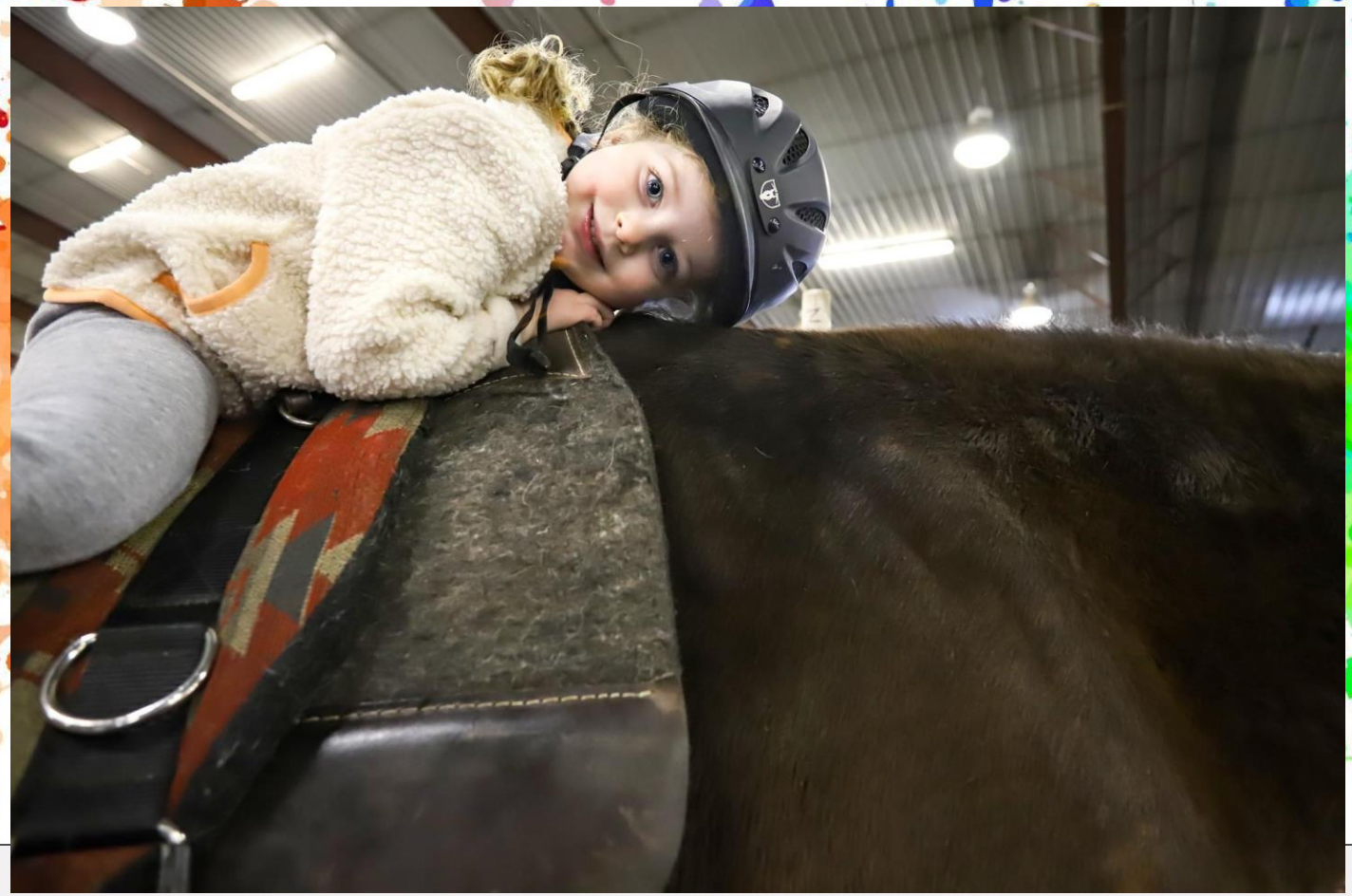


SENSORY SYSTEMS:

