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Research

Conflict behavior in elite show jumping and dressage horses

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ABSTRACT

Conflict behavior (CB) is a response exhibited by animals that experience difficulty coping with mental or physical discomfort and is most often demonstrated as some form of resistance to handling or training cues and/or equipment. In equestrian sport, Fédération Equestre Internationale (FEI) code of conduct for the welfare of the horse stipulates that "… horses must only undergo training that matches their physical capabilities and level of maturity for their respective disciplines." The objective of this study was to determine the incidence of CB in horses participating in elite equestrian competition. The behavior of 150 horses (N = 100 during show jumping and N = 50 during dressage top-level competitions) was monitored via FEI TV transmissions. We assessed the occurrence of specific CBs in each horse including head shaking, pulling the reins out of the rider's hands (PR), gaping, and tail swishing (TS) per second during competition. In jumping competitions, the CB occurrence associated with each type of obstacle (fence) was divided by the total number of obstacles of that same type. In dressage competition, CB occurrence associated with a given dressage movement was divided by total time (pooled duration in seconds) associated with the movement. Percentage of the time where each horse presented with low head position and with the nose behind the vertical was also recorded. The data indicated that jumping and dressage competitions differed in the occurrence of studied CB per second of the course or test (head shaking, $P = 0.0279$; PR, $P < 0.0001$; TS, $P < 0.0001$, and gaping, $P < 0.0001$). In show jumping, PR was most frequent and vertical and combination fences were the more problematic obstacles. In dressage, TS was most frequent, whereas other CBs occurred only sporadically. Although TS was observed significantly more often during the complicated dressage movement phases compared with less complicated movement phases, there were no differences in the occurrence of CB in particular movements within the groups of more and less complicated dressage movement phases. Dressage horses were ridden more often ($P < 0.0001$) in low head position and with nose behind the vertical compared to show jumping horses. Both the percentage of time with head in low position and the nose behind the vertical were positively correlated ($r_s = 0.50$; $P = 0.0002$) although there was no relationship between these parameters and the occurrence of CB in either jumping or dressage. However, the high incidence of CB observed in elite jumping and dressage competition suggests that many horses may not be sufficiently prepared for competition in line with the FEI code of conduct guidelines. Clearly, this could lead to welfare concerns for the horses within these equestrian disciplines. Finally, we suggest that the occurrence and/or the extent of CB exhibited by horses participating in elite jumping and dressage sport require further scrutiny in terms of the FEI code of conduct guidelines.

Introduction

Horses and humans have experienced a long standing social history, where immediately before domestication the horse was viewed primarily as a food resource. Although this continues to the present day in some quarters, the horse was later harnessed as a

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means of transportation and a source of power for human work practices (Levine, 1999; Murphy and Arkins, 2007). Nowadays, horses participate with humans mainly in sport and recreational activities in various forms of riding and driving activities often on a competition basis. Indeed horse riding has become increasingly popular and there is plentiful evidence that riders derive much pleasure and satisfaction from their participation in various equestrian pursuits (Heydemann and Grosbois, 2006; Górecka-Bruzda et al., 2011; Visser and Van Wijk-Jansen, 2012). Apart from racing, which is largely associated with Thoroughbred horses, the sport of show jumping appears to be the most popular activity among the many and increasingly diversified equine sporting disciplines associated with formal competition. Data available from the global governing body for equestrian sports—Fédération Equestre Internationale (FEI)—reveal that number of competitors registered in 2012 as involved in international show jumping was 14,739 persons (see FEI database at https://data.fei.org/Person/Search.aspx). These data also suggest that there are almost twice as many participants involved in show jumping as there are combined for every other FEI discipline. In terms of FEI-regulated dressage competition, some 3029 persons were registered to participate in dressage competition, which similar to show jumping attracts a numerous spectator audience.

