Improve Equine Performance and Quality of Gait in Mounted EAAT Programs

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The therapeutic benefits received by program participants in mounted equine-assisted activities and therapy (EAAT) programs is a direct result in the way the horse is trained, handled, ridden and maintained by center personnel (paid or volunteer). The program director and equine manager is responsible to choose the training methods and handling techniques that encourage the horse to respond readily to the handler or rider’s natural aids. This allows the horse to perform in a balanced frame, bend through turns, lengthen and shorten their strides as requested, and maintain a quality gait. Center personnel are responsible to learn and apply the methods chosen. When horses are schooled to perform as previously described and personnel adhere to the former statements several certainties occur;

1. Inappropriate equine behavior decreases
2. Quality of equine movement increases
3. Safety increases
4. Therapeutic benefits received by program participants increases

The purpose of this presentation is to encourage PATH Intl professionals to evaluate equine training and handling methods their center uses to school and improve the center’s equine staff. This evaluation includes the horse’s performance and movement, equine behavior and required skills for the EAAT program in which the horse is involved. In order to establish an evaluation, personnel must develop questions the evaluation will address. For instance;

1. Does management require personnel to be consistent when handling and riding the horses?
2. Is personnel supervised to ensure correct equine handling and riding techniques are implemented?
3. Do the program director and equine manager allow horses to be involved in a mounted EAAT session or class time if they rush, balk, shy, nip, etc.?

Throughout this presentation conference attendees will be shown the direct result effective or ineffective training and handling techniques has on the participant’s posture, position and ability to perform requested skills besides equine behavior. The outcome of this presentation will equip attendees with the necessary tools to aid them in their evaluation and implementation of handling methods that will improve their horse’s behavior, anatomical carriage and gait. These improvements will ultimately produce effective therapeutic equine movement; which in turn benefits participants and reduces equine burn-out. There will be an emphasis on consistency and how to implement these methods throughout center personnel and volunteers. Effective, consistent handling of the center’s horses will decrease burn-out and increase the horse’s performance plus increase the length of time the horses are involved in EAAT programs. During the presentation conference attendees will receive a copy of an Equine Report Card that measures daily equine performance.

THREE PROBLEMS THAT DERAILED BEST INTENTIONS

It goes without question, center personnel and volunteers have the best intentions for the center’s equine staff. It is equally understood everyone wants to handle the horses with consistency for the horse’s benefit. Even so, it is difficult at best for an equine manager to ensure instructors, volunteers and program participants are handling and riding the horses consistently. The following highlights reasons why consistent handling is at times difficult.

F. Y. I.: Key staff positions are referred, throughout this article, in order to define personnel responsibilities in regards to the center’s equine staff. This method of reference does not disregard some PATH Intl centers operate with one or two paid personnel or an entire volunteer staff. The size of the center or its business structure is not the issue. The purpose of this presentation are the horses and how they are trained, handled, maintained, and ridden under the guidance of a professional in order to provide quality EAAT programs. In other words, one individual may have numerous responsibilities as defined throughout this article.
**Problem 1: Substandard Information**

The program director and equine professional are responsible for the level of knowledge and proficiency of skills achieved by personnel and the equine staff. When effective equestrian skills (training, handling and riding) is diluted because information is passed down from one staff member to another or from one volunteer to another, without supervision, problems arise in the way horses are handled and ridden. In other words, good information and skills become substandard. Now consider what happens if personnel begins with substandard equestrian information? To improve consistency, the center’s program director and equine professional must work closely with the volunteer coordinator and teaching staff to improve their equestrian knowledge and proficiency. The program director should support the equine professional to oversee that horses are handled with consistency and rectify inappropriate equestrian techniques.

