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**Are views regarding show horse welfare influenced by owners perceived locus of control**L. BRIZGYS<sup>1,\*</sup>, M. VOIGT<sup>2</sup>, C. HELESKI<sup>3</sup>, L. PFEIFFER<sup>1</sup>, C. BRADY<sup>1</sup><sup>1</sup>Purdue University, Youth Development and Agricultural Education, West Lafayette, IN, USA<sup>2</sup>Iowa State University, Extension 4-H Youth Development Program Specialist, Ames, IA, USA<sup>3</sup>University of Kentucky, Ag Equine Programs, Animal and Food Sciences, Lexington, KY, USA\*Corresponding author: [lbrizgys@purdue.edu](mailto:lbrizgys@purdue.edu)

Management of show horses dedicated to competition frequently limits natural behaviors and meeting of needs. To advance the improvement of show horse welfare, an understanding of human psychological characteristics underlying behaviors that impact owner decision making must be established and evaluated. In this study, the Locus of Control theory identified by Julian Rotter (1966) was employed. Rotter posits that an individual can have an internal or external locus of control, which has an impact on their interactions with the world. The aim of this study was to explore relationships between individuals' locus of control and show horse welfare as a potential variable contributing to opinions regarding show horse welfare in America. A digital survey from 956 respondents regarding welfare beliefs and locus of control was analyzed via anonymous Qualtrics survey distribution methods. Cronbach's Alpha for 24 locus of control and 111 welfare items, selected for the scope of this study, were 0.845 and 0.775 respectively. Multiple regression analysis was used between locus of control and individuals' perceptions of show horse welfare. Internal loci of control directed towards the individual's ability to lead (Beta=0.034,  $P<0.0001$ ) and goal achievement through hard work (Beta=0.036,  $P=0.003$  or better  $P<0.01$ ) significantly predicted perceptions of show horse welfare. Two identified variables represent factors that relate to an individual's perceived control of working with show horses. The results support the hypothesis that individual tendencies towards an internal or external locus of control has an effect on aspects of horse management that effect on how individuals contribute to a horse's welfare.

**Keywords:** show horse; locus of control; perception; training; management; welfare

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**How Australian horse owners determine if their horses have their social and behavioral needs met: findings from a mixed-methods survey of 505 horse owners**

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To understand how Australian horse owners and carers determine the health and welfare of their horses, two questions were included in a national online survey designed by the Australian Horse Industry Council and completed by a convenience sample of 505 Australian horse owners in 2012 and 2013. Around half (56%) the participants strongly agreed that their horse had its social and behavioral needs met completely, as evidenced by: the provision of unmediated company with another horse (59%), living in a paddock (36%) and having mediated contact with another horse (24%). A subsidiary question asking where improvements could be made was addressed by 126 participants who considered the following important to equine well-being: competitions and outings; training and work; interaction with humans; and experiences that would occur 'in nature'. Findings provide the basis for a theoretical discussion of the politics of 'nature' and anthropomorphism. In some instances, interpreting horses as being 'like' humans motivated horse keeping practices largely considered

positive (such as providing conspecific companionship). However, there were also instances where interpreting horses as being 'like' humans motivated practices potentially negative or stressful (such as training and outings). Findings suggest that the relationship between anthropomorphism and equine welfare is not necessarily negative and may even be advantageous. There may be benefits in developing an education and communications framework based around human-horse similarity and difference as part of the public communication of Equitation Science.