How they can affect our riders

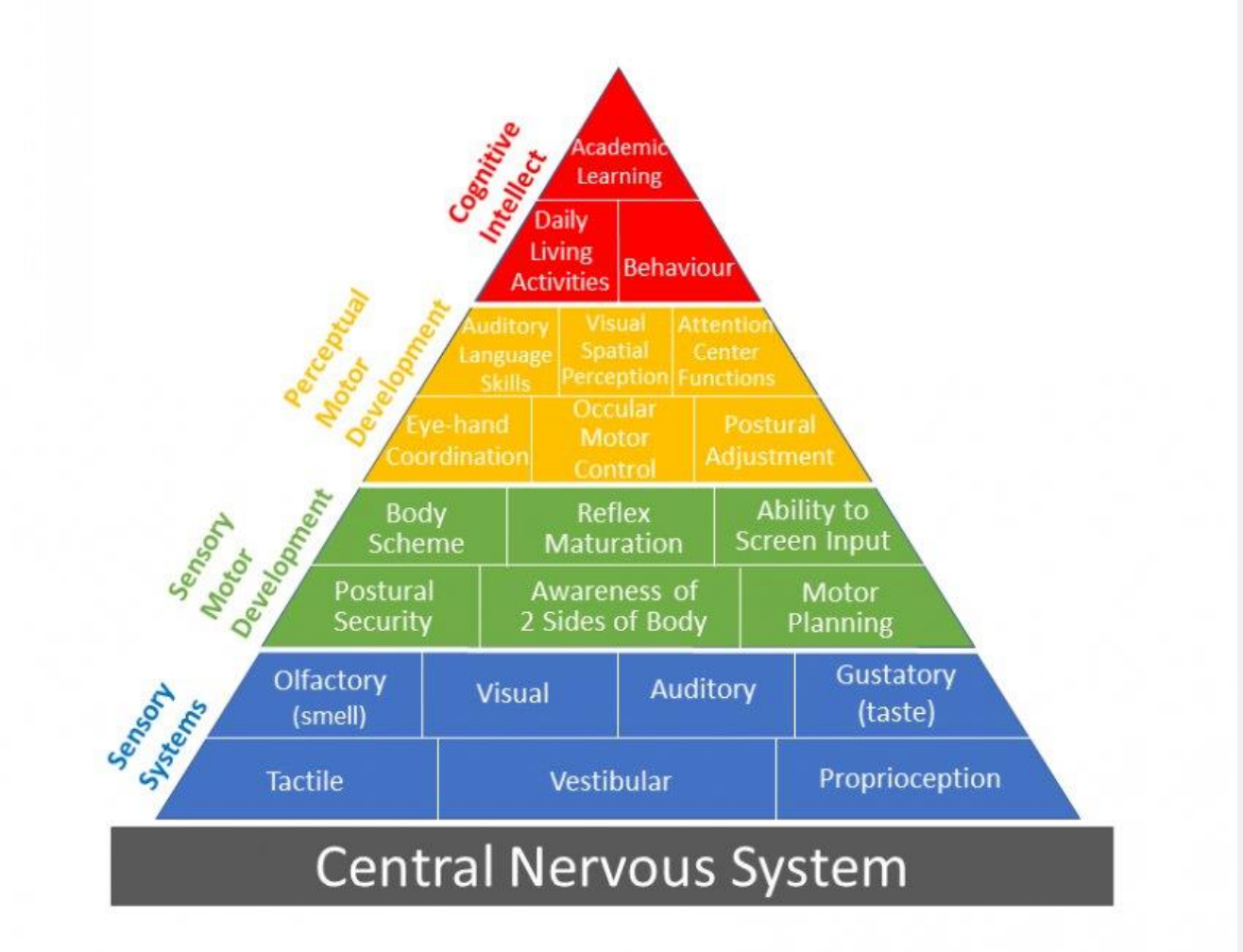
Katie Havelka, COTA/L

THIS IS ME!

