

Equal Outcomes with and without Human-to-Horse Eye Contact When Catching Horses and Ponies in an Open Pasture

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ABSTRACT

Each of 104 horses and ponies was approached for catching at pasture by the same human handler in a standard manner, either maintaining human-to-animal eye contact (EC+; $n = 51$) or avoiding eye contact (EC-; $n = 53$). A subset of 74 of these subjects were reevaluated 3 weeks later under similar standard conditions except with the eye contact condition opposite to that used in the first round. Nonparametric statistical methods were used to evaluate between subjects (round 1, $n = 104$) and within subjects (rounds 1 and 2, $n = 74$) comparisons of successful or unsuccessful catching outcome with EC+ and EC-. Catching outcomes were similar with eye contact condition. Although this study represents a single handler at one study site, results suggest that human-to-horse eye contact may not be an important influence on catching pastured horses. Certainly, further work is needed to better understand the role of eye contact in horse handling.

Keywords: Horse handling; Horse management; Eye contact; Interspecies interactions; Equine behavior

INTRODUCTION

Among domestic species, the effect of eye contact in human-animal interaction has been studied in dogs and sheep. For dogs, a predator species, it is accepted that direct eye contact from humans can be perceived by the dog as a threat that provokes evasion or aggression.¹ For this reason, avoiding eye contact with unknown dogs is a common recommendation for preventing dog bites.² For sheep, a recently published study concluded that human eye contact was perceived by sheep as a warning cue that increases vigilance behavior, but not a threat sufficient to induce fear or avoidance behavior.³

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The effect of human-animal eye contact when handling horses is not well understood. Although apparently no scientific information or even academic references are available on the relevance of eye contact in human-horse interactions, popular horse handling experts currently contributing to the education of horse owners and handlers emphasize the importance of particular types of eye contact. Current teachings about eye contact are not consistent, and in fact, are sometimes in apparent disagreement. For example, some advocate using a “soft” eye, versus a direct, “hard” eye contact when interacting with horses.^{4,5} Maintaining a soft eye, with the eyes of the horse at the center of the human’s field of vision, while simultaneously maintaining awareness of a wide peripheral view, has been purported to be effective when interacting with horses. It is purported that this soft eye on a target, even when riding, tends to soften a person’s posture in a manner that conveys confidence to a horse.⁵ Others claim that handlers should always avoid direct eye contact with the horse, particularly when working with fearful horses or horses unaccustomed to domestic handling. The explanation offered is that, as a prey species, horses perceive direct eye contact signals from a predator as threatening or stalking behavior.⁶ In contrast, other equine handling educators teach the use of human-to-horse eye contact to establish and maintain “dominant herd mate” status over the horse.⁷ In this context, the handler is taught to stare directly at the horse’s eye. As opposed to a method of asserting dominance, others advocate direct eye contact with a horse to establish and reinforce trust and bonding of a human-horse team.⁸ With this in mind, eye contact is encouraged, especially when working with fearful, unhandled, or previously abused horses. Various educators are likely talking about variations of eye contact and postures with horses in a variety of situations and with varying levels of fear and experience with humans. Nonetheless, as a result of these various popularized recommendations and interpretations of the basis of their effectiveness, confusion often surfaces within groups of animal caretakers about which method of human-to-animal eye contact might be most effective in gaining compliance and avoiding aggression.

In this study, we compared the outcome of attempts to catch domestic and semi-feral horses and ponies in open pastures while either maintaining or avoiding eye contact with the animal. This is one of the common horse management situations in which students and horse owners have raised questions concerning which eye contact condition is most effective. Based on the authors' experience, we had no directional hypothesis. Based on the limited published results in dogs and sheep, a reasonable hypothesis was that eye contact may reduce successful outcomes in this model.

MATERIALS AND METHODS

General Design

Each of 104 horses and ponies was approached for catching at pasture by a human handler in a standard manner. Each animal was randomly assigned to be approached either with human-to-animal eye contact (EC+; $n = 51$) or without eye contact (EC-; $n = 53$). A subset of 74 of these animals were reevaluated 3 weeks later under similar conditions except with the eye contact condition opposite to that used in the first round. Nonparametric statistical methods were used to evaluate between subjects (round 1, $n = 104$) and within subjects (rounds 1 and 2, $n = 74$) comparisons of successful or unsuccessful outcomes with EC+ and EC-.

Subjects

The subjects included 104 horses and ponies owned by The University of Pennsylvania School of Veterinary Medicine and kept at New Bolton Center in Chester County, Pennsylvania. Seventy-four of these subjects were semi-feral Shetland-type ponies that are kept continuously in a pastured herd for study of reproductive behavior and endocrinology of horses living under natural social and environmental conditions. At the time of this study, the herd included 37 colts and stallions (intact males) and 37 fillies and mares, ranging in age from 2 months to 18 years. The herd has been in existence since 1994, and all but two of the animals in the herd at the time of this study had been born into the herd. Animals born into the herd receive one 30-minute session of positive reinforcement-based acclimation to human handling within the first 2 months of age, and then are handled minimally for research sampling only thereafter.

