

LOADING STRESS IN THE HORSE:

BEHAVIOURAL AND PHYSIOLOGICAL MEASUREMENT OF THE EFFECTIVENESS OF NON-AVERSIVE TRAINING (TTEAM) FOR HORSES WITH TRAILER LOADING RESISTANCE.

By Stephanie Shanahan, DVM

Resistance to trailer loading in the horse is a common source of stress and injury to horses and their handlers. The objective of this study was to determine whether non-aversive training based on Tellington-Touch Equine Awareness Method (TTEAM) would decrease loading time and reduce stress during loading for horses with a history of reluctance to load.

Ten horses described by their owners as “problem loaders” were subjected to pre-training and post-training assessments of loading. Each assessment involved two seven-minute loading sessions during which heart rate and saliva cortisol were measured. The training consisted of six 30-minute sessions over a two-week period during which the horse and owner participated in basic leading exercises with obstacles simulating aspects of trailering. Heart rate and saliva cortisol were shown to increase significantly during loading as compared to baseline. Reassessment after training showed a decrease in loading time and reduced heart rate during loading. Seven good loaders were also subject to loading assessment for physiological comparison. Increases in heart rate during loading were significantly higher in the good loaders. Non-aversive training simulating aspects of loading may effectively reduce loading time and stress during loading for horses with a history of resistance to loading.

As most of you know, in the summer of 1999, I conducted research retraining horses with trailer loading problems using TTEAM. So I'd like to give a general outline of what I did and what I was trying to do. In a later issue, I will present some of the interesting case studies that came out of the research.

Horses who are reluctant to load into a trailer are not difficult to find. In fact, it is one of the most common behaviour problems horse people are familiar with regardless of the breed of horse or discipline they are involved in. Unfortunately, trailer-loading accidents are also a common cause of injury to horses and their handlers.

My intention in this project was to scientifically ascertain the effectiveness of a TTEAM training program at improving willingness to load. I also wanted to know if the stress of loading would be measurable physiologically and furthermore, if TTEAM training could measurably decrease loading stress. We started with 12 horses who, according to their owners, were difficult to load. The horses included a Shire/Thoroughbred yearling, two and four year old Quarter Horses, Arabian crosses, Canadian broodmares and a few thoroughbreds. The oldest horse in the study was 20 years old.

In the initial assessment, the horse had two seven-minute opportunities to load, one with the owner and one with an independent handler who did not know the horse or the purpose of the study. We measured heart rate and took saliva samples to measure cortisol before, during and after the loading. We performed this assessment with all the problem horses as well as with 8 horses who were considered to be good loaders.

In almost every case loading time was not significantly different when the owner or the person unfamiliar with the horse was loading.

One of the “problem loaders” loaded readily and one of the good loaders did not load so we didn't use them in the study but we did work with both of them anyway.

After the assessment some horses started the training while others waited and had a second assessment before the training. This was done in order to keep the independent handler blind to the training status of the horse.

The training program was based on a wonderful article by Marion Shearer, “Prepare your horse to load”, which was recently reprinted in the May-June 2000 TTEAM Connections. The sessions were every other day for two weeks. It is definitely beneficial for horses (and people) to have a break between sessions in order for the brain to integrate the new information. Every other day is better than every day. Some horses may benefit from more than two weeks of training while others might only need to be asked differently at the time of loading.

Here are some of the most important components of the program we used (for more information, I strongly recommend reading Marion's article):

Lower the horse's head.

Many of the problem loaders had naturally high head carriage. When they were concerned their head would go even higher making it difficult to negotiate getting into a trailer. This is a normal reaction for horses, a part of the flight response. They

are raising their head to shift their weight back which lightens their front end so they can turn around quickly and get away from what is scaring them. The problem arises when the handler has no way of asking the horse to lower its head. It appears that lowering the head actually changes the horse's reaction to a situation. When the head is lowered, a horse is able to move forward to approach and investigate what it is concerned about. This gives the horse the opportunity to realize that the situation is okay. With his nose in the air, a horse is neither going forward nor giving the situation a chance, he is asking to leave.

As part of our training we used as many different ways as we could think of to teach the horses to lower their head when asked. Some of the ways are listed here:

Leading position:

-Putting the chain or soft lead up the side of the halter

While standing:

-A gentle signal and release downward on the chain, or "milking" of the chain

-Stroking of the horse's chest and forearms with the wand

While walking:

- Allowing the horse to walk into the wand which is held in front of the horse midway between the knee and shoulder

Body work:

- Raising the back with the tips of the fingers pressing on either side of the midline of the abdomen

- Tail work

- Mouth work & Ear work: these may not lower the head directly but can be very useful to get the horse to pay attention and think about what you are asking when you are stuck

Since we only had a short period of time to work with and the owners were not familiar with TTEAM, we did not teach ALL the possible tools that COULD be useful when working with horses to improve their willingness to load. We focused on a few basic principles and were very happy with the results we got.

The training sessions involved the introduction of these TTEAM techniques at the pace that seemed appropriate for that particular horse and owner:

Leading positions:

Cheetah: This was used as the BASIC leading position. The important principles were to habituate the owner to being further away and further ahead of their horse while leading. We emphasized that the horse would better be able to listen if they could see the person leading them. It was also an opportunity for the handler to learn to use the wand to more clearly communicate what they wanted the horse to do.

Dingo: This is considered a very important part of trailer loading problem solving. The horse must learn to go forward from

a signal. It seems that horses understand the signal on the croup combined with the signal on the chain very well, but it is important for the handler to learn to coordinate this movement in a consistent manner.

Dance: It is believed that many horses are more concerned about backing OUT of the trailer than getting into the trailer. Imagine backing out of something and not being able to see or feel the ground behind you! Teaching a horse to back one step at a time and to negotiate backing over obstacles, inclines and off bridges makes the horse more willing to load onto the trailer as well as backing out more calmly and safely.

