

Making Sense:

Understanding and Preparing a Successful Riding Experience for People with Sensory Processing Disorder

Sherry Butler, DVM, CTRI

Rhonda Roth, MOTR/L



Objectives

- Describe “what is sensory processing” and Sensory Processing Disorder.
- Name the 6 basic subtypes of sensory processing disorder.
- Understand the basic senses of the body and how SPD may affect participation in EAA.
- Understand how to adapt the EAA experience in order to improve participation in EAA.
- Know how to adapt equipment and provide items that will assist each participant with SPD for a positive EAA experience
- Describe methods for preparing a participant with SPD for the EAA environment.

What is Sensation?

- Merriam-Webster Dictionary defines sensation as:

- **a** : a mental process (as seeing, hearing, or smelling) resulting from the immediate external stimulation of a sense organ often as distinguished from a conscious awareness of the sensory process .
- **b** : awareness (as of heat or pain) due to stimulation of a sense organ
- **c** : a state of consciousness due to internal bodily changes <a *sensation* of hunger>
- **d** : an indefinite bodily feeling <a *sensation* of buoyancy>

The 8 Basic Senses

1) Touch – Tactile



6) Body in Space –
Proprioception

2) Hearing – Auditory



7) Movement and Balance
– Vestibular

3) Sight – Visual



4) Taste – Gustatory



8) Hunger/Thirst/Internal
sensation - Interoception

5) Smell – Olfactory





“You can think of sensations as ‘food for the brain’; they provide the knowledge needed to direct the body and mind. But without well-organized sensory processes, sensations cannot be digested and nourish the brain.”

~A. Jean Ayers, Sensory Integration and the Child, Pg. 6

What is Sensory Processing?

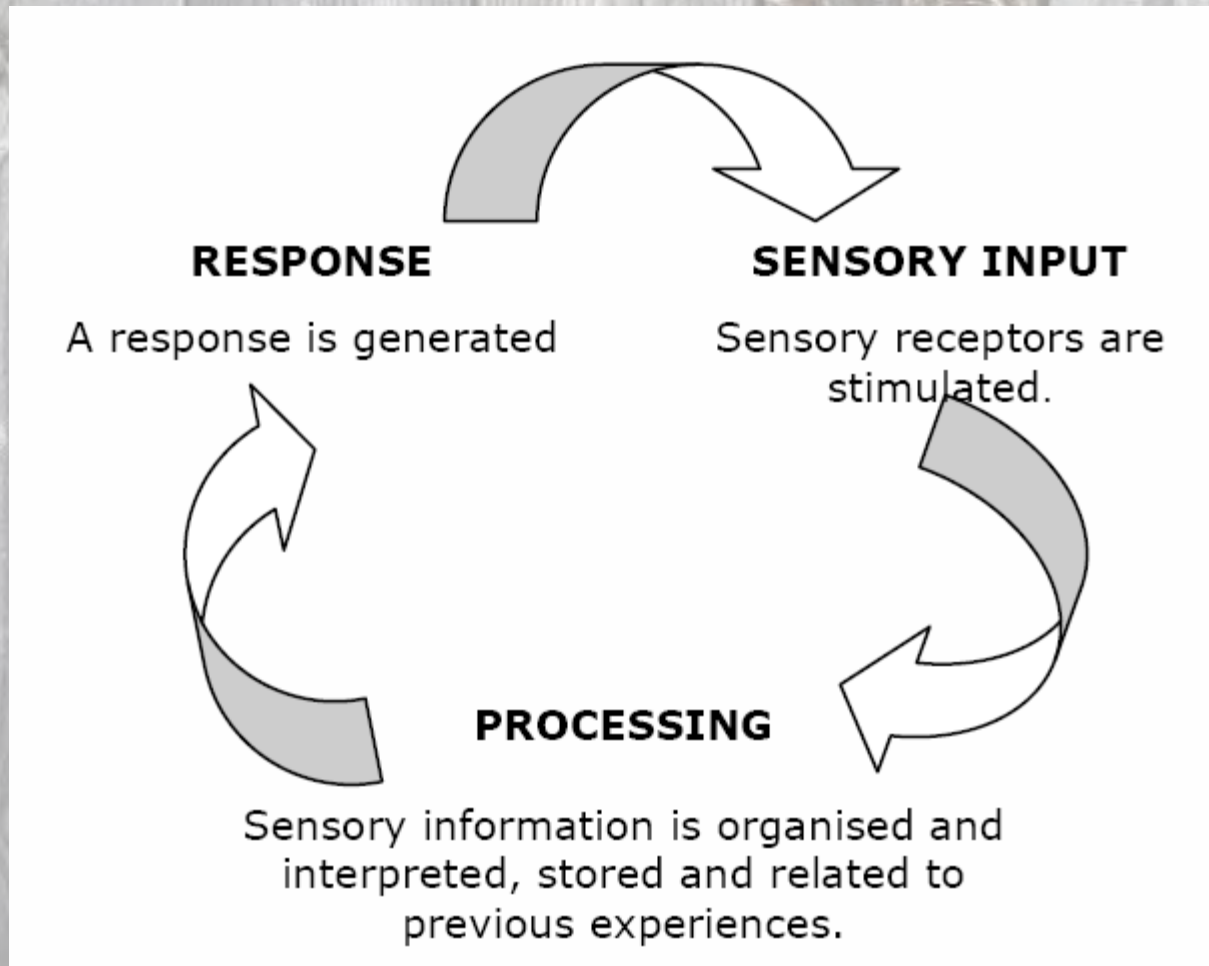
(A.K.A Sensory Integration)