**Problem 2: Not Enough Hours in a Day**

The busyness of daily operations at a PATH Intl center can be overwhelming. Nonetheless, time must be allocated to teach, support and manage personnel’s knowledge and proficiency in the equestrian disciplines. For instance; the time it takes to support a volunteer’s equine handling techniques during a mount, saves hours of re-schooling the volunteer and horse at a later date. Or, the two minutes it takes to remind an instructor of the handling technique used to support a horse during the mount saves discord or misunderstandings later. The seconds it takes to remind an instructor of their responsibility to manage volunteers in methods of handling the horse keeps volunteers from accidently causing horses to nip or develop other inapt habits, besides the volunteer feeling inadequate. Question, wouldn’t it be easier to monitor and manage personnel and horses on a daily basis than fix a problem that was swept under the rug for days? Ask yourself this question: Is it your center’s habit to wait and address issues after an incident or does your center’s program director, instructors, volunteer coordinator or equine professional available as needed to support, educate and manage the situation? Remember, horses cannot fix problems that arise or foresee the unavoidable. It is essential for personnel to develop simple daily measures that implement effective measures of support as well as educate inexperienced personnel and horses, especially when situations and variables occur.

**The Equine Professional**

The equine professional is as vital to a PATH Intl center as a certified instructor is to an equine-assisted activity or therapy program (EAAT). To improve the performance of the center’s equine staff the equine professional should possess the following:

1. Adheres to PATH Intl standards and center policies and procedures.
2. Knowledge and skills to develop an equine training program.
3. The experience to maintain the horse’s training, health and welfare.
4. The knowledge, experience and skills to improve the horses’ overall performance and behavior.
5. The ability to teach applicable equestrian methods to personnel, on the ground and mounted.
6. The ability to improve personnel’s knowledge and equestrian skills, as directed and supervised by the program director.
7. The ability to establish productive relationships with other professionals to aid and assist the overall needs of the center’s equine staff such as; veterinarians, nutritionists, trainers, and farriers.
8. A willingness to receive assistance from other professionals when necessary. However, the equine professional should be able to differentiate between training and maintenance fads vs. effective training and maintenance techniques.

### SEVEN TIPS to IMPROVE HORSE’S PERFORMANCE AND GAIT

Would you agree PATH Intl center personnel have a picture-perfect occupation? We offer people and equines opportunities that might otherwise not be available to them. For instance; volunteers grow in equestrian knowledge and skills to become certified instructors. Program participants reach heights thought impossible. Horses, unsuitable for the show ring or not talented enough for... become very important to a child, adult or veteran with a disability or mental health concern. Since the horse is our partner in service, it is essential center personnel improve their equestrian knowledge and skill proficiency and improve ways to monitor personnel and equines alike.

The following statements highlight reasons why horses develop inappropriate habits;

1. Conformation faults that inhibit the horse to perform in ways personnel and riders desire.
2. Ineffective use of natural and artificial aids
3. Training techniques that do not address all situations and circumstances.
4. Inconsistent handling, riding and care.
5. Expectations for horses to perform beyond their knowledge and skills.
6. Ill-fitting tack and/or unbalanced riders.

The following seven tips may help personnel evaluate their equine staff’s knowledge and skills.

#### Tip #1: CONFORMATION AND GAIT ANALYSIS

The center’s equine professional and veterinarian should conduct an equine conformation and gait analysis.

- **Conformation**: Conformation is the horse’s bone and muscular structures and body proportions in relation to each other. Undesirable equine conformation can limit the horse’s ability to:
  a. Balance and bend their frame
  b. Lengthen and shorten their stride
  c. Perform skills required in different equestrian disciplines

A horse’s conformation will either enhance or inhibit a horse’s way of going. The equine professional should evaluate each horse for conformation faults such as; ewe neck, sickle hocks, long back, short croup, calf knees, etc. This does not mean the horse is unsuitable to be involved in an EAAT program. What this statement implies is this: when the horse is required to perform beyond their physical capabilities, sooner or later the horse becomes agitated in their role and tries to express their discomfort. When the horse’s subtle expression, which expresses their discomfort, goes unnoticed the horse may begin to balk, rush or shy under saddle with an independent rider and/or nip their handler with a semi-independent rider.

