

AnS 490-A: The Use of Positive Reinforcement Training for a Filly to Accept Husbandry Practices

A.S. Leaflet R3124

McKenzie Shaffer, Undergraduate Student;
 Meredith Puls, Undergraduate Student;
 Nikki Ferwerda, Horse Farm Manager;
 Anna Johnson, Associate Professor,
 Department of Animal Science, Iowa State University

Summary and Implications

Training and or retraining have an impact on the horses' physical and psychological well-being. Training can either use positive- (PRT) or negative (NRT) reinforcement. The objective of this experiment was to determine the efficacy of using a clicker with positive reinforcement training on a filly to accept basic husbandry tasks over a 5 week period. One thoroughbred filly was used. One treatment, a PRT schedule, was used. A total of five consecutive weeks, with two 20-minute sessions were conducted. A training session included 10 tasks, with three attempts per task. Positive reinforcement training was defined as the horse successfully completing the task, getting a click and peppermint flavored horse treat. Tasks were completed in the same order during each training session; (1) touch ears (2) touch nose (3) inspect mouth (4) lift legs (5) halter on (6) saddling and (7) bridling. Each task received a scale from 1 (easy) to 4 (refusal). An average for each task by training session by week was then determined. The data will be presented descriptively. Saddling and bridle were dropped as the filly was ranked 4 (refusal). Overall baseline session one for all tasks was a 2.7 (somewhat difficult). There was not a consistent improvement over the weekly sessions for husbandry tasks; however, although scores were higher than baseline, the filly was ranked as either "easy" for two- and "some difficulty" for three other tasks. In conclusion, the filly was accepting of the PRT methodology and this in turn may improve worker safety and filly well-being.

Introduction

Training and or retraining have an impact on the horses' physical and psychological well-being. Training can either use positive- (PRT) or negative (NRT) reinforcement. The objective of NRT is for the trainer to "dominate" a horse and create submission, which has resulted in the terminology "breaking" a horse. When an individual animal is experiencing a negative affective state, such as fear, then the quality of task learning can be negatively affected. Horses trained using PRT have displayed higher motivation to participate in training are less fearful and more curious during novel situations. Positive reinforcement occurs when a desirable behavioral response is associated with access to a biologically important resource, such as food. Positive

reinforcement training can also include the use of secondary reinforcers, such as a cue word, pat on the neck, or the "sound" of a clicker. Therefore, the objective of this experiment was to determine the efficacy of using a clicker with positive reinforcement training on a filly to accept basic husbandry tasks over a 5 week period.

Materials and Methods

The protocol for this work was approved by the ISU-IACUC committee.

Animal: One thoroughbred filly, born on 05-14-2013 approximate BW 408 kg, was used. She was donated to the ISU horse program in 2014. Her previous owners chose not to train her for racing at the suggestion of their veterinarian due to concerns of increased risk of sustaining injury after surgery for contracted tendons resulted in her becoming back at the knees. Since joining the ISU herd, no PRT or clicker work had been done.

Treatment and training sessions: One treatment, a positive reinforcement training schedule, was used. A total of five consecutive weeks, with two 20-minute sessions (Monday and Thursday starting at 0800-h) were conducted (Table 1). A training session included 10 tasks, with three attempts per task. Week one was defined as baseline (session 1: no clicker; session 2: clicker introduction and PRT). Positive reinforcement training was defined as the horse successfully completing the task, getting a click and peppermint flavored horse treat. The treat given in a bucket attached to the stall wall approximately 1.2 m off the ground.

Table 1: Training sessions on a weekly basis

Week	Session	Definition of training
1	1	Baseline measurements
	2	Introduction to clicker and treats
2	3	Treat with each successful attempt/task
	4	Treat with each successful attempt/task
3	5	Treat only first and third successful attempt/task
	6	Treat only second successful attempt/task
4	7	Treat only third successful attempt/task
	8	Treat only third successful attempt of every other task
5	9	Treat at beginning of session, once halfway through session, and at the end of the session
	10	Treat only at beginning of session and after all tasks are successfully completed

Testing stall: The filly was brought into the testing stall from the outside run by an ISU employee. The Equine Learning Center testing stall was 3.7 m width x 4.3 m length. Rubber mats covered in wood shavings were on the stall floor. The testing stall had bars in the front and solid walls comprised the remaining three walls (Figure 1). Prior to each training session, the filly was free standing without a halter on.

Figure 1: Testing stall at the Equine Learning Center



Positive Reinforcement Training Methodology: Two females (the handler and data recorder) always wore the same clothing and the recorder carried a clipboard. Both females quietly entered the testing stall and faced the filly without making eye contact. The recorder stood in the stall corner next to the closed door. The handler quietly approached the filly at the front left shoulder without making direct eye contact.

Measures: Tasks were completed in the same order during each training session; (1) touch ears (2) touch nose (3) inspect mouth (4) lift legs (5) halter on (6) saddling and (7) bridling. Each task received a scale from 1 (easy) to 4 (refusal; Table 2). An average for each task by training session by week was then determined. The data will be presented descriptively.

Results and Discussion

Baseline: Overall baseline session one for all tasks was a 2.7 (somewhat difficult). However, some tasks the filly accepted more readily than others. Touching her left ear, left nostril, both front feet, and haltering were ranked as easy (1.1 average score). Whereas touching her right nostril, mouth, and both hind legs, the filly was ranked difficult (3.5 average score; (Figure 2). The filly scored a 4 (refusal) for both bridling and saddling. Acceptability of being touched on the left side may be from previous human-horse interaction occurring from a general left-side approach during routine management. Furthermore, because the aim was PRT, the researchers decided to stop bridling and saddling for the remainder of the experiment.