Receiving sensory information, processing the information and responding “appropriately” to sensory stimuli.

- Is an unconscious and automatic process
- Is an Organized and Organizing process
- Provides ability to ignore “unimportant information” and “attend to pertinent information.”
- Requires interaction and communication between the different senses.

“Sensations tell the brain what the body is doing...The brain tells the body what to do.”

~A. Jean Ayers, Sensory Integration and the Child, Pg. 5.



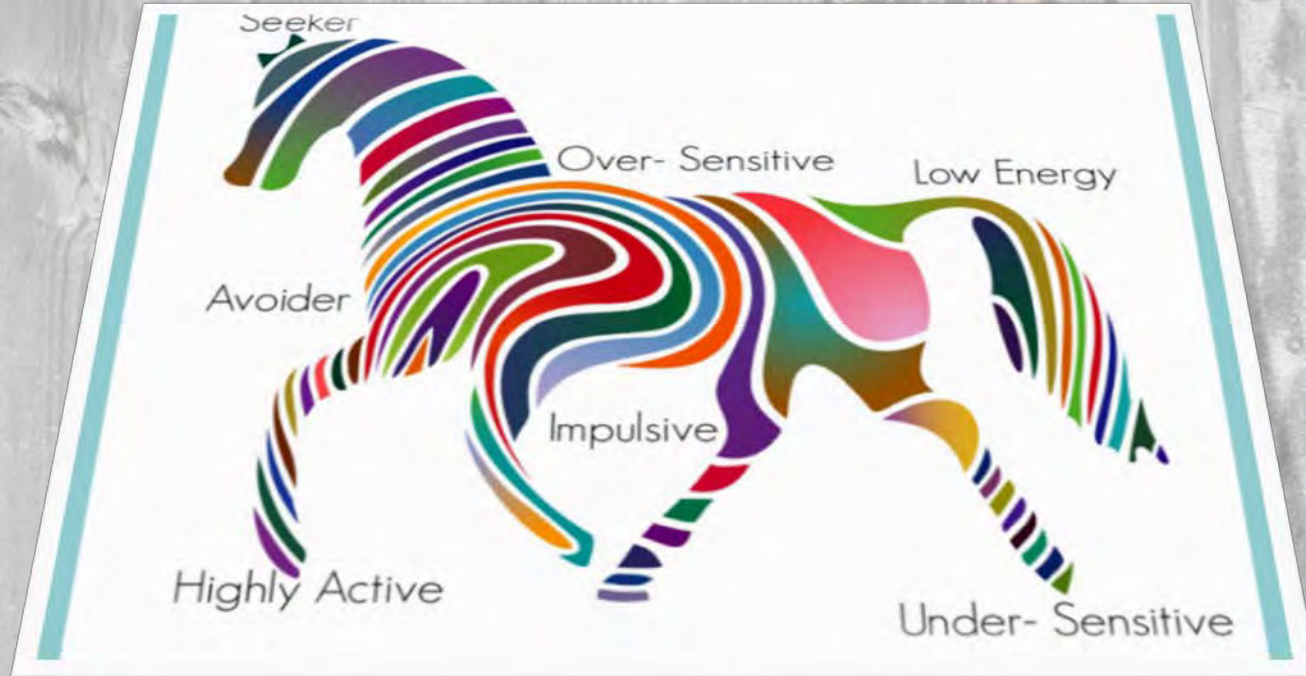
What systems are involved in these examples of sensory processing?