- I graduated with an Occupational Therapy Associate degree.
- Completed level 1 and 2 courses through AHA for Equine Assisted Therapy
- Have been a COTA/L for almost 25 years
- I am also CTRI certified.
- I live in Fargo with my family for the last 19 years and am employed at Beyond Boundaries Therapy Services in Fargo, ND.

OUR THERAPY TEAM!

CENTRAL NERVOUS SYSTEM



WHAT ARE OUR BASIC SENSORY SYSTEMS?

- Do you know that we have 8 sensory systems?

(How many can you name?)

- Tactile, Auditory, Gustatory, Visual, Olfactory

- Vestibular, Proprioceptive, and Interoceptive

TACTILE SYSTEM

- the sense of touch; is the first sensory system to develop in the womb and is the largest sensory system in the body.

- The tactile senses are important for identifying touch, pressure, pain, temperature and texture.

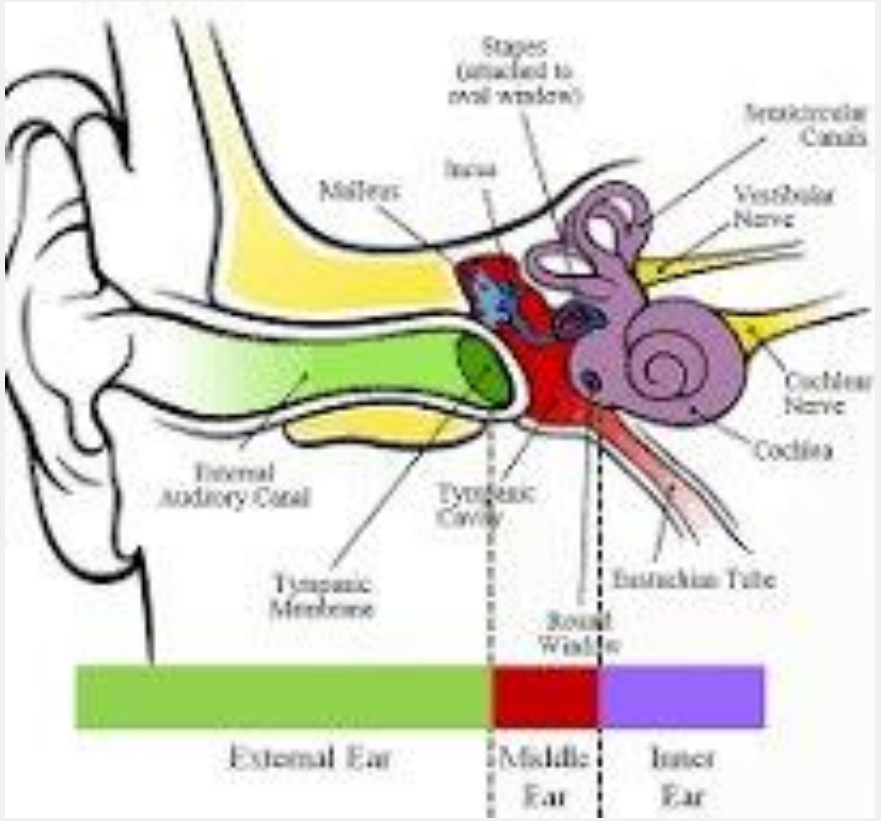
HOW DOES TOUCH AFFECT OUR RIDERS

- Can they hold the reins?
- Texture of the reins
- How does the horse feel to them?
- Some clients are extremely sensitive to touch, this can affect the way they respond.
- How else?

- **Ways to adapt :** to use of gloves (thick or thin), Wilbarger brushing protacol, work on interoception activities

AUDITORY SYSTEM

Processes how we hear and understand sounds within the environment. Peripheral and central structures comprise this organ system. The outer, middle, and inner ear are the peripheral auditory structures.



