

Scientific Frameworks to Guide Welfare, Training, and Handling of Horses in Therapy and Education Services



**Nina Ekholm Fry, Director of Equine Programs, Adj. Professor
Institute for Human-Animal Connection, University of Denver**



**UNIVERSITY of
DENVER**

Education
Research
Clinical



Human-Animal Interaction
Section 13
Division 17 of the APA



International Society
for Equitation Science



Yavapai
COLLEGE

Therapeutic
Human-Horse
Interactions



AMERICAN
PSYCHOLOGICAL
ASSOCIATION



International Association of Trauma Professionals



AMERICAN HIPPO THERAPY ASSOCIATION, INC.
PHYSICAL, OCCUPATIONAL AND SPEECH THERAPY



CBEIP



HETI

Equine Welfare
and Behavior /
Horses in
Communities

IAHAIO



CHA



EQUITOPIA
HORSES AND HUMANS IN HARMONY



PROGRESSIVE EQUINE
BEHAVIOR & TRAINING
FORUM



THE HOMES FOR
HORSES COALITION
ADVANCING EQUINE PROTECTION



PATH
INTERNATIONAL
Professional Association of Therapeutic
Horsemanship International

Scientific Frameworks to Guide Welfare, Training, and Handling of Horses in Therapy and Education Services

Scientific Frameworks to Guide Welfare, Training, and Handling of Horses in Therapy and Education Services
Nina Ekholm Fry – HETI Congress 2021, Seoul, South Korea



Good Intentions versus Actual Impact on Horses



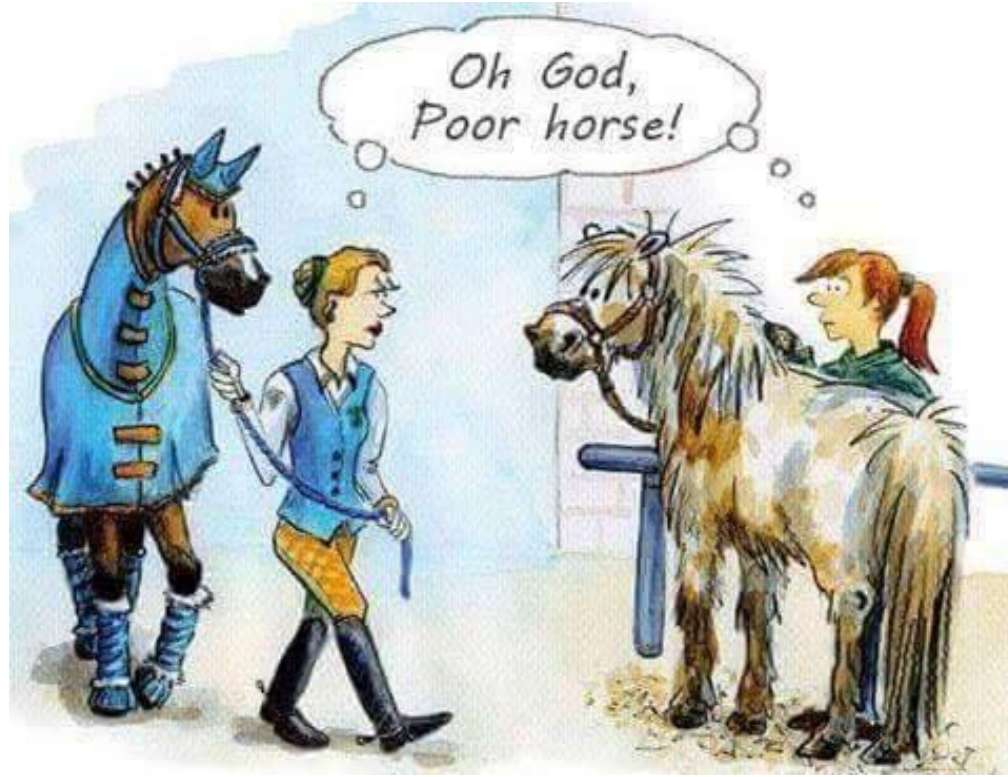
Scientific Frameworks to Guide Welfare, Training, and Handling of Horses in Therapy and Education Services
Nina Ekholm Fry – HETI Congress 2021, Seoul, South Korea