- Playing catch with a partner
- Sitting and listening to this seminar.
- Using a horsehair brush while grooming a horse.
- Sitting on a walking horse with two side walkers, who are giving you instructions, while the horse is lead through a cone weaving activity.

When Sensory Processing Goes Wrong: *Sensory Processing Disorder*

- Sensory Processing Disorder is any combination of the following:
 - Failure to appropriately take in sensations
 - Failure to appropriately process (e.g. send information to the brain) sensations
 - Creation of inappropriate responses to sensory information
OR
 - Absence of a response to sensory information

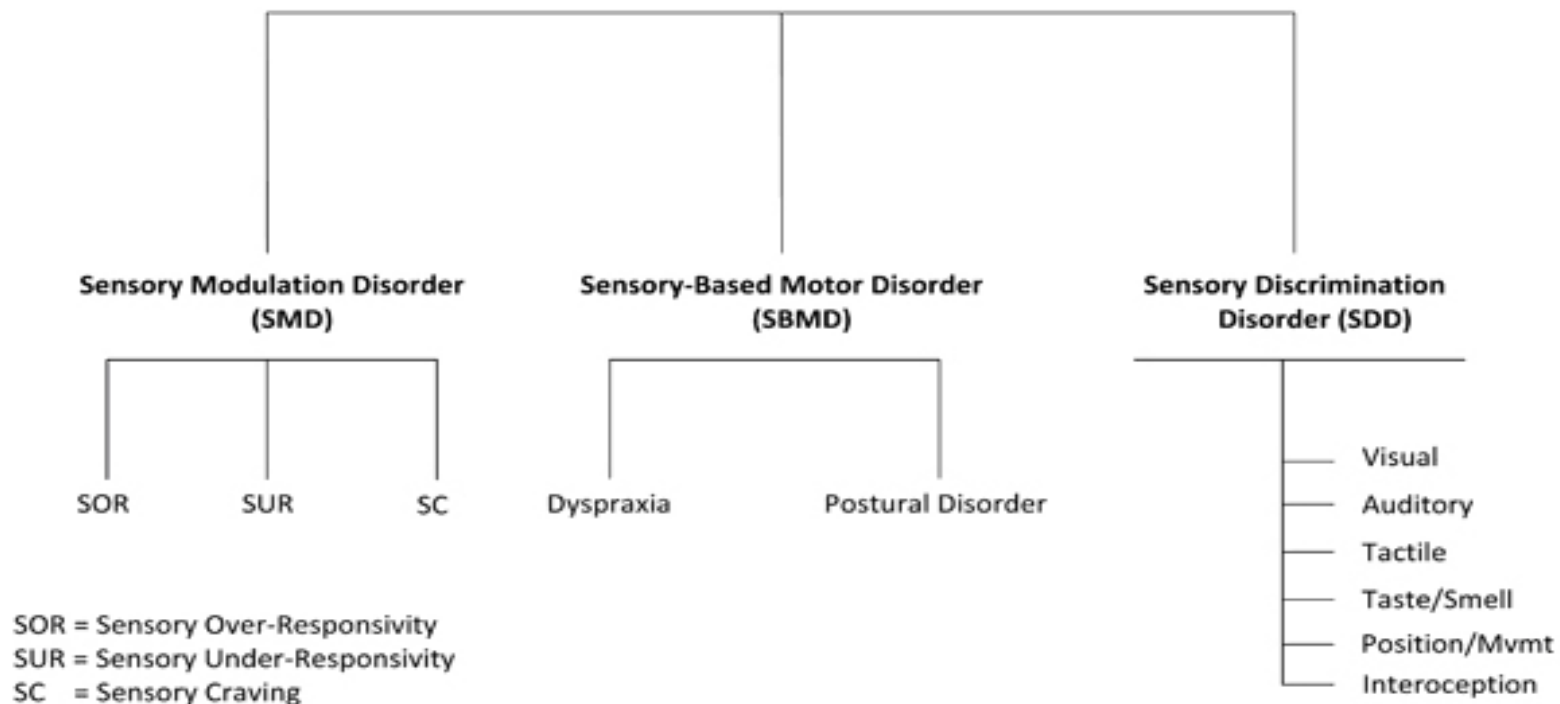
SPD Patterns and Subtypes



“Horse of Many Colors” – LemonLimeAdventures.com

Patterns and Subtypes of SPD

Sensory Processing Disorder (SPD)



Sensory Modulation Disorder: Sub-Types

- **Sensory Over Responsive**

- “More Sensitive” than most people
