. However, surgical treatments fail to address the underlying cause and therefore cannot be recommended owing to their negative impact on the horse's welfare.

Pharmacological treatment has been used in horses with stereotypic behaviour with drugs that target the neurotransmitters dopamine and serotonin, as well as the opioid systems. Pharmacological therapy is, to some extent, successful in the reduction or prevention of the stereotypic activities, but is not a long-term solution to the problem and more research is required to test the side effects and toxicity levels of pharmacological agents (McGreevy and Nicol, 1998).

Although group turnout of horses places them at the potential risk of injury, it can be a beneficial technique to prevent the development of stereotypies and should be considered where possible.

Environmental enrichment

The use of mirrors in the stable has been reported as an effective treatment for some stereotypic activities. It is proposed that the image of the horse in the mirror may have a similar effect as social contact and reduce the feeling of confinement and isolation. It has also been observed that either a visual image of a horse or a true visual contact with a neighbour is associated with a significant reduction in weaving behaviour.

Management change

Increasing access to pasture and temporarily reducing the training regime can be sufficient for the treatment and prevention of gastric ulcers in horses and can subsequently decrease stereotypic behaviours. Alternatively, if pasture is not available, provision of good quality, high fibre hay is also beneficial. The high fibre requires more chewing and subsequently increases feeding time. This method more closely matches the horse's natural grazing patterns and ultimately reduces the time spent on stereotypic behaviour (Marsden, 2002).

It has been demonstrated that feeding the horse with less than 6.8kg forage per day is associated with increased risk of performing stereotypic activities (McGreevy et al, 1995). Although group turnout of horses places them at the potential risk of injury, it can be a beneficial technique to prevent the development of stereotypies and should be considered where possible.

Weaning

Weaning methods, and management around weaning time, are important for the future development of stereotypic behaviours. Foals fed on concentrates after weaning were four times more likely to exhibit crib-biting behaviour compared with foals not receiving concentrates. A decreased risk of developing abnormal behaviour was also observed when the foals were kept on pasture – rather than confined – during the post-weaning period.

Treatment

In some cases, environmental and management changes

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may fail to prevent stereotypic behaviour because established stereotypies may become increasingly habitual and detached from their original cause after an extended period. In these horses, enrichment of the environment will still be beneficial to welfare.

It is also important to explain to owners that attempting to prevent the horse displaying stereotypic behaviour is likely to compromise their welfare. Resolution involves both understanding the underlying motivation for showing the behaviour, and how it has become reinforced and established over time – each case is individual (Hothersall and Casey, 2012).

Conclusion

Stereotypic behaviour has important consequences for equine health and welfare. Development of these behaviours is generally associated with horses being managed in sub-optimal environments – either currently or in the past (Hothersall and Casey, 2012). Stereotypic behaviours are perceived to have a significant impact on the financial value of a horse and can decrease their market value by 37 per cent (Marsden, 2002).

The perception that stereotypies can be developed by exposure to affected horses has never been confirmed in either experimental or epidemiological studies (Albright et al, 2009). Although there is not enough scientific data to prove that stereotypic behaviours are learned or copied, many horse owners consider stereotypies as 'contagious vices' (McGreevy et al, 1995; Litva et al, 2010). ■

PPD Questions

1. What are the three categories that equine stereotypies are usually divided into?
2. Which are the most prevalent equine stereotypies?
3. What two weaning techniques may decrease the risk of developing stereotypies?
4. To what degree may stereotypies decrease a horse's market value?

Answers

1. Oral, locomotor, and other 2. Crib-biting, weaving, and box-walking
3. Keeping foals at pasture after weaning, and not feeding concentrate feed
4. Up to 37 per cent.

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