

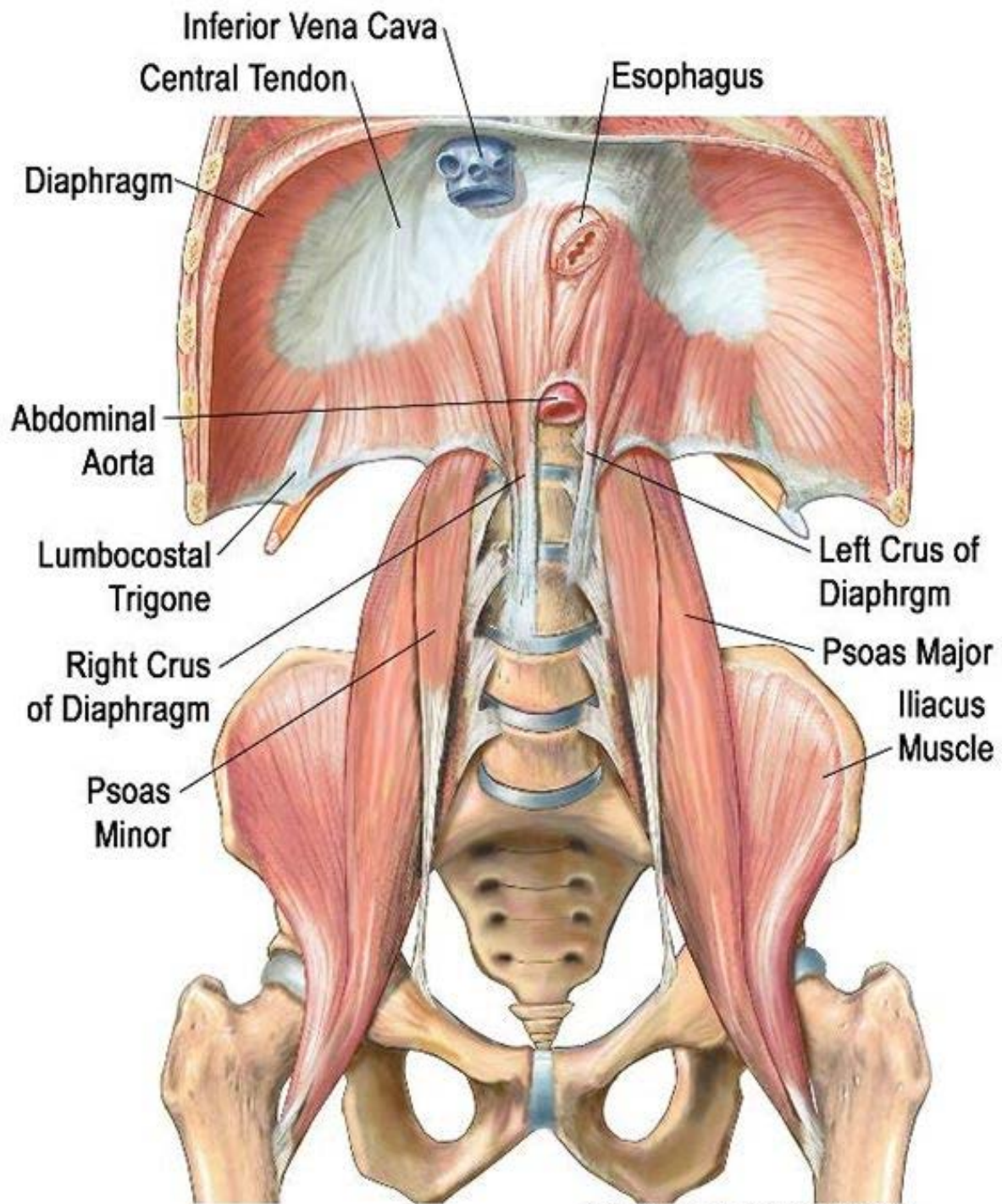


How to incorporate your rider's vagal tone and core muscle activity assessment to help facilitate learning and function.