The **obstacles** we used were whatever combination of poles, planks, tarps and barrels was available. We tried to simulate the different aspects of what CAN be difficult for a horse when trailer loading:

Stepping over or onto something i.e. poles raised or piled, bridge, cavalettis

Stepping onto an unfamiliar surface that makes noise i.e. plastic tarp, plywood sheet, bridge

Walking into a narrow space i.e. poles raised on barrels, tarps hanging over the poles, plywood

Walking under a low roof i.e. an arch of wands, a Styro-foam pole, a rolled tarp

The horse would walk up to the obstacle and be asked to halt. If the horse's neck was above the horizontal, the handler would ask the horse to lower its head and then proceed with the obstacle. It is not necessary to stop EVERY time before negotiating an obstacle. It is useful, however, in order to make every step clear and intentional to practice stopping and moving forward in a controlled manner with the head lowered.

Some of the horses appeared not to know that their limbs were connected to their body. So we used the body wrap to help them get a sense of how they might coordinate legs and body as a unit. For the horses who could not step over a pole without tripping, the body wrap seemed to make a world of difference!

Body work

We also included one session of bodywork for each horse. We were focusing on touches that would help ground, calm and connect the horse. We started with an exploration of the horse's body, which the owners found FASCINATING. The reactions of the horse fit with the pattern of difficulties that they had with them on the ground and under saddle. All of a sudden they seemed to understand that the horse was not stubborn or difficult but tight or sore or habituated to a particular way of carrying itself.

The touches we used:

Grounding: Python lifts, leg exercises

Calming: Ear work, mouth work,

Connecting: Tail work, raising the back, Lick of the cow's tongue, Noah's march, Zigzags

Results

Seven of the ten horses who completed the study loaded in the allotted seven minutes on the final assessment, a very significant improvement from the initial assessment. Three of these seven loaded instantly, in less than 30 seconds, and did so repeatedly during the 14-minute loading assessment.

Of the three horses who did not load:

- one had fallen when the lead shank broke during the initial assessment
- another owner had chosen not to participate in the training sessions
- the third owner had been absent for the initial loading assessment and was so nervous at the final assessment that she was crying.

By analyzing the data we had collected, we were able to show that the heart rate and saliva cortisol increased significantly when a horse was asked to load. While after TTEAM training the willingness to load was significantly improved AND heart rate was significantly lower when they were asked to load. The saliva cortisol measurement was not sensitive enough with the small number of horses we had to show a difference after training.

Good loaders

One of the most interesting things we found was that the good loaders had a higher increase in heart rate when they were loaded onto a trailer than the problem loaders. We don't have a specific explanation for this. My guess is that even though these horses are obedient enough to load when asked, loading onto a trailer is still stressful, definitely more stressful than standing in the crossties! Conversely, the horse might associate the trailer with going somewhere exciting, like a competition or trail ride, and their excitement is reflected by the increase in heart rate.

We also noticed that the horses who moved around and whinnied the most while they were in the trailer had LOWER heart rates than the horses who just walked on and stood there. That was a real eye opener! How often we forget that freezing is a panic response!

-“He was just standing there, quiet as could be, and all of a sudden, he just exploded!”.

-“He's not scared, he's just stubborn. He just stands there and doesn't move.”

Just because an animal isn't showing overt signs of being stressed, it doesn't mean he is relaxed.

Discussion and further questions

When I told my childhood coach about my research project, her response was: “I think you should measure the stress of the handler instead of the horse”. And I think there's some truth to that. I think a key component of the training program was the owner involvement. Learning to communicate more clearly what we want from our horses allows them to feel safer doing things that seem inherently unsafe, like getting into a trailer.

Will horses who have had a bad experience with a trailer benefit from this training?

In this training, we did not use a trailer at any time other than the assessments. There were specific orders that the horses should not spend any time near a trailer during the study. We did this in order to show that the fear of the trailer itself is often not the problem. When a horse is more confident about its coordination and balance and receiving clear communication from its handler, the trailer is suddenly no longer a problem. In some cases however, being in the trailer is much worse for the horse than loading onto the trailer. Some horses will load readily and as soon as they are in the trailer, their heart rate triples and they are sweating profusely. The response to specific exercises will vary from horse to horse because in each case, we don't know EXACTLY what the horse is concerned about. And there will be some situations in which this training will not be the answer.

What would happen if the good loaders went through the training program, would their heart rates be reduced?

Well, we don't know. It's possible. It is possible that doing TTEAM groundwork with these horses because of its many benefits unrelated to trailering may improve the horse's comfort with trailer loading by improving its balance and coordination.

What about using the Clicker? Why didn't you use a Clicker?

I didn't use a Clicker in this project because I wasn't very familiar with them at the time. Also, the more variables you introduce in research, the less meaningful it becomes. I have since spoken with MANY people (behaviourists, trainers, TTEAM Instructors) who would include Clicker and Target Training in a trailer loading program. I think it's a great idea. Definitely horses learn very quickly and enjoy learning with positive reinforcement!

Why didn't the saliva cortisol show a decrease after training?

We're still just in the beginning stages of applying the use of saliva cortisol to measure stress in horses. The number of horses and the interval of testing we used was not sensitive enough to be able to say whether or not there was a decrease. Though the increase during loading was significant, a lesser increase after training could not be demonstrated.

How significant was the bodywork in the training program?

Well there's no way of knowing this either since we did not have a group who received ground work without bodywork. But the owners definitely seemed to find it very important. If nothing else, it allowed them to look at their horse in a different way which is an essential part of learning to work with them differently.

Happy trailering ;-)
Steph Shanahan

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