The auditory system constructs a perceptual space that takes information from objects and groups, segregates sounds, and provides meaning and access to communication tools such as language

HOW DOES HEARING AFFECT OUR RIDERS

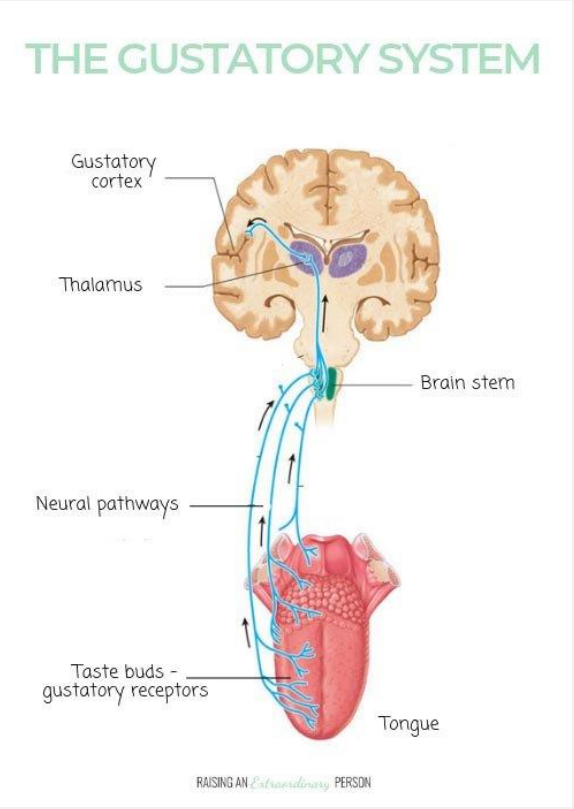
- Safety awareness (hear our surroundings, listen to what the horse is saying)
- Following directions
- What else?

- **What can we do?**
- Hypersensitive to sounds (use ear buds, noise cancelling headphones when entering the barn, TLP or any auditory listening programs to help with auditory defensiveness
- To alert your riders or calm your riders- listen to certain types of music

GUSTATORY SYSTEM

- the sensory system responsible for the perception of taste and flavor. In humans, the gustatory system is comprised of taste cells in the mouth

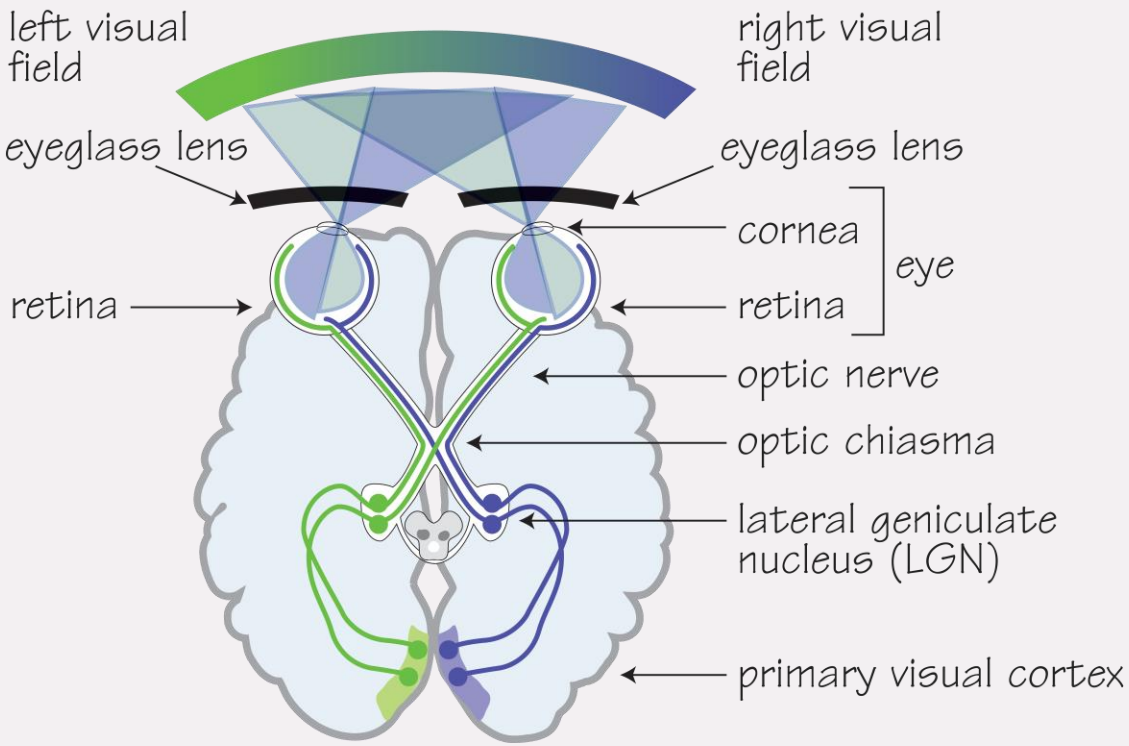
- The central gustatory pathways are part of the brain circuits upon which rest the decision to ingest or reject a food. The quality of food stimuli, however, relies not only on their taste but also on properties such as odor, texture and temperature.ch sense the five taste modalities: salty, sweet, bitter, sour and umami), several cranial nerves, and the gustatory cortex.