- Sensations are over-whelming = excessive response
- May respond with “Fight or Flight Response” or use avoidance



- **Sensory Under Responsive**

- “Less Sensitive” than most people
- passive, quiet or unresponsive to their environment.
- clumsy and uncoordinated
- May not respond to temperatures and pain responses



- **Sensory Craving**

- Insatiable need for sensory input
- “Always on the go”
- May need to interact with “everything in their environment”
- The jumping, crashing, bouncing, running, bumping child



Sensory Based Motor Disorder: Sub-Types

- Postural Disorder

- Difficulty sitting up, standing for longer periods of time.
- Will affect ability to reach, twist, cross midline, etc.

- Dyspraxia

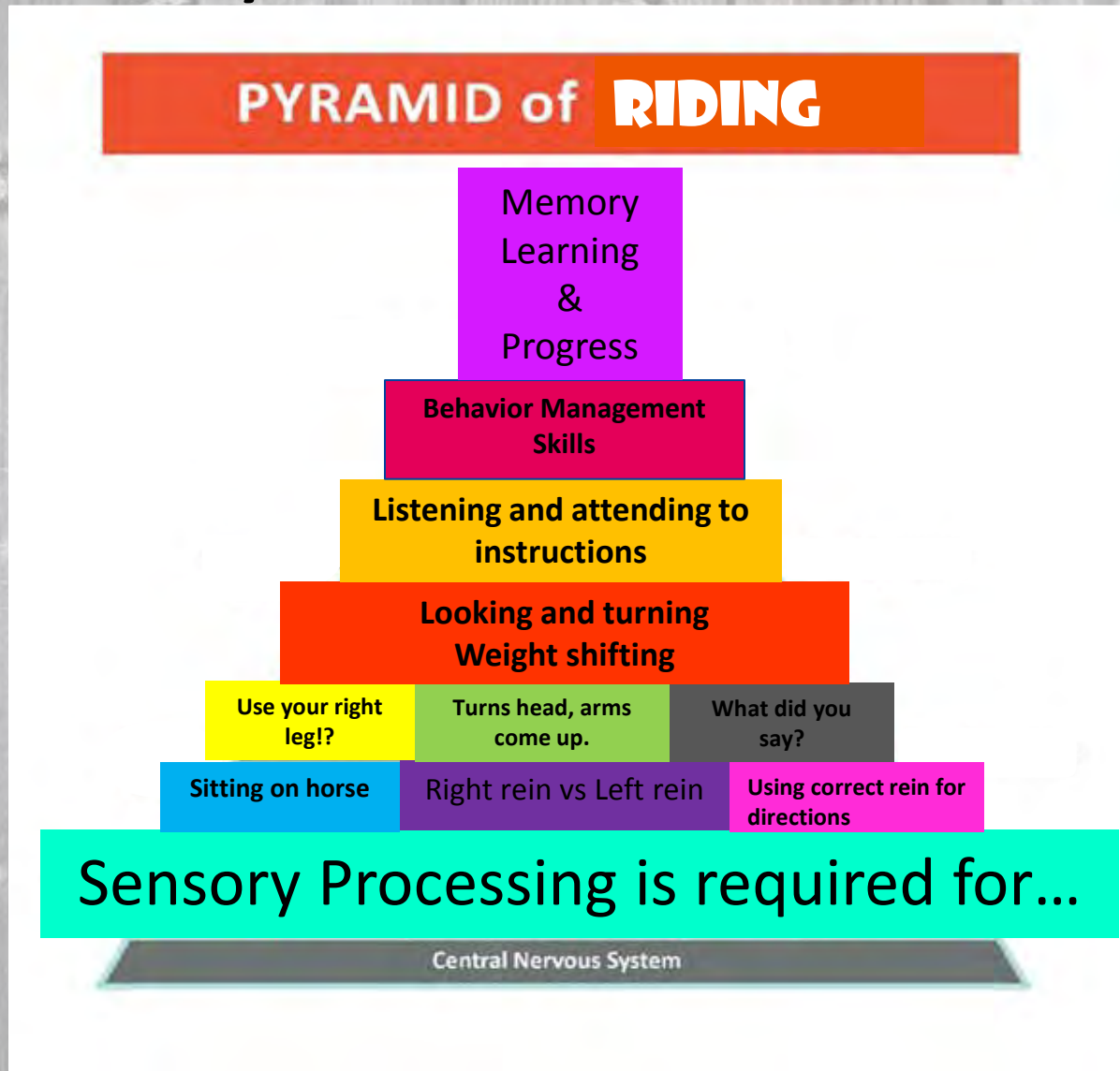
- Praxis = Motor Planning
- Difficulty performing new motor skills
- May require “more practice” than peers
- Often struggle to plan out steps to accomplish a task.
- Appear clumsy and “hard on things,”