The Need for Science in Horse Interactions

Scientific Frameworks to Guide Welfare, Training, and Handling of Horses in Therapy and Education Services
Nina Ekholm Fry – HETI Congress 2021, Seoul, South Korea

The Problem with “Common Sense”



The Problem with “Common Sense”



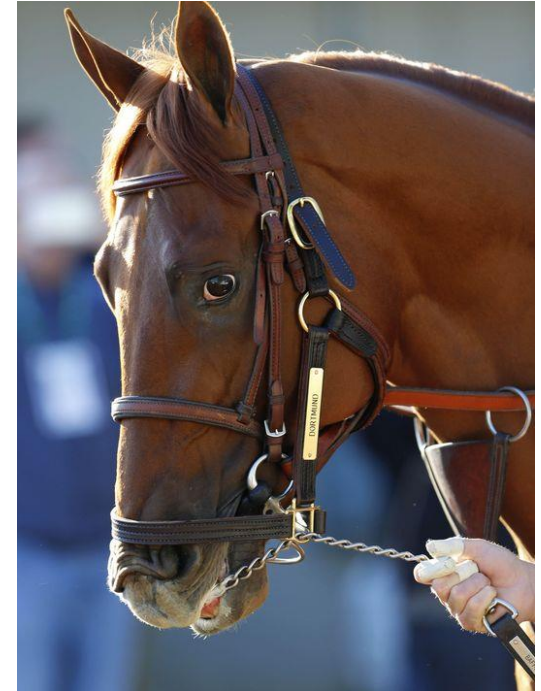
The Problem with “Common Sense”



The Problem with “Common Sense”



Gleerup et al., 2015



Mark Zerof USA TODAY Sports, 2016



Applying Evidence-Based Practice to Horses in Therapy and Education

Scientific Frameworks to Guide Welfare, Training, and Handling of Horses in Therapy and Education Services
Nina Ekholm Fry – HETI Congress 2021, Seoul, South Korea



Evidence-Based Practice

- What we do in occupational practices should be based on scientific evidence (including our interactions with horses)
- Typically discussed and applied in healthcare and education
- The process of seeking out research as part of reasoning

Evidenced-based practice (EBP) is the process of applying or translating research findings in daily practices and decision-making. Best available evidence is integrated with your knowledge and expertise, while considering the participant's unique needs and personal preferences.



Parrish, 2018; Sackett et al., 2000;
Wilson & Austria, 2019

Example Frameworks: HETI Welfare, IAHAIO Guidelines, ISES First Principles, Humane Hierarchy (Hierarchy of Humane Procedures)





“Friends, Forage, Freedom”

- ✓ Living together with other horses
- ✓ Access to fiber (forage) throughout the day
- ✓ Freedom of movement without humans
(not confined to box stall or small, individual area)

Unrestricted Movement



Frequent Eating (Fiber)



**Social Housing
and Interaction**



**Shelter from Sun and Inclement
Weather**



**Comfortable
Resting Areas**



**Affiliation
and
Relationship**



**Choice in
Sensory Stimulation**



**Variation
in the Environment**



**Health care such as hoof care,
dental care, parasite control,
treatment of disease**

IAHAIO

International Association of
Human-Animal Interaction
Organizations

New international guidelines for equine care and welfare, and equine training and handling

New international guidelines for equine care and welfare, and equine training and handling