HOW DOES TASTE AFFECT OUR RIDERS

- Great question? If our riders are low or high arousal level this system can help them very quickly to get ready to ride.
- **Ways to help:**
- Suck on sour candy or eat a crunchy snack, have a drink of water before riding

VISUAL SYSTEM



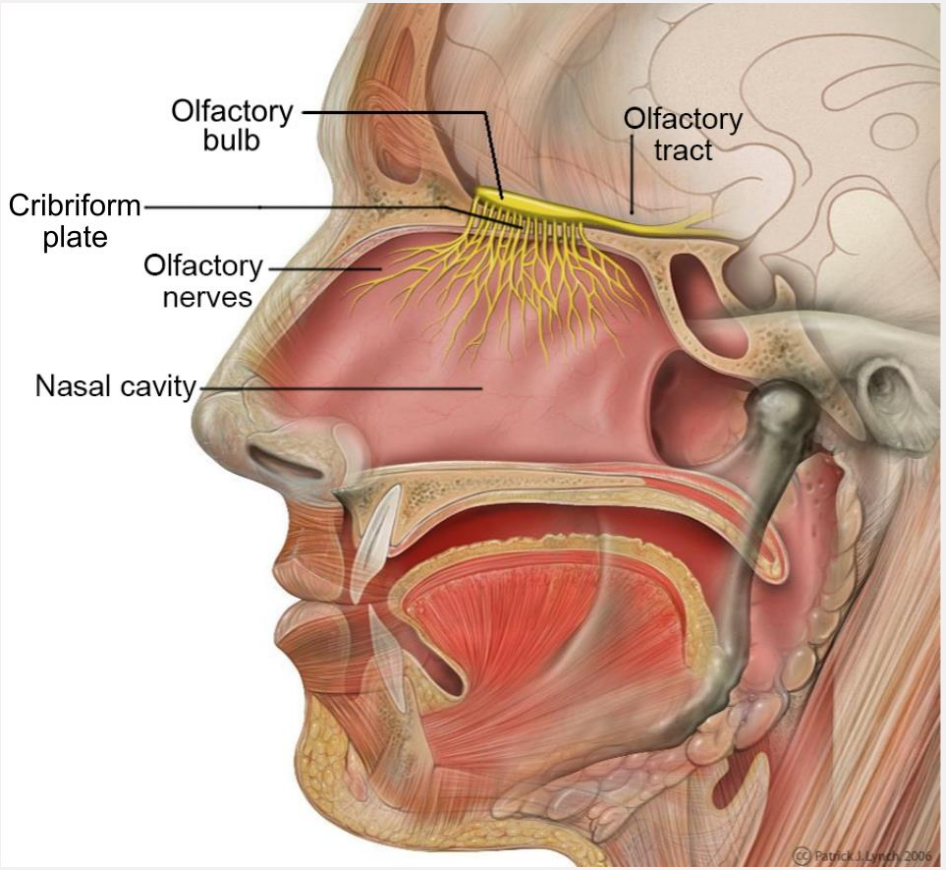
- Consists of two primary parallel pathways: an optic pathway and a pupillary reflex pathway.
- It is widely believed that more than 70% of our information is collected by vision. Hence, vision is the most important sensor (compared to the other sensors for hearing, smell, touch or taste) of a normal human being.