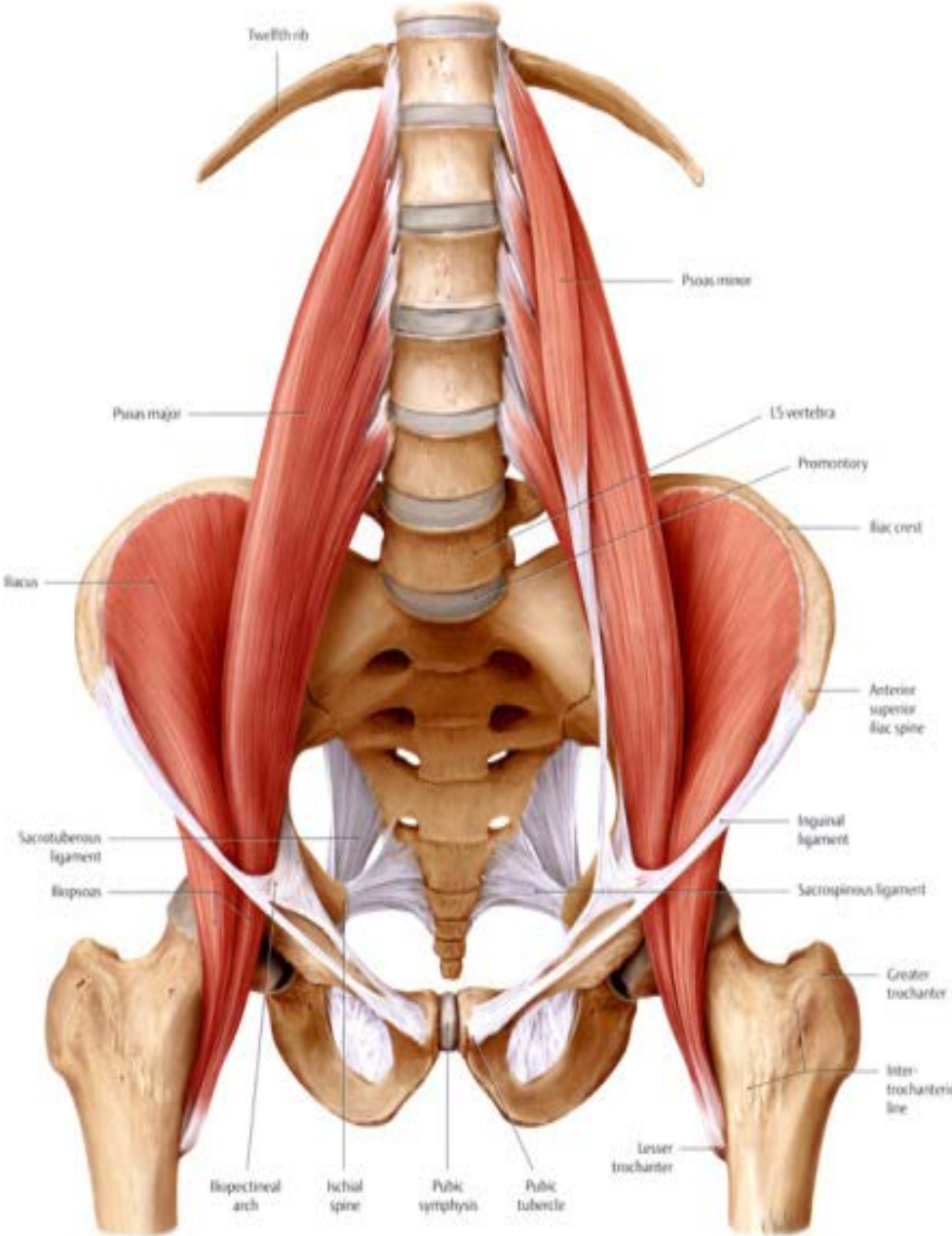
Objectives:

- 1.-Understand the concept/anatomy of vagal tone
- 2.-Develop the ability to recognize your riders' vagal tone
- 3.Review core muscles and their effect on posture
- 4.Understand the effect of vagal tone on core muscles and breathing and vice versa.
- 5.Learn tools and problem solving strategies to regulate your riders' tone/posture in order to optimize their ability to participate in the lesson.