Let’s examine this thought further. Envision the center’s equine professional taught the horses to move ahead of the rider’s aids: balance, bend and engage into a long frame. For horses with an ewe neck, this method of schooling is very beneficial. They would respond well in independent and lead classes as well as with a direct or neck rein. However, expect this horse to collect beyond their conformation capabilities and the instructor and/or rider will cause the horse to compensate for its head and neck set. Inappropriate collection would cause the horse to hollow its back, disengage their hindquarters and straighten joints in order to comply with the rider’s wishes to round their top line into the desired frame. Remember, a collected frame requires the horse to lift and round their top line, which includes the horse’s head and neck. Collection of frame also includes knee, ankle and hock joint flexion to increase impulsion that the desired collection requires. The horse must compress their frame and shorten their length of stride in order to comply with the rider’s aids. The horse described in this analogy would have a difficult time in a collected frame. Allowed to perform with a longer frame this horse would excel as an equine staff member at a PATH Intl center.

- **Gait Analysis**: Gait analysis is a methodical evaluation of the equine’s movement. All gaits have different degrees of quality. The quality of gait is dictated by the horse’s balance and structural correctness in conformation as well as hoof flight pattern. It is the combination of these attributes that influence performance and is commonly referred to as “form to function”. (Ashley Griffin, University of Kentucky – article: Horse Movement and Way of Going: Correctness of Gaits, 2009)

Most importantly, the equine professional should use a written analysis scale. The following sources might be helpful to the equine professional in choosing a method to evaluate each horse’s gait.

- a. Your center’s veterinarian
- b. United States Dressage Federation – Quality of Horse’s Movement Scale
C. American Association of Equine Practitioners (AAEP): website: http://www.aaeep.org
D. Texas A&M AgriLife Extension: website: http://www.extension.org Article Horse Movement and Way of Going. Also look for the articles that discuss:
   i. Horse Gaits – Effects of Balance
   ii. Horse Gaits – Effects of Structure and Hoof Flight Pattern
E. Equine Movement Performance Instrument: developed by Jan Spink
   www.bokranch.com/BOK-Horse_Full_Criteria.pdf

**TIP #2: EQUINE REPORT CARD**
The training methods used at a PATH Intl center is not the discussion of this presentation. However, it is important to address equine behavior and performance. An Equine Report Card provides an evaluation of the horse’s performance, and identifies areas in which the horse needs further schooling. The program director and equine professional should establish an evaluation, or grading system, for the center’s equine staff. Conference attendees will receive an Equine Report Card as an example. This example is a suggestion only. Not the only way to evaluate a horse’s performance. It is the responsibility of the program director and equine manager to establish a grading system or matrix by which the horses are evaluated.

**TIP #3: CONSISTENT HANDLING & RIDING METHODS**
Consistency necessitates evaluation of practice. This section offers numerous considerations for a PATH Intl center’s personnel to create a basic evaluation of their daily practices. To develop effective management skills, training techniques, consistent handling methods, good equine care and correct equestrian skills personnel must evaluate, develop, and implement daily practices that improve the status quo for all concerned. Effective evaluations should improve personnel’s present status of operation. To evaluate and be consistent on a daily basis:

- Identifies personnel’s weaknesses
- Improves daily operations
- Improves personnel’s performance
- Identifies methods to improve daily functions

Answer the following questions with an affirmative yes or no. On what fundamentals is your opinion based? What would be your reasoning to answer these questions with a maybe?

1. **Yes or No:** Horses should be schooled and maintained by a knowledgeable, skillful equine professional.
2. **Yes or No:** All horses should receive schooling or training to improve their performance.
3. **Yes or No:** All personnel should improve their knowledge and skills in their respective areas of responsibility and be held accountable for their skill level.
4. **Yes or No:** All instructors should be taught “how” to involve the horses in their class times.
5. **Yes or No:** All instructors should possess the same level of understanding of the equestrian disciplines, used at their center, so as not to interfere with the training of the horses.
6. **Yes or No:** All personnel should be monitored in the way the horses are handled and ridden throughout the center’s EAAT programs.

Now consider the following statements:

1. Every issue that arises is a training opportunity or an educational moment for personnel and equines alike.
2. Horses are creatures of instinct and habit, good or bad.
3. Humans are creatures of instinct and habit. However, humans unlike horses include assumptions, justification, and excuses, what works for me now, fix-it or wait to see what will happen. Too often, constructive criticism is viewed as an embarrassment rather than a learning opportunity, no matter how nice someone says it.