- 1.3 The basic needs of horses must be met in their daily living environment. The horse must have the possibility of long-term, daily foraging and must have access to quality fiber and water when not directly engaged in a service. The horse must have sufficient opportunity for free movement without human interference and given the option to take shelter from the sun, wind, and precipitation. Long periods of time in stalls or small enclosures should be avoided. The social needs of horses should be understood and the horse must have opportunities for direct contact and interactions with other horses.
- 1.7 Horses who are not directly participating in a service should be relieved of tack such as saddles and pads, bridles, bits, and other headgear. Breaks and opportunity to rest away from humans should be provided during the horse's workday.
- 1.9 Arbitrary interpretation of the horse's psychological or physical state with no scientific reasoning should be avoided, as should assignation of human thinking and intention onto the horse. Such attitudes affect the care of horses negatively. The position of the horse in human contexts, for instance, in determining whose value supersedes that of the other, should be understood as it affects our ability to understand and accommodate horses who advocate for their needs and comfort.



International Association of
Human-Animal Interaction
Organizations

New international guidelines for equine care and welfare, and equine training and handling

2.1 All training and handling techniques must be based on and aligned with physical, mental, and sensory capacities of horses, and how horses learn and communicate. Trainers must demonstrate formal knowledge of behavior modification and conditioning of horses, not simply their years of experience with horses.

2.4 Constant pressure on the horse's head from equipment such as halter and lead rope should be avoided in handling. Providers and those assisting with the service should avoid adding to the horse's sensory load by frequent touching, patting, or leaning on the horse while the horse is interacting with a participant.

2.7 Training protocols for the horse should be based on reinforcement and follow scientific learning principles and ethical frameworks such as LIMA (least intrusive – minimally aversive). Correct use of habituation/desensitization, operant conditioning, classical conditioning, and shaping, with careful attention to the horse's emotional and physical states during training is necessary.

International Society of Equitation Science (ISES)

Equitation science promotes an objective, evidence-based understanding of the welfare of horses during training and competition by applying valid, quantitative scientific methods that can identify what training techniques are ineffective or may result in equine suffering.



First Training Principles

Human and horse welfare depend upon
training methods and management that demonstrate:



1. Regard for human and horse safety

By acknowledging the horse's size, power and flightiness | By learning to recognise flight/fight/freeze behaviours early.
By minimising the risk of causing pain, distress or injury | By ensuring horses and humans are appropriately matched.

2. Regard for the nature of horses

By meeting horse welfare needs such as foraging, freedom and equine company | By respecting the social nature of horses.
By acknowledging that horses may perceive human movements as threatening | By avoiding dominance roles during interactions.

3. Regard for horses' mental and sensory abilities

By acknowledging that horses think, see and hear differently from humans | By keeping the length of training sessions to a minimum.
By not overestimating the horse's mental abilities | By not underestimating the horse's mental abilities.

4. Regard for emotional states

By understanding that horses are sentient beings capable of suffering | By encouraging positive emotional states | By acknowledging that consistency makes horses optimistic for further training outcomes | By avoiding pain, discomfort and/or triggering fear.

5. Correct use of desensitisation methods

By learning to apply correctly systematic desensitisation, over-shadowing, counter-conditioning and differential reinforcement.
By avoiding flooding (forcing the horse to endure aversive stimuli).

6. Correct use of operant conditioning

By understanding that horses will repeat or avoid behaviours according to their consequences | By removing pressures at the onset of a desired response | By minimising delays in reinforcement | By using combined reinforcement | By avoiding punishment.

7. Correct use of classical conditioning

By acknowledging that horses readily form associations between stimuli.
By always using a light signal before a pressure-release sequence.

8. Correct use of shaping

By breaking down training into the smallest achievable steps and progressively reinforcing each step toward the desired behaviour.
By changing the context (trainer, place, signal), one aspect at a time | By planning the training to make it obvious and easy.

9. Correct use of signals or cues

By ensuring the horse can discriminate one signal from another | By ensuring each signal only has one meaning
By timing the signals with limb biomechanics | By avoiding the use of more than one signal at the same time.

10. Regard for self-carriage

By training the horse to maintain gait, tempo, stride length, direction, head, neck and body posture.
By avoiding forcing a posture or maintaining it through relentless signalling (nagging).