Core muscles



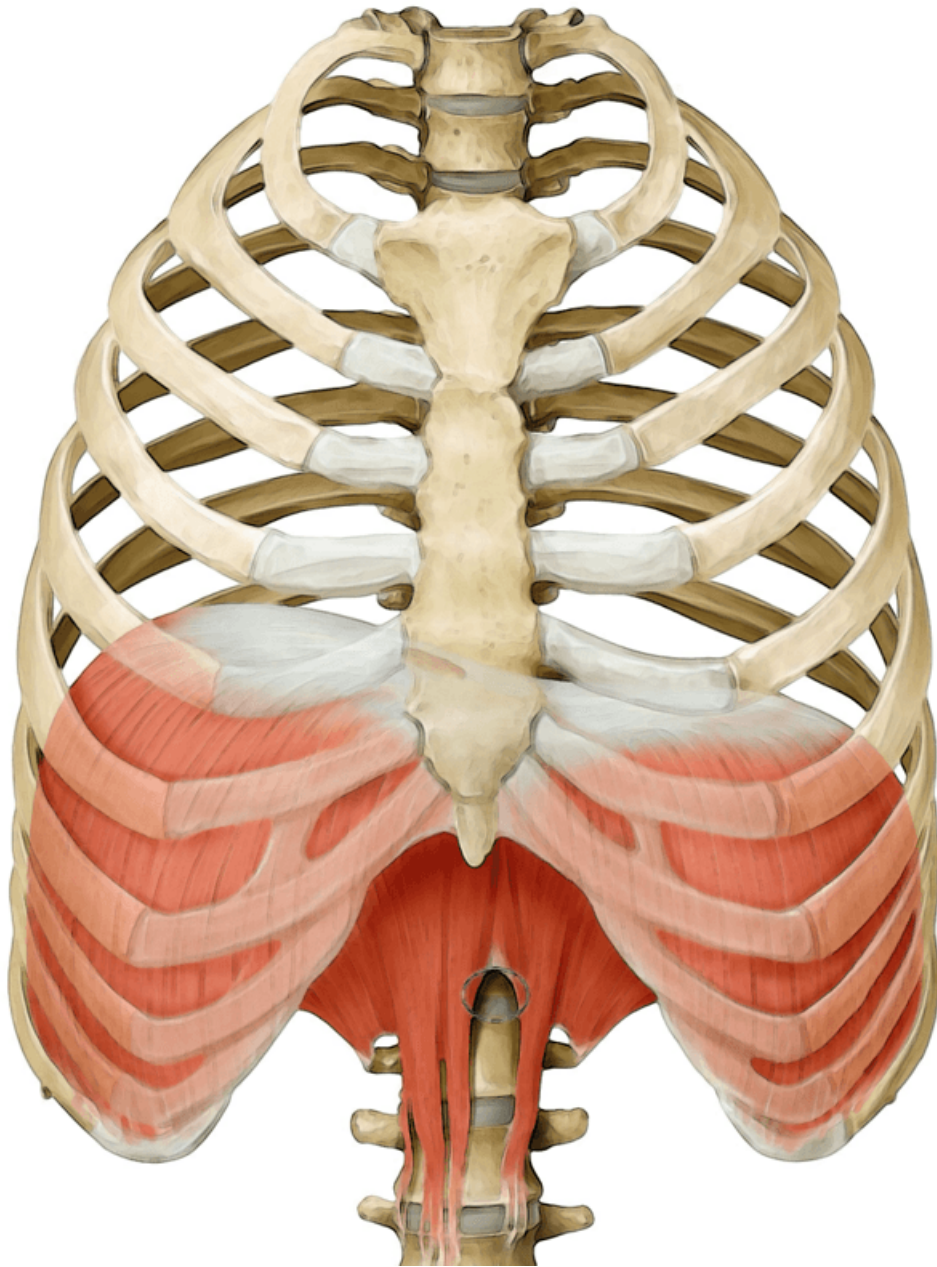
Psoas



Role of the psoas (ATM)

- Its main role is of hip flexor and external rotator
- During walking, it supports the pendulum of the leg, contracting and relaxing asymmetrically at each step.
- Its reciprocal movement massages the spine and stimulates the viscera.
- Provides the psoatic shelf that supports the gut viscera.
- Provides stability through its interaction with spine extensors.