For these reasons it is imperative to understand “triggers” or issues that set off the human’s or horse’s reaction to discomfort, confusion, discrepancies and potential threats. Each of these influences develops a formula for inconsistent actions and reactions. Equally important to understand are ways these “triggers” affect management, instructors, volunteers, riders, and horses. For example, look at the following list, especially number one, as a reminder how fast triggers can happen.

1. Lack of communication;
   a. Management to personnel or vice versa
   b. Instructor to the rider or volunteer
   c. Handler or leader to the horse
   d. Rider to the horse

Lack of communication causes the human or horse to respond incorrectly. Question: What has been your experience of “how” the lack of communication acts as a trigger and erodes consistent practices?

2. Incorrect information to and by personnel
3. Lack of criteria for personnel
4. Lack of support from personnel
5. Inconsistency amongst personnel
6. Excuses made by personnel
7. Untimely decisions or corrections
8. Lack of decisions or corrections

“You do no harm” is our number one concern. Yet, as PATH Intl professionals we provide a service in which children, adults and veterans with disabilities and mental health
concerns can develop skills beyond their expectations. Our industry is charged with providing a high risk activity, equestrian disciplines, in a low risk environment. Personnel must ask the tough questions and evaluate their daily practices. To do so only improves and strengthens personnel’s communication, knowledge, skills and consistency throughout the EAAT programs offered at a PATH Intl center. Questions are a basis for evaluation. How would you answer the following questions?

1. Are you comfortable with your level of knowledge and skills to perform the required work at your center? If the answer is no, seek professional advice or a mentor from an experienced PATH Intl Master or Advanced Instructor or PATH Intl Evaluator or Mentor.

2. When you are stressed or feel inexperienced to perform your job, do you seek solutions with center management?

3. Are you proficient in your skills to manage a class time? For instance, are you competent to manage the number of riders in a class time, the types of disabilities, volunteers and horse's skill level? If not, what are your plans to improve your situation?

4. Do you have the knowledge and skills to base your decisions and actions on, or do you make excuses for your lack of knowledge or skills?

5. Do you find yourself using the same horse(s) for most of your classes? Have you evaluated why this is the case?

Consistency at a PATH Intl center comes from well educated, informed and supportive personnel and equine staff.

**TIP #4: CORRECT EQUIPMENT FIT & RIDER POSITIONS**

It is important all equipment fits the rider and horse correctly. Saddles, bridles, surcings, helmets, stirrups, etc. should fit properly. Improper fitting equipment creates discomfort and possible pressure sores. An incorrect helmet fit can cause a head ache or pressure sore. In the event of a fall the incorrect helmet fit could do more harm than good. Helmets are worn in the event of a fall.

PATH Intl professionals are responsible to develop their rider’s posture and position at all gaits. This is correct equestrian instruction and therapeutic for the riders, but also helps to maintain the correct equine skills and behavior desired.

Consider the following analogy; combine an unbalanced rider with an improper fitted saddle — sooner than later a horse will become agitated. Envision this agitated horse in a lead class with an off-side, side-walker. Now visualize what might happen if the instructor does not resolve the situation and the horse is required to work under these conditions. Let’s take this thought a step further and consider an actual therapeutic riding class time. The class consists of three riders with Downs syndrome, ages 12 to 14. One rider is independent and the other two riders each have a leader and one sidewalk. The instructor’s measureable object for the lesson is: Riders will jog over 3 ground poles 2x’s, in a two-point position, without their hands dropping to the horse’s neck. Throughout the class warm-up the incorrect saddle fit and unbalanced rider continue to cause the horse pain on the right side of his back. The instructor requests the riders to transition to a jog on the rail, at letter B then track left at letter A, jogging over the ground poles. The leader tries to get the horse to transition to a jog but the horse resists and begins to counter bend. The leader continues to encourage the horse to jog. The rider, as requested by the instructor, applies the aids to perform the upward transition. The horse tried to show his discomfort by slowing down to stop. Since the horse’s behavior went unnoticed, the horse is now put into a no-win situation. The instructor, rider and leader insist the horse performs an upward transition. Prior to submitting to the leader’s and rider’s request to jog, the horse bites at the leader or cow-kicks the side-walker.