The welfare of the horse is becoming an ever more important issue for spectators and participants alike in all horse sports (Waran and Casey, 2005). This is reflected in the FEI code of conduct for the welfare of the horse (FEI rules for each discipline, http://www.fei.org/fei/regulations/), which stipulates that "… horses must only undergo training that matches their physical capabilities and level of maturity for their respective disciplines." Clearly, any insufficient or inappropriate attempts at horse training and participation in competition could easily lead to reduced standards in horse welfare (Górecka-Bruzda et al., 2013). Previous research has indicated that competing with physically or psychologically unprepared (or ill prepared) horses and/or the use of inappropriate training devices and techniques could lead to mental and/or physical damage to the animal (Ödberg and Bouissou, 1999; Murphy, 2008; McLean and McGreevy, 2010a). Indeed, inappropriate training and competition of horses has been shown to lead to unnecessary wastage and elimination of animals from equestrian activity and has been viewed as one of the potentially serious problems currently associated with horse sports and riding (Heuschmann, 2006; McGreevy, 2007; McLean and McGreevy, 2010b). Training methods have been subjected to increasing levels of scientific scrutiny, and several research scientists have recently concluded that the correct methods of training and only the most skilful use of specialist training equipment and tack are truly beneficial in the welfare of ridden horses (Murphy et al. 2008; Hockenhull and Creighton, 2012; McBride and Mills, 2012). Other specific issues under ongoing investigation in horse sports include the (detrimental) effects of high rein tension, different types of bits and nosebands, and other associated tension-eliciting equipment (McGreevy, 2007; Murphy, 2009; McLean and McGreevy, 2010b; Clayton et al, 2011). Furthermore, training and producing horses in overflexed head and neck position or outline (rollkur) have been criticized in several quarters, which has subsequently provoked scientific investigation and professional stakeholder discussion on the behavioral and physiological consequences of overflexion of the horse's neck (Visser et al., 2009; von Borstel et al. 2009; Becker-Birck et al. 2013b). Others had previously warned of impending harmful effects from using rollkur on the equine musculoskeletal system leading to consequential loss of the 'willingness to work' on the part of many horses subjected to the technique (Denoix, 2006; Heuschmann, 2006). Yet research reports have produced conflicting results on rollkur, for example evidence of discomfort and fearfulness (von Borstel et al. 2009) to no discernable impact on physiological indices in the horse (van Breda, 2006; Becker-Birck et al. 2013) meaning that no definitive conclusion can be drawn. However, it should be noted that many previous studies (and generally with limited numbers of subjects) had focused on different physical and psychological effects of rollkur such that perhaps the results are not immediately nor directly comparable (Visser et al., 2009).

As with many aspects of animal husbandry, the training and production of sport horses to a high level of competence and proficiency can be quite labor-intensive and time consuming, and the desired outcomes may not always be achieved successfully. Occasionally, some individual stakeholders attempt to circumvent or reduce the workload and train animals that are physically and psychologically immature—often because of inexperience, financial, and/or time constraints (McGreevy and Murphy, 2009). Where any such shortening of the learning and memorization processes in the horse is attempted using coercive, unclear, or precocious methods, it is likely to lead to some behavioral resistance or conflict behavior (CB). These types of equine behavioral activities are indicative to some kind of discomfort, confusion, and resistance or hyperactivity to riders' aids (McGreevy et al., 2005). CB is a response exhibited by animals that experience difficulty coping with mental or physical discomfort, most often demonstrated as some form of resistance to handling or training cues and/or equipment (McGreevy et al., 2005). All such behavior is rarely or almost never observed in natural or feral equine behavioral repertoires (Fraser, 1992; Ransom and Cade, 2009), but it is associated with the ridden horse context (von Borstel et al. 2009, Williams and Warren-Smith, 2010). Specifically, typical examples of these CBs in the ridden horse include instances of head shaking (HS), gaping (GA; opening of the mouth or failing to accept the bit for contact), tugging or pulling the reins (PR; out of rider's hands), and excessive swishing of the tail during the ridden work.

The FEI is the authority that regulates and governs international equestrianism and has developed "the code of conduct for the welfare of the horse." This code has been added as a preamble to the official rules of each of the FEI disciplines to maintain appropriate welfare standards in international equestrian sport (FEI jumping, dressage, eventing, endurance, vaulting, reining rules, http://www.fei.org/). Among the treatise stipulations are instructions to competitors that "… at all stages during the preparation and training of competition horses, welfare must take precedence over all other demands." Additional ethical stipulations declare that "… horses must only undergo training that matches their physical capabilities and level of maturity for their respective disciplines and must not be subjected to any training methods which are abusive or cause fear or for which they have not been properly prepared …" and that "… abuse of doping and medication is a serious welfare issue and will not be tolerated …" and in terms of rider or trainer aids, "… abuse of a horse using natural riding aids or artificial aids [e.g. whips, spurs, etc.] will not be tolerated …" among others. Consequently, the objective of this study was to determine the incidence of CB in horses participating in elite show jumping and dressage competitions. Moreover, we set out to establish if, or what type of, obstacles (fences) in show jumping and specific dressage movement phases might be associated with the highest frequency of particular CBs. The rationale for the study design is that the outcomes may be extremely useful for riders or trainers when they are designing and implementing training and competition programs to compliment athletic ability in the talented horse. The results may also serve equestrian judges for better assessment of signals of behavioral welfare of "happy" or "unhappy" equine athlete.