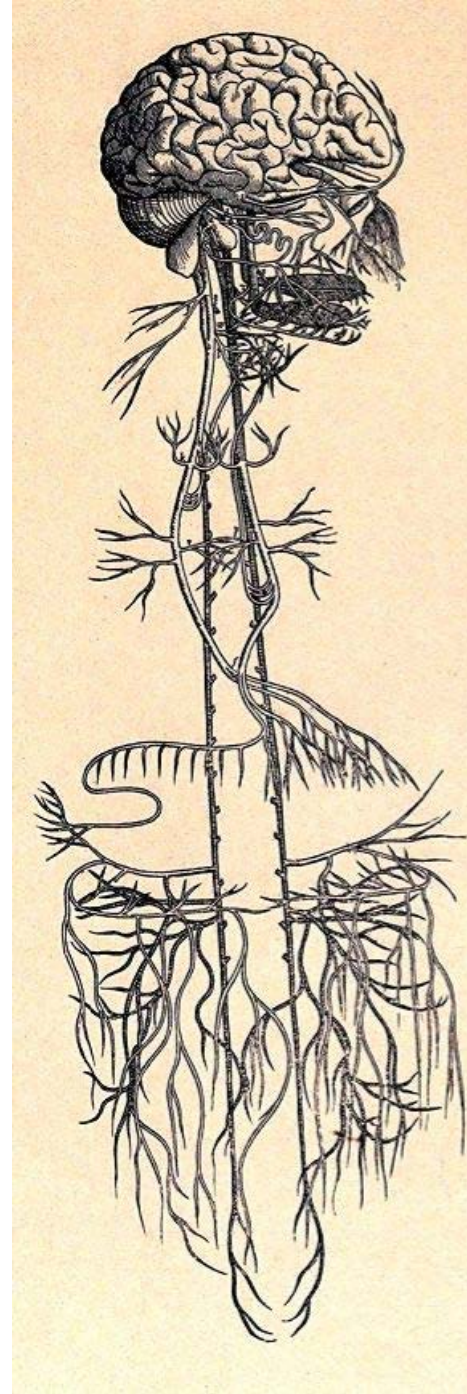
Diaphragm



Role of the diaphragm (ATM)

- Primary breathing muscle, increases lung volume when it contracts
- It is both automatic and voluntary
- It contracts during coughing
- Has a secondary effect on posture as it attaches to all the ribs and the lumbar spine

Vagal nerve



- 80 % of vagal fibers transport information from the body to the brain.
- 20 % of vagal fibers transport information from the brain to the body
- It is possible to influence vagal tone through movement, humming, touch.

Active role of the vagal nerve (20 %)

- **Brain:** decreases anxiety and depression
- **Mouth:** responsible for gag reflex, closing of the vocal cords during swallowing and coughing
- **Blood circulation:** decreases vascular tone and blood pressure
- **Heart:** Decreases heart rate
- **Liver:** Regulates insulin secretion
- **Gut:** increases gut mobility, and stomach acidity
- Decreases **inflammation**

Low vagal tone

- Anxiety
- Isolation
- Decreased social involvement
- Low impulse control
- Palatal, pharyngeal and laryngeal paralysis (swallowing issues)
- inflammation

How do we measure vagal tone?

Vagal tone cannot be directly measured. It is estimated through observation of the phenomenon that result from its activation.

The most common way to measure it is Heart Rate variability (HRV) which measures the amount of change in the heart rate caused by the breath. Inhalation and exhalation cause the heart rate to rise and fall by a mechanism called Respiratory Sinus Arrhythmia (RSA).