It is imperative all center personnel learn how to fit and use the equipment available to them. It is equally important PATH Intl professionals teach their riders correct posture and rider positions.

PATH Intl has a wealth of professionals, throughout the country, that can help mentor center personnel in ways to improve riders’ positions at all gaits and to fit tack correctly. There are countless resources on ways to progress a rider’s position as well as fitting tack. The center’s program director and equine professional should develop in-house workshops for their instructors, volunteers and equine handlers that cover various topics. The workshop facilitator could be a PATH Intl Master or Advanced Instructor or PATH Intl evaluator. The cost to hire a PATH Intl professional that adheres to industry standards, correct equestrian methods, and has the ability to improve the center’s personnel and equine staff is less than an injury to a rider or volunteer and the time it takes to re-school horses that develop incorrect habits.

Enough cannot be said about correct rider posture and rider positions. An old adage goes like this: **perfect practice makes perfect; not practice makes perfect.** Most equestrian instructors agree the most significant influence to riding a horse is the rider’s posture and position and application of the aids. However, one of the most challenging aspects for a rider to accomplish and maintain at all gaits is an effective rider position.

It is imperative PATH Intl instructors teach students correct
rider positions and application of aids. An unbalanced rider that is ineffective with their aids affects the horse's balance, rhythm of gait, and compliance to perform requested skills.

If an unbalanced rider goes unchecked the following occurs:
- The horse develops inappropriate habits.
- Equine handlers or leaders become confused why the horses are developing inapt habits.
- Rider’s skills are difficult to progress.
- The PATH Intl. professional’s knowledge and skills are questioned.

TIP #5: CONTINUING EDUCATION UNITS (CEU’S)
The PATH Intl center’s personnel and volunteers are not the only ones that should receive continuing education. The center’s equine staff should also receive continuing education units. Schooling horses in other equestrian disciplines increases the horse’s knowledge and skills within their own discipline, which only improves the horse’s level of performance. A well-schooled horse improves services offered by the PATH Intl center and its personnel.

TIP #6: THE PRIMARY LEARNER
Always, always, always keep in mind the person or horse that is the primary learner in all situations. What is the definition of a primary learner? The primary learner is the man, woman, child or horse that has the least experience. When the primary learner is kept in mind then decisions are made to support and improve that individual’s or horse’s knowledge and skills while they are involved in the class, activity, training session, etc. For instance: envision an eight year old gelding that has performed well in Western Pleasure for several years and was recently donated to a PATH Intl center. Once received, the horse went through the center’s initial ninety day equine probation period with flying colors. Even though the horse learned his lessons well the horse has yet to see an electric wheelchair. One of the classes the horse has been assigned to is a class of three riders that use wheelchairs. One rider uses an electric wheelchair. The equine professional has made arrangements for the horse to be introduced to the electric wheelchair prior to the class time. The equine professional introduces the horse to the electric wheelchair without the rider. The equine professional uses the electric wheelchair to groom, tack and lead the horse. The equine professional uses a few props such as a ball while handling the horse in the electric wheelchair. The horse understands what is required. Nevertheless, the horse is still the primary learner. The horse has not had ample time to understand the various types of wheelchairs in various situations. At this time the horse remains the primary learner until he has received further schooling and has been involved in more situations with all types of wheelchairs.

Each class time, training situation, workshop, etc. has a primary learner. When this individual or horse is kept in mind the level of safety and education improves. This statement does not refer to amending a lesson to keep the primary learner in stride with the lesson. It only means to be more aware, modify what is necessary, inform and support when needed. Center management and PATH Intl professionals should not lose sight of the knowledge and skills an individual or horse possesses.

TIP #7: NO EXCUSES
Throughout this article there has been enough said to help the reader evaluate their own knowledge and skills, their center’s policies and practices as well as the horses they are involved with. The reason why No Excuses has been added to the list of Seven Tips to Improve Horse’s Performance and Gait is for one reason and one reason only. When center personnel stop making excuses, or justify why certain things happen, or practices are allowed then the people make choices to improve in all areas. There is not a valid enough reason why a horse should burn-out in EAAT programs. “No excuses” means center personnel improves their knowledge and skills in order to support the horse’s training. It also means, personnel monitor and teach others when necessary the correct methods used to handle and ride the horses. It also means time has been allocated to improve personnel’s and the equine staff’s knowledge and skills.

