

Advances in Equine Welfare at Every Level: Owning, Training and Riding

Explores welfare issues caused by less-than-ideal housing and advances in thinking on the importance of a basic understanding of the equine ethogram and of learning theory in training and the relative stress of using positive or negative reinforcement.

By Taylor Pini

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Introduction

Because so many owners are unwilling or do not perceive the need to change from tried and true traditions, many methods of housing, training and riding place a considerable amount of unnecessary stress upon horses and thus have become prominent welfare concerns. A variety of the interactions humans have with horses, particularly riding, fall outside the natural equine ethogram (McGreevy *et al.*, 2009), thus we are expecting the horse to make significant behavioural changes. Understanding natural horse behaviour and learning theory is imperative for all those involved with horses – not just the riders – in order to improve equine welfare (Hawson *et al.*, 2010).

Discussion

Housing is a basic element of horse ownership, but there is yet to be a consensus on what is best. A study conducted by Lee *et al.* (2011) aimed to assess the motivations and preferences of stalled horses for turnout and exercise and whether these preferences changed with no turnout for 48 hours. Nine mares (aged 10-19) were trained using operant conditioning to test the motivation for turnout (release, food or companionship). A further nine horses (aged 3-15) were given a two-choice preference test to assess preference for returning to their stalls or engaging in 20 minutes of treadmill exercise. Eight horses (median age 11.5 years) were also given a two-choice test to assess preference for returning to their stalls or being turned out (in isolation or in a group). This preference was also measured after 48 hours of stabling without turnout. The authors found that the primary motivation for release was food. Interestingly, they showed that while horses prefer voluntary exercise (i.e., turnout) for at least 15 minutes, most choose staying in their stalls over forced exercise (i.e., treadmill work) for 20 minutes. Perhaps the most interesting and unexpected result was that after 48 hours in stalls, horses preferred to spend longer turned out in a group but show no such compensatory behaviour when turned out alone. While many people avoid housing or turning out horses in groups because of predicted aggressive behaviour (Hartmann *et al.*, 2012), perceived risk of injury or decreased motivation/willingness to perform (Werhahn *et al.*, 2012), this and other studies show that group housing can significantly benefit horses. These benefits include progressing further in training (Søndergaard & Ladewig, 2004), demonstrating “natural” behaviours, showing no stereotypies (Visser *et al.*, 2008; Heleski *et al.*, 2002), and promoting an “urge to move” during exercise (Werhahn *et al.*, 2012). Thus these conclusions have significance in the design and decisions regarding equine housing and turnout, particularly in group arrangements.

While housing can impact how a horse performs during training, the training method itself is also vital. A study by Hendriksen *et al.* (2011) analysed the effectiveness and relative stress of using positive versus negative reinforcement in training. Twelve horses (aged 7-20) with a history of trailer-loading issues were trained to load, six with negative reinforcement (pressure from lead rope/whip) and six with positive reinforcement (food = primary reinforcer, clicker = secondary reinforcer). Heart rate was measured and discomfort behaviour (eye and nostril widening, tail whipping and avoidance) observed throughout each training session. The results showed that while heart rate was similar between treatments, discomfort behaviour was significantly higher in negatively reinforced horses. In addition, the total time taken to train horses was shorter using positive reinforcement. These results suggest that horses trained with positive reinforcement learn faster, with less stress, creating a calm and motivated horse that is less likely to be dangerous (Heleski *et al.*, 2008). These results are widely mirrored (Heleski *et al.*, 2008; Innes & McBride, 2008; Sankey *et al.*, 2010) and support the movement away from incorrectly administered negative reinforcement (McGreevy & McLean, 2009) in favour of positive reinforcement when easily applicable in training.

Arguably the most important and complex elements of horse welfare involve interactions between horse and rider. Munsters *et al.* (in press) aimed to quantify the influence of the rider on the horse when encountering a challenging object. Sixteen horses (average age 14) faced three “challenging objects” (blue sail, red ball, narrow passage) in a single test. Each horse underwent the same test with three different, randomly selected riders (21 riders total). The heart rate and heart rate variability of horse and rider were measured throughout testing and the behavioural score of the horse recorded for each rider and object. The horse-rider combination was graded as a “match” or “mismatch” on the basis of discomfort behaviours exhibited by the horse (e.g., ears turned backwards). The results showed that “matching” horse-rider combinations significantly reduced the horse’s heart rate and discomfort behaviours, effectively reducing apparent stress in a horse presented with a novel situation. Where the rider matched the horse, responses arose from consistent signals, whereas mismatches reflected an inability of the rider to respond to the horse’s behaviour, with subsequent inappropriate timing and use of cues. The correct use of cues and particularly of negative reinforcement are a current focus of equine welfare research and education (McGreevy & McLean, 2009). As shown in this study, the ability of a rider to respond to a horse’s behaviour and use cues promptly and appropriately can greatly influence the amount of stress placed upon the animal in an unfamiliar situation. Thus constant diligence and continued training of the rider are important in ensuring equine welfare and rider safety.

Conclusions

The welfare of the horse is influenced by many factors, from stabling to contact with the rider. Studies regarding the preference of horses for group turnout and its benefits mark a significant step forward in understanding the best arrangements for horse housing. On the next level, research into the value of positive reinforcement has provided important information for trainers to consider, and prompted many researchers to develop and implement practical reward systems (Warren-Smith & McGreevy, 2007). Finally, studies into the complex horse-rider dyad reinforce the importance of a basic understanding of learning theory and the equine ethogram to promote a higher standard of both horse welfare and rider safety.

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