For example, during the in-breath the heart rate might be 75 beats per minute, while during the out-breath the heart rate might fall to 65. That would be an HRV of 10, showing good Vagal Tone. An HRV of less than 5 shows poor Vagal Tone.

The autonomic nervous system
AKA what happens in the background

Environment (exterior and interior)

Autonomic nervous system

Safe

Spontaneously
engage others
Eye contact
Resting/healing/
digesting

Danger

Defensive strategies
Fight or flight

Life threat

Flight, fight or freeze

The ***Autonomic Nervous System*** takes care of things that are “running in the background” – like blood pressure, breathing, digestion, etc.

Unlike the *Voluntary Nervous System*, the ANS is largely **involuntary** and does not require conscious control. There are two main divisions in the ANS:

The Sympathetic Nervous System (SNS)

this system arouses the body, fires things up, and supports ACTION.

This is the division that also governs “Fight or Flight”

The Parasympathetic Nervous System (PNS)

slows things down

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**Arousal: Fight or Flight (Action!)
*Sympathetic Nervous System***

Thinking/Learning/Rest and Digest (PNS)

- More recent neural system
- This place FEELS SAFE to the body.
- Linked to the “thinking brain” and social engagement
- Supports health, rest, recovery, play, intimacy, emotional regulation - and learning
- Mediated by the more recently developed **ventral vagus** nervous system

Freeze (PNS)

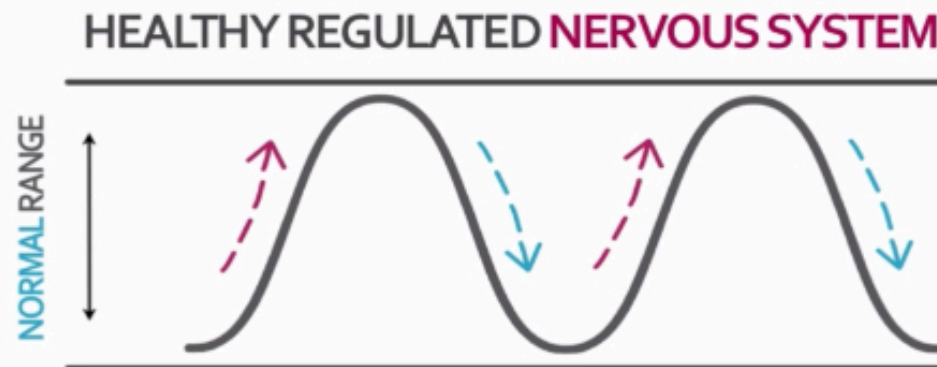
- More primitive, older system – linked to older brain functions and reflexes.
- This is the freeze/ shut down/collapse protective system
- This place does not feel safe, to the body.
- May LOOK calm, but is bathed in stress chemistry
- Mediated by the **dorsal vagus** nerve

In the ventral vagal branch, a person can have a range of experiences within a “window of tolerance” that FEEL SAFE, without triggering the biological defense responses.

- “normal” up/down responses to the events of daily life
- The core muscles remain flexible and strong, able to adapt to the postural demands.
- Playful state
- Immobilization without feeling in danger (relaxation, sleep)

This is the ideal state is for learning and creative exploring as well as “healthy responses to life”

Just part of the
EBB AND FLOW OF LIFE...



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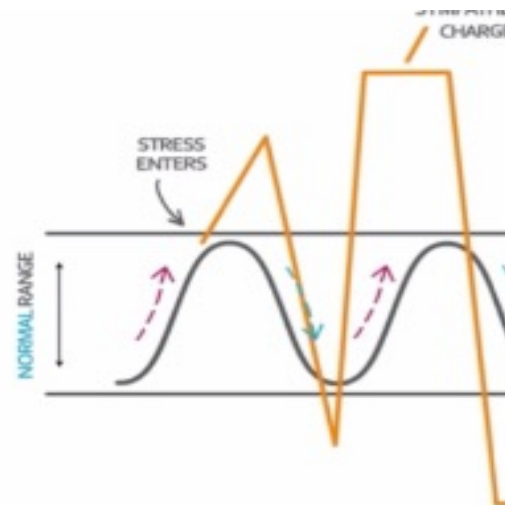
However, when the body interprets the environment as dangerous, if it is outside of what feels safe, it will trigger the fight or flight response or the freeze response.