RESEARCH EVIDENCE
The following research summary supports the claims that improved equine performance improves the equine’s quality of gait.

I. Perceived Benefits of the Horse for Therapy Purposes.
Along with the sensory stimulation and psychotherapy (Pa- zos, et al. 2005; Selby, et al. 2010) provided by the outdoor activity, equine movement provides fundamental biomechanical requirements that have therapeutic value for core stability and strength. Forces acting on the rider from the horses back (Dvorakova, et al. 2009) tend to cause fluctuations in the rider’s pelvic position, thereby requiring the rider to stabilize the lumbar spine to maintain balance.

Although much can be said for the therapeutic value of the horse’s three-dimensional movement at the walk, little research has been done to see what effect the handling of the horse has on the rider. Herein the effect of expert equine handling is explored to validate the horse as a therapeutic tool.
II. Discussion. To a high degree of scientific certainty, the subject study using motion capture-enhanced research has confirmed longstanding anecdotal evidence and the results of earlier studies, to wit: when a hippotherapy session is administered by highly qualified therapists using equally well-trained horses, the therapist can influence and manipulate the degree of therapeutic movement imparted to the client through quality handling of the equine.

III. Methodology. An expert certified handler (25+ years of experience) in hippotherapy was selected to handle nine horses trained to various degrees for use as therapeutic animals. Three riders with average to little riding experience were selected to each ride three of the different horses. The handler controlled the horse to produce three different types of walking strategies: 1) Casual Leading, or when the horse was led at a casual walk the horse did not require any increased energy output and was allowed to move at their own pace. 2) When the horse was led at a Working Walk, the horse was required to empower its frame and lengthen its stride. In order to do this, the horse worked towards anatomical straightness, muscle proficiency, improved cadence and impulsion. 3) During Long-lining, the equine handler controlled the horse from behind and with the use of long reins or lines encouraged the horse to move forward at a working walk ahead of the handler’s aids or cues. These were implemented in a randomized order for each horse and rider pair.

The movement of the riders was monitored using a PhaseSpace motion capture system (PhaseSpace Inc., California) and the data was collected and analyzed by using software called OBSIS (Orbis Inc., South Carolina). The pelvis was tracked using one marker on each ASIS and one marker on each PSIS with two extra markers on the pelvis for tracking. The movement of the riders’ trunk was tracked with markers on each shoulder, one on C7, and one on the sternum. Lumbar flexion angles were calculated from the Euler angles between the coordinate systems attached to the trunk and pelvis segments. Posterior tilt was defined by the Euler angles of the pelvis segment relative to the lab coordinate system. The horses’ stride was monitored with a wireless Event Detection Device (EDD) (Orbis Inc., South Carolina) to determine when the left hind hoof of the horse struck the ground.

IV. Research Results. On average, the equine handler showed that she could influence the rider’s pelvis in all three riders. On average there was a significant increase in the range of motion of the rider’s pelvic tilt (p < 0.01) (figure 1) and lumbar flexion angles (p < 0.01) (figure 2) during working walk and long-lining as compared to casual leading. Further investigation, not presented in this document, showed that more highly trained horses could result in greater range of motion and adjustability.

V. Conclusion. A trained equine handler can manipulate a horse to transfer more or less energy to the rider such that the mobility of the rider’s pelvis and lumbar spine is adjusted according to therapist’s recommendations. Additionally, a more athletic and well-schooled horse (results not shown herein) has a higher degree of energy transfer to the rider which improves the horse’s gradability as a therapeutic tool. Ultimately, the power of a horse and its effect on a rider is in the hands of the equine handler. Handlers in hippotherapy should therefore be qualified enough to be able to control the animal and regulate energy transfer in a way that most benefits the riders’ safety and therapeutic intervention.

Figure 1: The posterior pelvic tilt of the rider when the expert equine handler controlled the animal with three different handling techniques using three different riders who each rode three different horses.

Figure 2: The lumbar flexion angle of the rider when the expert equine handler controlled the animal with three different handling techniques using three different riders who each rode three different horses.