<https://equitationsscience.com>

International Society of Equitation Science (ISES)

Equitation science promotes an objective, evidence-based understanding of the welfare of horses during training and competition by applying valid, quantitative scientific methods that can identify what training techniques are ineffective or may result in equine suffering.



First Training Principles

Human and horse welfare depend upon
training methods and management that demonstrate:



1. Regard for human and horse safety

By acknowledging the horse's size, power and flightiness | By learning to recognise flight/fight/freeze behaviours early.
By minimising the risk of causing pain, distress or injury | By ensuring horses and humans are appropriately matched.

2. Regard for the nature of horses

By meeting horse welfare needs such as foraging, freedom and equine company | By respecting the social nature of horses.
By acknowledging that horses may perceive human movements as threatening | By avoiding dominance roles during interactions.

3. Regard for horses' mental and sensory abilities

By acknowledging that horses think, see and hear differently from humans | By keeping the length of training sessions to a minimum.
By not overestimating the horse's mental abilities | By not underestimating the horse's mental abilities.

4. Regard for emotional states

By understanding that horses are sentient beings capable of suffering | By encouraging positive emotional states | By acknowledging that consistency makes horses optimistic for further training outcomes | By avoiding pain, discomfort and/or triggering fear.

5. Correct use of desensitisation methods

By learning to apply correctly systematic desensitisation, over-shadowing, counter-conditioning and differential reinforcement.
By avoiding flooding (forcing the horse to endure aversive stimuli).

6. Correct use of operant conditioning

By understanding that horses will repeat or avoid behaviours according to their consequences | By removing pressures at the onset of a desired response | By minimising delays in reinforcement | By using combined reinforcement | By avoiding punishment.

7. Correct use of classical conditioning

By acknowledging that horses readily form associations between stimuli.
By always using a light signal before a pressure-release sequence.

8. Correct use of shaping

By breaking down training into the smallest achievable steps and progressively reinforcing each step toward the desired behaviour.
By changing the context (trainer, place, signal), one aspect at a time | By planning the training to make it obvious and easy.

9. Correct use of signals or cues

By ensuring the horse can discriminate one signal from another | By ensuring each signal only has one meaning
By timing the signals with limb biomechanics | By avoiding the use of more than one signal at the same time.

10. Regard for self-carriage

By training the horse to maintain gait, tempo, stride length, direction, head, neck and body posture.
By avoiding forcing a posture or maintaining it through relentless signalling (nagging).

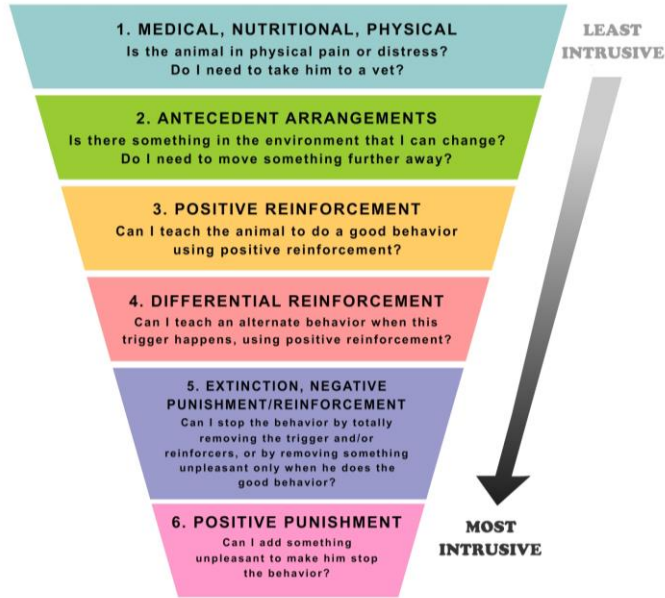
<https://equitationsscience.com>

Hierarchy of Procedures for Humane and Effective Practice

Least Invasive, Minimally Aversive (LIMA)