**Keywords:** welfare; anthropomorphism; survey; social; behavioral; education

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**Does leadership relate to social order in groups of horses and can it be transferred to human–horse interactions?**E. HARTMANN<sup>1,\*</sup>, J.W. CHRISTENSEN<sup>2</sup>, P.D. MCGREEVY<sup>3</sup><sup>1</sup>Swedish University of Agricultural Sciences, Department of Animal Environment and Health, Uppsala, Sweden<sup>2</sup>Aarhus University, Department of Animal Science, Tjele, Denmark<sup>3</sup>Sydney School of Veterinary Science (B19), University of Sydney, Australia\*Corresponding author: [Elke.Hartmann@slu.se](mailto:Elke.Hartmann@slu.se)

A prevalent, traditional approach to horse-training is based on the belief that human dominance and leadership over horses is required to gain their respect and compliance. However, this denies the horses' complex social organisation and the many factors determining rank. Hierarchies often manifest during resource competition which is usually absent in training. Furthermore, studies have shown that leadership is not unique to the highest ranked or oldest horse of the group but that any horse can act as leader (initiating group movement). Thus, the relevance of incorporating such concepts into human-horse dyads is probably low. This is supported by empirical data on four groups of Icelandic horses and Standardbreds (5 horses/group), studied during different tests at pasture (novel object/surface, competition for food) to determine if movement initiators were distinguished by rank. Horses could leave a pen (15x13m) to explore four objects (umbrella, pool noodles, doll, blanket), traverse four surfaces (plastic tarpaulin [PT] folded; PT unfolded; PT with traffic cones; PT with taped crosses) and feed during four limited resource tests. Data revealed that highest-ranked horses initiated movement in only 6% of 48 tests. The latency to leave the pen did not differ between the highest (Mean 330 secs  $\pm$  134 SE) and all lower-ranked horses (258  $\pm$  89;  $W=36$ ,  $P>0.05$ ). Thus, rank did not predict leaders, nor was movement initiation consistent across test contexts. An understanding of horses' social behavior is therefore more reliable in safeguarding horse welfare than translating dominance and leadership constructs into training.

**Keywords:** equine; human; behavior; dominance; leader; training

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**The influence of equine behavior in the language of teaching and learning equestrian sports**

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Ongoing research in Equitation Science has advanced our understanding of equine behavior to improve the wellbeing of horses that are trained for equestrian sports. Teaching equestrian sports is considered by equestrians to be different to teaching other sports because the horse, as a sentient being, is present. However, to date, there has been little research that has identified if, how, or when the behavior of the horse may impact or influence the ways that equestrian coaches teach. Results from a (qualitative) thematic analysis of 26 coach observations and eight coach interviews suggest that some,

albeit not all, aspects of teaching equestrian sports are different to those of other sports. One major emergent theme of difference suggests that, when teaching, competent equestrian coaches respond and adapt empathetically to the horse's behavior in addition to that of the student. The coaches were perceived as both interpreters of equine behavior or Equus language, and as translators of that language to students, where the coaches' language was perceived as a competency indicator of their interpretation and translation skills. These findings suggest that the education requirements of equestrian coaches include learning about the horse-human bond and, additionally, about observing, interpreting, and translating equine behavior with the appropriate language expressed when teaching students. Professionals who teach with horses and acquire such knowledge and skills may better understand how the triad of a coach, student, and horse communicate and connect in order to collaborate and compete happily in equestrian sports performances.

**Keywords:** coach; education; connect; communicate; collaborate

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### Do you understand me or should I shout louder? Bringing about human behavior change in the equine industry

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ISES was founded in part to bring research into equine behavior and welfare, where it relates to horse training and use, across to those who ride, train and coach; with the goal of ultimately benefitting their horses. But simply making new knowledge available does not automatically lead to its application into daily practice, leaving much valuable evidence and expertise disappointingly remote from the horses it could benefit. Many in the field of Equitation Science have managed to overcome this hurdle but the 2017 ISES conference is a clear recognition that collectively we need to do more to understand and then share how to translate quality research into the daily usage by those who impact equine welfare the most, the riders, trainers and coaches. Change is difficult, not just for those making a change; but also those trying to facilitate or encourage it. Like Equitation Science, Human Behavior Change is a complex, multifaceted and evolving field. The workshop drew on presentations at conference to give delegates the opportunity to appreciate the complexities, as well as the potential, of using evidenced based approaches to effect changes in how people care for and train horses. If Equitation Science offers the knowledge to benefit horse welfare and the horse-rider relationship, then can evidence based human behavior change practices ensure it does so? In the workshop delegates considered and discussed ending the use of restrictive nosebands by focusing on understanding the human reasons for their use before exploring collaboration and communication to bring about the desired behavior change.