The experience is no longer interesting, or fun. It feels scary.

The breathing changes

The core muscles tighten up, prepare for fight or flight

That's when fight/flight and/or freeze kick in – *to protect us.*

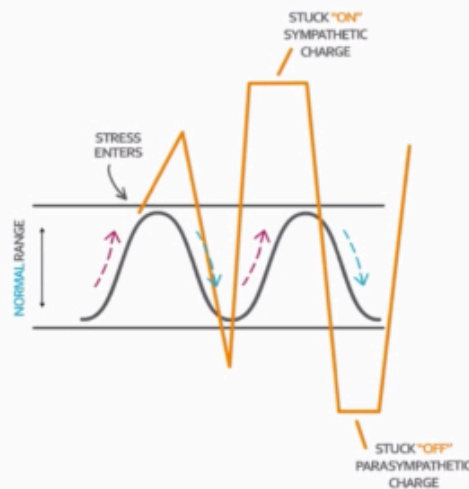


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It is possible (and not uncommon) for Fight/Flight and/or Freeze to not be just a short-term response to a perceived threat.

For some people, it is constantly running in the background.

DYSREGULATION - STRESS ISN'T DE-ACTIVATED = CHAOS



Here, the stress response can become chronically “stuck” in the body, running as that person’s “normal” state.

This can undermine mental and physical health in many ways. For more on that see:
“*The Body Keeps the Score*” by Dr. Bessel van der Kolk
“*When the Body Says No*” by Dr. Gabor Maté

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- In our students, when fight/flight or freeze is going on, the body is biologically “busy” with SURVIVAL, and there is not much room or capacity for learning (unless it is directly related to survival)!

How to recognize your rider's safe zone



Notice the biological clues in your student (and in your horse):

Breathing

Facial expression

Skin coloration

Eyes

Muscle tension/posture

Fight

Flight

Fool around/fidget

Freeze

Faint

Remember:

When Fight/Flight and/or Freeze kick in, this is the BODY'S BIOLOGY taking action – and taking over – as a protection against *sensed Danger*.

- This is not a mental “choice”.
- It is rooted in survival energy, and *biologically, survival has a higher priority than thinking and learning!*

How to help your riders switch to a relaxed learning mode/ how to help them stay in their safe zone

- Awareness through movement session



How to keep your students in their safe zone:

1. Breathing: Use deep diaphragmatic breathing
2. Keeping yourself and your volunteers in a calming, safe zone
3. Decrease challenge (power of subtlety) (stirrups)
4. Break it down into smaller pieces, decreasing or increasing input to keep the person in their safe, learning zone. (stirrups)
5. Look for quality of movement vs quantity

6. Pick a different horse/change the horse's movement.
7. Pelvis awareness (increase base of support/area of contact)
8. Focus on an object to desensitize
9. Make the person aware of her/his body reactions without judgement
10. Build the capacity to ***orient*** (inside the body, and to the environment, using the various senses), and ***to self-protect***

Tools/concepts used to promote posture conducive to learning

- Support the pattern to bring it into awareness (within reason)
- « Rib basket » softness
- Not fixing something wrong, but presenting variations
- « If they could, they would »
- Use horse's movement to move pelvis in the direction needed

Our secret weapon



- Get your volunteers to breathe deeply
- Vary the speed/direction/movement of your horse
- A tense horse might be trying to communicate their discomfort or their rider's discomfort.
- Ask your volunteers to pay attention to the rider's comfort/discomfort state.



Create a learning environment that provides a sense of safety, curiosity and an appropriate level of challenge.





Catherine Wycoff, PT, DPT, HPCS

catherine@kineticbalance.com

www.kineticbalance.com

Lovettsville, VA