Weekly sessions compared to baseline: There was not a consistent improvement over the weekly sessions for husbandry tasks (Figure 2). Average scores were higher for touching left ear (2.4) touching left nostril (2.1) and putting

the halter on (1.5) compared to base line session 1. Although scores were higher, the filly ranked as either “easy” or “somewhat difficult”. Several factors may have affected these results. First, the unintended handler performance completing these husbandry tasks too quickly. The filly ranked 1.0 (easy) for all halter on tasks except for session 10. The handler moved her hand with the lead rope towards the filly too quickly and the horse reacted in a startled response (Figure 3). The filly then refused this task for both of the following attempts during session 10.

Figure 2: Comparison of Week 1: Baseline: Session 1 average scores for head related activities compared to the average of all consecutive sessions.

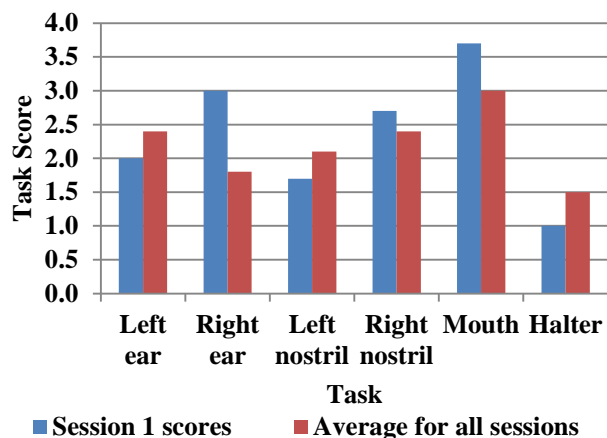
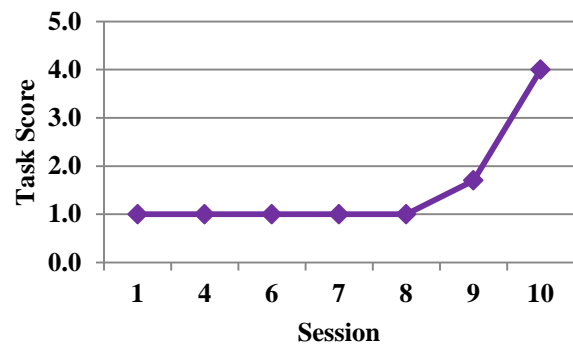


Figure 3: Halter averages by session. There was no time to attempt haltering in sessions 3 and 5 so values are missing from figure.



Two, the filly was moved during week 3: session 4 to a larger stall, where she was able to move away from the handler and engage in nipping behavior. Three, this filly was bought by the farm with very little previous experience(s), information and lastly, before sessions 1, 3, 7, 9, and 10 she had access to exercise in the attached outdoor run, but for sessions 2, 4, 5, 6, and 8 it was too cold and she had not yet been allowed access to the outdoor run for exercise. Therefore, these factors should be investigated further to determine their effects on PRT methodology success. The ultimate goal for PRT methodology

Iowa State University Animal Industry Report 2016

is that it is robust to withstand exogenous factors. In conclusion, although this PRT methodology did not result in the filly being ranked “easy” for all tasks, she was ranked “easy” for two of the tasks and “some difficulty” for three

other tasks by week 5, indicating that the filly was accepting of the PRT methodology and this in turn may improve worker safety and filly well-being.

Iowa State University Animal Industry Report 2016

Table 2. Description of ranking scale for each task that the filly was exposed to

Task	Ranking Scale			
	1: Easy	2: Some difficulty	3: Difficult	4: Refusal
Touch ears	Filly is calm when reaching for ear and ear can be held for ≥ 5 seconds	Filly may flinch when reaching for ear but ear can be held for 2 to 4 seconds	Filly moves head away when reaching for ear and ear can only be held for a ≤ 2 seconds	Filly does not allow ears to be held
Touch nose	Filly calmly allows nostrils to be gently manipulated for ≥ 5 seconds	Filly allows nostrils to be touched for 3 to 4 seconds	Nostrils can only be touched for ≤ 2 seconds	Does not allow nostrils to be touched
Inspect mouth	Calmly allows lips to be moved so teeth and gums can be seen for ≥ 5 seconds	Allows lips to be moved so teeth and gums can be seen for 3 to 4 seconds	Teeth and gums can only be seen for ≤ 2 seconds	Does not allow lips to be moved so teeth and gums can be seen
Lift legs	Lifts foot after being cued with hand and can hold hoof elevated for ≥ 5 seconds	Lifts foot after being cued with hand and can hold hoof elevated for 3 to 4 seconds	Does not respond to cue to lift leg for ≥ 5 seconds and/or only allows hoof to be held for a brief second before pulling it away	Does not lift leg after cue with hand
Halter on	Calmly stands allowing halter to be placed on head and latched	Moves heads around slightly while trying to latch halter	Moves head out of reach of handler while trying to put halter on and latch	Does not allow halter to be put on
Saddling	Calmly stands to allow saddle to be placed on back and buckled	Stands to allow saddle to be placed on back but shifts back and forth while buckling	Allows saddle to be placed on back but drastically moves around and /or paws the ground while buckling	Does not allow saddle to be placed onto back
Bridling	Calmly stands while bridle is placed on head and ears and accepts the bit in ≤ 3 seconds	Some head movement when placing over ears and takes 4 to 6 seconds to accept the bit	Drastic head movement when placing over ears and takes ≥ 7 seconds to accept the bit	Does not allow bridle to be put over her head or accept the bit