HOW DOES SEEING AFFECT OUR RIDERS

- Besides tactile, this is close to number 1 as any of the systems that can highly impact our riders
- Safety awareness, body awareness when mounting and unmounting,
- depth perception, how close are we to other riders
- How else?

- What to do: verbal reminders, if light sensitive wear sunglasses, put colored tape on reins on where they need to hold for a visual,

OLFACTORY SYSTEM



At the roof of the nasal cavity at the cribriform plate

Vital for the processing and perception of odor. Is a component of the limbic system. This system is involved in the processing of our emotions, survival instincts, and memory formation and connects senses, such as odors, to our memories and emotions.

HOW DOES SMELL AFFECT OUR RIDERS

- Think if you walk into a smell you do not like, it can disorientate you, you focus on that smell instead of paying attention to your surroundings.
- Smell also has a memory: You can use smell to calm your riders, aid in focus of your riders, or even alert your riders if they need that
- Have them smell something and they have to describe it to have them calm when frustrated or nervous to calm the system

VESTIBULAR SYSTEM

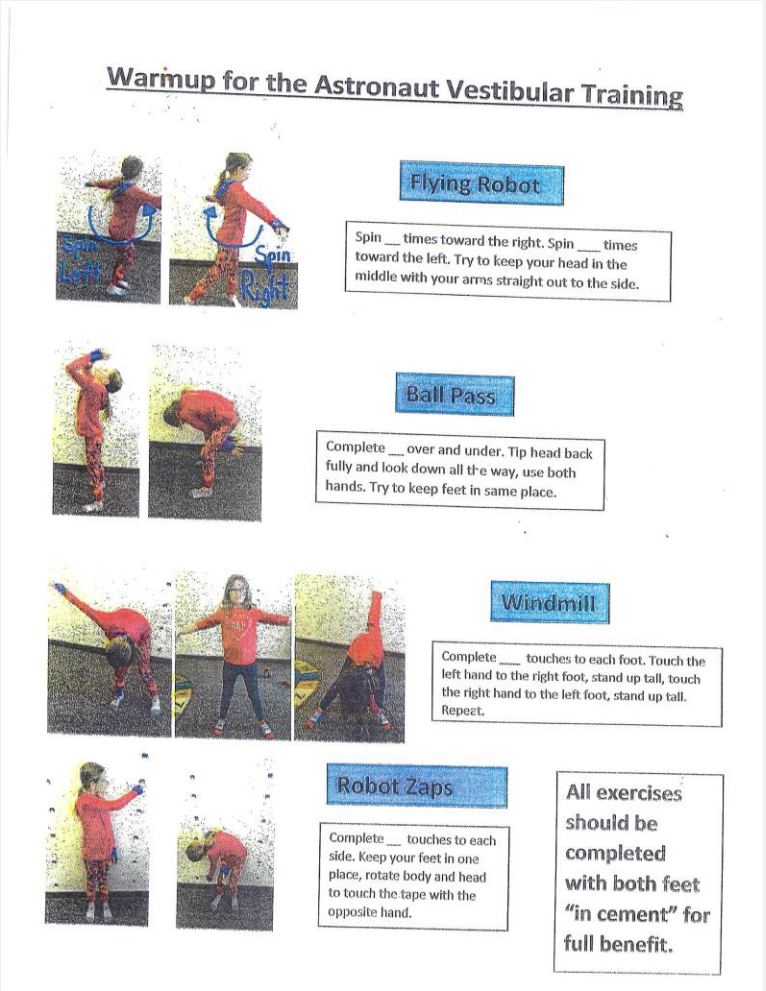
- Functions to detect the position and movement of our head in space. This allows for the coordination of eye movements, posture, and equilibrium. The vestibular apparatus found in the inner ear helps to accomplish this task by sending afferent nerve signals from its individual components.
- Dizziness and vertigo are symptoms of a vestibular balance disorder. Balance disorders can strike at any age.
- If your brain sends the wrong signals to your balance system, that can lead to a severe headache, dizziness, sensitivity to light or sound, hearing loss, and ringing in your ears. Some people also say they get blurred vision.