Heirarchy of Behavior Modification Procedures

THE LEAST INTRUSIVE to THE MOST INTRUSIVE

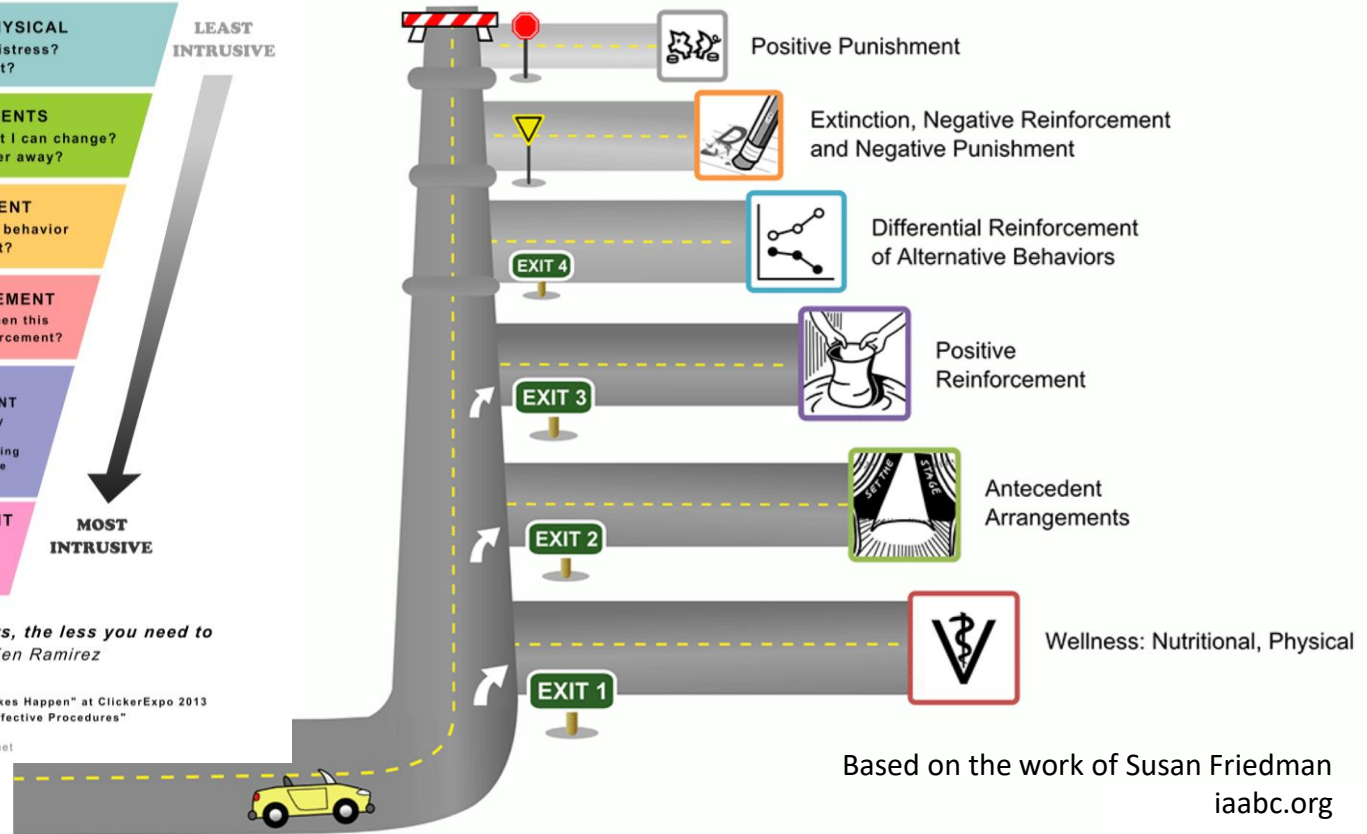


"The better you learn to use reinforcers, the less you need to move down the ladder." - Ken Ramirez