The remaining 30 subjects comprised 22 mares, five geldings, and three stallions kept for reproduction and behavior teaching and research purposes at the same facility. They ranged in age from 2 months to 18 years and had been resident at the same facility for periods ranging from 2 months to over 15 years. These horses and ponies were kept in pasture groups (all mares or all geldings) or alone (stallions) with run-in shelters. Breeds represented included Shetland, Welsh, and Connemara ponies,

Standardbred, Thoroughbred, Quarter Horse cross, Trakehnner, and Oldenburg horses. Most of these subjects had had domestic training as race, show, or pleasure horses before donation to the University. Schedules and types of human contact varied among the teaching animals. In addition to routine health care, most were handled daily to weekly for noninvasive teaching of veterinary examination procedures or for reproductive physiology and behavior research procedures. Some were approached at pasture two to three times monthly for jugular blood sampling for screening as potential blood donors for hospitalized patients. Not all were consistently approachable in open pasture by students or staff without grain enticement or confinement in smaller catch pens.

Procedure

This study was conducted in two rounds, one during a 2-week period from June to July, and another during a 1-week period in August 2007. In round 1, each of the 104 horses and ponies was randomly assigned to either EC+ ($n = 53$) or EC- ($n = 51$). To enable within-subjects comparisons, the 74 semi-feral ponies were retested (round 2), each with the eye contact condition opposite to that of round 1.

The approaches and catching were done with the animals in their home pasture and social group. The standard procedure was to approach the subject in a relaxed walk to approximately 5 meters, carrying only a 6-foot-long cotton lead shank (folded into 12-inch lengths held in the right hand). From that staging distance, for the EC+ condition, the handler established and maintained hard eye contact (focused directly on the face and eyes) with the subject while proceeding at a relaxed walk toward the subject's shoulder trying to maintain approximately a 45° angle from its face. Once the handler reached the shoulder, the lead shank was clipped to the chinstrap ring of the subject's halter (teaching animals already wearing halters) or looped around the neck to establish control (semi-feral ponies without halters). For EC- subjects, the approach was the same, except that the handler's face and gaze were deliberately diverted downward and toward the subject's body, trying to avoid focus on the head. The approach was recorded as successful when relaxed control was established and maintained for 5 seconds, after which the lead shank was removed and the handler walked away. If an attempt was unsuccessful, typically because the subject moved out of reach as the handler neared its shoulder, the handler returned to a 5-meter staging distance and repeated the procedure. If not successful after 3 attempts, the approach was recorded as unsuccessful.

All approaches were conducted by a single horse handler. This individual was a 22-year-old female pre-veterinary student, moderately experienced with management of pleasure horses, including catching horses at pasture. She had little or no previous contact with the subjects of this study.

Except for one, all successful approaches were made on the first attempt. For one 2-year-old filly, approach was successful on the second attempt. The estimated duration of each interaction beginning with the first staging at 5 meters and ending with release of the lead shank or third failure, was recorded in 0.5-minute increments. It ranged from 0.5 minute, typical for those with success on the first approach, to up to 3 minutes for the unsuccessful attempts.

Data Analysis

Round 1 outcomes for EC+ and EC– were compared using Pearson's chi-squared test. To evaluate outcomes within subjects for the ponies retested in round 2, a sign test was used to evaluate the probability that reversed outcomes were attributable to eye contact condition. Pearson's chi-squared and independent *t* test procedures were used to evaluate sex and age effects. Probability levels of less than .05 were considered statistically significant.

RESULTS

Round 1

For Round 1, 36 of 51 EC– approaches were successful, whereas 15 were unsuccessful. Thirty-five of the 53 EC+ approaches were successful, whereas 18 were unsuccessful. These proportions are not significantly different (chi squared = 0.25, $P = .62$).

Considering the semi-feral herd only, and the 38 males and 36 females separately, 13 of 20 EC– approaches to males were successful whereas seven were unsuccessful. Ten of 18 EC+ approaches to males were successful and eight were unsuccessful. These proportions are not significantly different (chi-squared = 0.35, $P = .55$). For the 36 females, 10 of 18 EC– approaches were successful and eight unsuccessful. Nine of the 18 EC+ approaches were successful, and nine were unsuccessful. Again, these proportions are not significantly different (chi-squared = 0.11, $P = .74$).

Round 2

For 67 of the 74 semi-feral subjects that were retested in round 2 using the opposite eye contact condition, the outcome was the same as in round 1. For 38 of the 67, approach was consistently successful, and for the remaining 29 approach was consistently unsuccessful. For the 7 of 74 subjects with discrepant results with opposite eye contact conditions, four were successful with EC+ and unsuccessful with EC–, and three were unsuccessful with EC+ and successful with EC– (sign test, $P = 1.0$).