VESTIBULAR AND RIDERS

- One of the most important components in riding!
- Have you ever been dizzy and try to ride? This system affects us in many ways, it tells us where we are going, it detects our head in space, we turn our heads a lot when we ride, if our eyes don't follow where our head goes, our vestibular system is off.
- The vestibular system consists of two structures of the bony labyrinth of the inner ear, the vestibule and the semicircular canals, and the structures of the membranous labyrinth contained within them.
- Holding a single target (playing card or pencil) keep eyes fixed on target. Slowly move target, head, and eyes in same direction (up and down, side to side) for 30 seconds. Perform in sitting position, you can progress this to standing as you improve. Repeat 3 times per session.
- Complete Astronaut warm ups

ASTRONAUT WARMUPS

- Flying Robot
- Ball Pass
- Windmills
- Robot Zaps



PROPRIOCEPTION

- located in our muscles and joints. It provides us with a sense of body awareness and detects/controls force and pressure. The proprioceptive system also has an important regulatory role in sensory processing as proprioceptive input can assist in controlling responses to sensory stimuli.

- Proprioception allows individuals to detect joint motion and limb position when their eyes are closed. Like most of the simple sensations, proprioception has distinct sense organs and ascending pathways in the spinal cord.

PROPRIOCEPTION

- Helps the rider be aware of there body position while riding.
- Are they in the middle, do I need to adjust?
- Are my stirrups to long or short?
- Am I sitting too hard from a posting trot?
- Do we use a saddle or don't we?

How else?

INTEROCEPTIVE

- Gives us the ability to feel what is happening inside our body. It has special nerve receptors all over our bodies including our internal organs, bones, muscles and skin. These receptors send information to the brain which uses it to determine how we feel
- Interoceptors are internal sensors that provide a sense of what our internal organs are feeling. Hunger and thirst are examples of interoception. Interoception detects responses that guide regulation, including hunger, heart rate, respiration and elimination.
- Interoception involves the bi-directional communication between bodily sensation and multiple levels of cortical oversight, a process by which information about invisible internal physiological states are communicated to cognitive centers in the brain in order to support physical and emotional well-being.

INTEROCEPTION CURRICULM: HOW I FEEL SENSING MY WORLD FROM THE INSIDE OUT

- Curriculum is based on focusing on hands, feet, mouth, eyes ears, nose, voice, cheeks, skin, muscles, lungs, heart, brain, head, stomach, bladder, whole body
- Breaks down experiments for each of the areas listed above
- Client needs to identify body sensations for example: hot, cold, wet, dry, loose, soft, hard, clean , messy, sweaty, focused, quiet, sore, muffled, etc.
- Increases client's vocabulary on body sensations/ body awareness

- Body check in? How am I feeling?
- Heart racing fast or slow?
- Butterflies in the stomach?
- Dizzy, headache, bladder full?

- All these can affect how the rider will be for the day. It is there bodies way of dealing with stress, happiness, nervousness, etc.
- Have the rider do a body scan before riding, this will help you determine how much help they may need for the day.

WHAT SYSTEMS ARE BEING IMPACTED?

Visual

Auditory

Tactile

Proprioception

Interoception

Vestibular

Olfactory

WHAT IS BEING AFFECTED?

- Visual, Auditory, Tactile, Proprioception, Interoception, Vestibular, Olfactory

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