**Keywords:** human; behavior change; Equitation Science; equine; welfare

## POSTERS

### 26

#### Preliminary investigation into relationships between donkey and horse skull and brain morphology

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Horses and donkeys belong to the genus *Equus* but *Equus caballus* displays distinctive conformational attributes among breeds while *Equus asinus* shows less variation in skull shape. This study compared skull and brain morphology between horses and donkeys. Skulls of *Equus caballus* (N=14 Standardbred) and *Equus asinus* (N=16) were obtained postmortem. Heads were sectioned sagittally along the midline and photographed for measurement of skull structures using Image J software: skull index (SI)=zygomatic width\*100/skull length; cranial index (CI)=cranial width\*100/cranial length; nasal index (NI)=zygomatic width\*100/nasal length; cranial profile index (CPI)=rectangular area bordered by an 80mm line from orbital notch and occiput; nasal profile index (NPI)= rectangular area bordered by 80mm line from orbital notch and tip of nasal bone; olfactory lobe (OL) area; and whorl location (WL) [distance of OL from the level of the forehead whorl]. A GLM determined the main effect of species between the various measurements. There was no species difference in SI, NI or NPI ( $P>0.05$ ), but donkeys tended to have a smaller CI ( $F_{1,17}=3.59$ ,  $P<0.08$ ) and smaller CPI than horses ( $F_{1,21}=7.54$ ,  $P<0.05$ ). Donkeys also had a smaller OL area than horses ( $1.4\pm 0.3$  vs  $2.3\pm 1.3$ cm<sup>2</sup> respectively;  $F_{1,13}=4.96$ ,  $P<0.05$ ). The greatest difference was seen in WL, which corresponded to the level of the OL in horses, but was extremely rostral in donkeys ( $F_{1,21}=24.29$ ,  $P<0.0001$ ). These results show clear differentiation in skull morphology between horses and donkeys. Clarifying differences between horses and donkeys is crucial to understanding species-specific behavioral responses and providing appropriate management and training practices.

**Keywords:** horse; donkey; brain; skull; morphology

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#### Effects of a light coloured cotton rug use on horse thermoregulation and behavior indicators of stress

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When environmental temperatures exceed 25°C horses are potentially subject to thermal stress and shade is recommended. However this may not always be possible and light cotton rugs may be used instead based on the premise that solar radiation is blocked and heat absorption reduced. Heart rate (HR), respiratory rate (RR), rectal temperature (RT), sweat production and stress-related behavior data were collected for 18 horses. The horses were tied up in an outdoor arena in direct sunlight for two hours. Baseline data (T0) comprising frequency of tail swishing, licking-chewing, pawing, repeated head movements and self-care were recorded using a behavior-sampling method for ten minutes, followed by physiological measures and sweat production (sweat score: 0 none to 5 excessive). Half of the horses were then fitted with a light cotton rug, observed and monitored at 15 minute intervals for two hours. RT and sweat score were lower in non-rugged horses compared to rugged horses ( $37.4\pm 0.3$  vs  $37.7\pm 0.3$  °C;  $0.5\pm 0.8$  vs  $1.9\pm 1.3$ , respectively;  $U=1865.0$ ,  $U=1409.0$ ;  $P<0.001$ ). However non-rugged horses showed a higher frequency of tail swishing ( $23.1\pm 25.9$  vs  $8.7\pm 11.0$  n/10min;  $U=1939.5$ ;  $P<0.001$ ). HR, RR and the occurrence of stress-related behaviors were higher than baseline, suggesting that horses were prone to discomfort. Although light coloured cotton rugs may protect horses from flies as evidenced by reduced tail swishing, an increase in internal temperature and subsequently sweat production, increases the risk of thermal stress and loss of electrolytes impacting welfare negatively.

**Keywords:** thermoregulation; horse; cotton rug; stress; welfare; behavior