Inspired by Ken Ramirez's seminar "Oops! When Mistakes Happen" at ClickerExpo 2013 and Dr. Susan Friedman's "Heirarchy of Effective Procedures"

by lili chin | www.doggiedrawings.net

Most Positive, Least Intrusive Effective Intervention



Examine the situation: What could be causing the horse to behave and communicate the way they do? *Choose the least intrusive and minimally aversive (LIMA) way*

1. Health and Wellness

- Nutrition, mental and physical health
- Examine the horse's living environment and equipment
- Consider presence of pain or severe discomfort? (*First: rule out pain*)

2. Environment


- Is there something about the environment that I can change to better accommodate the horse? (*Change elements of the environment/setting first, including human practices*)

3. Training: Retrain past learned responses or create new learned behaviors with practices based on the science of how horses learn

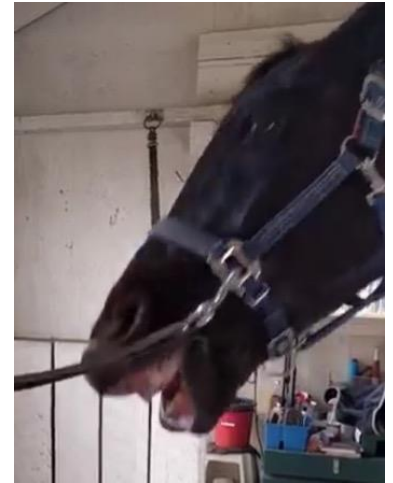
- Focus on what you want the horse to do or create alternative/incompatible behaviors
- Use reinforcement (combined reinforcement, + -)
- Do not use punishment
- Resist “old traditions” that are not based on science



Adapted from Susan Friedman,
Hierarchy of Humane and Effective Practices

A large, high-contrast, black and white close-up photograph of a horse's nose, showing the nostrils and surrounding skin texture. The image is split horizontally into two panels.

Using a Scientific and Ethical Approach When a Horse Bites



The Story of Buddy the Horse

Buddy the horse has started biting at the person who is leading him.

A trainer tells you that Buddy is being disrespectful and should be hit with a whip or with the lead rope whenever he bites – then he will stop.

However, *you know better* – you will use a **science-based approach** to understanding Buddy and his needs.



You first consider Buddy's **Health and Wellness**, could Buddy be experiencing pain or discomfort? You check his living environment – Buddy only gets one flake of hay in the morning and one flake at night. This is not enough forage for Buddy. You ask the veterinarian to examine Buddy for ulcers from incorrect feeding and stress. Ulcers cause pain.

Next you examine the **Environment**. How are people leading Buddy? It turns out that most participants and staff hold his lead rope close to his head, pulling on his nose and neck every step. You make sure that both staff and participants know to have a loose lead rope and not walk too close to his head when leading.

The results from the veterinarian are back – Buddy has ulcers. After treatment and a break from interactions with participants and staff, you consider:

- 1) Can Buddy be interacted with in other ways than leading?
- 2) How can I create a different experience *now* for Buddy being lead than when he was in pain and felt uncomfortable from people walking very close and pulling on his head?

When **Training** Buddy to be lead in a new way, you use a combination of positive and negative reinforcement, keep training sessions very short, and end with a reward.

Buddy has no reason to communicate through biting unless he is uncomfortable, in pain or overwhelmed.

Recommendations

- ✓ Think carefully about the horse's living environment – should horses working in therapy or education not have their *basic needs* met? Your country's equine welfare laws constitute the minimum, be sure to also follow guidelines from national and international organizations.
- ✓ Use training and handling practices that are based on the science of equine cognition – how horses learn.
- ✓ Organize your efforts in ethical and effective ways. Start by ruling out pain and rearranging the environment before retraining, use reinforcement.
- ✓ How do people in your environment think, talk, and act around horses? Maintain *evidence-based practice* in your and your organization's horse interactions.



Contact:
nina.ekholm-fry@du.edu

www.du.edu/ihac
**University of Denver
Institute for Human-Animal
Connection**