Sensory Discrimination Disorder

- May occur in one, two, all, or any combination of the senses.
- Difficulty in understanding differences and qualities of sensations in the environment.
 - Examples:
 - Visual – difficulty in telling the letter “E” and “F” apart
 - Auditory – difficulty telling the difference between “hat” and “pat”
 - Tactile – difficulty feeling the difference between shapes (with eyes closed) – such as a circle from a square
 - Vestibular or Proprioceptive – difficulty understanding positional terms (front, back, side, etc).

Why does it all matter?



Originated from: Williams and Shellenberger, 1996.

Importance of Sensory Integration



Making Sense of it all....

Let's dive in to each of the 8 senses!



Interoception -

- ***Sensations related to internal needs of the body systems.***

“I’m Hungry.”



“I’m Thirsty.”

“I need to go to the bathroom!”



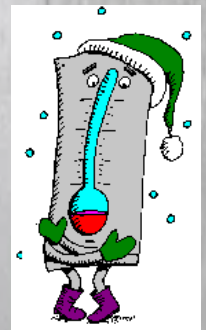
Interoception

- May need to use the restroom frequently or may have accidents while riding OR every session needs to use the rest room after 15 minutes on the horse.
- May become easily dehydrated during sessions – unaware of thirst
- May be unaware of need to eat/hunger or when too full.
- May not notice changes in body heat – easily overheated

INTEROCEPTION Adaptations for the Arena



- Have a restroom break BEFORE mounting
- In hot weather help by providing water breaks
 - Model good choices by drinking water; offer water to horses
- May get comments during lesson about being hungry (especially after school time, early evening/dinner time)
- If possible, Schedule lessons when not excessively hot/cold to prevent complaints about temperature and overheating



Tactile – the touch sense



- **Over-Responsive: (A.K.A – Tactile Defensive)**
 - Upset by various textures
 - Difficulty with Side walker contact (too heavy-too light)
 - Difficulty tolerating closeness to others (i.e. drill team or Hand over Hand activities)
- **Under-Responsive**
 - Safety concerns (e.g. lack of pain reactions)
 - May not
 - feel differences between objects
 - notice when touched
 - detect temperature differences
- **Sensory Craving**
 - May want to touch everything
 - Seeking out inappropriate touching/texture experiences
 - May need MORE textures to increase learning/attention/etc.
 - Will attempt to engage with textures with as much of body as possible.