Of the 38 with consistent success, 20 were male, and 18 were female. Of the 29 that were consistently unsuccessful, 13 were male and 16 were female. Of the seven with discrepant results, four were male and three were female. None of these differences is significant (chi-squared,

$P > .10$). Considering only the 22 mature males (≥ 2 years of age), 17 were consistently successful, four were consistently unsuccessful, and one had discrepant results with eye contact conditions (EC– unsuccessful in round 1 and EC+ successful in round 2). Similarly, considering only the seven harem stallions, all had consistent outcomes; six were successfully approached in both eye contact conditions, and the remaining one was unsuccessfully approached for both eye contact conditions.

The mean age of the 38 ponies with consistently successful approach was 4.3 years (SE = 0.69) compared with 2.0 years (SE = 0.52) for the 29 ponies for which approach was consistently unsuccessful. The difference is highly significant (independent *t* test, 65.5 *df*unequal variances, $P = .01$).

DISCUSSION AND CONCLUSION

In this single study using one handler and evaluating one handling scenario, there was clearly no difference in outcome when maintaining or avoiding human–animal eye contact when attempting to catch horses and ponies in an open pasture. Further work with a variety of human handlers and common horse handling scenarios would be required to make strong conclusions about the role of eye contact in human–horse interactions, whether in this scenario, other handling scenarios, or in general. However, these results do not support the anecdotal hypothesis that human-to-animal eye contact is an important influence in human–horse interactions. Although various horsemanship educators argue for or against direct eye contact in a variety of handling situations, to our knowledge, this is the first systematic study to address this subject.

It is the authors' impression that popular horsemanship educators typically put special importance on the issue of eye contact when speaking about approaching or handling stallions, which tend to offer a greater challenge in terms of avoidance and aggressive behavior than do females or geldings. This handling emphasis is often substantiated by referencing natural social communication among stallions. Popular educators cite the role of eye contact in establishing and communicating inter-male dominance among harem and bachelor stallions, as well as in the special role of harem stallions in the vigilant guarding of their family band and the entire herd from predators. However, when data for the semi-feral males and females, including harem stallions, in this study were analyzed separately, human–horse eye contact condition still made no difference in successful or unsuccessful outcome.

The question of the importance of human–animal eye contact is often raised in regard to horses that are fearful of humans, for example previously unhandled (wild or semi-feral) or ill-handled and abused domestic horses. Our semi-feral ponies are a good model for a relatively

unhandled population with vigilant regard for humans. However, they are likely not a good model for the horse that has learned to fear humans as a result of previous negative experience with humans. Although our semi-feral ponies are handled minimally, as far as we know almost all of their experience with humans has been positive. Conversely, some of the teaching horses used in this study had appeared especially fearful of being caught by humans in an open area. Some of these were known to have had, or suspected of having had, negative experiences with humans in their past. In this regard, that group of subjects was a practical model population for a study of the effect of eye contact in fearful horses.

Although the specific factor we aimed to address was eye contact, it became evident to us that the human handler's body posture and head posture, as well as stride, likely also varied somewhat between the two eye contact conditions tested. When trying to maintain eye contact with a pony, the handler often intuitively crouched by bending at the knees or by bending the upper body forward at the waist. Both of these postures altered her balance and stride, so that she likely appeared less natural and relaxed. While maintaining a diverted eye, she tended to stand upright and perhaps walk more normally. For both conditions, she reported that her head postures often felt more rigid and less relaxed than they do during her usual interaction with horses, in which she pays little conscious attention to maintaining or avoiding eye contact. In fact, the two conditions evaluated here likely represent extreme variation from the universal traditional approach to horses, and both were new to this handler. They were similar to what is commonly used in round-pen taming demonstrations of popular horse handling educators. It is our impression from lifelong observation that traditional efficient horse handlers typically use neither fixed eye contact nor a continuously averted eye. Further research should include comparisons with the traditional eye contact condition and postures. Perhaps a useful research approach would be to assemble and study the behavior and effectiveness of groups of handlers whose usual method represents one of these variations, rather than to ask single handlers to implement various new methods for evaluation. And certainly these various approaches warrant study in a variety of horse handling situations in which they are purported to be useful.

Our anecdotal experience with the herd of semi-feral ponies studied here has been that with increasing age and continued positively reinforced experience with humans, compliance with catching in an open field generally increases. Thus, one ancillary question we had at the outset was whether age and experience with human handling might interact with eye contact condition. Specifically, we expected that any effect of eye contact might be more evident in younger animals, less experienced with human contact. The resulting data indicate that younger and older ponies were equally unaffected by the eye contact conditions tested. Almost all subjects were either consistently approachable or unapproachable regardless of eye contact condition. Consistent with our anecdotal observations was the finding that the mean age of semi-feral ponies that were consistently approachable was greater by more than 2 years than the mean age of those that were consistently unapproachable.

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