Tactile Adaptations for Arena Success



- Over- responsive

- Educate sidewalkers on how much if any to touch
- Always ask before touching (you and volunteers)
- Often firm touch better tolerated than light
- Textures of equipment
 - Get input from participant/ parent about what textures they can/can't tolerate and start there
 - Adapt reins, brushes, pads, saddles to accommodate various textures (fabric, vinyl, leather, fleece, toys, stuffed animals)
 - Provide riding gloves

Tactile Adaptations-2

- Under- responsive

- Safety: ask caregiver/parent how this person expresses pain/ being uncomfortable
- May have difficulty holding on to reins
 - Choose a texture for reins that makes it easier to hold
 - Add knots, balls, handles or other objects to reins to give additional hold and texture input
- Choose items to increase their tactile awareness
 - “Bean can” or other tactile games

Tactile Craving

- ❖ Provide many varied textures to give input and help attention/focus
- ❖ SUPERVISION
 - ❖ They should be touching only what is approved
 - ❖ Rules about who/how much touching is allowed
- ❖ Encourage appropriate touching—tack, brushes, horse, tactile toys
- ❖ Provide textures to touch while riding



Auditory – the hearing sense

- **Over-Responsive**

- Covers ears with loud noises
- Cries for unknown reasons or avoids new environments
- Difficulty attending to instructions

- **Under-Responsive**

- May not consistently respond to name or other sounds
- May interrupt conversations of others
- May struggle to modulate volume and tone of voice

- **Sensory Craving**

- Plays loudly or makes excessive noises with mouth
- Seeks loud sounds and environments
- Enjoys loud television and music



Auditory Adaptations for Arena Success

- **Over-responsive**

- Schedule lesson for quieter time of day
- Consider a smaller group
- Educate sidewalkers to limit talking; choose one to be the primary communicator
- Add background music to over-ride other noises
- Consider ear plugs if severe (with parental approval)

- **Under-responsive**

- Add music as a background or part of a game
- Play games where listening is part of the game
- Have participants repeat instructions back to you
- Use multiple teaching techniques to give information

Craving Auditory Input

- Monitor talking during the lesson and try to keep it focused on the lesson activity
- Add music to the lesson
 - General background music playing softly
 - Musical games
- Teach the rider how loud voices/noise affects the horse



Visual – the seeing sense

- **Over-Responsive:**

- Blinks or squints in bright lights
- May seek out dark spaces/hide outs
- Rubs eyes frequently or complains of eyes hurting



- **Under-Responsive:**

- May not notice items around them – bumping, tripping, or clumsy
- Difficulty following visual instructions, maps, or writing directions
- May have difficulty with finding objects in a group or in messy areas

- **Sensory Craving:**

- May seek out bright lights or fast moving activities
- May enjoy spinning or flapping hands at eyes
- May have difficulty with eye contact during social interactions



VISUAL Adaptations for Arena Success

- **Over-Responsive**

- Arena lights may be “too bright”

- Sunglasses?
- Schedule time of lesson to accommodate brightness



- **Under-Responsive/ Seekers**

- Teach to all senses not just visual

- Add color, lights to give more input



Does your arena look like.....

- This:



- Or this:



Gustatory – the tasting sense

- **Over-Responsive:**

- The overly picky eater
 - May eat only certain flavors, colors, or textures of foods.
- May have strong gag reflex (gags on many foods)
- Difficulty with brushing teeth or playing games involved with mouth



- **Under-Responsive:**

- May not notice foods on face/mouth
- Appears unaware of textures, flavors, or differences in foods
- May not gag before choking



- **Sensory Craving:**

- May lick/chew/mouth nonfood objects
- May crave strong flavors or one particular type of flavor (i.e. hot, sour, spicy, sweet)
- May overstuff mouth when eating

Taste in the Arena??

- Riders that are seekers may mouth or “taste” any object available
 - Helmet straps, reins, brushes, toys
 - Lick the horse
 - Dirt or sand “pika”
 - Hands, clothing, etc
- Provide supervision to prevent ingestion of items
- Provide “chewy” during riding to prevent other items in mouth and give input



Olfactory – the smelling sense

- **Over-Responsive:**
 - May gag or avoid scents and smells
 - May avoid areas with strong smells or particularly upsetting scents.
- **Under-Responsive:**
 - May not notice smells or scents
 - May not notice smells that are alerting (i.e. smoke)
- **Sensory Craving:**
 - May smell hands or objects excessively
 - May attempt to smell people, animals, and objects



Olfactory Considerations for the Arena

- Over-Responsive
 - May have difficulty entering/working in the arena/barn due to the many odors present
 - Extreme Over-Responsiveness may lead to gagging
- Under-Responsive
 - Provide various scents and opportunities to experience many different scents
- Seekers
 - May sniff everything-supervision to keep behavior appropriate
 - The horse, tack, brushes
 - You, the volunteers
 - Sand/footing, manure



Proprioception – the body awareness sense

- **Over-Responsive:**
 - May avoid “heavy work” or dislike movement activities
 - May have rigid or tense muscles or posturing
 - May avoid team sports or become upset in crowds/busy environments
- **Under-Responsive:**
 - Always “too hard on things”
 - May stomp or be “heavy handed” and “heavy footed”
 - May struggle to learn new motor activities
- **Sensory Craving:**
 - Jumping, crashing, bouncing and pushing constantly
 - Enjoys tight clothing, being wrapped up tightly.
 - May grind teeth



Proprioception in the Arena

- **Over-Responsive/Under-Responsive**
 - Give opportunities to practice first
 - Grooming, rein board
 - Walking up the ramp or block may be challenging
 - Choose Pre-Ride activities that give proprioception input (more about this in a few slides)
 - Give extra time/practice for learning new motor skills
 - Mounting, rein use, leg use



Proprioceptive Craving

- Provide opportunities for input
 - Use of compression clothing
 - Heavy work activities
 - Carry saddle/tack
 - Carry and help set up arena equipment
 - Grooming
 - 2-point at walk and trot
- Supervision to Maximize safety!



Vestibular – the movement sense

- **Over-Responsive:**

- Dislikes fast moving activities
- May dislike laying back or changing positions
- May become dizzy easily
- Fearful during fast or new movements
- Gets car sick or motion sickness easily
- Mounting/dismounting may be a problem

- **Under-Responsive:**

- May struggle with games like Simon Says
- Does not notice heights to dangerous extent
- May not have “protective response”
- Does not get dizzy

- **Sensory Craving:**

- Constantly seeks fast movements (i.e. trotting, spinning, skiing, roller coasters, etc.)
- Seeks out opportunities to be tossed into the air, spun around, or hung upside down.
- Swings to excess



Vestibular Considerations in the Arena

- The horse provides vestibular input to all mounted participants as it moves
 - Each horse moves in 3-dimensions: forward-back, side to side and rotational
 - Knowing our horses and choosing one with appropriate movement can add or decrease vestibular input to participants
 - Smooth moving, slower horse for Over-Responsive
 - Bouncier, choppier with movement in 2+ planes and quicker step for Under-Responsive and Seekers
- Tack and Equipment choices
 - Bareback pad or surcingle for Under-Responsive or Seekers
 - Deeper seat saddle with stirrups for Over-Responsive

Vestibular Activities

- Movement! Speed=more vestibular input
 - Grade speed (and input) to give more or less
 - Trotting at several times throughout the lesson vs walk only
- How you move is as important as the movement
 - Weaving , turns, circles, figure 8, serpentines, hills
 - Add vestibular games: barrel race, pole bending, keyhole at any speed for more input
 - Keep movement straight, slow and short distance for less input
- Position on the horse
 - Forward facing
 - Backward facing
 - 2-point position
 - Side saddle



Safety Considerations for Vestibular Input

- Many riders that “seek” or crave vestibular input can be very impulsive
 - They don’t consider that running up to a horse can be dangerous
 - Hanging off the side of a trotting horse is “fun”!
 - Jumping off at unplanned times give LOTS of input!
- **SUPERVISION!!**



Application of Learning

PREPARING FOR THE MOUNTED EXPERIENCE WITH SPD

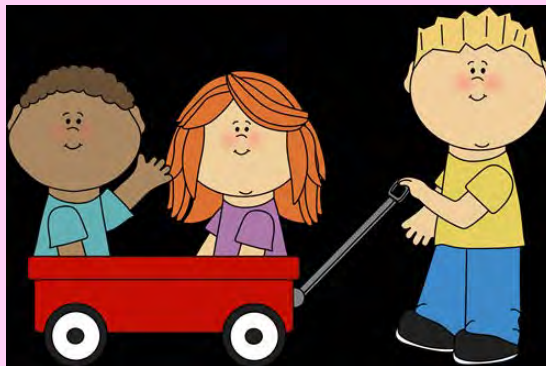
Hold Your Horses—what comes before the horse???



Pre-ride activities to aid focus and attention

- The horse is ideal in providing vestibular, proprioceptive and other sensory input BUT...
 - Sometimes that is not enough—what can we add?
- Pre-ride sensory activities can give additional input and help the participant center and focus before the lesson
 - Help set up the arena (Proprioception, Tactile, Visual)
 - Rider designed trail pattern
 - Carry tack and equipment to the horse (Proprioception, Tactile)
 - Grooming (Proprioception, Tactile, Visual, Olfactory)
 - Carry buckets for water; push the wheelbarrow (Proprioception)
 - Sensory Gym-exercises to give input

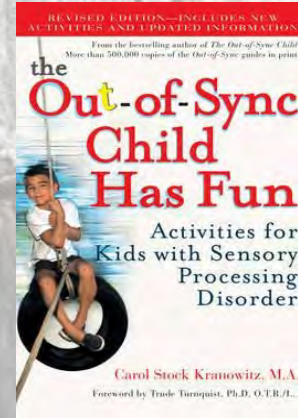
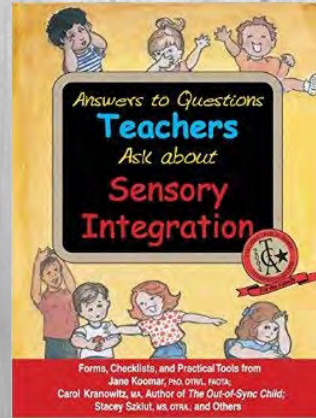
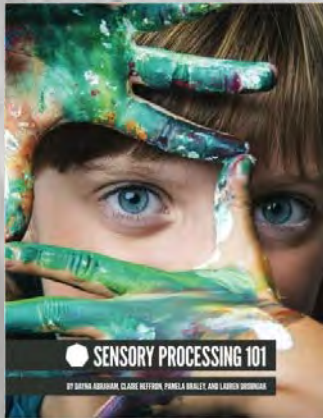
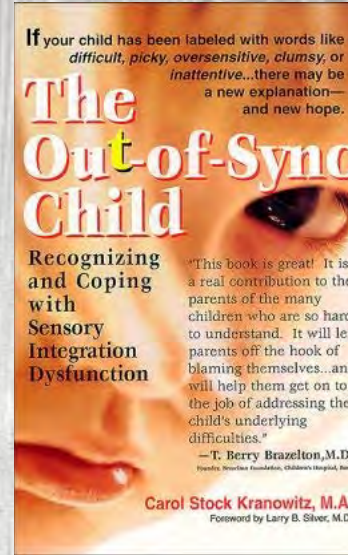
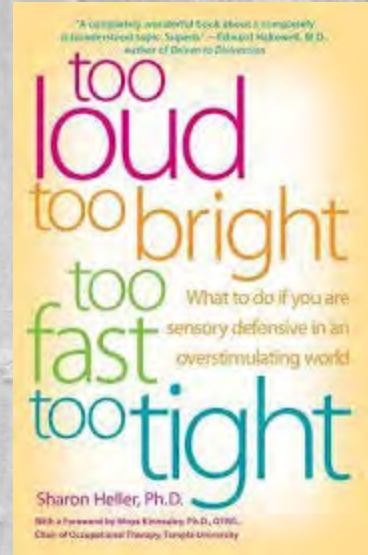
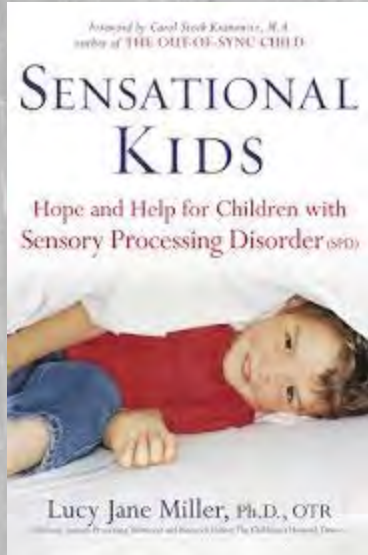
Proprioception is King!



Get Moving



Want to learn more?



THANK YOU!

Q&A

You have

Questions

We have

Answers